Appendix A

Detailed Map Sheets

See separate electronic file

Appendix B

Alternative Routes Analysis

B1.0 INTRODUCTION

Montana Alberta Tie Ltd. (MATL) has selected a revised Preferred Route based on biophysical and socio-economic analysis (as discussed in the Update Report). Two Alternative Routes, C and D, have been identified as potential mitigation measures to reduce the environmental impacts. However, these two Alternative Routes have greater socio-economic impacts, which is the reason why MATL has selected the Preferred Route. A more in-depth comparison of Alternative Routes C and D, and the corresponding sections of the revised Preferred Route (which may be referred to as revised Preferred Route C and revised Preferred Route D, respectively), is presented below.

The following provides a description of baseline conditions and potential impacts associated with construction and operation of the MATL power line on Alternative Routes C and D (Figure 1.1.1). The impact assessment is limited to those biophysical and socio-economic elements for which the alternative line location could result in a measurable difference in potential impacts compared to that of the revised Preferred Route as discussed in the Update Report. These elements include:

- surficial geology and soils;
- vegetation and rare plants;
- fisheries resource;
- wetlands;
- wildlife habitat;
- socio-economic; and
- heritage resources.

Methodologies used to collect baseline data and/or assess the environmental impacts in each element are the same as those used in the EA report and Update report.

Unless substantive changes have occurred, the discussion of mitigative measures, residual impacts and cumulative effects for each element associated with each alternative route remains the same as in the Update report.

B2.0 RATIONALE FOR THE SELECTION OF THE PREFERRED ROUTE

From an environmental perspective, there is very little difference in the impacts resulting from development of the power line along either the revised Preferred Route or the Alternatives C and D, as presented below. Therefore, MATL chose the revised Preferred Route which is located along quarter section lines rather than the Alternative Routes (C and D) that follow road allowances for the following reasons.

1. The revised Preferred Route has lower socio-economic impacts because it is located farther away from occupied residences that are located adjacent to developed roads.
2. The revised Preferred Route avoids the environmental and economic costs of relocating Fortis distribution lines and mitigating interference on Telus telephone cables which are typically installed along road allowances.
3. Although the percentage of landowners that have signed agreements with MATL for land access along the Alternative Routes C and D is higher than the number of landowners who have signed agreements along the revised Preferred Route, this number is skewed by the fact that the counties of Lethbridge and Warner own the land (i.e., the road allowances). If MATL's power line is located along Alternative Routes C and D within the road allowances, MATL would still need to acquire safety zone easements (6.1 m) from the adjacent landowners who are the same landowners who oppose the line (refer to Section 3.1.2 of the Update report for more detailed information about landowner agreements).
4. MATL acknowledges that the revised Preferred Route will have a greater impact on the economics of agricultural operations if it locates the power line along quarter section lines. This is primarily due to the required safety and operational zone easements (18.2 m). However MATL is prepared to compensate affected landowners for reasonable economic losses.

B3.0 ALTERNATIVE ROUTE C

Alternative Route C is located in the northern portion of the Preferred RoW (Figure 1.1.1). Alternative Route C is approximately 800 m (0.5 mi) to the west of the revised Preferred Route in the north (at NE3-19-10 W4) before it crosses the revised Preferred Route and continues south approximately 800 m (0.5 mi) to the east of the revised Preferred Route. Compared to the revised Preferred Route (approximately 19.2 km) submitted in the Update report, the length of Alternative Route C is approximately 0.2 km longer. Detailed maps for Alternative Route C are presented in Map sheets 3 through 5 in Appendix A.

B3.1 Surficial Geology and Soils

The surficial geology of Alternative Route C is similar to the surficial geology of the corresponding portion of the revised Preferred Route.

Soils encountered along Alternative Route C are predominantly Chernozemic soils with one area of Gleysolic soils. A summary of the specific soils encountered along Alternative Route C is presented in Table B.1-1 (Appendix B.1). Differences in land use between Alternative Route C and the revised Preferred Route are minimal.

Environmental Effects Assessment

The environmental effects identified for Alternative Route C are the same as those identified in the original environmental assessment (Section 4.2.4 in the EA report). The project has a low risk profile when the Environmental Protection Plan (EPP) (Appendix D of the EA report) is taken into consideration.

Residual Impacts

An area of 1.8 m^2 of land per pole is estimated to be residually impacted by the placement of monopoles along the power line route. Alternative Route C is approximately 200 m longer than revised Preferred Route C and contains two additional turns. Table B-1 shows that there will be four more poles along Alternative Route C, which will result in approximately 7.2 m^2 (0.00072 ha) of residual ground disturbance that will impact cultivated and forage land.

Table B-1: Comparison of Poles Required and Residual Impact Between Revised Preferred Route C and Alternative Route C

	Revised Preferred Route C	Alternative Route C	Difference (Preferred – Alternative)
Number of Poles	142	146	4
Area Disturbed by Poles (m^2)	255.6	262.8	7.2

B3.2 Vegetation and Rare Plants

No rare plants were found along Alternative Route C.

The amount of land cover by type within the Alternative Route C corridor compared to the land within area within the revised Preferred Route C corridor is presented in Table B-2 below. Almost 90% of Alternative Route C consists of cultivated land and forage land, while approximately 86% of revised Preferred Route C contains cultivated and forage land. There is less cultivated land, grassland, shrubs and disturbed areas within the Alternative Route C corridor because the Alternative Route C RoW is partially located on a developed road allowance. The corridor for the revised Preferred Route C portion is located down the centreline of quarter sections. The land area covered by the Alternative Route C corridor is 24 ha less primarily because of corridor routing along a developed road allowance.

Table B-2: Baseline Land Cover Types Comparison Between the Revised Preferred Route C and Alternative Route C Portions of the Power Line Route

Baseline Land Cover	Revised Preferred Route C		Alternative Route C		Difference (Preferred – Alternative)
	Area (ha)	% of Corridor	Area (ha)	% of Corridor	Area (ha)
Cultivated Land	2 427	61.7	2 300	58.8	127
Forage[1]	939	23.9	1 201	30.7	-262
Grassland[2]	240	6.1	138	3.5	102
Shrubs	14	0.4	11	0.3	3
Trees	0	0.0	0	0.0	0
Water/Wetlands	0	0.0	0	0.0	0
Non-Vegetated[3]	1	<0.1	2	0.1	-1
Disturbed[4]	312	7.9	257	6.6	55
Total	**3 933**	**100.0**	**3 909**	**100.0**	**24**

[1] Forage – agronomic (hay crop) species (i.e., timothy, alfalfa, clover).
[2] Grassland – native prairie grasses and forbs.
[3] Non-vegetated – PFRA generalized land cover for the Prairies (website: http://www.agr.gc.ca/pfra/gis/lcv_e.htm).
[4] Disturbed – roads, trails, railways, pipelines and low pressure pipelines, well sites, oil and gas facilities, gravel pits, industrial sites.

Environmental Effects Assessment

Alternative Route C will result in a disturbance of 10 ha less than the revised Preferred Route C due to its location along a developed road allowance. The area disturbed by the Alternative Route C RoW includes 8 ha more forage land and 1 more ha of grassland, while 18 fewer ha of cultivated land will be disturbed, as shown in Table B-3 below.

The impacts associated with Alternative Route C will be low (2.9%), and are related to a greater disturbance to forage land (0.9%) and grassland (1.4%) than is found along the revised Preferred Route C RoW (0.3% and 0.4%, respectively). The impacts associated with the revised Preferred Route C RoW will be low also (with the exception of the non-vegetated land), but will

have a greater impact on cultivated land (1.2%) compared to that impacted by Alternative Route C (0.5%). There is a small area (1 ha) of non-vegetated land in the Preferred Route C corridor, all of which will be impacted by the Project RoW (Table B-3). Although the revised Preferred Route C RoW impacts more land cover, it is itself a mitigation measure to address landowner concerns related to proximity of the power line to residences and associated EMF issues identified in Section 1.1.6.

Table B-3: Impacts of Disturbance to Land Cover Along Revised Preferred Route C and Alternative Route C RoWs

Impact Land Cover	Revised Preferred Route C		Alternative Route C		Difference (Preferred – Alternative)
	Area (ha)	% Impacted Land Cover	Area (ha)	% Impacted Land Cover	Area (ha)
Cultivated Land	30	1.2	12	0.5	18
Forage[1]	3	0.3	11	0.9	-8
Grassland[2]	1	0.4	2	1.4	-1
Shrubs	0	0.0	0	0.0	0
Trees	0	0.0	0	0.0	0
Water/Wetlands	0	0.0	0	0.0	0
Non-Vegetated[3]	1	100	0	0.0	1
Disturbed[4]	0	0.0	0	0.0	0
Total	**35**	**0.9**	**25**	**0.6**	**10**

[1] Forage – agronomic (hay crop) species (i.e., timothy, alfalfa, clover).
[2] Grassland – native prairie grasses and forbs.
[3] Non-vegetated – PFRA generalized land cover for the Prairies (website: http://www.agr.gc.ca/pfra/gis/lcv_e.htm)
[4] Disturbed – roads, trails, railways, pipelines and low pressure pipelines, well sites, oil and gas facilities, gravel pits, industrial sites.

Residual Impacts

As indicated in Table B-1, there will be four more poles along the Alternative Route C which will result in approximately 7.2 m^2 (0.00072 ha) of residual ground disturbance that will impact cultivated and forage land.

B3.3 Fisheries Resources

A total of four watercourses would be crossed by the alignment of Alternative Route C (Table B-4). Three of the watercourses are small permanent Class D irrigation canals with some fisheries potential. The remaining watercourse is an ephemeral unnamed creek with no fisheries potential. None of the four watercourse crossings are subject to any periods of restricted activity. All four of the watercourses were crossed by the revised Preferred Route though the crossing locations have been changed slightly.

A detailed description of the fisheries resources within the study area has been provided in the EA report. No differences in the fisheries resources are anticipated at any of the sites as a result of the alignment of Alternative Route C.

Table B-4: Alternative Route C Watercourse Crossings

KP[1]	Stream/Water body Name[2]	Legal Land Description	Watercourse Size Classification[3]	Estimated Channel Width (m)	Estimated Riparian Zone (m)	Fisheries Resource Potential	Stream Class[4]	Fisheries Timing Constraints[4]
4.0	Irrigation Canal P-4	NE28-9-19-W4	Small Permanent	4	20	Yes	D	None
7.5	Irrigation Canal P-5	SW15-9-19-W4	Small Permanent	1	8	Yes	D	None
11.3	Irrigation Canal P-6	SW3-9-19-W4	Small Permanent	5	30	Yes	D	None
18.8	Unnamed Stream P-3	SE15-8-19-W4	Ephemeral	NDC	15	No	D	None

Notes:
1. KP refers to kilometre point along the RoW for the Alternative Route C as defined in Revision 17.
2. Stream, lake, or other water body names are given a "P" prefix (to indicate revised Preferred Route) and sequentially ordered from the sub-station southward to the Canada / U.S. border (1, 2, 3…).
3. Watercourse size classifications are described in *Instructions for Submission of Environmental Field Reports with Surface Disposition Applications Under the Public Lands Act* (ASRD 2004).
4. Stream classifications and fisheries timing constraints are outlined based on the *Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body* (AENV 2000).

NDC: no defined channel

Environmental Effects Assessment

As a result of the same watercourses being crossed by Alternative Route C as were crossed by the revised Preferred Route, there are no changes to the environmental effects assessment previously presented due to the relatively close proximity of the crossing locations.

Residual Impacts

The alignment of Alternative Route C does not result in any changes of the prediction of no residual impacts, as described in Section 4.5.5 of the Update report.

B3.4 Wetlands

Table B-5 displays all wetlands (including those smaller than 1 ha), crossed or located within 100 m of Alternative Route C. Only two wetlands are crossed and neither meet the EC criteria. No wetlands are crossed along the portion of the revised Preferred Route corresponding to Alternative Route C.

Table B-5: Alternative Route C Wetland Crossings

KP[1]	Wetland Name[2]	Legal Land Description	Wetland Classification[3]	Crossed (Wetland or Buffer)	Estimated Crossing Width[4] (m)	Wetland Area (ha)
7.4	C1	SE16-9-19-W4	Class 5	Buffer	149	0.15
16.0	C2	NE22-8-19-W4	Class 1/2	Buffer	124	0.04

Notes:
1. KP refers to kilometre point along the RoW for Alternative Route C as defined in revision 17.
2. Wetland names are sequentially ordered from the sub-station southward to the Canada/US border along the revised Preferred Route and each alternative route.
3. Wetland classification as per Stewart and Kantrud (1971).
4. The estimated width includes both the buffer and wetland (if crossed).

Environmental Effects Assessment

Although additional potentially impacted wetlands are present along Alternative Route C, they are similar to those observed along the revised Preferred Route and the construction approach and mitigation measures will not differ. Therefore, no changes to the environmental effects assessment presented in the Update report are anticipated.

Residual Impacts

The alignment of Alternative Route C does not result in any changes of the prediction of no residual impacts, as described in Section 4.6.5 of the Update report.

B3.5 Wildlife Habitat

Refer to Section 4.8 of the EA report and Section 4.7 of the Update report for all relevant background information and methodologies.

Amphibians

Due to the prevalence of pre-disturbed agricultural lands along Alternative Route C, no amphibian call surveys were conducted along this route. No historical data from the Fish and Wildlife Management Information System (FWMIS) were available for amphibian species along Alternative Route C. Also, no amphibian surveys were conducted along the corresponding section of the revised Preferred Route due to a lack of amphibian habitat.

Reptiles

No reptile species were observed during the 2006 field assessments. Also, no existing historical data from FWMIS exists with regards to reptiles along Alternative Route C.

Birds

Due to the prevalence of pre-disturbed agricultural lands along Alternative Route C and the corresponding section of the revised Preferred Route, no burrowing owl call-playback surveys, songbird surveys or lek surveys were conducted. Also, no historical data from FWMIS were available for listed bird species along Alternative Route C or the corresponding section of the revised Preferred Route.

No incidental bird observations were recorded along Alternative Route C or its corresponding section of the revised Preferred Route.

Mammals

No mammal species were observed and no FWMIS data is available for Alternative Route C or its corresponding section of the revised Preferred Route.

Environmental Effects Assessment

Alternative Route C is expected to disturb 25 ha of land during construction, compared to 35 ha of land in the corresponding section of the revised Preferred Route (Table B-1). Long-term disturbance will be limited to the power pole locations and the power line RoW. The RoW of Alternative Route C will affect 2 ha of native grassland, compared to 1 ha of disturbed native grassland in the corresponding section of the revised Preferred Route (Table B-1). Although several wetlands and watercourses exist within the corridor, no disturbance to these habitats in either Alternative Route C or the corresponding section in the revised Preferred Route is expected during construction. The power line RoW and power pole locations are positioned such that minimal adverse effects will occur to previously undisturbed areas.

Impacts to wildlife resulting from the Project will be minimal along Alternative Route C due to the prevalence of non-native agricultural habitat and the pre-existing access roads. Mitigation measures discussed for the revised Preferred Route can also be applied to Alternative Route C. Refer to Section 4.8.2 in the EA report for anticipated environmental effects caused by the construction of the power line.

Residual Impacts

The residual impacts associated with the proposed power line are discussed in Section 4.8.2 of the EA report. No new residual impacts are anticipated as a result of the current alignment of Alternative Route C compared to the revised Preferred Route C.

B3.6 Socio-Economics

Alternative Route C RoW is located within a developed road allowance. The proximity of residences and agricultural structures to the centreline of the Alternative Route C RoW was identified over a range of distances commencing with 60 m (recommended distance away from a power line to avoid to radio and television interference as identified by SNC 2006) to 1 600 m (one mile) away. There are two occupied residences, three occupied farmsteads and one abandoned farmstead within 60 m of the centreline of the Alternative Route C RoW. One more occupied residence, and an additional nine occupied farmsteads are located within 100 m of the centreline (Table B-6).

MATL is aware that Fortis distribution lines and Telus telephone cables are located within the road allowances along Alternative Route C. Further environmental studies may be required in order to relocate these utilities if the power line is located along this route.

Along the revised Preferred Route C RoW, there are no occupied residences or agricultural structures within 60 m of the centreline; one occupied residence and four occupied farmsteads between 200 and 400 m of the centreline; and most other occupied residences and farmsteads are located about 800 m (half a mile) or 1 600 m (one mile) away from the RoW (Table B-7).

Table B-6: Occurrences of Residences and Agricultural Structures Between Centreline of Alternative Route C RoW and Given Distances

Type of Structure[1]	Within 60 m	Within 100 m	Within 200 m	Within 400 m	Within 800 m	Within 1600 m
Occupied Residence	2	3	3	3	4	6
Unoccupied Residence		-	-	-	-	-
Occupied Farmstead	3	12	20	22	24	42
Abandoned Farmstead	2	2	2	2	2	2
Barn	-	-	-	-	-	-
Grainary	-	-	-	-	-	-
Shed, Outbuildings	-	-	-	2	2	2
Shelterbelts	-	-	-	-	-	-
Other[2]	-	1	1	1	1	3

[1] "-" indicates no said residence or agricultural activity was observed for the given distance.
[2] Elevators, major oil and gas facilities, golf course, campground.

Table B-7: Occurrences of Residences and Agricultural Structures Between Centreline of Revised Preferred Route C RoW and Given Distances

Type of Structure[1]	Within 60 m	Within 100 m	Within 200 m	Within 400 m	Within 800 m	Within 1600 m
Occupied Residence	-	-	-	1	5	9
Unoccupied Residence	-	-	-	-	-	-
Occupied Farmstead	-	-	-	4	23	47
Abandoned Farmstead	-	-	-	-	2	2
Barn	-	-	-	-	-	-
Grainary	-	-	-	-	1	1
Shed, Outbuildings	-	-	-	-	-	2
Shelterbelts	-	-	-	-	-	-
Other[2]	-	-	1	1	2	4

[1] "-" indicates no said residence or agricultural activity was observed for the given distance.
[2] Elevators, major oil and gas facilities, golf course, campground.

Along Alternative Route C, the percentage of landowners (100%) that have signed agreements with MATL for land access is skewed by the fact that the County of Lethbridge owns the land (i.e., the road allowances). If MATL's power line is located along Alternative Route C within the road allowances, MATL would still need to acquire safety zone easements (6.1 m) from the adjacent landowners who are the same landowners who oppose the line (refer to Section 3.1.2 of the Update report for more detailed information about landowner agreements).

Comments received from residents during the public consultation process included concerns about the effects of EMF due to the proximity of the power line to their homes. By locating the revised Preferred Route C RoW along the quarter section line, away from most residences, MATL will mitigate the concerns of local landowners regarding the effects of EMF, and radio and television interference. MATL will also avoid having to relocate Fortis distribution lines and mitigating interference to Telus telephone cables. However, the revised Preferred Route C RoW

impacts a greater amount of cultivated and forage land (33 ha compared to 23 ha along Alternative Route C) which potentially could have economic implications for affected farming operations. To mitigate these effects on individual agricultural operators, MATL will provide compensation for loss of agricultural lands and related buildings and activities resulting from power line construction. Therefore, socio-economic effects along the revised Preferred Route C will be less than those along the Alternative Route C RoW.

B3.7 Heritage Resources

Alternative Route C is located essentially in an area that is completely disturbed, as is the revised Preferred Route in this general area. Neither Alternative Route C or the corresponding section of the revised Preferred Route is considered to have high potential to impact historical resources (Mirau 2006, pers. comm.). Therefore, there is no real difference between these routes.

B4.0 ALTERNATIVE ROUTE D

Alternative Route D is located just south of Alternative Route C in the northern portion of the revised Preferred Route (Figure 1.1.1). Alternative Route D follows an alignment that is similar to the route filed in the original EA report. Alternative Route D starts out approximately 400 m to the east of the revised Preferred Route (NE12-19-8 W4). It continues south for approximately 13 km to Highway 61 before heading west and reconnecting with the revised Preferred Route (NE36-19-6 W4). Compared to the revised Preferred Route in the Update report (approximately 14.5 km), the length of Alternative Route D is approximately 0.7 km longer.

B4.1 Surficial Geology and Soils

The surficial geology of Alternative Route C is similar to the surficial geology of the corresponding portion of the revised Preferred Route.

Alternative Route D predominately consists of Chernozemic soils. One area of Solonetzic soils and one area with Gleysolic soils are found in this portion of the route. A summary of the specific soils encountered along Alternative Route D is presented in Table B.1-2 (Appendix B.1). The land use differences between Alternative Route D are minimal when compared to the corresponding portion of the revised Preferred Route described in the Update report.

Environmental Effects Assessment

The environmental effects identified for Alternative Route D are the same as those identified in the original environmental assessment (Section 4.2.4 in the EA report). The project has a low risk profile when the Environmental Protection Plan (EPP) (Appendix D of the EA report) is taken into consideration.

Residual Impacts

Alternative Route D is approximately 0.7 km than the revised Preferred Route and will require seven more pole holes (Table B-8). Using a residually impacted area of 1.8 m^2 of land per pole, it is estimated that approximately 12.6 m^2 (0.00126 ha) more residual ground disturbance in cultivated and forage land along Alternative Route D compared to the corresponding section of the revised Preferred Route.

Table B-8: Comparison of Poles Required and Residual Impact Between Revised Preferred Route D and Alternative Route D

	Revised Preferred Route D	Alternate D	Difference
Number of Poles	106	113	7
Area Disturbed by Poles (m^2)	190.8	203.4	12.6

B4.2 Vegetation and Rare Plants

No rare plants were found along the Alternative Route D.

The amount of land cover by type within the Alternative Route D corridor compared to the land area within the revised Preferred Route D corridor is presented in Table B-9 below. Both the revised Preferred Route D and Alternative Route D corridors are comprised of similar amounts of non-native vegetation (over 90%), including cultivated and forage land, and similar areas of grassland (4.2% and 4.7%, respectively). The land area covered by the Alternative Route D corridor is 166 ha more than the revised Preferred Route D corridor, due to its greater length.

Table B-9: Baseline Land Cover Types Comparison Between the Revised Preferred Route D and Alternative Route D Portions of the Power Line Route

Baseline Land Cover	Revised Preferred Route D		Alternative Route D		Difference (Preferred – Alternative)
	Area (ha)	% of Corridor	Area (ha)	% of Corridor	Area (ha)
Cultivated Land	2 460	88.4	2 637	89.4	-177
Forage[1]	72	2.6	70	2.4	2
Grassland[2]	117	4.2	138	4.7	-21
Shrubs	0	0.0	0	0.0	0
Trees	0	0.0	0	0.0	0
Water/Wetlands	0	0.0	0	0.0	0
Non-Vegetated[3]	1	<0.1	2	0.1	-1
Disturbed[4]	133	4.8	102	3.4	31
Total	**2 783**	**100.0**	**2 949**	**100.0**	**-166**

[1] Forage – agronomic (hay crop) species (i.e., timothy, alfalfa, clover).
[2] Grassland – native prairie grasses and forbs.
[3] Non-vegetated – PFRA generalized land cover for the Prairies (website: http://www.agr.gc.ca/pfra/gis/lcv_e.htm)
[4] Disturbed – roads, trails, railways, pipelines and low pressure pipelines, well sites, oil and gas facilities, gravel pits, industrial sites.

Environmental Effects Assessment

The resulting impact of both Alternative Route D and revised Preferred Route D RoWs is low at 2.7% and 5.4%, respectively. Although Alternative Route D is a longer route it impacts less cultivated land (0.6%), forage (1.4%) and grassland (0.7%) than the revised Preferred Route D RoW (0.9%, 2.8% and 1.7%, respectively), as shown in Table B-10 below. This is due to the fact that a large portion of Alternative Route D RoW overlaps an existing road allowance. Although the revised Preferred Route D RoW impacts more land cover, it is itself a mitigation measure to address landowner concerns related to proximity of the power line to residences and associated EMF issues identified in Section 1.2.6.

Table B-10: Impacts of Disturbance to Land Cover Along Revised Preferred Route D and Alternative Route D RoWs

Impact Land Cover	Revised Preferred Route D		Alternative Route D		Difference (Preferred – Alternative)
	Area (ha)	% Impacted Land Cover	Area (ha)	% Impacted Land Cover	Area (ha)
Cultivated Land	23	0.9	15	0.6	8
Forage[1]	2	2.8	1	1.4	1
Grassland[2]	2	1.7	1	0.7	1
Shrubs	0	0.0	0	0.0	0
Trees	0	0.0	0	0.0	0
Water/Wetlands	0	0.0	0	0.0	0
Non-Vegetated[3]	0	0.0	0	0.0	0
Disturbed[4]	0	0.0	0	0.0	0
Total	**27**	**1.0**	**17**	**0.6**	**10**

[1] Forage – agronomic (hay crop) species (i.e., timothy, alfalfa, clover).
[2] Grassland – native prairie grasses and forbs.
[3] Non-vegetated – PFRA generalized land cover for the Prairies (website: http://www.agr.gc.ca/pfra/gis/lcv_e.htm)
[4] Disturbed – roads, trails, railways, pipelines and low pressure pipelines, well sites, oil and gas facilities, gravel pits, industrial sites.

Residual Impacts

As indicated in Table B-8, there will be seven more poles along Alternative Route D which will result in approximately 12.6 m^2 (0.00126 ha) of residual ground disturbance in cultivated and forage land.

B4.3 Fisheries Resources

Only two watercourses would be crossed along Alternative Route D (Table B-11). These include a large (25 m wide) Class D irrigation canal and Etzikom Coulee, a small permanent Class C stream with a restricted activity period from 1 April to 1 June. Both of the watercourses are crossed by the revised Preferred Route, with only a small shift in the crossing locations. A detailed description of the fisheries resources within these watercourses has been provided in Section 4.5.1 of the EA report.

Table B-11: Alternative Route D Watercourse Crossings

KP[1]	Stream/Water body Name[2]	Legal Land Description	Watercourse Size Classification[3]	Estimated Channel Width (m)	Estimated Riparian Zone (m)	Fisheries Resource Potential	Stream Class[4]	Fisheries Timing Constraints[4]
0.8	Irrigation Canal P-7	SE13-8-19-W4	Large Permanent	25	50	Yes	D	None
14.4	Etzikom Coulee	SE1-7-19-W4	Small Permanent	3	30	Yes	C	1 Apr – 1 Jun

Notes:
1. KP refers to kilometre point along the RoW for the Alternative Route D as defined in revision 17.
2. Stream, lake, or other water body names are given a "P" prefix (to indicate revised Preferred Route) and sequentially ordered from the sub-station southward to the Canada / U.S. border (1, 2, 3…).
3. Watercourse size classifications are described in *Instructions for Submission of Environmental Field Reports with Surface Disposition Applications Under the Public Lands Act* (ASRD 2004).
4. Stream classifications and fisheries timing constraints are outlined based on the *Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body* (AENV 2000).

NDC: no defined channel

Environmental Effects Assessment

The same watercourses are crossed by both Alternative Route D and the corresponding section of the revised Preferred Route, just at different locations. Therefore, there are no changes to the environmental effects assessment previously presented.

Residual Impacts

The alignment of Alternative Route D does not result in any changes of the prediction of no residual impacts, as described in Section 4.5.5 of the Update report.

B4.4 Wetlands

Table B-12 displays all wetlands (including those smaller than 1 ha), crossed or located within 100 m of Alternative Route D. Ten wetlands would be crossed by the alignment of Alternative Route D while seven would be crossed by the revised Preferred Route. All of the wetlands along both routes are small and none meet the EC criteria.

Table B-12: Alternative Route D Wetland Crossings

KP[1]	Wetland Name[2]	Legal Land Description	Wetland Classification[3]	Crossed (Wetland or Buffer)	Estimated Crossing Width[4] (m)	Wetland Area (ha)
9.2	D1	NE13-7-19-W4	Class 2	Buffer	218	0.10
9.7	D2	NE13-7-19-W4	Class 1/2	Buffer	187	0.12
10.6	D3	SE13-7-19-W4	Class 1	Buffer	194	0.14
11.5	D4	SE12-7-19-W4	Class 1	Buffer	184	0.07
11.8	D5	SE12-7-19-W4	Class 1/2	Buffer	240	0.22
12.2	D6	SE12-7-19-W4	Class 2/3	Buffer	227	0.28

Notes:
1. KP refers to kilometre point along the RoW for Alternative Route D as defined in revision 17.
2. Wetland names are sequentially ordered from the sub-station southward to the Canada/US border along the revised Preferred Route and each alternative route.
3. Wetland classification as per Stewart and Kantrud (1971).
4. The estimated width includes both the buffer and wetland (if crossed).

Environmental Effects Assessment

Although potentially impacted wetlands along Alternative Route D will vary from those along the revised Preferred Route, the construction approach and mitigation measures will not differ. Therefore, no changes to the environmental effects assessment presented in the Update report are anticipated.

Residual Impacts

The alignment of Alternative Route D does not result in any changes of the prediction of no residual impacts, as described in Section 4.6.5 of the Update report.

B4.5 Wildlife Habitat

Refer to the EA report and the Update report for all relevant background information and methodologies.

Amphibians

No amphibian call surveys were conducted along Alternative Route D or the corresponding section of the revised Preferred Route due to the scarcity of amphibian habitat along this route. No historical data from FWMIS were available for amphibian species along Alternative Route D or the corresponding section of the revised Preferred Route.

Reptiles

No reptile species were observed during the 2006 field assessments. Also, no existing historical data from FWMIS exists with regards to reptiles along Alternative Route D or the corresponding section of the revised Preferred Route.

Birds

One burrowing owl call-playback station was surveyed within Alternative Route D in July 2006. The call-playback survey totaled 15 minutes, of which 5 minutes were spent broadcasting calls. This playback station was situated within native grassland habitat consisting of suitable burrowing owl habitat, located adjacent to and north of Highway 61, where Alternative Route D merges with the revised Preferred Route. Alternative Route D is comprised mainly of agricultural land with minimal high quality burrowing owl habitat. No responses to the call-playback were detected and no burrowing owls were observed within Alternative Route D during the survey. On the corresponding section of the revised Preferred Route in 2006, one burrowing owl call-playback station was surveyed. No response to the call-playback was detected and no burrowing owls were observed within the corresponding section of the revised Preferred Route. There were no FWMIS data or incidental observations of burrowing owl along Alternative Route D or the corresponding section of the revised Preferred Route.

No songbird or lek surveys were conducted along Alternative Route D due to the prevalence of agricultural lands. One songbird survey was conducted along the corresponding portion of the revised Preferred Route, where 12 western meadowlarks, 3 Vesper's sparrows, 3 horned larks and 2 Brewer's blackbirds were recorded. These species are all frequently occurring in both native grasslands and agricultural lands. No lek surveys were conducted along the corresponding section of the revised Preferred Route due to lack of historical lek data and a prevalence of non-native grassland habitat.

One short-eared owl was observed during 2006 field assessments. The owl was observed foraging within the corridor for Alternative Route D, approximately 50 m south of Highway 61 near a small section of native grassland within the agricultural land mosaic. No other incidental bird observations were recorded along the corresponding section of the revised Preferred Route.

Historical data from FWMIS indicated that the following listed bird species have occurred within the corridor for Alternative Route D: ferruginous hawk (1), Swainson's hawk (5), and long-billed curlew (1). No FWMIS records are available for listed bird species along the corresponding section of the revised Preferred Route.

Mammals

No mammal species were observed and no FWMIS records were available for Alternative Route D or its corresponding section of the revised Preferred Route.

Environmental Effects Assessment

Alternative Route D is expected to disturb 17 ha of land during construction, compared to 27 ha of disturbed land in the corresponding section of the revised Preferred Route (Table B-10). Long-term disturbance will be limited to the power pole locations and the power line RoW. The RoW of Alternative Route D will affect 1 ha of native grassland, whereas 2 ha of native grassland will be disturbed in the corresponding section of the revised Preferred Route. Although several wetlands and watercourses exist within the corridor, no disturbance to these habitats in either Alternative Route D or the revised Preferred Route is expected during construction. The power line RoW and power pole locations will be positioned such that minimal adverse effects will occur in previously undisturbed areas.

Impacts to wildlife resulting from the Project will be minimal along Alternative Route D due to the prevalence of non-native agricultural habitat and the pre-existing access roads. Refer to Section 4.8.2 in the EA report and Section 4.7.3 in the Update report for anticipated environmental effects caused by the construction of the power line. Mitigation measures discussed for the revised Preferred Route can also be applied to Alternative Route D (see Section 4.83 of the EA report and Section 4.7.4 of the Update report).

Residual Impacts

The residual impacts associated with the proposed power line are discussed in Section 4.8.2 of the EA report. No new residual impacts are anticipated as a result of the current alignment.

B4.6 Socio-Economics

Alternative Route D RoW is located within a developed road allowance. The proximity of residences and agricultural structures to the centreline of the Alternative Route D RoW was identified over a range of distances commencing with 60 m (recommended distance away from a power line to avoid to radio and television interference as identified by SNC 2006) to 1 600 m (one mile) away. There is one abandoned farmstead located within 60 m of the centreline, another abandoned farmstead and one grainary are located within 100 m of centreline, and two occupied residences, one occupied farmstead and another grainary are located within 200 m of centreline (Table B-13).

Table B-13: Occurrences of Residences and Agricultural Structures Between Centreline of Alternative Route D RoW and Given Distances

Type of Structure[1]	Within 60 m	Within 100 m	Within 200 m	Within 400 m	Within 800 m	Within 1600 m
Occupied Residence	-	-	2	2	3	6
Unoccupied Residence	-	-	-	-	-	-
Occupied Farmstead	-	-	1	1	5	11
Abandoned Farmstead	1	2	2	2	2	2
Barn	-	-	-	-	-	-
Grainary	-	1	2	3	4	8
Shed, Outbuildings	-	-	-	-	-	-
Shelterbelts	-	-	-	-	-	-
Other[2]	-	-	-	-	2	6

[1] "-" indicates no said residence or agricultural activity was observed for the given distance.
[2] Elevators, major oil and gas facilities, golf course, campground.

Along the revised Preferred Route D RoW, there are no occupied buildings or agricultural structures located within 60 m of the centreline; one occupied residence and six farmsteads located about 800 m (a half a mile) away from the centreline and five additional occupied residences and three occupied farmsteads located close to 1 600 m (one mile) from the centreline (Table B-14).

MATL is aware that Fortis distribution lines and Telus telephone cables are located within the road allowances along Alternative Route D. Further environmental studies may be required in order to relocate these utilities if the power line is located along this route.

Table B-14: Occurrences of Residences and Agricultural Structures Between Centreline of Revised Preferred Route D RoW and Given Distances

Type of Structure[1]	Within 60 m	Within 100 m	Within 200 m	Within 400 m	Within 800 m	Within 1600 m
Occupied Residence	-	-	-	-	1	6
Unoccupied Residence	-	-	-	-	-	-
Occupied Farmstead	-	-	-	-	6	9
Abandoned Farmstead	-	-	-	-	-	2
Barn	-	-	-	-	-	-
Grainary	-	1	1	2	2	8
Shed, Outbuildings	-	-	-	-	-	-
Shelterbelts	-	-	-	-	-	-
Other[2]	-	-	-	-	3	6

[1] "-" indicates no said residence or agricultural activity was observed for the given distance.
[2] Elevators, major oil and gas facilities, golf course, campground.

Along Alternative Route D, the percentage of landowners (100%) that have signed agreements with MATL for land access is skewed by the fact that the counties of Lethbridge and Warner own the land (i.e., the road allowances). If MATL's power line is located along Alternative Route D within the road allowances, MATL would still need to acquire safety zone easements (6.1 m) from the adjacent landowners who are the same landowners who oppose the line (refer to Section 3.1.2 of the Update report for more detailed information about landowner agreements).

Comments received from residents during the public consultation process included concerns about the effects of EMF due to the proximity of the power line to their homes. By locating the revised Preferred Route D RoW along the quarter section line, away from most residences, MATL will mitigate the radio and television interference, and EMF-related concerns, expressed by local landowners. MATL will also avoid having to relocate Fortis distribution lines and mitigating interference to Telus telephone cables. However, the revised Preferred Route D RoW impacts a greater amount of cultivated and forage land (25 ha compared to 16 ha along Alternative Route D) which potentially could have economic impacts on the affected farming operations. To mitigate these effects on individual agricultural operators, MATL will provide compensation for loss of agricultural lands and related buildings and activities resulting from power line construction. Therefore, socio-economic effects along the revised Preferred Route D will be less than those along the Alternative Route D RoW.

B4.7 Heritage Resources

Alternative Route D is located in an area that has low potential for undisturbed historical resources. It is Arrow Archaeology's opinion that neither Alternative Route D nor that portion of the revised Preferred Route that essentially parallels Alternative Route D presents any significant problems with respect to historical resources (Mirau 2006, pers. comm.).

B5.0 REFERENCES CITED

Mirau, N. Senior Archaeologist and Partner, Arrow Archaelogy. 2006. Personal communication on 19 July 2006 and 27 September 2006.

SNC. 2006. *Evaluation of Electric and Magnetic Field Effects, MATL's 230 kV Power Line, Montana Alberta Tie Line*. Prepared by Roberto Torres. Draft, August, 2006.

Appendix B.1

Soils Data

Table B.1-1: Soils Along Alternative Route C

Amec_ID	SERIES	ORDER_	S_GROUP	G_GROUP	SG	DRAINAGE	CALCAR	SALINITY	PM1_TEX	PM1_TYP	PM2_TEX	PM2_TYP	HZN_MAS	HZN_SUF	TEXTURE	UDEPTH	LDEPTH	COFRAG	Water	Wind	Limitations
4	WHITNEY	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
6	COALDALE	CH	O	DB	O.DB	W	M	N	FI	GLLC	-	-	A	p	CL	0	15	0	low	low	clayed subsoil
7	WHITNEY	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
71	LETHBRIDGE	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate-high	clayed subsoil
8	COALDALE	CH	O	DB	O.DB	W	M	N	FI	GLLC	-	-	A	p	CL	0	15	0	low	low	clayed subsoil
72	CHOKIO	CH	CA	DB	CA.DB	W	M	N	MF	GLLC	-	-	A	pk	L	0	15	0	high	low - moderate	none
10	WHITNEY	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
11	READYMADE	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	SiL	0	15	1	moderate-high	high	none
12	MISC.GLEYSOL	GL	O	HG	O.HG	P	-	-	-	UNDM	-	-	A	h	L	0	20	5	moderate	moderate-high	none

Table B.1-2: Soils Along Alternative Route D

Amec_ID	SERIES	ORDER_	S_GROUP	G_GROUP	SG	DRAINAGE	CALCAR	SALINITY	PM1_TEX	PM1_TYP	PM2_TEX	PM2_TYP	HZN_MAS	HZN_SUF	TEXTURE	UDEPTH	LDEPTH	COFRAG	Wind	Water	Limitations
12	MISC.GLEYSOL	GL	O	HG	O.HG	P	-	-	-	UNDM	-	-	A	h	L	0	20	5	moderate	moderate-high	none
13	LETHBRIDGE	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate-high	clayed subsoil
14	LETHBRIDGE	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate-high	clayed subsoil
15	READYMADE	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	SiL	0	15	1	moderate-high	high	none
16	MISC.GLEYSOL	GL	O	HG	O.HG	P	-	-	-	UNDM	-	-	A	h	L	0	20	5	moderate	moderate-high	none
17	READYMADE	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	SiL	0	15	1	moderate-high	high	none
18	WHITNEY	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
19	LETHBRIDGE	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate-high	clayed subsoil
20	MISC.GLEYSOL	GL	O	HG	O.HG	P	-	-	-	UNDM	-	-	A	h	L	0	20	5	moderate	moderate-high	none
21	LETHBRIDGE	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate-high	clayed subsoil
22	MISC.SOLONETZIC-ZDB	SZ	DB	SS	DB.SS	W	-	-	-	UNDM	-	-	A	h	L	0	10	5	moderate	moderate-high	saline/sodic subsoil
23	LETHBRIDGE	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate-high	clayed subsoil

Orders
RG – Regosolic
CH – Chernozemic
SZ – Solonetzic
GL – Gleysolic

G-Group – Great Group
R – Regosol
DB – Dark Brown
CU – Cumulic
O – Orthic

SGROUP - Subgroup
O.R – Orthic Regosol
O.DB – Orthic Dark Brown Chermozem
O.HG – Orthic Humic Gleysol
DB.SS – Dark Brown Solodized Solonetz
R.DB – Rego Dark Brown Chernozem
DB.SZ – Dark Brown Solonetz
CU.R – Cumulic Regosol

PM_TEX - Parent Material texture
MF – Moderately fine
MC - Moderately coarse
FI – Fine Textured
ME – Medium Textured
VC – Very coarse
VGVC – Very gravelly, very coarse

PM_TYP – Parent Material type
UNDM – Undifferentiated mineral
GLLC - Glaciolacustrine
GLFL - Glaciafluvial
Till – Till (morainal)
FLUV – Fluvial

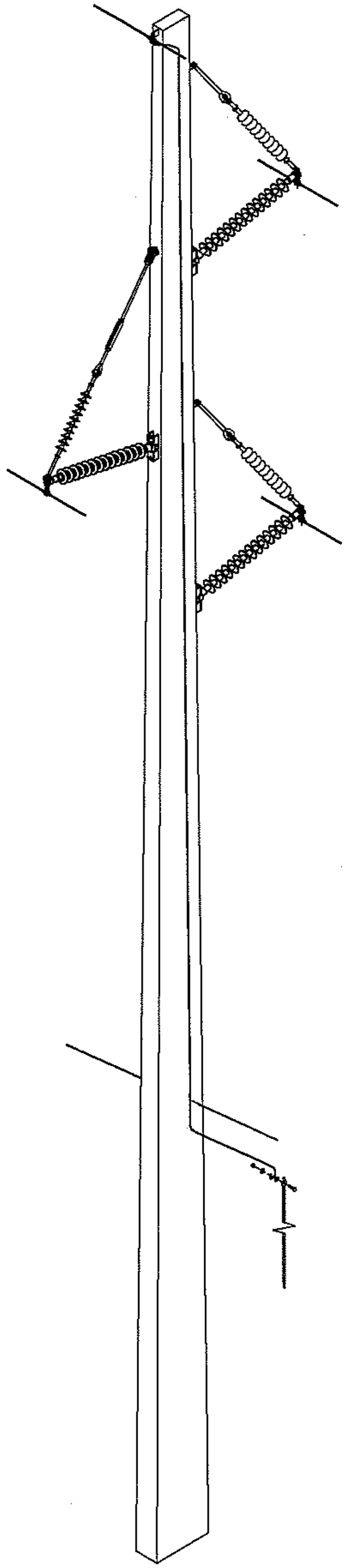
Texture
CL – Clay loam
SiL – Silt Loam
SL – Sandy Loam
L – Loam
LS – Loamy Sand
C – Clay

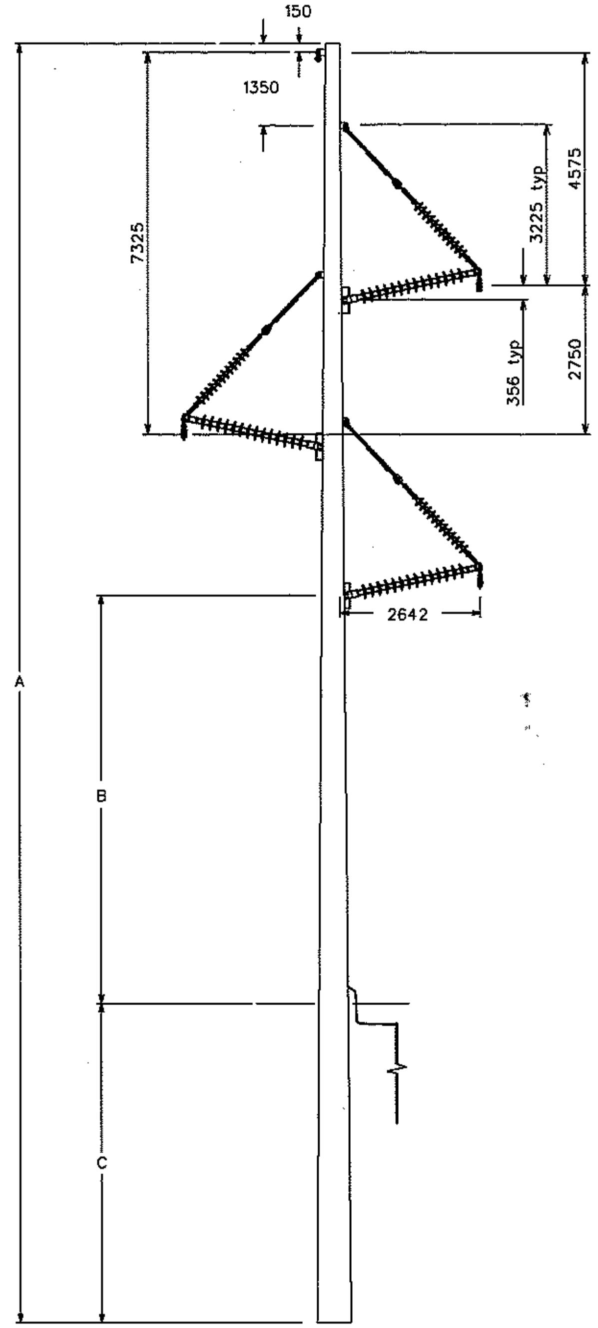
Surface hz – Horizon found at surface
A – a mineral horizon formed at or near the surface
C – a mineral horizon which has been little altered from the parent material by soil forming processes

HZN SUF- Horizon Suffixes
p – plow layer, disturbed by man's activities such as cultivation, logging and habitation
h – enriched with organic matter (OM)
hsa – enriched with OM and a secondary enrichment of salts
k – presence of carbonate
pk – plow layer with the presence of carbonates

Appendix C

Pole Drawings





MATERIAL AND ITEM LIST FOR STRUCTURE MATL-43DD-11158		
QTY	ASSEMBLY	DESCRIPTION
3	SNC155	BALL-Y-CLEVIS, GLV. H/L 89MM L,M20 BLT
6	SNC155	BOLT, MACHINE, 3/4 X 8
12	SNC155	NUT, REG, UNFIN, HEX OR SQUARE, GALV, 3/4"
12	SNC155	WASHER, SQ, 2 X 2 X 1/4, 13/16" HOLE, GALV
1	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
3	SNC4	WIRE, CU, SOLID, SD BARE #4
1	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
1	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
1	SNC13	CONNECTOR, WEDGE-TYPE
1	SNC13	CARTRIDGE, COLOR CODE RED
3	SNC155	CLAMP, SOCKET SUSPENSION
1	SNC4	ROD, GROUND, 5/8" X 8', STEEL
1	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
1	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
3	SNC155	MACLEAN POWER SYSTEMS 240kV Part # B391104BX-

Structure: 230kV Monopole Tangent Structure
Deflection : 1 Degree Line Angle
Conductor: 1590 kcmil ACSR Falcon, tension 64.003 kN @ 12.5mm ice, 400 Pa wind @ -20 deg C
OPGW: 11mm OPGW ASLH-D (SA)b 1x36 NZDSF "TERALIGHT", tension 16.814kN @ 12.5mm ice, 400 Pa wind @ -20 deg C
Ruling span: 140m
Galloping span: 140m

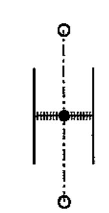
Pole Dimensions					
A		B		C	
feet	m	feet	m	feet	m
90	27.43	42.19	12.859	13	3.96
95	28.96	46.81	14.269	13.5	4.11
100	30.48	51.28	15.63	14	4.27
105	32.00	55.77	17.0	14.50	4.42
110	33.55	60.29	18.38	15.0	4.57
115	35.05	64.79	19.75	15.5	4.72

GENERAL NOTES:

1 Poles to be direct embedded 10% plus 4feet.
2 Design calculations are to be included with bid for review by SNC-Lavalin ATP.
3 Icing on the structure need not be considered in design.
4 Phase to phase distance determined from galloping calculation.
5 All dimensions are in millimeters unless otherwise specified.

FOR LAMINATED WOOD POLES 140m SPAN:

1 Poles shall be designed and fabricated in accordance with ANSI 05.2-2002 including all applicable AWPA specification, C28 for the preparation and treatment.
2 Ground clearance is 11.6m and sag at 100deg C is 3.76m.



PLAN VIEW OF STRUCTURE

PERMIT TO PRACTICE STAMP

ISSUE REGISTER

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
	C	06-08-02	RE-ISSUED FOR AEUB FACILITIES APPLICATION AMENDMENT #1	
	B			
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	*	**
C	CHANGED POLE MATERIAL TO LAMINATED WOOD	06-08-02	DL	
B	PRELIMINARY DESIGN	05/03/25	PD	
A	ISSUED FOR BID	05/02/16	PD	

INITIALS: * DESIGNED ** APPROVED

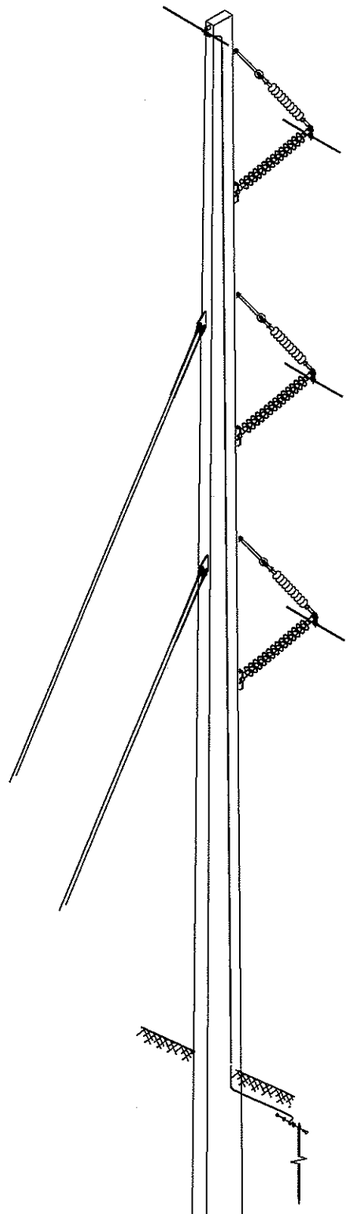
PROFESSIONAL SEAL

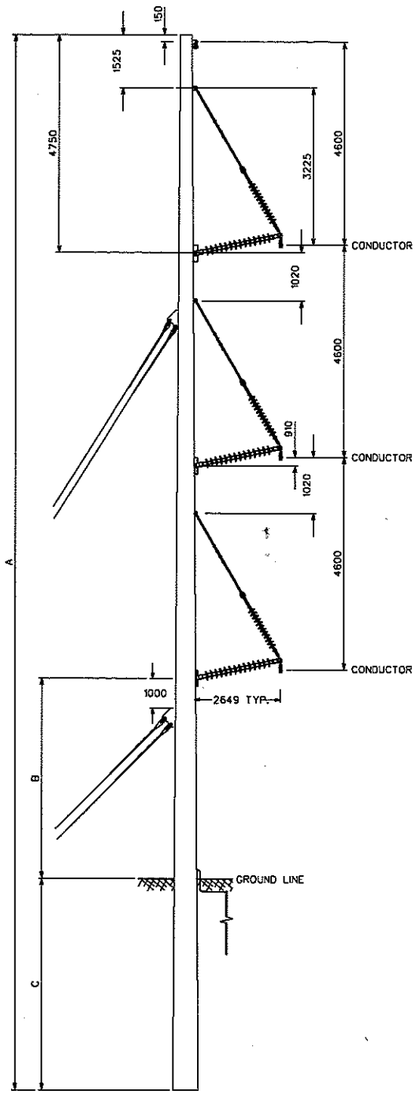
SNC·LAVALIN
SNC-Lavalin ATP Inc.
1035 – 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2M4

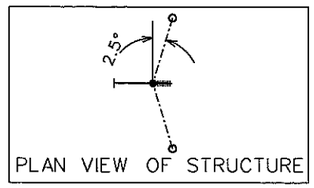
PREPARATION	APPROVAL
DESIGNED PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN R. BROUILLETTE	PROJECT ENGINEERING MANAGER
CHECKED DL	
DATE 05-02-16	CLIENT
SCALE NTS	SHEET 1 OF 1

CLIENT: MONTANA ALBERTA TIE LTD.
PROJECT: MONTANA-ALBERTA TIE LINE
TITLE: TANGENT LINEPOST STRUCTURE WITH OPGW
DOCUMENT No. MATLP-43-D1-0001 REV C

PRJATPAINEN – FRAME A1 HORIZONTAL ENGLISH







MATERIAL AND ITEM LIST FOR STRUCTURE MATL-43DD-11164

QTY	ITEM	ASSEMBLY	DESCRIPTION
2	5110570	SNC156MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
3	5112504	SNC155	BALL-Y-CLEVIS, GLV. H/L 60MM L, M20 BLT
6	5132608	SNC155	BOLT, MACHINE, 3/4 X 8
12	5141106	SNC155	NUT, REG, UNFIN, HEX OR SQUARE, GALV, 3/4"
12	5142205	SNC155	WASHER, SQ, 2 X 2 X 1/4, 13/16" HOLE, GALV
2	5171503	SNC158	CLAMP,GUY,GALV.5/8"BOLT,3 BOLT STRAIGHT
1	5171504	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
3	5310102	SNC4	WIRE, CU, SOLID, SD BARE #4
1	5329901	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
50	5380107	SNC156MOD	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.
1	5530622	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
1	5531406	SNC13	CONNECTOR, WEDGE-TYPE
1	5531490	SNC13	CARTRIDGE, COLOR CODE RED
8	5560107	SNC156MOD, 158	GRIP, PRFD 7/16 GUY 40, GREEN
3	5674818	SNC155	CLAMP, SOCKET SUSPENSION
1	5571302	SNC4	ROD, GROUND, 5/8" X 8', STEEL
1	5571853	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
1	5571862	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
2	5790614	SNC158	GUY STRAIN INSULATOR, 240KV, 100KN UTS
3	POST	SNC155	MACLEAN POWER SYSTEMS 240kV Part # B391104BX-

Structure: 230kV Monopole Light Angle Structure
Deflection : 5 Degree Line Angle
Conductor: 1590 kcmil ACSR Falcon, tension 64.003 kN @ 12.5mm ice, 400 Pa wind @ -20 deg C
OPGW: 11mm OPGW ASLH-D (SA)b 1x36 NZDSF "TERALIGHT", tension 16.814 kN @ 12.5mm ice, 400 Pa wind @ -20 deg C
Ruling span: 140m
Galloping span: 140m

Pole Dimensions					
A		B		C	
feet	m	feet	m	feet	m
95	28.96	34.56	10.54	11.5	3.51
100	30.48	39.06	11.91	12.0	3.66
105	32.0	43.56	13.27	12.5	3.81
110	35.53	48.06	14.65	13.0	3.96
115	35.05	52.56	16.02	13.5	4.11
120	36.58	57.06	17.39	14.5	4.42

GENERAL NOTES:

1 Poles to be direct embedded 10% plus 2 feet.
2 Design calculations are to be included with bid for review by SNC-Lavalin ATP.
3 Icing on the structure need not be considered in design.
4 Phase to phase distance determined from galloping calculation.
5 All dimensions are in millimeters unless otherwise specified.

FOR LAMINATED WOOD POLES 140m SPAN:

1 Poles shall be designed and fabricated in accordance with ANSI 05.2-2002 including all applicable AWPA specification, C28 for the preparation and treatment.
2 Ground clearance is 11.6m and sag at 100deg C is 3.76m.

ISSUE REGISTER

ISSUE NO	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
	C	06-08-02	RE-ISSUED FOR AEUB FACILITIES APPLICATION AMENDMENT #1	
	B			
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	#	##
C	CHANGED POLE MATERIAL TO LAMINATED WOOD	06-08-02	DL	
B	PRELIMINARY DESIGN	05/03/29	PD	
A	ISSUED FOR BID	05/02/16	PD	

INITIALS: # DESIGNED ## APPROVED

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

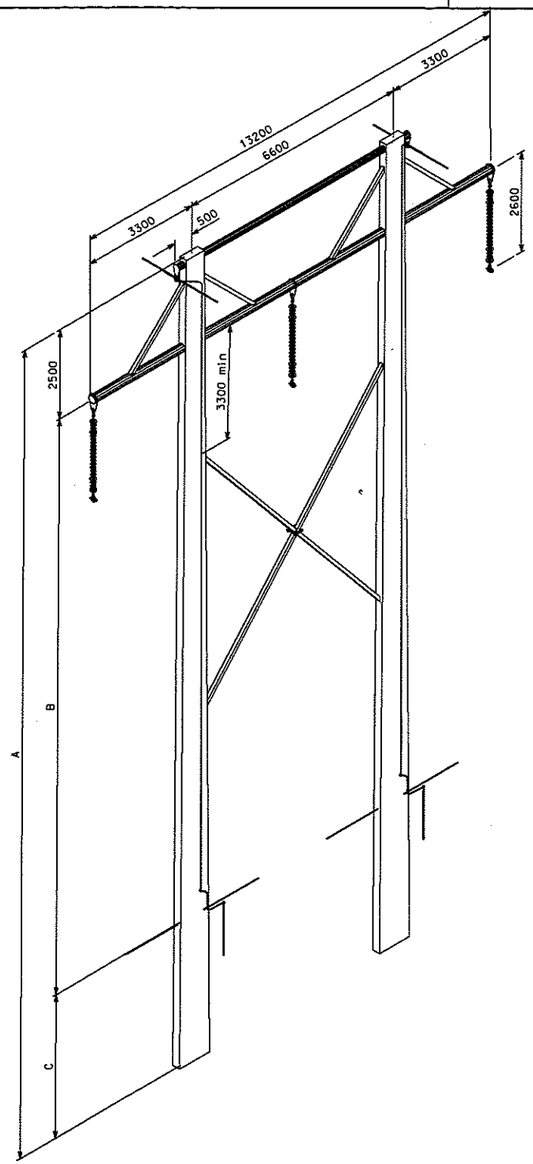
SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2N4

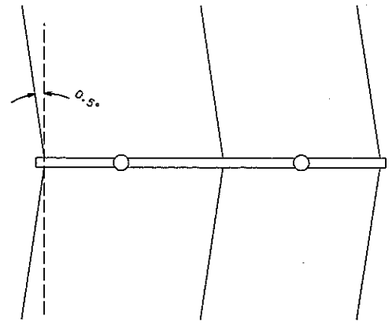
PREPARATION	APPROVAL
DESIGNED PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN R. BROUILLETTE	PROJECT ENGINEERING MANAGER
CHECKED DL	
DATE 05-02-16	CLIENT
SCALE NTS	SHEET 1 OF 1

CLIENT: MONTANA ALBERTA TIE LTD.
PROJECT: MONTANA-ALBERTA TIE LINE
TITLE: LIGHT ANGLE STRUCTURE WITH OPGW
DOCUMENT No.: MATLP-43-D1-0002
REV: C

PRIATPATHEN - FRAME A1 HORIZONTAL ENGLISH

08/04/2006 03:32:28 PM W:\Project1\62965 Montana Alberta Tie\Drawings\Proposal\Orig\MATL-43-D1-0002sh1.dgn





PLAN VIEW OF STRUCTURE

MATERIAL AND ITEM LIST FOR STRUCTURE N156		
QTY	ASSEMBLY	DESCRIPTION
3	SNC114	BALL-EYE, GLV. 50MM X 25 MM OVAL. 111 KN
2	SNC13	CLAMP, GROUND, BRZ. 1/2" H.H. BOLT LW&NUT
6	SNC4	WIRE, CU, SOLID, SD BARE #4
2	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
2	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
2	SNC13	CONNECTOR, WEDGE-TYPE
2	SNC13	CARTRIDGE, COLOR CODE RED
3	SNC114	CLAMP, SOCKET SUSPENSION
2	SNC4	ROD, GROUND, 5/8" X 8', STEEL
2	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
2	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
3	SNC114	SHACKLE, CHAIN W. BOLT , 90 kN
3	SNC114	INSULATOR, SYN, SOC-BALL, SIL, 240KV

Structure: 230kV H-Frame Tangent Structure
Deflection : 1 Degree Line Angle
Conductor: 1590 kcmil ACSR Falcon, tension 74.102 kN @ 12.5mm ice, 400 Pa wind @ -20 deg C
O.H.S.W.: 3/8" Steel Grade 220, tension 22.892 kN @ 12.5mm ice, 400 Pa wind @ -20 deg C
OPGW: 11mm OPGW, tension 20.825 kN @ 12.5mm ice, 400 Pa wind @ -20 deg C
Ruling span: 240m
Galloping span: 240m

Air Gap Requirements						
Temp.	Wind		Maximum Swing		Clearance	
(°C)	(Pa)	Phase	(y) +ve	(y) -ve	(ft)	(m)
4	0	Left	52	38	5.58	1.70
		Middle	38	38		
		Right	38	52		
4	917	Left	78	78	2.03	0.62
		Middle	78	78		
		Right	78	78		
-30	303	Left	56	43	4.99	1.52
		Middle	43	43		
		Right	43	56		
15	290	Left	65	54	3.87	1.18
		Middle	54	54		
		Right	54	65		

Pole Dimensions					
A		B		C	
feet	m	feet	m	feet	m
55	16.76	37.3	11.37	7.5	2.29
60	18.29	41.8	12.74	8	2.44
65	19.81	46.3	14.11	8.5	2.59
70	21.34	50.8	15.48	9	2.74
75	22.86	55.3	16.86	9.5	2.90
80	24.38	59.8	18.23	10	3.05
85	25.91	64.3	19.60	10.5	3.20
90	27.43	68.8	20.97	11	3.35

GENERAL NOTES:

1 Pole to be direct embedded 10% plus 2feet.
2 Design calculations are to be included with bid for review by SNC-Lavalin ATP.
3 Icing on the structure need not be considered in design.
4 Phase to phase distance determined from galloping calculation.
6 All dimensions are in millimeters unless otherwise specified.

FOR LAMINATED WOOD POLES 240m SPAN:

1 Poles shall be designed and fabricated in accordance with ANSI 05.2-2002 including all applicable AWPA specification, C28 for the preparation and treatment.
2 Ground clearance is 7.0m and sag at 100deg C is 7.75m.

ISSUE REGISTER

ISSUE No	REV.	DATE (YY/MO/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
	C	06-08-02	RE-ISSUED FOR ACUB FACILITIES APPLICATION AMENDMENT #1	
	B			
1	A	05/02/16	ISSUED FOR BID	

REVISION REGISTER

No	REVISION DESCRIPTION	DATE (YY/MO/D)	•	■■
	INITIALS: • DESIGNED ■■ APPROVED			
C	CHANGED POLE MATERIAL TO LAMINATED WOOD	06-08-02	DL	
B	PRELIMINARY DESIGN	05/03/29	PD	
A	ISSUED FOR BID	05/02/15	PD	

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-Lavalin ATP Inc.
1035 – 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2N4

PREPARATION		APPROVAL	
DESIGNED	PAUL DILLON	PROJECT DISCIPLINE ENGINEER	
DRAWN	J.GOROG	PROJECT ENGINEERING MANAGER	
CHECKED	DL		
DATE	05-02-15	CLIENT	
SCALE	NTS	SHEET	1 OF 1

CLIENT: MONTANA ALBERTA TIE LTD.
PROJECT: MONTANA-ALBERTA TIE LINE
TITLE: 230kV H-FRAME TANGENT STR. TYPE 1 AND TYPE2
DOCUMENT No.: MATLP-43-D1-0003
REV: C

PRINTPATTERN – FRAME A1 HORIZONTAL ENGLISH

08/04/2006 03:54:41 PM W:\Project1\62965 Montana Alberta Tie\Drawings\Proposal\Orig\MATL-43-D1-0003SH1.dgn

Appendix D

Stakeholder Engagement Supporting Documents

The following documents are provided as supplementary information to Section 3.0 Stakeholder Engagement of the EA Update, September 2006.

These documents include:

- Appendix D.1: MATL's FAQs
- Appendix D.2: MATL's Response to Alternate Chin Coulee Route
- Appendix D.3: A letter of support for the power line project from SAGE
- Appendix D.4: Agenda for the Canadian Advisory Committee meeting on 12 July 2006
- Appendix D.5: Minutes of the Canadian Advisory Committee meeting on 12 July 2006
- Appendix D.6: Minutes of the Canadian Advisory Committee meeting on 18 August 2006
- Appendix D.7: Report of the Canadian Advisory Board to Montana Alberta Tie Ltd. (MATL), 31 August 2006
- Appendix D.8: Recommendations Developed by the Canadian Advisory Board in the Document Entitled "Report of the Canadian Advisory Board to Montana Alberta Tie Ltd. (MATL) 31 August 2006) to be Addressed by MATL

Appendix D.1

MATL's FAQs

FREQUENTLY ASKED QUESTIONS
CANADA
NATIONAL ENERGY BOARD

PROJECT OVERVIEW

1. How receptive is the AESO to this project (e.g. to changing its computer programs and procedures)?

We believe that this initiative aligns nicely with the Transmission Regulation and AESO's role to facilitate such interconnections. We are closely working with the AESO to meet the requirements of such projects.

2. Can we receive a timeline for the project and for the open season?

Yes. The first Open Season concluded successfully on April 15, 2005. The second Open Season was completed in June 2006. MATL plans on having the regulatory phase completed during the last quarter of 2006. The line will be constructed winter/spring of 2007 and should be operating by June 2007. All times are subject to regulatory approval.

3. What is the probability of success of this project?

MATL has 300 MW of capacity under long term contract from south to north and another 300 MW of capacity under long term contract from north to south. The sale of this capacity ensures the economic viability of the project. In addition, MATL anticipates revenue from short or real time capacity sales.

4. How many regulatory approvals do you need to get?

We have identified 134 necessary regulatory approvals and permits.

5. What is the current status of the project?

MATL has submitted applications to the National Energy Board, Alberta Energy and Utilities Board, US Department of Energy, Montana Department of Environmental Quality and the Federal Energy Regulatory Commission. MATL is also finalizing interconnection and operating agreements with Northwestern Energy, AESO and AltaLink.

6. Is financing in place?

Yes. Tonbridge Power Inc, a public company traded on the Venture Exchange of the TSX has provided the equity funding required for the development phase of the project. MATL is now a subsidiary company of Tonbridge. Additional funds will be required after we have received all regulatory approvals and we proceed to the construction phase of the project.

LANDOWNER

1. What is a Megawatt (MW)?

A megawatt is 1 million watts. A watt is a measurement for the rate at which energy is produced or consumed. One watt is equal to one joule per second. It takes 40-60 watts for a normal light bulb to work.

2. What is Alternating Current?

Alternating current is the type of current that reverses direction of flow from positive to negative; the power shifts or alternates back and forth, usually many times per second. This change in direction occurs typically 50 or 60 times per second, in other words, it has a frequency of 50 or 60 Hertz.

3. How much is 300 MWs?

300 MW is enough energy to supply 300,000 homes. This would be equivalent to a medium sized city.

4. How can power flow in both directions?

Power does not flow in both directions simultaneously; however, when there is a greater demand at one side or the other the power is directed in the appropriate direction by the phase shifting transformer.

5. What is an Electric Magnetic Field (EMF)?

EMFs are invisible fields produced by the movement of electricity. They are found everywhere there is an electrical object: such as a computer, television, etc. For more information or facts on Electric and Magnetic fields please refer to the Electric and Magnetic Fields Facts by Western Area Power Administration (available at http://www.wapa.gov/newsroom/pdf/EMFbook.pdf). You can also refer to the Power Lines and Cancer FAQs of Dr. J. E. Moulder at the Medical College of Wisconsin (available at http://www.mcw.edu/gcrc/cop/powerlines-cancer-FAQ/toc.html).

6. Is EMF from transmission lines harmful to humans, animals or plants?

The term EMF refers to Electric and Magnetic Fields. These invisible fields are generated everywhere there is electricity, such as household wiring, electrical appliances and transmission lines. Research on EMF related to human health issues has been carried out for well over 20 years. Government agencies and scientific studies have concluded that EMF from electrical transmission lines are not harmful to humans, animals or plants. A few examples include:

Health Canada (1999) *"For a power frequency of 60Hz, there is at present no Canadian national standard for EMF exposure. We are unsure of what levels of EMF's are unsafe because the existing worldwide scientific evidence is not sufficient to define a level of exposure that can affect human health."*

Ministry of Health, Government of British Columbia (2000) *When the research to date is taken as a whole, the evidence does not support the assumption that fields surrounding power lines, appliances, etc., pose a risk to human health. In recent years, larger, better designed studies have provided firmer evidence that exposure to these fields does not increase the risk of childhood cancer or produce other detrimental health effects.*

American Cancer Society *Electromagnetic radiation at frequencies below ionizing and ultraviolet levels has not been shown to cause cancer. While some epidemiologic studies suggest associations with cancer, others do not and experimental studies have not yielded reproducible evidence of carcinogenic mechanisms.*

7. Does EMF impact people with heart pacemakers?

When pacemakers were first developed, there were some concerns related to magnetic field interference from electrical appliances and such things as scanners at airport security. Most modern day pacemakers will not be affected by EMF, however, according to the U.S. Food & Drug Administration, EMF can affect certain pacemakers. Most of their research has been done on higher frequency sources of EMF such as cell phones, CB radios, wireless computer links, microwave signals and pagers. Power lines produce lower frequency EMF than these other devices.

The occupational Guidelines developed by the American Conference of Governmental Industrial Hygienists state that workers with pacemakers should not be exposed to a 60 Hz magnetic field greater than 1000 mG (1 Gauss). The level of the magnetic field at the edge of the right of way for the transmission line is projected to be 68.538 mG (0.0685 Gauss) for an H-Frame structure and 76.552 mG (0.0766 Gauss) for a single pole structure.

8. Do electromagnetic fields cause breast cancer?

Independent reviews of the effects of electromagnetic fields on breast cancer have yielded the following statements:

References to the effects of transmission lines and residential occurrences of breast cancer indicate:
"no excess female breast cancer in adults living near transmission lines", "no significant excess of male or female breast cancer in adults living near transmission lines" and *"residential exposure to power-frequency magnetic fields or residence in high wire-code houses were not associated with excess female breast cancer"*.

Only one reference was to an association with breast cancer and Norwegian women. The same Norwegian study stated that there was no association with an increased risk with the same females due to exposure at work. These statements come from www.mcw.edu/gcrc/cop/powerlines-cancer-FAQ/toc.html.

The International Commission on Non-Ionizing Radiation Protection has said that, It should be also noted that recent studies have found no evidence for a significant effect of exposure to ELF magnetic fields on melatonin levels in humans (Graham et al. 1996, 1997; Selmaoui et al 1996).

9. Does the overhead line impact livestock?

Extensive studies in Canada, Sweden and the U.S. indicate that the exposure to EMF associated with transmission lines, is not harmful to farm animals. (See also the answer to the question concerning EMF and humans, animals, and plants.)

10. Does the overhead line impact communication signals, for example, cell phone radio, television reception, high speed internet, and two-way radio?

If you receive good radio and T.V. signals now, these signals will likely not be affected by the transmission line. If your station signal is weak before the line is built, the new transmission line may have an effect on the signal. Any landowners with concerns about potential interference with satellite, GPS receiver, wireless internet, television, radio and other communication devices should contact MATL at (403)264-4465 to discuss concerns and mitigative measures. MATL has arranged for Shel-Bar Electronic Industries to investigate problems both pre- and post-operation.

11. What is the impact on property values?

There will be no significant effect on property values. The easement and pole payments offset any minor effects related to working around the poles.

12. Do aircraft warning lights need to be affixed to the tops of the structures?

According to 2.2 (b) of Canadian Aviation Regulation, any obstruction that is greater than 90 m (300 feet) should be marked and/or lighted. Blinking warning lights do not need to be affixed to the tops of the structures, because overhead line structures will be less than 30 m (100 feet) in height.

13. Does the transmission line impact the flyway of geese and swans?

During migration, birds generally fly at altitudes well above the power lines in order to minimize the loss of energy during their transit from heavy turbulence. MATL has tried to avoid locating the transmission line in wetland areas where waterfowl feed and rest, when they are lower to the ground. The pole design will minimize the ability of birds of prey to perch while hunting for of bird species.

14. Who will maintain the area around the poles?

Montana Alberta Tie Ltd. leases the area where the poles are located and the ground area below the transmission lines. The landowner owns the land and is free to farm or carry out any activities below the lines that do not interfere with them. MATL will do its best to avoid introducing weeds into the area around the poles and is actively making arrangements to contract out vegetation management to a company on private and public land. Weed control by private landowners is also being looked into for some portions of the line. MATL will revegetate disturbed areas to reduce the potential of weed invasion, provide vegetation control, monitoring and facilitate recovery of the disturbed area. Revegetation and reclamation of the areas around the poles is major component of MATL's Environmental Protection Plan, which is a regulatory requirement and will be submitted 60 days prior to construction commencement.

15. Can I operate machinery near the transmission line?

Any machinery under 4.3 metres (14 feet) high can be operated safely under the transmission line. Any antennas higher than 4.3 metres should be lowered.

16. Can I burn brush under the transmission line?

In addition to the possibility of damaging the poles, it is possible that the smoke or hot air could carry electricity from the line to the ground so you should never start a fire under the transmission line.

17. Can I park my tractor or car under the transmission line?

A vehicle parked under a transmission line can pick up a small electrical charge since the rubber tires prevent the vehicle from being grounded (allowing the charge to go into the ground). When you attempt to enter the vehicle, you may experience a small shock since the electricity will pass from the vehicle to you and then into the ground. This shock is only a nuisance and won't cause any harm. If you are in the cab of the vehicle and don't step out onto the ground, you are insulated and won't feel a shock.

18. Can I re-fuel my vehicle under the transmission line?

It is not a good idea to do so as it is possible that a spark can be produced unless the vehicle and the fuel container are both grounded.

19. Will the transmission line affect my fence?

It is possible that your fence may pick up a small electrical charge that would be a nuisance to livestock. MATL will take measurements and ensure proper grounding should this situation occur.

20. Can I build a shed or other building under the line?

Buildings cannot be built directly under the line or within a certain distance from the line. Electrical charges will not normally build up in buildings close to lines because the plumbing, wiring or the foundations usually grounds them. Buildings with metal roofs may require additional grounding. The transmission line has been located a safe distance away from residences and other buildings. Should you wish to construct a new building close to the transmission line, it is advisable to contact MATL to find out how close you can come to the line.

21. What is MATL's policy for negotiating a higher price with landowners who settled earlier, rather than later in the process?

If MATL agrees to pay a higher price later in the project, then MATL will raise the price paid to earlier signers having land of a comparable value. In this manner landowners will not be penalized for signing earlier.

22. Why does the line cross some areas diagonally rather than following existing land lines or road allowances?

A diagonal route takes up less land overall than a right angle route.

23. Are you intending to use expropriation to give you the right to construction?

We hope not to. We want to work with the landowners to come up with an appropriate solution. MATL recognizes the importance of good relationships with landowners and that a good reputation will be a valuable asset as we examine other potential projects in North America.

RIGHT-OF-WAY

1. Are the rights of way acquired?

During the initial phases of the project, MATL obtains options to the proposed right-of-way, (RoW) in order to be able to access the land and provide some certainty to the proposed location of the route. MATL then obtains an easement on the property of concern which permits the company to build and operate the power line. This same easement also allows the farmer to do what he may wish on the RoW as long as it is safe for the public. MATL also pays an annual pole payment in compensation for the poles being on the property.

2. What compensation will be given where the line runs across private land?

MATL will negotiate compensation with each landowner. The level of compensation will depend upon many factors including, among other things, the land use (crops vs. grazing land), whether there are any buildings in close proximity, the type and number of structures MATL will place on the land and future access rights to the land.

3. Is the payment made in a lump sum or paid as rent?

MATL has proposed a combination of a lump sum payment and an annual maintenance fee related to a number of structures but we are willing to discuss alternatives with the landowners.

4. Is there a problem with cattle rubbing against poles thereby causing soil to dish around the pole base?

MATL is using laminate poles that will withstand any cattle rubbing against the poles. If soil dishing does occur around the base of the pole, then any significant dishing will be determined through regular maintenance checks on the line and the dishing will be eliminated where necessary.

5. What are the widths of the rights-of-way?

Currently we are working under two different widths depending on the location of the line. If the line parallels an existing road allowance, the right-of-way will be approximately 30 m wide. If there is a new alignment not paralleling other facilities, the right-of-way will be approximately 20 m wide.

PUBLIC CONSULTATION

1. Have you contacted conservation organizations?

Yes, MATL has had contact with the following organizations: Southern Alberta Environmental Group, Alberta Conservation Association, Ducks Unlimited - Canada, Ducks Unlimited - US, Canadian Parks and Wilderness Society, Nature Conservancy of Canada.

TECHNICAL / OPERATIONAL

1. Can you provide information on the purpose and advantage of using phase-shifting transformers?

The phase-shifting transformer will allow the power flow on the line to be controlled. It will also prevent undesirable loop flows and transmission overloads. It is similar to an on-load voltage tap changing transformer except that in addition to controlling MVAR flow it can also control MW flow. A phase-shifting transformer is a synchronous connection and is more economical than a back to back DC connection. Both Alberta and Montana are interconnected to the same western interconnection and thus can be interconnected via a synchronous transmission line.

2. What is voltage regulation?

The phase-shifting transformer will have an off-load voltage tap changer that will control voltage. The transformer will match Alberta's 240kV system to Montana's 230kV system.

3. Will voltage regulation be required?

Yes. The power system studies would determine reactive compensation, the type and the location.

4. Can we have a description of the studies that are being done? –Stability during system fault conditions, system load assumptions.

There are at least three different phases of system studies associated with the Project. The first phase was the proof of concept studies performed by ABB for the Open Season process completed last spring. The second phase is the system studies currently being conducted by the AESO and by NorthWestern. The third phase is the larger area system studies that will be conducted as part of the Western Electric Coordinating Council (WECC) path rating process.

5. How do you expect the MATL tie to operate prior to construction of the Edmonton to Calgary transmission reinforcement facilities?

Prior to the reinforcement of the Edmonton to Calgary corridor, the AESO has proposed to add transmission facilities in the Calgary area (more than 500 mvar of capacitors). It is expected that these facilities would have a positive effect on the transfer capacity from Alberta. The preliminary steady state studies for 2006 with all elements in-service transferred 300 MW in either direction. Some mvar support may be required at Lethbridge and Great Falls for extreme generation patterns.

6. What will be the impact of the tie line?

The line is expected to provide many tangible benefits to both the Alberta and Montana systems such as increased transfer capabilities under certain system operating conditions on existing interconnections, a more reliable systems, greater choice of supply options, lower price volatility.

7. Will it stabilize the Alberta system?

The power system studies would determine the Alberta system performance with MATL in service. Generally the greater the number and strength of interconnections, the stronger and more reliable the power system.

8. Will the proposed wind development affect the firmness of import/export?

We anticipate that wind generation will enhance export capability beyond the nominal ratings. The MATL tie will also assist in buffering the system effects of wind volatility.

9. What are the operations on the Montana side and do they match the AESO's plans?

It is expected that the AESO will be the area control operator for Alberta and NorthWestern Energy will be the control area operator for the Montana region. As with existing interconnected jurisdictions they will have to coordinate their operations. A COA or coordinated operating agreement will spell out the elements of the interconnected operation. Both the Montana and Alberta jurisdictions are de-regulated.

10. Who are the major players in the Mid-C market area?

Please see the WECC website (www.wecc.biz) for a WECC members list. This list comprises the majority of marketers, generators, transmission and major end use customers in the Mid-C market area. The website also contains links to all of the WECC members, allowing prospective shippers to research the companies and to obtain contact information.

11. What kind of poles will be used?

Laminate or round wood poles will be used for the majority of the line. Steel poles may be used in special circumstances

12. What will be the height of the poles?

The height of the poles will depend on the topography being crossed, and the span or distance between the poles. Generally the poles will be 200 m apart. A typical pole is 70 to 80 feet high.

13. Why is MATL using H-frames instead of monopoles?

H-frames offer increased span lengths compared to single pole structures, thereby decreasing the number of required structures. MATL works with landowners to place structures to minimize the impact on agricultural operations. Only 6-7 H-frames are needed per mile as opposed to 11-12 monopoles needed for the same distance.

14. What is the relative price of power between the two areas [Montana and Lethbridge]?

The fundamental difference between the two markets is that, Alberta is volatile, with a large difference between lows and highs. Coal generation sets the lower price at night while natural gas fired generation sets the higher price during the day. Both are similar with a base production in Coal. Increased energy trade eliminates market efficiencies and puts downward pressure on prices.

15. Major producers in Montana are hydro, when they ship north what would be the impact?

It would be another competitive energy source for Alberta and an export market for the state.

16. How is this transmission line going to be taxed?

We will be charged property tax, just like everyone else.

TRANSMISSION SERIVCE / TARIFF / LOSSES

1. How firm will the transmission be (before and after the Alberta 2009 upgrades)?

The MATL transmission itself will be firm subject to forced major and planned maintenance outages. This will be outlined in our Tariff. The degree of firmness of supply to MATL will be a function of the shipper's agreement with the local transmission provider/operator. MATL will be demonstrating through power system studies, the interchange capabilities but the final decision on Available Transfer Capabilities (ATC) will rest with the AESO and NorthWestern Energy. We expect some improvements from the current Alberta export limits today. Additions of the Calgary capacitor bank (500 Mvars), the SW Wind Transmission, and the MATL tie will enhance transmission service. The addition of the 500 kV backbone between Edmonton and Calgary should minimize most of today's north south path constraints.

2. What will the transfer capacity be on MATL?

300 MW each direction.

3. How much of the 300 MW capacity will be firm/non-firm?

The capacity on the MATL line will be firm subject to normal forced major and maintenance outages. Additional transfer capacity may be available depending on system conditions and regional generation. The firmness of supply to/from Lethbridge or to/from Great Falls will be the responsibility of the shippers. That is, if the shipper desires firm supply to the MATL interconnection they must make those arrangements with the regional transmission provider/operator. The purpose of the power system studies is to demonstrate the potential to transfer the full capability of the MATL tie.

4. Can we make trade arrangements in Montana using this transmission?

Yes.

5. Can we have a template for purchasing transmission - forward and day-ahead?

MATL will be implementing an OASIS system. We will be joining the WesTTrans OASIS system (http://www.oatiinc.com/) provided by Open Access Technology Incorporated. The WesTTrans system will be modified to allow capacity trading via auction modules.

6. Could we buy the off-peak capacity only?

Yes, subject to other bidders taking capacity at higher rates or for longer terms.

7. How will losses be handled?

The Shipper will be responsible for all losses including the approximately 5% that will occur on the MATL line.

8. What will the Alberta loss charges be?

The AESO, for an effective date of January 1, 2006 is currently working with stakeholders to determine a new losses methodology as per directions under the new Transmission Regulations. The AESO has filed its 2006 Tariff application to the AEUB and this application contains its proposed tariffs as well as the treatment of losses for import and export. This application can be viewed at the EUB website and the application number is 1383614. MATL will also have loss examples provided as part of our power system studies.

9. What are the expected flows N-S, S-N and losses on the transmission line?

MATL has long term contracts for 300 MWs to flow from south to north with two shippers and long term contracts for 300 MWs to flow from north to south with another two shippers. The direction of flows on any given day will be dependent upon market dynamics in Alberta, Montana and in the mid-C market.

IMPACT / BENEFITS

1. What will be the impact of the MATL transmission line on Alberta-B.C. exports?

We believe the MATL should have a positive impact on the operation of other interconnections and preliminary studies show that this is possible under some import/export conditions. The power system studies will determine how much.

MARKET

1. How will prices for capacity on MATL be set?

Prices for the MATL line were set by the Open Season capacity auction process. In the future, prices will be set via auction modules that will be incorporated as part of the MATL OASIS site

2. What happens if the minimum threshold volume of 150 MW (in both directions) is not sold in the open season?

MATL currently has enough capacity sold to build the project.

3. Will there be another open season?

MATL will sell remaining unsold capacity for terms up to two years via its WesTTrans OASIS site. MATL will also accept requests for longer term service. Upon receipt of such a request, the request will be publicized via the MATL WesTTrans OASIS site and via periodic updates that MATL will send to industry participants. If other interested parties

also express an interest in obtaining that capacity, then MATL will hold an open Season for other parties to match that request. If no other party comes forward with a competitive request the capacity will be sold to the original requesting party.

4. How will import/export capacity out of Alberta be allocated?

An operating nomogram will be developed taking into account the operation of all three interconnections to BC and HVDC interconnection to Saskatchewan. It should be noted that the service offered on the existing Alberta-B.C. and Alberta-Saskatchewan tie capacity is an opportunity service. All firm service at the point of delivery from the AESO would get preference. All opportunity services will be allocated based on AESO rules.

5. How will the System Controller dispatch the transmission?

MATL anticipates that the dispatch of transmission will be addressed in a coordinated operating agreement involving the AESO and NorthWestern. We expect that the approach would be similar to how the ties are currently scheduled and dispatched.

6. Will this line be hourly dispatched or does the AESO expect it to be a bid in assets/load that will be dispatched by the minute?

MATLs' on-load phase shifting transformer will be capable of being dispatched minute by minute.

7. Who conducts the ATC/TTC calculations in Alberta and Montana?

The ATC/Total Transmission Capacity (TTC) for capacity going into the MATL line will be calculated by the AESO in Alberta and Northwestern Energy formerly part of Montana Power as the transmission operator in Montana. ATC/TTC for the MATL line itself will be calculated by MATL and made available through the MATL WesTTrans OASIS site**8. On exports, where will the Alberta power be sunk once it gets to Great Falls? That is, what load exists in Montana?**

The shippers may arrange to deliver power to Montana consumers or arrange wheeling through to the MISO, Idaho or Mid-Columbia/Pacific Northwest markets. Montana's peak load is approximately 1500 MW.

9. How will the System Controller divide up ATC between the BC Hydro tie and the MATL line?

It is expected that the process of determining ATC for interconnections to neighboring jurisdictions will follow NERC/WECC criteria. Since currently there is only one major interconnection with B.C. the ATC levels are generally determined by over and under frequency and voltage stability limits. With MATL in service nomograms will be developed that would guide who can import/export how much power.

10. Can Alberta energy reach Mid-C and Idaho reliably?

The addition of another synchronous interconnection will benefit both Alberta and Montana. The question is how much. The power system studies will validate that potential.

11. Can we have information on where to sink the power once it lands in Montana - options, information on scheduling?

With their permission, we would share the names of potential Montana contacts. MATL will go about obtaining that permission and share them as we receive their permission.

Appendix D.2

MATL's Response to Alternate Chin Coulee Route

FINAL SUMMARY

MONTANA ALBERTA TIE LTD.

ALTERNATE CHIN COULEE ROUTE

PROPOSED BY JIM TWA AND MARGARET LEWIS

August 16, 2006

TABLE OF CONTENTS

EXECUTIVE SUMMARY

A new, carefully chosen route for a portion of the Canadian section of the Montana Alberta Tie Ltd. (MATL) transmission line was proposed by Margaret Lewis and Jim Twa, as a possible alternative, less destructive route. MATL has initiated research and thoroughly assessed various aspects of the proposed Chin Coulee route. These include cropland, houses and buildings, environmental, archaeological, engineering, distance, and cost issues. After carefully comparing the proposed Chin Coulee route to MATL's preferred route, MATL has concluded that the Chin Coulee route is not a feasible alternative when all aspects of both routes are taken into consideration. The proposed Chin Coulee route impacts more pivot row crops, affects a higher number of houses within 200 m of the proposed line, encompasses federally and provincially listed species whose distribution and frequency needs to be studied, has a high number of archaeological and palaeontological sites in the direct vicinity of the line, requires more structures, and will cost substantially more. Additionally, a recreational property community exists within 100 m of the proposed line and a Hutterite Colony and current wind farm development will be directly impacted. Options for deflection in this area following the proposed Chin Coulee route are limited and would present problems. MATL has determined that there is no significant supporting evidence to deviate from its preferred route and choose the proposed Chin Coulee route.

1.0 INTRODUCTION

On May 7, 2006, an alternative route to Montana Alberta Tie Ltd's (MATL) preferred route was proposed by Margaret Lewis and Jim Twa. Considerable detail and research were put into planning the route. The new proposed Chin Coulee route, east of MATL's preferred route, is between 19-10-18-W4 and 15-8-18-W4, and crosses the Chin Coulee, east of Lethbridge. The proposed Chin Coulee route was suggested not only because it would avoid construction of the transmission line on the preferred route road allowance near the Lewis's land, located on a portion of NW 7-8-18-W4, but also because it was felt that the proposed Chin Coulee route impacted fewer houses and had fewer turns. MATL undertook a preliminary study to determine if the proposed Chin Coulee route was a feasible replacement alternative to its preferred route. Research was commenced to address cropland impacted, buildings affected, environmental and archaeological concerns, engineering, and estimated construction costs of the proposed Chin Coulee route. These results were then compared with the existing data for MATL's preferred route in the same area.

2.0 SUMMARY OF PROPOSED CHIN COULEE ROUTE

The Chin Coulee route proposed to MATL by Margaret Lewis and Jim Twa commences at 19-10-18-W4 in Warner County and finishes in Lethbridge County at 15-8-18-W4 (Figure 1). It travels strictly along road allowances and is located east of the preferred route. Unlike MATL's preferred route, the proposed Chin Coulee route crosses Chin Lakes / Chin Coulee.

2.1 Assumptions

The route given to MATL by Margaret Lewis and Jim Twa was incomplete, as the proposed Chin Coulee route did not tie in with the preferred MATL route at either the north or south ends. Therefore, MATL made several assumptions for the remainder of the route (Figure 1). Firstly, that at the southernmost end of the proposed Chin Coulee route, the route would continue directly south until Highway 61 then head directly west and tie in with the preferred route. Secondly, at the northernmost end of the proposed Chin Coulee route, the route would head directly west until Highway 845 then head directly south and tie in with the preferred route.

Finally, since it was not indicated what side of the road the line would occur, MATL assessed all houses and buildings within 40 m of each side of the road allowance.

Assumptions were also made regarding infrastructure when assessing impacts. Construction was assumed to occur on private property adjacent to the county road allowances and would be with single mono-poles with required easement and safety zones. Appropriate distances would be maintained from all utilities, roads, and oil and gas infrastructure.

3.0 RESULTS

3.1 CROPLAND

Total pivot row crops were assessed to determine differences in impact between MATL's preferred route and the proposed Chin Coulee route. The potential length of impact on pivot row crops for the proposed Chin Coulee route was 27.5 miles. Pivot row crop impacts on MATL's preferred route are 19 miles. The proposed Chin Coulee route impacts 8.5 additional miles of pivot row crops (Weadick 2006b, pers. comm).

3.2 HOUSES

Number of houses impacted along the proposed Chin Coulee route was investigated. Because it was not specified, houses were assessed along both sides of the road allowances in 3 categories: within 40 m, within 100 m, and within 200 m. Along the proposed Chin Coulee route, it was determined that within 40 m, 9 houses exist; within 100 m, an additional 4 houses; and within 200 m, an additional 2 houses. The total number of houses affected within 200 m of the proposed Chin Coulee route is 15 (Weadick 2006a, pers. comm). MATL's preferred route was assessed using the same categories. Along the MATL preferred route, it was determined that within 40 m, zero houses existed; within 100 m, there were 4 houses; and within 200 m, an additional 5 houses. The total number of houses affected within 200 m of the MATL preferred route are 9 (Weadick 2006a, pers. comm). The proposed Chin Coulee route affects an additional 6 houses within 200 m of the line.

3.3 ENVIRONMENTAL

3.3.1 Proposed Chin Coulee Route

The Chin Coulee encompasses an area of uncultivated and native vegetation with common grassland species present. It exists as an area of important winter habitat for wildlife due to its native vegetation and provision of winter ungulate habitat (Morton 2006b, pers. comm). Recent wildlife surveys by other industrial proponents have indicated a high diversity level for bird species in and adjacent to Chin Coulee, particularly in the area of the proposed crossing. The coulee and associated reservoir and riparian areas provide habitat for many bird species and the coulee acts as a natural flight path for resident and migratory bird species. There is also a higher likelihood that reptiles and amphibians may occur in the Chin Coulee because of the riparian areas and presence of a permanent water-body. Alberta Fish and Wildlife is concerned with the safety of wildlife species and the mitigation of potential impacts due to industrial development (Morton 2006a, pers. comm). These include common wildlife species but also Sensitive-listed species. Sensitive species refer to species legally listed as Endangered or Threatened under the Provincial Wildlife Act, those designated as Species of Special Concern, or species ranked as At Risk, May Be At Risk, or Sensitive in Alberta by general status. MATL was unable to conduct wildlife and vegetation surveys because the required time period for surveying most species had passed, but Fish and wildlife recommends that pre-construction wildlife surveys be completed along the Right of Way by experienced wildlife biologists. Such studies would delay the project by at least one year. These include inventory surveys for amphibians, breeding birds, burrowing owl and associated burrows, Sharp-tail Grouse and associated leks, Peregrine falcons, Ferruginous hawks, Sprague's Pipit, Short-horned lizard, snakes and hibernacula, and rare plants. Without wildlife surveys, several observations about the proposed Chin Coulee route can be made, however. The route passes through a larger area of native grassland and vegetation than does the MATL preferred route. This is due to the crossing of the Chin Coulee and the line running parallel to the Etzikom Coulee, near Highway 61. The proposed Chin Coulee crosses less cultivated land than the MATL Preferred route and is therefore more likely to have a higher abundance of Sensitive-listed species. A route mainly on cultivated land with a lower impact on Sensitive-listed species and less native vegetation is preferred over a route that impacts a higher number of species and native vegetation. Due to the large water body that is crossed by the

proposed Chin Coulee route, Fish and Wildlife is especially concerned with migratory birds. Alberta Fish and Wildlife has stated, “The potential impacts to bird species by having the transmission line crossing this area is unacceptable to Fish and Wildlife. We would not support this route as it is depicted on the map provided” (Morton 2006a, pers. comm).

3.3.2 MATL Preferred Route

The MATL preferred route crosses mainly cultivated land with less native vegetation than the proposed Chin Coulee route. A higher number of agronomic species than native grassland species exist on the preferred route. Cultivated areas support a lower number and diversity of native plant species and a lower number of wildlife species, due to lack of natural cover and selected food species. The MATL preferred route crosses one major area of native vegetation and wildlife habitat, the Etzikom Coulee, but crosses it perpendicularly, whereas the proposed Chin Coulee route runs parallel for a portion. Running parallel to the coulee will cause greater disturbance than crossing perpendicularly because a higher amount of land is impacted. The MATL preferred route is not classified as important winter habitat for wildlife species, due to most of the route being on cultivated land.

3.4 ARCHAEOLOGICAL

An examination of nearby historical resources and historical resource potential was undertaken within a 2 km corridor of the proposed Chin Coulee route and the MATL preferred route. Specific segments were rated as having High, Moderate, or Low historical resource potential. High indicates there are known, recorded historical resources in the area that are considered scientifically significant and there is high potential for additional, as yet unrecorded sites. Moderate means there are known historical resources in the area, but their significance is unknown and that there is moderate potential for additional as yet unrecorded sites. Low means there are no known significant historical resources in the area and there is unlikely to be any within the proposed route and buffer zone.

3.4.1 Proposed Chin Coulee Route

The east-west portion of the route along Highway 61 is rated Moderate. There are several small archaeological sites which have not been excavated or examined closely. Cultural materials occur in both native grasslands and cultivated fields in the area, including projectile points, stone

artifacts, and hearths. There are at least six sites along the north side of the highway and at least one on the south side of the highway. One homestead site occurs northwest of Judson and additional buildings and remains would have to be investigated. The route north of Highway 61 along Range Road 18.2, 1km south of Chin Lake is rated as Moderate, due to three areas designated as “collection areas,” with artifacts more than 8000 years old. This area would have to be examined carefully due to known historical resources. Chin Coulee/Chin Lake crossing is considered the most sensitive area in terms of historical resources and is rated as High. There is a major bison jump/kill site in Section 27 and 34-8-18 along the south side of Chin Lake. Because of this, there are likely habitation and processing sites in the immediate vicinity. There are surface tipi ring sites in Sections 26, 34, and 35 within the proposed corridor, and there is at least one buried campsite in Section 34. Additional unrecorded sites are considered likely to occur. Both sides of Chin Coulee have exposed Cretaceous bedrock and various palaeontological specimens including plants, turtle shell fossils, fish fossils, and dinosaur skeletal remains have been recovered. All areas within 150 m of the break of the slope to the coulee would be subjected to a palaeontological assessment due to unrecorded materials in the area. The area north of Chin Coulee is considered Low, but would warrant further investigation. North of Highway 3 to Township Route (TR) 10.4 is also considered Low with one small area listed as Moderate due to recorded archaeological sites within 19 and 20-10-18 W4 north and east of the proposed route. Finally, TR 10.4 to Highway 845 is listed as High due to recorded archaeological sites and known collection areas. The north side of the road has potential for buried historical resources and at least one major bison kill and one significant campsite. Several artifacts dating to greater than 8000 years have been found, and it is therefore considered an archaeologically significant area. The entire power line route along TR 10.4 would be subject to field work if located on the north side. Additionally, coulees extending into the 2 km buffer zone would need to be examined for palaeontological materials. Overall, the proposed Chin Coulee route has a higher overall rating of historical resource potential (Mirau 2006b, pers. comm).

3.4.2 MATL Preferred Route

North from Highway 61 to the north boundary of 1-17-19-W4 is rated as Moderate. This small stretch of transmission line crosses the Etzikom Coulee and there are two known, but unrecorded archaeological sites in this area. The Etzikom Coulee area also has Moderate potential to contain cultural materials in both native grassland and cultivation in this area, and would have to be

investigated further. The north boundary of 1-17-19-W4 to north boundary of 12-8-19-W4, north boundary of 12-8-19-W4 to north boundary of 3-10-19-W4, and north boundary of 3-10-19-W4 to west boundary of 18-10-19-W4 are all rated as Low. These areas all have no recorded historical resources and have all been disturbed by cultivation, roads, and other developments. There is very low potential for these areas to contain any palaeontological remains or fossils. Arrow Archaeology has recommended that this portion of the route need not be examined further for historical resources given the low historical resource potential and the level of previous disturbances. The west boundary of 18-10-19-W4 is rated as Moderate. Section 13-10-20-W4 has reported, but unrecorded, archaeological sites on the south side of the SMRID reservoir, possibly in the area of the proposed transmission line right of way. The remainder of the section has been disturbed and there are no other recorded or reported archaeological sites or historical resources in this area. It is believed that there are no other archaeological sites, historical resources, or palaeontological resources in the area, although field truthing will likely be required.

Arrow Archaeology has stated that, "the 'Preferred Route' from Highway 61 to Highway 845 is significantly less likely to disturb historical resources than the 'Chin Coulee' route," and that, "The nature of historical resources make predicting their precise locations and extent difficult, however there is little doubt that from the point of view of previously recorded and reported historical resources, the nature of previous land disturbance and considering each routes' biogeophysical characteristics, the 'Preferred Route' option will have lower potential to impact such resources" (Mirau 2006a, pers.comm).

3.5 ENGINEERING

The proposed Chin Coulee route requires a higher number of structures than MATL's preferred route (Weadick 2006b, pers. comm). Fifteen 90-degree, six 45-degree, nine running-angle, and two crossing structures are required on the proposed route, as opposed to seven 90-degree, two 45-degree, four running-angle, and zero crossing structures required on the MATL preferred route. A total of thirty-two structures are estimated to be required on the proposed Chin Coulee route, while thirteen structures are estimated for MATL's preferred route. Additionally, it was discovered that a previous transmission line which had a crossing across the Chin Coulee, was

denied on the basis that crossing the coulee was deemed unacceptable (Morton 2006b, pers. comm).

3.6 UTILITIES AND OIL AND GAS

Qualitative concerns including gas pipelines and Telus and Fortis lines have not yet been addressed for the proposed Chin Coulee route. There is oil and gas activity in the region, including buried gas lines, and a thorough investigation to determine possible impacts from the proposed lines would be warranted.

3.7 ROUTE DISTANCE

The total distance of the proposed Chin Coulee route along road allowances is 41.25 miles. The total distance of MATL's preferred route is 28 miles. An additional 13.25 miles are required for the Chin Coulee route (Weadick 2006b, pers. comm).

3.8 ESTIMATED COSTS

A construction cost estimate was performed to compare the proposed Chin Coulee route to MATL's preferred route. The cost estimate for the proposed Chin Coulee route assumed a starting point at G0.1 in SW 16-10-20-W4 and a finishing point at A1 in NW 36-6-19-W4. No costs for environmental and archaeological studies or operation and maintenance were included. MATL's preferred route assumed a starting point at G0.1 in SW 16-10-20-W4 and a finishing point at A1 in NW 36-6-19-W4. The differential cost for choosing the proposed Chin Coulee route was determined to be CAD $2.9 million (Dunphy 2006, pers. comm).

3.9 OTHER

Additional issues were raised regarding the proposed Chin Coulee route while driving the route to collect information. Firstly, at a location approximately 200 to 800 m west of the Chin Reservoir Dam, a recreational property community located on the north-south road allowance exists. Approximately thirty holiday trailers and residences are present. Notwithstanding technical and environmental issues associated with crossing the dam, additional issues would arise because the proposed Chin Coulee route runs within 100 m of this development. Secondly, the Lakeside Hutterite Colony exists on the south bank of the top of the dam crossing. Several

residences and farm buildings are present. This area also contains138 kV lines and a wind farm under construction to the northwest of the Hutterite Colony. Following the existing road, the proposed Chin Coulee route will run within 50 to 200 m of the Hutterite Colony and will partially run through this intensive development. Deflection options for the proposed line would be limited (Weadick 2006a, pers. comm).

4.0 REFERENCES

Dunphy, L. 2006. Montana Alberta Tie Ltd. Calgary, AB. Personal communication. August 8, 2006.

Mirau, N. 2006a. Arrow Archaeology Ltd. Lethbridge, AB. Personal communication. August 17, 2006.

Mirau, N. 2006b. Arrow Archaeology Ltd. Lethbridge, AB. Personal communication. August 1, 2006.

Morton, K. 2006a. Alberta Sustainable Resource Development. Lethbridge, AB. Personal communication. August 18, 2006.

Morton, K. 2006b. Alberta Sustainable Resource Development. Lethbridge, AB. Personal communication. August 17, 2006.

Weadick, G. 2006a. Martin Geomatic Consultants Ltd. Lethbridge, AB. Personal communication. August 15, 2006.

Weadick, G. 2006b. Martin Geomatic Consultants Ltd. Lethbridge, AB. Personal communication. July 27, 2006.

Appendix D.3

A Letter of Support for the Power Line Project from SAGE

Box 383 Station Main
Lethbridge, Alberta
T1J 3Y7

A leading voice for a healthy and environmentally sustainable community.

September 8, 2006

John Railton
Montana Alberta Tie Ltd.
Suite 800, 615 Macleod Trail SE
Calgary AB T2G 4T8

Dear Mr. Railton:

Southern Alberta Group for the Environment (SAGE) has been monitoring the progress of Montana Alberta Tie Ltd. (MATL) proposal to establish a new 300 MW electrical transmission line from Lethbridge, Alberta to Great Falls, Montana. Originally the chosen path drew through the centre of the Milk River Ridge, an area of virgin prairie supporting a variety of species including some at risk. SAGE felt this course was not in the best interest of the environment and encouraged MATL to look for an alternative route that would circumvent the Ridge.

The proposed route has been moved to a path east of the original proposal and passes across the eastern tip of the Ridge. This route change considerably alleviates the threat to environmentally significant features posed by the original proposal. The new preferred route passes along the eastern boundary of the Twin River Heritage Rangeland for about 3 km, however SAGE is of the understanding that activities related to construction and operation of the powerline will not intrude into the protected area.

SAGE is not in a position to speak to the potential environmental and social effects of the transmission line on the affected rural communities. With respect to avoiding a route through the important grasslands on the Milk River Ridge, however, SAGE is satisfied with MATL's proposed course change. We appreciate having our concerns addressed.

With Regards,

Kelsey Prenevost
President, SAGE

Cc: Alberta Energy Utilities Board, 640 - 5 Avenue SW, Calgary, Alberta T2P 3G4
National Energy Board, 444 Seventh Avenue SW, Calgary, Alberta T2P 0X8

Appendix D.4

Agenda for the Canadian Advisory Committee Meeting on 12 July 2006

MONTANA ALBERTA TIE LTD

Canadian Advisory Committee Meeting
Lethbridge, AB
July 12, 2006
Agenda

10:30am	Introductions
	Agenda Review and Approval Information Package Review Terms of Reference Review
	Project Update (MATL Representative)
12:00pm	***Lunch Break***
12:30pm	Questions Regarding Project Update
	Review Written Public Submissions
	Action Arising From Public Submissions
2:00pm	Adjourn

Peak Communicators
Calgary AB
403-240-7860
www.peakco.com

Appendix D.5

Minutes of the Canadian Advisory Committee Meeting on 12 July 2006

Canadian Advisory Committee
To
Montana Alberta Tie Ltd. (MATL)

Minutes of a meeting held on July 12, 2006
Poplar Room, Lethbridge Lodge

Present: Dr. Howard Tennant in the Chair
Mr. Mac MacLean, Mr. Lorry Wilson, Mr. Bob Williams, Dr. Bill Rosehart, Mr. Bob Jones, Ms. Peggy Beltrone

Secretary: Mr. Brad Sluiter

In attendance: Members of the public, media and MLA's Mr. Paul Hinman(AA) Cardston/Taber/Warner and Ms. Bridget A. Pastoor (Lib) Lethbridge East in attendance.

Part 1: Welcome and Introductions

1.1 Welcome

The Chair called the meeting to order at 10:30 am. He welcomed the Canadian Advisory Committee (Tennant, MacLean, Wilson, Rosehart, and Jones), MATL representative (Williams) and the Chair of the US Advisory Committee (Beltrone) and the interested stakeholders and members of the public in attendance. Each member of The Advisory Committee introduced themselves and provided some brief background information. The public in attendance also were given the opportunity to introduce themselves. Approximately 20 members of the public were in attendance.

Part 2: Agenda Review and Approval, Information Package Review, Terms of Reference Review

2.1 **Agenda Review**

The Chair reviewed the proposed agenda and asked members for comment.

2.1.1 Approval of the Agenda
MOTION: To approve the agenda for the Canadian Advisory Committee

MOVED BY: Bob Jones

CARRIED

2.2 **Information Package Review**

2.2.1 The Chair briefly discussed the information binders that include information sent to Provincial Regulatory bodies. It was stated that the information package will provide a technical overview of the proposed project, with the Advisory Committee providing additional input based on it consultations.

2.3 **Terms of Reference**

2.3.1 The Chair declared that each member of the Committee had signed the Committee Terms of Reference, and that the members were generally familiar with the process and their duties. The Chair explained that the committee was to discuss all issues raised, prepare a report, and give advice to the management of MATL.

Part 3: Project Update

3.1 MATL senior management reported on three aspects of the project update.

3.1 **Regulatory**

3.1.1 The information noted was about the various Regulatory Applications and the major change to the southern portion of the route.

3.2 **Land**

3.2.1 MATL directly and through its agents has been busy meeting with land owners to show and discuss the proposed route around the Milk River Ridge. It was reported that approximately 70% of the required private land options were secured, with an additional 20% expected to be available under proposed contract with various county governments.

3.3 **Project Planning**

3.3.1 MATL wants to build the line over the winter months for economic reasons as well as to minimize the impact on the environment and farming operations.

3.3.2 Long term capacity commitments have been signed by wind energy developers.

Part 4: Questions Regarding Public Submissions

4.4.1 Questions from the Chair

The Chair asked and received answers for 3 questions regarding the project including:

1) What is the impact the proposed line would have on farming operations? Will it be safe, and what cost implications will it have on farmers and land owners?
2) What will be the visual impact of the construction of the line?
3) What will the economic impact be?

4.4.2 Discussion followed with questions answered by MATL management.

4.4.3 Discussion regarding the scope of the proposed project was discussed by the Committee.

4.4.4 The Chair opened the floor to the public.

4.4.6 There were questions and discussion between the public, the Committee and MATL management including: The proposed route, safety, impact of EMF's (Electro Magnetic Fields), the type and height of the power poles, electricity markets and suppliers use of the line, the impact on GPS (Global Positioning Systems) for controlling farming equipment, the impact on irrigation equipment – especially moving it, the visual impact, the formation and structure of the Advisory Committee, the independence of and remuneration for the committee members. Question and discussion continued until approximately 12:30 pm.

4.4.7 MATL management took under advisement the topics that were raised and indicated that they would be looking forward to the Committees Report and Recommendations. A number of detailed factual questions were to be answered as soon as possible including – number of poles per mile, minimum line clearance, and other such issues. Mr. Wilson indicated that MATL was dedicated to ensuring that the proposed transmission line would be safe and that MATL would continue to negotiate with land owners concerning potential costs incurred by land owners.

Part 5: Lunch

5.1 The Committee adjourned for lunch

Part 6: Review written submission

6.1.1 Following the lunch break the committee dealt with four written submissions from the public that expressed concern for safety, and size & scope of the proposed project. These letters were left to the Committee.

Part 7: Recommendations from the Committee

7.1.1 Following the review of all the issues discussed during the meeting with the Advisory Committee a report will be drafted and forwarded to MATL. The Committee and MATL management agreed to work on better ways to communicate with stakeholders and land owners on a wide variety of topics including safety, aerial spraying, GPS, health and quality of life issues, legal issues, compensation, and the possibility of alternative route selection.

Part 8: Adjourn

8.1.1 Meeting adjourned at approximately 3:05pm

Appendix D.6

Minutes of the Canadian Advisory Committee Meeting on 18 August 2006

Canadian Advisory Committee
To
Montana Alberta Tie Ltd. (MATL)

Minutes of a meeting held on August 18, 2006
61 Ridgewood Crescent West,
Lethbridge, Alberta

Present: Dr. Howard Tennant in the Chair
Mr. Mac MacLean, Mr. Bob Jones, Dr. Bill Rosehart

Secretary: Mr. Brad Sluiter

Part 1: Welcome
1.1 **Welcome**
The Chair called the meeting to order at 11:05am. He welcomed the Canadian Advisory Committee (Tennant, MacLean, Rosehart and Jones).

Part 2: Agenda Review and Approval
2.1 **Agenda Review**
The Chair reviewed the proposed agenda and asked members for comment.

2.1.1 Approval of the Agenda
MOTION: To approve the agenda for the Canadian Advisory Committee meeting.

MOVED BY: Rosehart

CARRIED

Part 3: Review of Meeting Minutes from July 12th meeting
3.1 The Chair asked the committee for any comments on the meeting minutes from the last meeting.

3.1.1 Rosehart asked that the last paragraph be deleted from the minutes as it was not clear the information was exactly stated.

3.1.2 **MOVED BY**: MacLean

CARRIED:

Part 4: Review, Updates, Project Overview
4.1 Update and general discussion about the project including: last Canadian Advisory Meeting held in Lethbridge, The American Advisory Meeting held in Conrad MT and the questions and concerns from landowners that were communicated to the Canadian Committee members through written and verbal submission.

Part 5: Lunch
5.1 The Committee adjourned for lunch at approximately 12:30pm.

Part 6: General discussion on recommendations
6.1 After lunch the Committee members discussed recommendations that will be drafted in a written report and presented to MATL in late September, including issues such as: alternative routes, land issues, agricultural issues, health issues, safety issues, construction issues, compensation issues, communication issues, liability issues.

Part 7: Adjourn
7.1 Meeting adjourned at approximately 2:35pm.

Appendix D.7

Report of the Canadian Advisory Board to Montana Alberta Tie Ltd. (MATL), 31 August 2006

Report of the

CANADIAN ADVISORY BOARD

to

Montana Alberta Tie Ltd. (MATL)

Howard E. Tennant (Chair), Bob Jones, Mac MacLean & Bill Rosehart.

August 31, 2006

Lethbridge, Alberta

Terms of Reference

The Canadian Advisory Committee will make non-binding recommendations to MATL with respect to land owner and community concerns in Alberta that are associated with the development, construction and start-up of the Montana Alberta tie transmission line. These concerns may refer to land acquisition, land access; impact on health; impact on agriculture; impact on the environment; impact on telecommunications; impact on contracting and hiring; and other issues as deemed by the Committee.

Context of Report

The Canadian Advisory Board (CAB) was commissioned to consult with southern Alberta stakeholders having interests in the proposed construction and operation of a 240/230 kv merchant international power transmission line from Lethbridge, Alberta to Great Falls, Montana. This report of the CAB to the Montana Alberta Tie Ltd. (MATL) is to be posted on the MATL website. The Chair has made a commitment to send a printed copy to each stakeholder who has made a written submission.

The CAB held one public meeting in Lethbridge, Alberta on July 12, 2006 which was attended by approximately 30 individuals. At that meeting 4 written letters were received and a "Letter of Comment" to the National Energy Board (NEB) was referenced. Subsequent to this meeting, the Chair of the CAB wrote to approximately 160 southern Albertan registered landowners at their address of registry. Written responses were requested and respondents were invited to use the Chair's personal home address, e-mail, fax or telephone as the basis of contact. Of the 160 letters sent, eleven letters were returned by the postal authorities as "not deliverable".

A "Letter of Comment" addressed to the NEB dated March 20, 2006, representing the interests of nine land owners and some 32 other pieces of correspondence addressed to the Chair were received. The Chair also received numerous telephone calls. Each written comment received was acknowledged by the Chair and all correspondence was reprinted and provided to each member of the CAB.

The CAB met *in camera* on August 18, 2006 to review the material submitted and identify the salient issues presented by stakeholders. MATL executives and employees did not participate in the August 18, 2006 meeting of CAB, or the writing of this CAB report.

The Issues

A. Land and Heritage

Restricted land usage and land value was the concern of the majority of those responding. Transmission line poles, of any design, cutting across fields or following road allowances were seen to have a detrimental impact on long term land value.

Transmission lines following negotiated easements across fields for compensation were seen as restricting future use of the land; visual and esthetic impairment; and restricting current or future building due to set back requirements.

Transmission lines following road allowances were seen as visual impairments and, causing problems with existing and projected building construction because of required setback rules.

Compensation for permanent easements was not seen as adequate. The fact that proposed compensation was fixed into the future, with no option of renegotiation, was a concern.

Many respondents were concerned with the natural heritage and beauty that belonged to the multi-generation owners of the land. The visual impact of the proposed transmission line was frequently cited as a problem. CAB noted that several suggestions for rerouting the line had been investigated by MATL. It was very clear to CAB that some landowners did not see negotiations with MATL's agents as a business proposition; rather they saw it as an infringement of their rights as landowners.

The "greater good for Alberta" case relative to the need for easements across individual landowner's property was neither understood nor seen as reasonable. Comments received included:

- Why does Alberta have to export power to the United States?
- Why does my land have to be disrupted forever to ensure that power is available for others?
- Why can't the transmission line be located somewhere else?
- Why can't the transmission line be buried?
- This is part of a long succession of infringement on land owners. Others include highways, gas pipelines, water pipelines, SuperNet, and telephones.

CAB Recommendations

1. While MATL has frequently and publicly indicated that they would seek to negotiate economic losses that could be reasonably documented, CAB suggests that such processes for negotiation be better documented and assisted with guidelines for landowners to follow in making a case. Further, the practice of making such documentation available on a webpage is insufficient.

2. The document entitled *Proposed Montana Alberta Tie Project Description and Supporting Materials* submitted on April 20, 2006 to the Alberta Electric System Operator should be used as a guide to produce a summary case for distribution to stakeholders.

3. The rules and guidelines for negotiation with land owners for easements and the basis of compensation should be published and available in formats other than the WEB.

4. A wider variety of payment methods for compensation to affected land owners could include a greater partnership role.

5. Easement agreements should be written such that any substantial future additions to the proposed line, or additional infrastructure, excluding maintenance, related to other projects, requires renegotiation of the easement agreement subject to identified rules of procedure for mediation and, where necessary, arbitration.

B. Agricultural and Environmental Impact

The impact on agricultural operations, especially in irrigated land areas, was a major concern. These concerns included:

- Restrictions on use of aircraft for spraying operations.
- Restrictions for spray boom vertical clearances and operation of large terrestrial spray equipment around transmission poles.
- Proximity to dugouts, waters pipelines and water spray irrigation.
- Global Positioning Systems (GPS), cell phone, wireless e-mail and radio interference used in farming operations. Farmers fear that new technologies are continually introduced and become mandatory given the need for a competitive edge in a global marketplace. The impact of the proposed transmission line is unknown relative to new technologies, yet the basis for compensation is not renegotiable.
- Damage to farm land during the construction phase.
- MATL access to transmission poles and lines over the years for servicing.
- Liability issues concerning accidental damage to MATL property in the course of farming operations.
- Minor concerns with weed control at the base of transmission poles.

CAB Recommendations

6. Every effort should be made to ensure that aerial spraying of crops is possible. MATL should consult with aerial spraying firms to ensure that the impact on each agricultural landowner affected is minimized.

7. A short bulletin should be prepared which addresses all issues related to the proposed transmission line and the potential disruptive impact on GPS and other radio based technologies. Mitigation strategies should be identified and described. This bulletin should be prepared by a GPS provider or independent expert in this area.

8. A short bulletin on the use of large boom terrestrial spray equipment around transmission poles should be developed in conjunction with *Alberta Agriculture and Rural Development.*

C. Health and Quality of Life

Health concerns related to Electrical and Magnetic Fields (EMFs) were reported by a large number of respondents. Several studies were cited on the potential dangers of such EMFs to humans, animals and wildlife in the volume entitled "Letter of Comment" to the NEB. One medical specialist suggested to CAB: "There are no excellent studies on safety from EMF's. Research done or paid for by power co's or invested parties are suspect."

CAB Comment

The CAB members do not have the expertise to comment on the potential of health issues related to EMFs. The CAB concludes that this is a responsibility of government as the regulator to set appropriate operational standards for power transmission lines including any restrictions required to protect human and animal health. CAB noted that MATL publicly stated that it would meet or exceed existing health standards and regulations for the proposed transmission lines.

D. MATL as a Private Sector Company

A number of comments were directed at the fact that MATL is a private sector company and not a government utility. Concerns were expressed regarding profits from operation or sale of easements that could accrue to MATL.

CAB Comment

The CAB noted that most power transmission companies in Alberta are all organized under a profit sector model doing business on a wide scale throughout Alberta, although the beneficial shareholder is frequently the residents of a city or district. MATL must obtain regulatory approval through the provincial regulator the same as any other power transmission company or utility.

E. Communications

Communication issues between land agents on behalf of MATL and land owners are a large problem. Many suggested that they had been lied to and used other derogatory wording to describe the interaction with the land agents utilized by MATL as required by provincial law. Other submissions indicated confusion and a lack of understanding of why the proposed transmission line was needed. Public meetings were seen as interesting initiatives by MATL, but not very useful in resolving issues. An example of this was the widespread view that MATL representatives had stated that the Counties of Lethbridge and Warner had signed contracts with MATL. This appeared to be contrary to the facts, as no such contracts have been executed, rather, both Counties have indicated an interest in working with MATL.

An operating assumption by MATL has been that WEB based communication is understood and available to all interested stakeholders. CAB found evidence of this in the large number of handwritten multi-page letters that were received. Choice of media and timing of media announcements seemed less than optimal to many stakeholders.

CAB noted that MATL has provided publicly an immense amount of technical information regarding the proposed transmission line. This information is available on the MATL WEB site and a variety of WEB sites operated by federal and provincial regulatory agencies. For the most part this information is technical and unreadable by the average stakeholder and landowner.

It was noted that much of the activity related to obtaining easements from landowners took place during times when agriculture was in the midst of an intense work cycle.

CAB found conflicting evidence on the interaction with land agents. In no case was it demonstrated that there was unethical or unlawful behaviour by the land agents. It was clear however that land agents were occasionally brusque and blunt with land owners who were themselves upset about the negotiations. CAB noted that since professionals land agents are registered in Alberta, stakeholders having a legitimate complaint with a land agent can register the issue and have it investigated.

CAB regarded the process of dealing with the land owners and stakeholders as one that had to be dominated by trust and that communications of all types should have been and should be concerned with understanding and trust building. There is ample evidence that the accelerated project pace for the project set by MATL added to the lack of understanding and miscommunication. Further, MATL's Calgary base of operation augmented by the frequent travel of MATL executives was not sufficient to have a "presence in southern Alberta".

In several cases better communications could have resolved issues related to the case of an interconnect transmission line directly to the United States, the potential of future line capacity increases, and alternate uses of negotiated easements and right of ways. The document entitled *Frequently Asked Questions* issued by MATL (and available on MATL website), did not appear to have been circulated widely.

CAB Recommendations

9. CAB sees a need for "straight talk" in a clear and understandable format intended for the stakeholders, and not written for the investor and regulator.

10. The building of a long term trusting relationship between MATL and landowners is essential. A process for continued discussion relating to mutual issues in the future should be designed with a commitment from MATL that unforeseen issues arising in the future need both a process and the potential of funding. A working and trusting relationship is essential in the future.

11. Communications, in the view of the CAB, could have and would be improved by making available a "Technical Consultant" who:

- was paid for by MATL, but operated independently at complete arms length;
- offered non-legal advice [CAB was of the view that legal advice must come from legal professionals directly engaged by those that they offer services to];
- would assist land owners in dealing with possible options;
- would help resolve potential problems related to GPS and related radio frequency technology;
- could answer questions on setbacks and building locations;
- could offer general parameters of liability issues;
- works out of an office(s) located in reasonably proximity to the proposed transmission line.

End of Report

Appendix D.8

Recommendations Developed by the Canadian Advisory Board in the Document Entitled "Report of the Canadian Advisory Board to Montana Alberta Tie Ltd. (MATL) 31 August 2006) to be Addressed by MATL

Recommendations Developed by the Canadian Advisory Board in the Document Entitled "Report of the Canadian Advisory Board to Montana Alberta Tie Ltd. (MATL) 31 August 2006 to be Addressed by MATL as Described Below

Issue – A. Land and Heritage

1. CAB Recommendation

While MATL has frequently and publicly indicated that they would seek to negotiate economic losses that could be reasonably documented, CAB suggests that such processes for negotiation be better documented and assisted with guidelines for landowners to follow in making a case. Further, the practice of making such documentation available on a webpage is insufficient.

MATL Response

MATL has retained Dr. Kurt Klein, an agricultural economist from the University of Lethbridge, to develop a process for calculating the economic loss on agricultural operations caused by MATL's proposed transmission line. The calculation process will be developed on a computer spreadsheet model. Landowners may obtain a copy of the spreadsheet model from MATL's website or may request that MATL send them a copy on CD.ROM. MATL will also provide documentation of the model so that the user may undertake manual calculations. In terms of the issues to be addressed in determining compensation to be paid to a landowner, Section 25 of the Surface Rights Act sets out the factors. A summary of the Surface Rights Act is presented below.

Surface Rights Board Act Summary

Where an operator and a landowner or an occupant fail to reach an agreement regarding entry or compensation related to resource activity on privately owned or crown occupied lands as the Board, under the Surface Rights Act (SRA), may;

1. Grant Right of Entry (Section 12 SRA)

   An Operator who proposes to exercise a right of entry on land (other than Crown land) must pay an Entry Fee (Section 19 SRA).

2. Determine Compensation for entry (Section 25 SRA)

   (a) Compensation may be a one time payment or an annual rental.
   (b) In determining compensation for a new taking the Board may consider:
   - Land Value
   - Loss of Use
   - Adverse Effect on the remaining land, nuisance, inconvenience and noise
   - Any other factors the Board considers proper in the circumstances
   - Damage to the land

   The Board may also consider any pattern of dealings in the area of the taking.

3. Review annual rental at five year intervals on surface leases or right of entry orders (Section 27 SRA). Compensation is awarded based on:
   - Loss of Use
   - Adverse Effect
4. Settle disputes for damages off the site, or for damage to personal property or livestock arising from resource activity (Section 30 SRA).
5. Direct payment by the Minister of Finance to the landowner or occupant for any unpaid compensation (Section 36 SRA).
6. Award costs arising from any proceedings before the Board (Section 39 SRA)
7. The Board will also amend and/or vary Right of Entry Orders* and Compensation Orders as changes are made to reflect current landowners, operators and compensation payable (Section 29 SRA). *(Right of Entry Orders include those made by the Public Utilities Board under a former Act).

   For more information visit the following links:

   Surface Rights Act (http://www.qp.gov.ab.ca/documents/acts/S24.cfm)
   Surface Rights Act Rules of Procedure and Practice (http://www.qp.gov.ab.ca/documents/Regs/2001_190.cfm?frm_isbn=0773295267)
   Surface Rights Act General Regulation (http://www.qp.gov.ab.ca/documents/Regs/2001_189.cfm?frm_isbn=0773295259%0D%0D)
   Source: http://www.surfacerights.gov.ab.ca/srb/

2. CAB Recommendation

The document entitled *Proposed Montana Alberta Tie Project Description and Supporting Materials* submitted on April 20, 2006 to the Alberta Electric System Operator should be used as a guide to produce a summary case for distribution to stakeholders.

MATL Response

The referenced document was prepared by MATL and was included as an appendix to the AESO Need Identification Document submitted to the AEUB in June 2005. This document has been revised and will be included as an appendix to the updated AESO Needs Identification Document that will be submitted to the AEUB soon. MATL will make this document available on its website and will provide paper copies on request.

3. CAB Recommendation

The rules and guidelines for negotiation with land owners for easements and the basis of compensation should be published and available in formats other than the WEB.

MATL Response

MATL refers the reader to its response to CAB Recommendation 1 above. The Surface Rights Act sets out the guidelines for land negotiations. MATL's right of way agreement also provides information on the process.

4. CAB Recommendation

A wider variety of payment methods for compensation to affected land owners could include a greater partnership role.

MATL Response

MATL has indicated that it is prepared to work in partnership with landowners to address the impacts of the proposed power line on their land. To this end, MATL has developed a process for calculating the economic loss resulting from the project's impact on agricultural lands (See response to Recommendation 1). MATL will also work closely with landowners with respect to the best method and timing for the restoration of disturbed lands. MATL is open to other proposals to partner with landowners in addressing impacts.

5. CAB Recommendation

Easement agreements should be written such that any substantial future additions to the proposed line, or additional infrastructure, excluding maintenance, related to other projects, requires renegotiation of the easement agreement subject to identified rules of procedure for mediation and, where necessary, arbitration.

MATL Response

MATL notes that the existing easement agreement covers the current project only and that the approvals MATL anticipates receiving from the NEB and EUB will relate only to the project as described in the Applications. MATL will have no right to make “any substantial future additions to the proposed line, or additional infrastructure related to other projects” without returning to the regulators for new approvals. The process to get those approvals will involve landowner consultation and new land access agreements. Furthermore, the EUB has a clearly defined Appropriate Dispute Resolution Process (ADR) and the Surface Rights Board legislation in Alberta effectively provides an arbitration process..

Issue – B. Agriculture and Environmental Impact

6. CAB Recommendation

Every effort should be made to ensure that aerial spraying of crops is possible. MATL should consult with aerial spraying firms to ensure that the impact on each agricultural landowner affected is minimized.

MATL Response

MATL has identified the mitigation measures it will undertake to minimize impacts on agricultural operations in Section 4.11.2 of the Update Report to Volume 2, Environmental Assessment for the Montana Alberta Tie Ltd. International Power Line Project, September 2006.

In addition, MATL will consult with aerial spraying firms to identify methods of ensuring that the impact on each agricultural landowner is minimized. Section 25 (1) of the Surface Rights Act states that the Surface Rights Board may consider “the adverse effect of the area granted to the operator on the remaining land” when determining compensation, in the event that the landowner is not satisfied with the solution proposed by MATL.

7. CAB Recommendation

A short bulletin should be prepared which addresses all issues related to the proposed transmission line and the potential disruptive impact on GPS and other radio based technologies. Mitigation strategies should be identified and described. This bulletin should be prepared by a GPS provider or independent expert in this area.

MATL Response

MATL has retained the firm of Shel-Bar Communications

8. CAB Recommendation

CAB sees a need for "straight talk" in a clear and understandable format intended for the stakeholders, and not written for the investor and regulator.

MATL Response

MATL will review its communication materials and processes and ensure they are in a clear and understandable format intended for the stakeholders.

9. CAB Recommendation

The building of a long term trusting relationship between MATL and landowners is essential. A process for continued discussion relating to mutual issues in the future should be designed with a commitment from MATL that unforeseen issues arising in the future need both a process and the potential of funding. A working and trusting relationship is essential in the future.

MATL Response

MATL agrees that a working and trusting relationship is essential. MATL is investigating the establishment of an independent consultant, as recommended by the CAB, and wishes to consult with the CAB on other possible action to build a long term trusting relationship with landowners.

10. CAB Recommendation

Communications, in the view of the CAB, could have and would be improved by making available a "Technical Consultant" who:

- was paid for by MATL, but operated independently at complete arms length;
- offered non-legal advice [CAB was of the view that legal advice must come from legal professionals directly engaged by those that they offer services to];
- would assist land owners in dealing with possible options;
- would help resolve potential problems related to GPS and related radio frequency technology;
- could answer questions on setbacks and building locations;
- could offer general parameters of liability issues; and
- works out of an office(s) located in reasonably proximity to the proposed transmission line.

MATL Response

MATL is investigating the possibility of establishing an independent consultant located in southern Alberta.

Appendix E

Soils Data

Table E-1: Soils Along Preferred Corridor

Amec_ID	Series	Order_	S_Group	G_Group	Sg	Drainage	Calcar	Salinity	PM1_TEX	PM1_TYP	PM2_TEX	PM2_TYP	HZN_MAS	HZN_SUF	Texture	Udepth	Ldepth	Cofrag	Water	Wind	Limitations
1	Misc. Undiff. Mineral	RG	O	R	O.R	W	-	-	-	UNDM	-	-	C		CL	0	100	5	low	low	clayed subsoil
2	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
3	Kessler	CH	O	DB	O.DB	W	M	N	MC	GLFL	-	-	A	p	SL	0	15	0	moderate-high	high	none
4	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
5	Coaldale	CH	O	DB	O.DB	W	M	N	FI	GLLC	-	-	A	p	CL	0	15	0	low	low	clayed subsoil
6	Coaldale	CH	O	DB	O.DB	W	M	N	FI	GLLC	-	-	A	p	CL	0	15	0	low	low	clayed subsoil
7	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
8	Coaldale	CH	O	DB	O.DB	W	M	N	FI	GLLC	-	-	A	p	CL	0	15	0	low	low	clayed subsoil
9	Misc. Undiff. Mineral	RG	O	R	O.R	W	-	-	-	UNDM	-	-	C		CL	0	100	5	low	low	clayed subsoil
10	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
11	Readymade	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	SiL	0	15	1	moderate-high	high	none
12	Misc. Gleysol	GL	O	HG	O.HG	P	-	-	-	UNDM	-	-	A	h	L	0	20	5	moderate	moderate - high	none
13	Lethbridge	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate - high	clayed subsoil
14	Lethbridge	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate - high	clayed subsoil
15	Readymade	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	SiL	0	15	1	moderate-high	high	none
16	Misc. Gleysol	GL	O	HG	O.HG	P	-	-	-	UNDM	-	-	A	h	L	0	20	5	moderate	moderate - high	none
17	Readymade	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	SiL	0	15	1	moderate-high	high	none
73	Readymade	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	SiL	0	15	1	moderate-high	high	none
18	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
19	Lethbridge	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate - high	clayed subsoil
20	Misc. Gleysol	GL	O	HG	O.HG	P	-	-	-	UNDM	-	-	A	h	L	0	20	5	moderate	moderate - high	none
21	Lethbridge	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate - high	clayed subsoil
22	Misc. Solonetzic-ZDB	SZ	DB	SS	DB.SS	W	-	-	-	UNDM	-	-	A	h	L	0	10	5	moderate	moderate - high	saline/sodic subsoil
74	Lethbridge	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate - high	clayed subsoil
23	Lethbridge	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate - high	clayed subsoil
24	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
25	Lethbridge	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate - high	clayed subsoil
26	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels
27	Coaldale	CH	O	DB	O.DB	W	M	N	FI	GLLC	-	-	A	p	CL	0	15	0	low	low	clayed subsoil
28	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels
29	Lilydale	CH	O	DB	O.DB	MW	M	M	ME	FLUV	-	-	A	hsa	SiL	0	10	0	moderate-high	high	none
30	Misc. Saline-ZDB	CH	R	DB	R.DB	MW	-	-	-	UNDM	-	-	A	hs	L	0	15	5	moderate	moderate - high	saline/sodic subsoil
31	Lilydale	CH	O	DB	O.DB	MW	M	M	ME	FLUV	-	-	A	hsa	SiL	0	10	0	moderate-high	high	none
32	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
33	Idamay	SZ	DB	SZ	DB.SZ	MW	M	M	MF	GLLC	-	-	A	h	SiL	0	5	0	moderate-high	high	saline/sodic subsoil
34	Van Cleeve	CH	O	DB	O.DB	W	M	N	MF	TILL	ME	SRUN	A	p	L	0	15	10	moderate	moderate - high	gravels
35	Idamay	SZ	DB	SZ	DB.SZ	MW	M	M	MF	GLLC	-	-	A	h	SiL	0	5	0	moderate-high	high	saline/sodic subsoil
36	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels
37	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels
38	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels
39	Misc. Gleysol	GL	O	HG	O.HG	P	-	-	-	UNDM	-	-	A	h	L	0	20	5	moderate	moderate - high	none
40	Misc. Undiff. Mineral	RG	O	R	O.R	W	-	-	-	UNDM	-	-	C		CL	0	100	5	low	low	clayed subsoil
41	Milk River-Aa	RG	CU	R	CU.R	W	M	N	MC	FLUV	-	-	C	k	LS	0	8	0	moderate-high	high	none
42	Misc. Undiff. Mineral	RG	O	R	O.R	W	-	-	-	UNDM	-	-	C		CL	0	100	5	low	low	clayed subsoil
43	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
75	Cranford	CH	O	B	O.B	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	12	0	low-moderate	moderate	none
76	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels

Amec_ID	Series	Order_	S_Group	G_Group	Sg	Drainage	Calcar	Salinity	PM1_TEX	PM1_TYP	PM2_TEX	PM2_TYP	HZN_MAS	HZN_SUF	Texture	Udepth	Ldepth	Cofrag	Water	Wind	Limitations
77	Misc. Undiff. Mineral	RG	O	R	O.R	W	-	-	-	UNDM	-	-	C		CL	0	100	5	low	low	clayed subsoil
78	Verburg	CH	R	DB	R.DB	W	M	N	ME	TILL	-	-	A	pk	SiL	0	15	10	moderate	moderate - high	gravels
80	Lethbridge	CH	O	DB	O.DB	W	M	N	ME	GLLC	-	-	A	p	L	0	15	0	moderate	moderate - high	clayed subsoil
81	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
82	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels
83	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
84	Whitney	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	SiL	0	15	0	moderate-high	high	none
86	Misc. Saline-Zbr	CH	R	B	R.B	MW	-	-	-	UNDM	-	-	A	hs	L	0	15	5	moderate	moderate - high	saline/sodic subsoil
87	Masinasin	CH	O	B	O.B	W	M	N	MF	TILL	-	-	A	p	L	0	12	3	low-moderate	moderate	none
88	Lilybrown	CH	O	B	O.B	MW	M	M	ME	FLUV	-	-	A	hsa	SiL	0	10	0	low -high	high	none
89	Masinasin	CH	O	B	O.B	W	M	N	MF	TILL	-	-	A	p	L	0	12	3	low-moderate	moderate	none
90	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels
91	Purescape	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	CL	0	15	2	low	low	clayed subsoil
92	Cradduck	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	L	0	15	5	moderate	moderate - high	gravels
93	Wilda	CH	R	DB	R.DB	W	M	N	MF	TILL	-	-	A	pk	CL	0	15	2	low	low	none
52	Milk River-Aa	RG	CU	R	CU.R	W	M	N	MC	FLUV	-	-	C	k	LS	0	8	0	moderate-high	high	none
94	Milk River	RG	CU	R	CU.R	W	M	N	MC	FLUV	-	-	C	k	LS	0	8	0	low - moderate	moderate	gravels
97	New Dayton	CH	O	DB	O.DB	R	M	N	VGVC	GLFL	-	-	A	p	SL	0	15	45	low-moderate	high	gravels/stones at depth
98	Kehol	SZ	DB	SS	DB.SS	W	M	M	MF	GLLC	-	-	A	p	CL	0	15	0	low -high	high	saline/sodic subsoil
99	Misc. Eroded-ZDB	CH	R	DB	R.DB	W	-	-	-	UNDM	-	-	A	pk	CL	0	15	5	low	low	gravels
100	Kessler	CH	O	DB	O.DB	W	M	N	MC	GLFL	-	-	A	p	SL	0	15	0	moderate high	high	none
101	Kessler-Aa	CH	O	DB	O.DB	W	M	N	MC	GLFL	-	-	A	p	SL	0	15	0	moderate high	high	none
102	Misc. Eroded-ZDB	CH	R	DB	R.DB	W	-	-	-	UNDM	-	-	A	pk	CL	0	15	5	low	low	gravels
103	Purescape	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	CL	0	15	2	low	low	clayed subsoil
104	Lupen	CH	O	DB	O.DB	W	M	N	ME	GLLC	MF	TILL	A	p	CL	0	15	0	low-high	high	none
107	Coaldale	CH	O	DB	O.DB	W	M	N	FI	GLLC	-	-	A	p	CL	0	15	0	low	low	clayed subsoils
108	Purescape	CH	O	DB	O.DB	W	M	N	MF	TILL	-	-	A	p	CL	0	15	2	low	low	clayed subsoils
109	Wilda	CH	R	DB	R.DB	W	M	N	MF	TILL	-	-	A	pk	CL	0	15	2	low	low	none
111	Misc. Eroded-ZDB	CH	R	DB	R.DB	W	-	-	-	UNDM	-	-	A	pk	CL	0	15	5	low	low	gravels
113	Wilda	CH	R	DB	R.DB	W	M	N	MF	TILL	-	-	A	pk	CL	0	15	2	low	low	none

Appendix F

Wildlife Field Survey Observations

Table F-1: Amphibian Call Survey Locations (NAD83, Zone 12) and Data Collected at Each Location Within the Preferred Corridor During 2006 Field Surveys

Site ID	Date	Start time	Easting	Northing	Temp. (°C)	Wind[1]	Noise[2]	Traffic Count	Species	Abundance[3]
4	24 May	23:30	394795	5469802	13	3	0	0	-	-
5	24 May	23:40	394767	5468828	13	3	0	0	Boreal Chorus Frog	1
6	24 May	00:00	394860	5471553	12	3	0	0	-	-
7	24 May	01:00	394983	5480160	12	3	2	1	Boreal Chorus Frog	2
8	24 May	01:20	394942	5478425	11	4	2	0	Boreal Chorus Frog	2
18	26 May	01:30	385933	5519555	4	0	0	0	Boreal Chorus Frog	3
19	26 May	01:40	384932	5519655	4	0	0	0	-	-
24	31 May	22:30	404407	5461377	8	0	0	0	Boreal Chorus Frog	2
25	31 May	22:40	404568	5460556	8	0	0	0	-	-
26	31 May	22:50	407950	5460497	8	0	0	0	Boreal Chorus Frog	3
27	31 May	23:00	409140	5460473	7	0	0	0	Boreal Chorus Frog	3
28	31 May	23:10	409266	5459514	7	0	0	0	-	-
29	31 May	23:20	412446	5454671	8	0	0	0	-	-
30	31 May	23:30	412401	5451510	10	2	0	0	-	-
31	31 May	23:40	412439	5449176	10	2	0	0	Boreal Chorus Frog	2
32	31 May	00:15	412427	5447467	9	0	0	0	Boreal Chorus Frog	1
50	26 May	22:10	411611	5434324	8	0	1	0	Boreal Chorus Frog	1
51	26 May	22:18	411631	5435516	8	0	1	0	Boreal Chorus Frog	1
52	26 May	22:39	411824	5439097	6	0	1	0	Boreal Chorus Frog	1
53	26 May	22:43	411678	5439415	6	0	1	0	Boreal Chorus Frog	1

[1] Wind speed (MPH):
- 0 <1 Smoke rises vertically
- 1 1-3 Wind direction shown by smoke drift
- 2 4-7 Wind felt on face, leaves rustle
- 3 8-12 Leaves and small twigs in constant motion
- 4 13-18 Raises dust and small branches are moved
- 5 19-24 Small trees and leaf begin to sway
- 6 25-31 Large branches in motion
- 7 32-38 Whole trees in motion

[2] Noise:
- 1 Quiet
- 2 Some noise, but not distracting (i.e.: dogs or coyote barking/howling in the distance)
- 3 Significant noise that may have reduced amphibian detectability (i.e.,: flowing creek)
- 4 Constant noise (i.e.: heavy traffic, compressor/generator, roaring creek)

[3] Abundance Codes:
- 1 Individuals can be counted, there is space between calls.
- 2 Calls of individuals can be distinguished but there is some overlapping of calls.
- 3 Full chorus, calls are constant, continuous and overlapping.

Table F-2: Incidental Observations of Wildlife Obtained During 2006 Field Surveys

Species	Date	Easting	Northing	Details
American Kestrel	6 July	411784	5445210	1 adult
Burrowing Owl	26 May	411655	5436869	1 adult
	6 July	*	*	Burrow - 2 adults, 5 juveniles
Ferruginous Hawk	6 July	401045	5434729	1 adult
	6 July	414141	5445132	2 adults, 1 juvenile
Great-horned Owl	5 July	412434	5449126	1 adult, 1 juvenile
	6 July	411704	5438300	1 adult
	6 July	411799	5439002	1 adult
Long-billed Curlew	4 May	412102	5450645	1 adult
Northern Harrier	30 May	404425	5462576	1 adult
	5 July	393892	5467222	1 adult
	5 July	401641	5457370	Adult pair
	6 July	411561	5431708	1 adult
	6 July	412369	5447454	1 adult
Red-tailed Hawk	5 July	393471	5476953	1 adult
	5 July	395958	5476903	1 adult
	6 July	411704	5438300	1 adult
	6 July	411737	5441613	1 adult
	6 July	411784	5445210	1 adult
Short-eared Owl	24 May	392705	5467252	1 adult
	25 May	392917	5467246	1 adult
	31 May	407731	5466946	1 adult
	5 July	395236	5486743	1 adult
Sprague's Pipit	30 May	412396	5451537	1 adult
Sharp-tailed Grouse	4 May	411240	5449056	2 adults
	4 May	411541	5448800	1 adult
	4 May	411728	5448713	1 adult
	5 July	412339	5448316	3 adults
Swainson's Hawk	5 July	393249	5474723	1 adult
	5 July	394738	5466993	Adult pair
	5 July	396539	5476308	1 adult
	5 July	399562	5463769	1 adult
	5 July	409230	5457418	1 adult with dead gopher
	5 July	411501	5428395	Adult pair
	5 July	411559	5431475	Nest - 2 adults, 2 juveniles
	5 July	411659	5437361	1 adult
	6 July	411543	5428983	1 adult
	6 July	411728	5441045	1 adult
	6 July	411792	5445977	1 adult
	6 July	411799	5439002	Adult pair
	6 July	414141	5445132	Nest - 1 adult, 3 juveniles
Willet	30 May	412396	5451537	1 adult
Coyote	6 July	411748	5442611	1 adult
	6 July	411754	5443336	1 adult
Mule deer	28 June	411749	5444104	1 female and 1 juvenile
	5 July	375525	5520650	1 female
	5 July	399604	5466599	2 female
	5 July	411283	5439031	1 female
	6 July	411543	5428983	1 female
	6 July	411754	5443336	1 female
	6 July	411768	5444120	3 females, 2 juveniles
	6 July	411792	5445977	3 males, 4 females
	6 July	412331	5446671	3 females, 2 juveniles
	6 July	412369	5447454	3 males, 3 females, 1 juvenile

Species	Date	Easting	Northing	Details
Pronghorn	25 May	394731	5467213	1 adult
	30 May	409270	5459782	1 male, 2 females
	30 May	412444	5454657	1 adult
	5 July	394730	5466838	1 male, 3 females, 2 juveniles
	5 July	412023	5457192	1 male, 2 females, 2 juveniles
White tailed deer	4-May	411728	5448713	2 adults

Location not disclosed due to sensitive nature of wildlife feature.

Table F-3: Burrowing Owl Call-Playback Survey Locations (NAD83, Zone 12) and Data Collected at Each Location Within the Preferred Corridor During 2006 Field Surveys

Site ID	Date	Easting	Northing	Response	Comments
0	5 July	375525	5520650	-	
1	5 July	394128	5487096	-	
2	5 July	395229	5487088	-	
10	5 July	394730	5466838	-	Aborted after 1 minute due to raptor presence
11	5 July	399604	5466599	-	
12	5 July	399562	5463769	-	Aborted after 2 minutes due to raptor presence
16	5 July	412434	5449126	-	
17	5 July	412339	5448316	-	
18	5 July	412374	5449921	-	
19	5 July	412306	5450699	-	
28	5 July	411283	5439031	-	
32	6 July	412369	5447454	-	
33	6 July	412331	5446671	-	
34	6 July	411792	5445977	-	
35	6 July	411784	5445210	-	
37	6 July	411768	5444120	-	
38	6 July	411754	5443336	-	
39	6 July	411748	5442611	-	
40	6 July	411742	5441851	-	
41	6 July	411728	5441045	-	Aborted after 1 minute due to raptor presence
42	6 July	411799	5439002	-	Aborted after 4 minutes due to raptor presence
43	6 July	411704	5438300	-	Aborted after 1 minute due to raptor presence
44	6 July	411543	5428983	-	
46	6 July	411648	5436436	-	

Table F-4: Songbird Point Count Locations (NAD83, Zone 12) and Data Collected at Each Location Within the Preferred Corridor During 2006 Field Surveys

Site ID	Date	Start Time	Easting	Northing	Temp. (°C)	Sky[1]	Wind[2]	Noise[3]	Species	Abundance
48	28 June	07:00	412344	5450618	20	0	3	1	Horned Lark	12
									Western Meadowlark	5
									Brewer's Blackbird	7
									Vesper's Sparrow	2
49	28 June	07:17	412336	5449065	20	0	3	1	American Robin	2
									Western Meadowlark	2
									Horned Lark	5
									Vesper's Sparrow	2
									Brewer's Blackbird	1
									Barn Swallow	6
									Eastern Kingbird	1
50	28 June	07:35	412335	5448631	20	0	3	1	Western Meadowlark	6
									Brewer's Blackbird	2
									Vesper's Sparrow	6
									Horned Lark	1
51	28 June	08:01	411826	5447582	21	0	1	1	Sprague's Pipit	2
									Western Meadowlark	4
									Brewer's Blackbird	1
									Vesper's Sparrow	4
									Swainson's Hawk	1
									Horned Lark	2
52	28 June	08:45	411800	5445854	22	0	0	0	Sprague's Pipit	3
									Western Meadowlark	3
									Vesper's Sparrow	4
									Sharp-tailed Grouse	1
53	28 June	09:10	411783	5445209	22	0	1	1	Vesper's Sparrow	5
									Western Meadowlark	1
									Horned Lark	1
									Sprague's Pipit	3
									Common Nighthawk	1
									Horned Lark	1
54	28 June	09:30	411777	5444837	24	0	0	0	Ferruginous Hawk	1
									Western Meadowlark	4
									Brewer's Blackbird	6
									Vesper's Sparrow	3
55	28 June	09:55	411749	5444104	24	0	1	1	Black-billed Magpie	3
									Western Meadowlark	5
									Brewer's Blackbird	2
									Vesper's Sparrow	1

Site ID	Date	Start Time	Easting	Northing	Temp. (°C)	Sky[1]	Wind[2]	Noise[3]	Species	Abundance
56	29 June	06:20	411725	5441030	16	1	1	1	Vesper's Sparrow	3
									Horned Lark	1
									American Crow	3
69	29 June	09:30	411728	5439013	21	1	3	1	Brewer's Blackbird	3
									Vesper's Sparrow	3
									Red-winged Blackbird	6
70	29 June	09:45	411675	5437947	21	1	3	1	Vesper's Sparrow	6
									Brewer's Blackbird	1
									Brown-headed Cowbird	1
71	29 June	10:00	411604	5431692	21	1	2	0	Vesper's Sparrow	2
									Red-winged Blackbird	2
									Western Meadowlark	1
									Horned Lark	1
34	26 June	07:25	375510	5520440	16	0	0	1	Western Meadowlark	3
									Vesper's Sparrow	5
									Horned Lark	3
									Swainson's Hawk	1
									Sprague's Pipit	3
35	26 June	07:50	376412	5520331	18	0	0	0	Western Meadowlark	3
									Horned Lark	1
									Vesper's Sparrow	2
									Brown-headed Cowbird	4
									Sprague's Pipit	3
									Vesper's Sparrow	3
36	26 June	08:43	384949	5519957	18	0	0	1	Mourning Dove	1
									Brewer's Blackbird	18
									Vesper's Sparrow	1
									Mallard	3
									American Robin	1
									Sprague's Pipit	2
37	26 June	09:20	394821	5486812	21	0	0	1	Western Meadowlark	12
									Vesper's Sparrow	3
									Brewer's Blackbird	2
									Horned Lark	3
38	26 June	09:21	396439	5486985	21	0	0	1	Western Meadowlark	5
									Brown-headed Cowbird	1
									Double-crested Cormorant	3
									Brewer's Blackbird	18
									Northern Harrier	2
									Killdeer	1
39	26 June	09:51	396655	5484741	22	0	0	0	Brewer's Blackbird	7
									Baird's Sparrow	1

Site ID	Date	Start Time	Easting	Northing	Temp. (°C)	Sky[1]	Wind[2]	Noise[3]	Species	Abundance
40	27 June	07:10	394407	5475001	16	0	1	1	Long-billed Curlew	1
									Western Meadowlark	3
									Common Snipe	1
									Brewer's Blackbird	1
									Vesper's Sparrow	1
41	27 June	07:31	395161	5466698	16	0	2	1	Brewer's Blackbird	8
									Northern Harrier	1
									Horned Lark	1
									Marbled Godwit	1
42	27 June	07:55	396345	5466452	16	0	2	1	Ring-necked Pheasant	3
									Western Meadowlark	6
									Killdeer	2
									Eastern Kingbird	2
									Red-winged Blackbird	3
									American Avocet	3
									Barn Swallow	1
									Vesper's Sparrow	1

[1] Sky:
- 0 Clear or very few clouds
- 1 Partly cloudy – sky is roughly half obscured
- 2 Mostly cloudy with a few sky openings
- 3 Fog or smoke that impairs visibility beyond 30 m
- 4 Light drizzle
- 5 Constant precipitation

[2] Wind speed (MPH):
- 0 <1 Smoke rises vertically
- 1 1-3 Wind direction shown by smoke drift
- 2 4-7 Wind felt on face, leaves rustle
- 3 8-12 Leaves and small twigs in constant motion
- 4 13-18 Raises dust and small branches are moved
- 5 19-24 Small trees and leaf begin to sway
- 6 25-31 Large branches in motion
- 7 32-38 Whole trees in motion

[3] Noise:
- 0 Quiet
- 1 Some noise, but not distracting (i.e.: dogs or coyote barking/howling)
- 2 Significant noise that may have reduced bird detectability (e.g., flowing creek)
- 3 Constant noise (e.g. heavy traffic, compressor/generator, roaring creek)

Appendix G

Interim Historical Resources Impact Assessment

Arrow Archaeology Limited

2315 - 20 Street, Coaldale, Alberta, T1M 1G5
Phone: 403 345 2812 Fax: 403 345 2817
Cell: 403 330 8376 arrowarchaeology.com
Email: neil@arrowarchaeology.com

September 20, 2006

John Railton
Montana Alberta Tie Ltd.
Suite 800, 615 Macleod Trail S. E.
Calgary, Alberta
T2G 4T8

Dear Dr. Railton:

Re: Historical Resources Impact Assessment, MATL transmission line Lethbridge to the Canada – U. S. border

This constitutes an interim report of the Historical Resources Impact Assessment (HRIA) for the above-noted project. Final report work is now underway and we will providing Montana Alberta Tie Ltd and Alberta Community Development, the department responsible for administering the Alberta *Historical Resources Act* with this final report in the near future. This interim report describes our methodology and provides a summary of results and recommendations that have been developed with respect to this project.

HRIA Project Description

The historical resources impact assessment and related activity is intended to ensure that the transmission line project and its construction meet the requirements of the *Historical Resources Act*. Among other things, historical resources requirements are designed to ensure transmission line construction and related activity avoids impacting historical resources or if avoidance is not possible, that any historical resources impacted are protected to the extent possible and that mitigative action is taken to recover data, information and physical remains from the site(s) prior to construction related impacts to those resources.

To partially achieve this end, the actual impact assessment was preceded by a Historical Resources Overview (HRO). The HRO was completed by Arrow Archaeology Limited and submitted to Alberta Community Development. The HRO examined proposed route alignments, the location and nature of known historical resources near those routes and evaluated the nature and extent of existing disturbances, the geology, geomorphology, topography and other biophysical attributes along the routes in order to evaluate the possible impacts and the potential of the project to impact heretofore unrecorded historical resources. The HRO developed recommendations for the proposed routes within Alberta. The details of these recommendations varied depending upon specific locations, but essentially the HRO recommended that all uncultivated native

grassland and drainage crossing areas impacted or potentially impacted by the transmission line be subject to field examination and full assessment. It was further recommended that the transmission alignment(s) located in cultivated fields, developed/disturbed road allowances and other areas that had been subject to substantial surface disturbance prior to construction of the transmission line receive *Historical Resources Act* clearance/approval without detailed fieldwork. These recommendations were accepted by Alberta Community Development for the possible route alignments.

Subsequent to completion of the HRO, the currently proposed "preferred route" was chosen and the impact assessment focused on that alignment. The HRIA project therefore involves the examination of this preferred route from the Canada – U. S. border to the transmission line's northern terminus near Lethbridge. Arrow Archaeology has recommended granting *Historical Resources Act* clearance for that portion of the route located in cultivation and other areas where there has been substantial surface disturbance. The majority of this preferred route is located in such lands. The remainder of the preferred route located in grassland and other undisturbed areas such as drainage crossings and is subject to field assessment, evaluative testing and other normal historical resources investigation procedures.

HRIA Methodology

The historical resources assessment methodology for this project is normal for a linear project in Alberta. That portion of the alignment located in lands previously identified as requiring field assessment, evaluation and testing are subject to surface and subsurface survey and sampling using standard archaeological, palaeontological and historical search and analytical procedures. These procedures include, but are not limited to, detailed examination of surface and subsurface sediments and stratigraphy, analysis of local geomorphological conditions, a search for cultural objects and remains associated with pre-European Plains cultures, examination of surface and bedrock geology, search of historical records to determine the location of historically significant remains such as trails, buildings and features of the built environment, the location and assessment of such features and, for resources that are located, the completed documentation, analysis, assessment and recording of those resources. The field survey and assessment is conducted within the proposed transmission line right of way and, depending specific circumstances such as topography, the nature and/or significance of nearby historical resources and other factors areas of up to 500 m from the right of way are subject to detailed surface and subsurface survey and testing in the search for and recording of resources.

Known and previously recorded sites in the immediate vicinity of the proposed right of way are revisited and reevaluated to ensure they will not be impacted or that they can be avoided if they are in the area of proposed construction disturbances. Any previously unrecorded sites located in or proximal to the proposed transmission line right of way are subject to detailed examination and recording. This is carried out in order to evaluate the resource's significance and

to ensure the resource is clearly delineated and can be avoided. The specific methods of historical resource examination and assessment are dependent upon the site type, a preliminary assessment of probable significance and a determination of whether or not it can be avoided by the proposed development.

If necessary, site location, site type and other relevant data are communicated to the proponent to establish a plan to avoid the resource by construction and related impacts. If avoidance is not possible, plans are developed to mitigate the impact through controlled recovery of information, data and physical remains at the site.

Results

The impact assessment activities have resulted in the location and recording of 22 historical resources in and near the proposed transmission line right of way. These sites are typical sites found in southern Alberta and vary from isolated finds that have little historical resource value to stone feature sites from the Precontact Period and historical era homesteads that have significant historical resource value. These historical resources are all relatively small sites that, based on our initial assessment, can be avoided by transmission line construction. Sites that are located within the transmission line right of way may require planning to ensure that they can be avoided. The final number of sites that will require avoidance action is not currently known, however our current assessment is that that there are fewer that 5 or fewer may require some specific avoidance action such as the minor relocation of poles or accesses. At this point in the process, we do not anticipate that any sites will be unavoidable and therefore we do not anticipate that any detailed mitigative studies will be required of resources/sites in or near the proposed transmission line preferred route.

Recommendation

From an historical resources perspective, it is our opinion that the currently proposed preferred route be approved. Known historical resources along this route appear to be avoidable by transmission line construction without major changes in construction plans and there is little potential for construction to impact unrecorded or unknown sites over the majority of the proposed preferred right of way.

Please let me know if you require any additional information. Site maps, other illustrative materials and evaluative testing results will be provided in the final report.

Yours sincerely,

Neil Mirau
Arrow Archaeology