SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-010**

QUESTION:

What other utilities did Manitoba Hydro consult?

RESPONSE:

Manitoba Hydro consulted with Altalink, BC Hydro, SaskPower, Hydro One, Trimble Navigation Limited, Georgia Transmission Corporation, East Kentucky Power Cooperative, Exelon, Pepco Holdings Inc. on the routing methodologies they have used or were considering using at the time.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-010**

QUESTION:

When did Manitoba Hydro consult with those utilities?

RESPONSE:

Manitoba Hydro began contacting utilities listed in SSC-IR-259 in January of 2013.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-010**

QUESTION:

What other methodologies were suggested and why did Manitoba Hydro select EPRI-GTC?

RESPONSE:

Methodologies suggested were primarily centered on the use of Geographic information Management Systems and various spatial analytical tools including least cost path analysis. Manitoba Hydro evaluated the other suggested methods and determined that the EPRI-GTC methodology had a range of mechanisms for stakeholder involvement throughout the transmission line siting process.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-010**

QUESTION:

Did any of the consulted utilities recommend that Manitoba Hydro not use EPRI-GTC and if so, what reasons were provided for such recommendation(s)?

RESPONSE:

No consulted utilities specifically recommended not using EPRI-GTC.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-012**

QUESTION:

Please confirm that the decision to adopt the EPRI-GTC methodology was made by the Transmission Business Unit Management Team. If not, please advise who at Manitoba Hydro made the decision.

RESPONSE:

As noted in the response to SSC-IR-012, the decision to utilize the EPRI-GTC methodology for the MMTP was made by the Transmission Business Unit Management Team.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-012**

QUESTION:

Please provide the names and titles of the individuals at the Transmission Business Unit Management Team that made the decision. Alternatively, please provide the names and titles of the individuals at Manitoba Hydro that made the decision.

RESPONSE:

The names and titles of the Manitoba Hydro Transmission Business Unit Team, in place at the time that supported the application of the EPRI-GTC methodology on the St. Vital Transmission Project are as follows:

Name	Position
Shane Mailey	Vice President, Transmission
Gerald Neufeld	Division Manager, Transmission Planning and Design
Lorne Midford	Division Manager, Transmission Systems Operation
Glenn Penner	Division Manager, Transmission Construction and Line Maintenance

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-015**

QUESTION:

Please advise whether Photo Science Inc. had any prior experience with projects in Manitoba prior to being retained by Manitoba Hydro in March, 2013 and, if so, provide details.

RESPONSE:

Photo Science Inc. had no prior siting project experience in Manitoba.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-015**

QUESTION:

In subparagraph (b), is the reference to "EPRI methodology" a typo or intentional? If intentional, please explain how the EPRI methodology differs from the EPRI-GTC methodology referred to elsewhere in the EIS and answers to related IRs.

RESPONSE:

The use of the terminology of 'EPRI' or 'EPRI-GTC' or 'EPRI methodology' is used interchangeably throughout the EIS and related IRs to refer to the methodology that is applied within the Manitoba Hydro transmission line routing process, as described in Chapter 5.

"GTC" – refers to Georgia Transmission Corporation, which was the first to implement a predecessor of the method used by Manitoba Hydro, as noted in response to SSC-IR-015.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-015**

QUESTION:

Please provide the names and titles of the members of the routing and engagement teams that participated in the decision to modify the methodology. Also, please advise whether or not those individuals were/are involved in the MMTP.

RESPONSE:

As noted in the response to SSC-IR-015, modifications were not made to the methodology but to *applications of* the methodology.

As noted in the response to SSC-IR-015 and SSC-IR-016, the approach taken in developing the Manitoba Hydro application of the EPRI-GTC methodology was collaborative between the Manitoba Hydro Routing Team, engagement staff and the routing consultant.

As noted in IR response SSC-IR-053, project leads coordinated overall routing team activities, including discussions between the engagement teams and the routing team regarding how to apply the EPRI methodology to the MMTP project.

Engagement teams functioned similarly on the Project, with their input and activities coordinated by Manitoba Hydro staff. Maggie Bratland, Senior Environmental Specialist, coordinated the discussions of the engagement teams, routing teams, and the routing consultant. Engagement staff shared in the discussions that sought to ensure the routing and engagement processes worked together. The staff responsible for coordination of the FNMEP and PEP are Lindsay Thompson and Trevor Joyal respectively.

The staff noted above were involved in MMTP.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-015**

QUESTION:

Please identify the modifications made to the methodology decided upon by the routing and engagement teams in collaboration with Photo Science Inc.

RESPONSE:

As noted in response to SSC-IR-015, modifications were not made to the methodology, but to *applications of* the methodology.

As noted in Chapter 5, p5-4:

> *"The public and First Nation and Metis Engagement processes were an important part of the transmission line routing process. Manitoba Hydro conducted multiple rounds of engagement to capture input at key decision points in the methodology as the route selection narrowed from border crossing determination to a Final Preferred Route. During each round, input was collected on route preferences, routing opportunities, issues, and concerns. The routing team used this feedback to consider route alterations, develop new routing segments, and for consideration when evaluating and ranking whole routes. The information was then used in the alternative route evaluation step at the conclusion of each engagement round. This is where there was repeat flow through the funnel and the modification of the "once through" approach for the EPRI-GTC methodology."*

Working with the Manitoba Hydro routing and engagement teams, PhotoScience Inc. advised on how the tools within the methodology could be applied to align with the objectives of the engagement processes. In consideration of this advice, Manitoba Hydro made use of the route evaluation tools within the EPRI-GTC methodology (Alternate Route Evaluation Model,

Preference determination model) multiple times, and relatively early in the decision making process. As noted on Page 5-3 of the EIS:

> *"At the outset, due to the diverse nature of the route planning area, the EPRI-GTC once through the "funnel" process was modified. The alternative route evaluation step was used multiple times to accommodate siting complexities. The siting issues that needed to be accommodated were:*
>
> • *three potential border crossing points*
>
> • *undefined start points along the Southern Loop Transmission Corridor (SLTC)"*

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-015**

QUESTION:

Please provide the advice from Photo Science Inc. on "how the process could be modified to align more with the engagement processes to allow for additional opportunity for feedback and outside input to be considered in the methodology".

RESPONSE:

As noted in the response to SSC-IR-015 and SSC-IR-016, the approach taken in developing the Manitoba Hydro application of the EPRI-GTC methodology was collaborative between the Manitoba Hydro Routing Team, engagement staff and the routing consultant.

As noted in response to SSC-IR-268, working with the Manitoba Hydro routing and engagement teams, PhotoScience Inc. advised on how the tools within the methodology could be applied to align with the objectives of the engagement processes. In consideration of this advice, Manitoba Hydro made use of the route evaluation tools within the EPRI-GTC methodology (Alternate Route Evaluation Model, Preference determination model) multiple times, and relatively early in the decision making process.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-015**

QUESTION:

Please identify the “best practices”, “variety of implementations” and “various locations”.

RESPONSE:

Examples of best practices include approaches for conducting stakeholder workshops to calibrate siting models, how to best utilize the Alternate Corridor Model and effective use of the Alternate Route Evaluation Model to help identify the top routes. Chapter 5 of the EIS describes several technical approaches based on best practices. The consulting team that supported the MMTP project has been involved with implementing components of the EPRI-GTC Siting Methodology in numerous locations, including Alberta, Georgia, Kentucky, Maryland and Texas.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-015**

QUESTION:

Please identify the common themes not listed.

RESPONSE:

The common themes were all identified in the response to SSC-IR-015.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-015**

QUESTION:

The answer does not contain the recommendations provided to Manitoba Hydro. Please provide them.

RESPONSE:

As noted in the response to SSC-IR-015 and SSC-IR-016, the approach taken in developing the Manitoba Hydro application of the EPRI-GTC methodology was collaborative between the Manitoba Hydro Routing Team, engagement staff and the routing consultant. Hence there are no specific recommendations to provide.

As noted in the response to SSC-IR-268, working with the Manitoba Hydro routing and engagement teams, PhotoScience Inc. advised on how the tools within the methodology could be applied to align with the objectives of the engagement processes. In consideration of this advice, Manitoba Hydro made use of the route evaluation tools within the EPRI-GTC methodology (Alternate Route Evaluation Model, Preference determination model) multiple times, and relatively early in the decision making process.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-016**

QUESTION:

Is there a difference between the "engagement staff" and "engagement teams" referred to in the response to SSC-IR-015 and, if so, please explain that difference and provide details.

RESPONSE:

In these two responses there is no difference between what is meant by the terms "engagement staff" and "engagement teams".

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-016**

QUESTION:

Please confirm that Manitoba Hydro accepted all modifications suggested by Photo Science Inc.

RESPONSE:

Please refer to the response to SSC-IR-269.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-016**

QUESTION:

Please explain why Manitoba Hydro accepted all modifications suggested by Photo Science Inc.

RESPONSE:

1 Please see the response to SSC-IR-269.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-017**

QUESTION:

The answer to SSC-IR-013 confirms that the EPRI-GTC methodology was modified for the St Vital to Letellier transmission line. The answer to SSC-IR-017 confirms that the EPRI-GTC methodology was not modified for the St Vital to Letellier transmission line. One of these answers must be incorrect. Assuming the answer to SSC-IR-013 is correct, please provide the requested details of the modifications.

RESPONSE:

The responses to SSC-IR-013 and SSC-IR-017 are both correct.

In the response to SSC-IR-013 (and SSC-IR-015) it is indicated that modifications were made to "elements of the *application* of the EPRI-GTC methodology". As described in Manitoba Hydro's response to SSC-IR-400, the EPRI-GTC Methodology, as described in the 2006 report, is deliberately general in nature in order to accommodate the specific and particular jurisdictional or regulatory requirements and nuances. Specific project implementations of the EPRI-GTC Methodology must be more detailed. The MMTP project benefited from a more elaborate application than that described in the 2006 EPRI report. The St. Vital Transmission Project (discussed in response SSC-IR-017) did not include the challenge of evaluating potential border crossings, and hence the application of elements of the methodology was slightly different.

The response to SSC-IR-017 is not contradicting the statements made in SSC-IR-013. The response to SSC-IR-013 indicates that all three major phases (macro-corridor development, alternative corridor generation, and alternate route analysis and evaluation) of the EPRI-GTC methodology were applied to both the St. Vital Transmission and MMTP projects.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-018**

QUESTION:

The answers confirm that there are differences, as does the answer to CEC-IR-075. Please provide the requested detail concerning those differences and the requested explanation for the changes.

RESPONSE:

As stated in response to SSC-IR-018, there were no differences between the methodology used for the two projects.

CEC-IR-075 refers to adjustments to the various models used in the EPRI-GTC methodology. This is standard practice in implementing the models that are part of the methodology.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-020**

QUESTION:

Please advise if the research of routing methodologies differs from the answer to SSC-IR-010 and, if so, provide details.

RESPONSE:

In addition to consulting with Utilities as described in SSC-IR-010 the other methods of research of routing methodologies included literature searches of published periodicals and journals, internet web searches, webinars and conference calls with software developers/resellers, and Requests for Proposals published on MERX, an electronic tendering service.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-020**

QUESTION:

Please confirm that the following represent the complete extent of Manitoba Hydro's compliance with the Commission recommendation to "invite potentially affected public and communities":

(a) 75 invitations sent to "interested stakeholder groups";

(b) Stakeholder meeting held from 9 am – 130 pm on November 15, 2013 and attended by 5 persons; and

(c) Stakeholder meeting held from 9 am – 130 pm on November 19, 2013 and attended by 6 persons.

For ease of reference, please see pages 4 and 5 of Round 1 technical data report referred to in SSC-IR-186.

RESPONSE:

No, this statement is not at all correct.

Manitoba Hydro undertook numerous engagement processes that aimed to be inclusive and accessible. Through the early planning phases, more than a hundred interest groups, First Nation communities, the MMF and Indigenous organizations were identified and thousands of residents in southeastern Manitoba notified of the project. The workshops mentioned above were but one of the many processes used for engagement.

As outlined in Section 3.4.3, numerous notification methods were used throughout the engagement process to inform interested parties and to provide access to project information and mechanisms to provide feedback.

Please see Sections 3.6.2, 3.7.1, 3.8.1, 3.9.1, 3.10.1, 3.11, Appendix 5A as to how Manitoba Hydro notified, collected, engaged and will continue discussions with "potentially affected public and communities" throughout the ongoing engagement processes.

Please see the response to SSC-IR-280

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-021**

QUESTION:

SSC-IR-020 does not refer to any modifications to the EPRI-GTC methodology. Please confirm that Manitoba Hydro failed to take any steps whatsoever to modify the EPRI-GTC methodology to comply with Recommendation 7.2, or identify the specific modifications to the methodology as requested.

RESPONSE:

Non-Licensing Recommendation 7.2, from the Clean Environment Commission Report on the Bipole III Transmission Project (CEC 2013) states:

> *"7.2 Manitoba Hydro, in future, invite the potentially affected public and communities, including First Nations and the Manitoba Métis Federation, to participate in the selection of alternative routes and route selection criteria as well as in identifying baseline studies."*

As noted in response to SSC-IR-015, Manitoba Hydro, working with the routing consultant PhotoScience Inc., modified elements of the *application* of the EPRI-GTC methodology.

Manitoba Hydro has taken numerous steps to fulfill the spirit and intent of this recommendation as described in Chapters 3, 4 and 5.

"From the regulatory review of the Bipole III Transmission Project (Bipole III) environmental impact statement, Manitoba Hydro received a recommendation from the Clean Environment Commission (CEC 2013) to "develop a more streamlined, open and transparent approach to route selection, making more use of quantitative criteria". As described in this chapter, the methodology applied to this Project enhanced the approach to route selection by incorporating

stakeholder feedback earlier in the process and using it directly in selection and weighting of criteria that informed route development and evaluation. The approach also incorporated an "apples-to-apples" comparison of whole routes, conducted within a framework that was both transparent and streamlined."

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-023**

QUESTION:

Please confirm that Manitoba Hydro considers the amount of time required for the Province to conclude the consultation process mandated by section 35 of the Constitution Act, 1982 to be a "Schedule Risk".

RESPONSE:

Yes, the amount of time required for the Province to conclude the consultation process is one of the considerations for schedule risk. Please see SSC-IR-116 for more information.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that Shane Mailey is not a "professional in the process of route selection" as that phrase is used on page 5-6.

RESPONSE:

The IR referenced states "The Management Team is one of several teams involved in the overall transmission line routing process, providing incremental senior-level perspectives and input in relation to the specific roles and accountabilities that they hold within the Manitoba Hydro organization". Mr. Mailey was a member of the Management Team.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that Shane Mailey is not a "subject matter expert" as that phrase is used in this answer, or identify his area(s) of expertise and for each area provide details of his professional/educational qualifications and experience relevant to that expertise.

RESPONSE:

Mr. Mailey, as the Vice President of Transmission, has comprehensive and authoritative knowledge and skill in providing transmission services, expanding the system, and managing its reliability. His curriculum vitae will be provided as required for this hearing if it is determined he will be testifying.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that Gerald Neufeld is not a "professional in the process of route selection" as that phrase is used on page 5-6.

RESPONSE:

The IR referenced states "The Management Team is one of several teams involved in the overall transmission line routing process, providing incremental senior-level perspectives and input in relation to the specific roles and accountabilities that they hold within the Manitoba Hydro organization". Mr. Neufeld was a member of the Management Team.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that Gerald Neufeld is not a "subject matter expert" as that phrase is used in this answer, or identify his area(s) of expertise and for each area provide details of his professional/educational qualifications and experience relevant to that expertise.

RESPONSE:

Mr. Neufeld, as the Transmission Planning & Design Division Manager, has comprehensive and authoritative knowledge and skill in the design of transmission systems. His curriculum vitae will be provided as required for this hearing if it is determined he will be testifying.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that Anthony Clark is not a "professional in the process of route selection" as that phrase is used on page 5-6.

RESPONSE:

The IR referenced states "The Management Team is one of several teams involved in the overall transmission line routing process, providing incremental senior-level perspectives and input in relation to the specific roles and accountabilities that they hold within the Manitoba Hydro organization". Mr. Clark was a member of the Management Team.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that Anthony Clark is not a "subject matter expert" as that phrase is used in this answer, or identify his area(s) of expertise and for each area provide details of his professional/educational qualifications and experience relevant to that expertise.

RESPONSE:

Mr. Clark, as the Transmission System and Operations Division Manager, has comprehensive and authoritative knowledge and skill in the safe, reliable operation of the Manitoba Hydro bulk power system. His curriculum vitae will be provided as required for this hearing if it is determined he will be testifying.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that Glenn Penner is not a "professional in the process of route selection" as that phrase is used on page 5-6.

RESPONSE:

The IR referenced states "The Management Team is one of several teams involved in the overall transmission line routing process, providing incremental senior-level perspectives and input in relation to the specific roles and accountabilities that they hold within the Manitoba Hydro organization". Mr. Penner was a member of the Management Team.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that Glenn Penner is not a "subject matter expert" as that phrase is used in this answer, or identify his area(s) of expertise and for each area provide details of his professional/educational qualifications and experience relevant to that expertise.

RESPONSE:

Mr. Penner, as the Transmission Construction Line and Maintenance Division Manager, has comprehensive and authoritative knowledge and skill in developing, constructing and maintaining transmission lines. His curriculum vitae will be provided as required for this hearing if it is determined he will be testifying.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Please confirm that "Vice President, Transmissions Business Unit" is the same as "Vice President of Transmission Division" referred to in Table 5-1. Alternatively, please provide a detailed explanation of the difference and why one of those Vice Presidents is excluded from the answer to CEC-IR-013 and the other is excluded from Table 5-1.

RESPONSE:

1 Confirmed that these are the same.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Is the Gerald referred to in Table 5-1 the same person as the Gerald Neufeld referred to in CEC-IR-013? If so, why does he appear twice in Table 5-1 (once by name, once by title)?

RESPONSE:

The updated table provided in response to CEC-IR-013 is accurate. Gerald Neufeld is the Division Manager of Transmission Planning and Design.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-024**

QUESTION:

Table 5-1 does not refer to the Division Manager of Transmission Construction and Line Maintenance. Why not?

RESPONSE:

The updated management team table is provided in CEC-IR-013.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-033**

QUESTION:

When did Manitoba Hydro receive the geospatial dataset from the Province of Manitoba?

RESPONSE:

The data has existed in Manitoba Hydro databases since 2011-06-10 for TLE. Manitoba Hydro receives continuous updates issued by the Province but no changes have been made in the dataset relating to the MMTP Project Area since 2011.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-033**

QUESTION:

How current was the geospatial dataset from the Province of Manitoba? In light of Manitoba Hydro's admission that it does not track the status of TLE processes, did Manitoba Hydro take any steps to update the information received from the Province of Manitoba?

RESPONSE:

Manitoba Hydro receives continuous updates issued by the Province. At the time of border crossing criteria development, the version used was November 14, 2012. However no changes had been made to the dataset in the MMTP Project Area since 2011. Please see SSC-IR-293.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-033**

QUESTION:

The question did not ask if Manitoba Hydro plays a role in managing the TLE process. The question asked which Entitlement First Nations are included in "Treaty Land Entitlement" criteria in Table 5-2. Please provide the requested list of EFNs and the status of the TLE process for each EFN. Alternatively, simply confirm that Manitoba Hydro is unaware of which EFNs may be affected by the MMTP.

RESPONSE:

As indicated in SSC-IR-033, Manitoba Hydro identified TLE lands through a geospatial dataset provided by the Province of Manitoba. Peguis First Nation and Roseau River Anishinabe First Nation both have made TLE selections in the Route Planning Area.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-033**

QUESTION:

Is the list of First Nations contained in the answer to SSC-IR-198 the answer to (c)?

RESPONSE:

No. The seven First Nations named in the answer to SSC-IR-198 are those that were engaged in the Project that also have outstanding entitlement in the Province under Manitoba's Treaty Land Entitlement Process. For the answer to (c) please refer to SSC-IR-295.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-035**

QUESTION:

The last bullet on page 5-15 does not explain why the extension was limited to approximately 20 km. Please provide the requested explanation.

RESPONSE:

As described in the last bullet on page 5-15 the extension was limited to 20km due to several large deep wetland complexes which pose significant engineering, construction and accessibility challenges.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-035**

QUESTION:

Please identify the person that made the decision to extend the eastern boundary, and also please provide their title. Alternatively, please provide a list of names and titles of all members of the Project Team involved in the decision.

RESPONSE:

The Project Team members involved in making this decision were:

- David Jacobson, Interconnection-Grid Supply Section Head
- James Matthewson, Senior Environmental Assessment Officer
- Patrick McGarry, Senior Environmental Assessment Officer
- Shannon Johnson, Manager –Licensing and Environmental Assessment Department
- Maggie Tisdale, Senior Environmental Specialist
- Jesse Glasgow of PhotoScience Inc. facilitated the discussion.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-037**

QUESTION:

The answer omits the names of the individuals that attended from each organization. Please provide those names.

RESPONSE:

Manitoba Hydro will not provide the names of individuals that attended. These individuals represented the views of the groups they represented and did not consent to the release of their personal names.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-037**

QUESTION:

Please confirm that the "exhaustive review of organizations that could potentially house data" began in April, 2013.

RESPONSE:

As stated in the response to SSC-IR-037 the "process of identifying which organizations that might participate and have knowledge and related data to contribute began in April 2013".

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-037**

QUESTION:

The answer omits the end date for the "exhaustive review of organizations that could potentially house data". Please provide that date.

RESPONSE:

Manitoba Hydro's efforts to identify organizations that could house geospatial data to support the factors within the alternate corridor model continued until the corridors were generated using this data, which was in September, 2013.

Please note that Manitoba Hydro GIS staff work continuously throughout the Project to update existing data sets and acquire new data to inform Project planning and decision making.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-038**

QUESTION:

Please confirm that none of the workshop participants were provided with information about specific lands included in the "Indian Reserves/TLE Selections". Alternatively, please provide the information about specific lands that were provided to the workshop participants.

RESPONSE:

It is confirmed participants were not provided specific information about Indian Reserves/TLE Selections.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-041**

QUESTION:

Please provide details of the samples, verification process and verification results.

RESPONSE:

The quality assurance processes associated with the assignment of suitability values to each cell is completed in two ways, each corresponding to the level of processing being completed at that key point in the process as described in CEC-IR-074.

The first check is a manual selection of single cells and groups of cells to verify the values assigned to the cells. Depending on the complexity of the value being determined this may be as simple as confirming a value of zero or one, in other cases it may mean manually recreating the mathematical equation used to populate the value of the cell. This is typically completed as a “check and balance” on an adhoc basis. This sampling of the cell values is typically not documented in a formalized way.

The second check is a peer review of processing steps used and a similar review of the cell values as described above. This involves using a second computer and a second expert to recreate and re-run certain processing steps and comparing the results. When different results are noticed the two are compared to determine what differences were applied and additional processes are tested. This step is only considered complete when identical results are achieved.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-041**

QUESTION:

Please identify the GIS analysis best practices that are consistent with the sampling and verification referred to.

RESPONSE:

This was referencing general GIS “best practices”, not a formal document, process, or standard. Examples of GIS “best practices” are: the use of geoprocessing models and scripts to perform common data editing and manipulation functions, use of structured naming conventions, metadata documentation, using spatial and attribute queries to find attribution and geographic location errors, using software features that check geometry values and spatial geometry relationships, use of data models, and the continuous training for GIS analysts.

SUBJECT AREA: **Route Selection None**

REFERENCE: **SSC-IR-043**

QUESTION:

How many data anomalies were identified?

RESPONSE:

The specific number of "data anomalies" identified was not recorded. "Data anomalies" were generally addressed as they were identified.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-043**

QUESTION:

How many processing errors were identified?

RESPONSE:

The specific number of "processing errors" identified was not recorded "Processing errors" were generally addressed as they were identified.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-043**

QUESTION:

How many processing anomalies were identified?

RESPONSE:

The specific number of “processing anomalies” identified was not recorded. ”Anomalies” were generally addressed as they were identified.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-043**

QUESTION:

How many data artifacts were identified?

RESPONSE:

The specific number of "data artifacts" identified was not recorded. "Data artifacts" were generally addressed as they were identified.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-043**

QUESTION:

Based on the quality control measures implemented by Manitoba Hydro and the number of data anomalies that were identified, approximately how many data anomalies were missed and what impact do those data anomalies have on the route selection process?

RESPONSE:

1 Manitoba Hydro is not aware of any data anomalies that were missed or outstanding.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-043**

QUESTION:

Based on the quality control measures implemented by Manitoba Hydro and the number of processing errors that were identified, approximately how many processing errors were missed and what impact do those processing errors have on the route selection process?

RESPONSE:

Manitoba Hydro is not aware of any data processing errors that were missed or are outstanding.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-043**

QUESTION:

Based on the quality control measures implemented by Manitoba Hydro and the number of processing anomalies that were identified, approximately how many data anomalies were missed and what impact do those processing anomalies have on the route selection process?

RESPONSE:

Manitoba Hydro is not aware of any data anomalies that were missed or outstanding.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-043**

QUESTION:

Based on the quality control measures implemented by Manitoba Hydro and the number of data artifacts that were identified, approximately how many data anomalies were missed and what impact do those data artifacts have on the route selection process?

RESPONSE:

As both “data artifacts” and “data anomalies” are referenced in the question, and “data anomalies” were also referenced in SSC-IR-309 it was assumed the question was generally addressing “data artifacts”.

Manitoba Hydro is not aware of any data artifacts that were missed or are outstanding.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-047**

QUESTION:

Please provide the "standard set of guidelines".

RESPONSE:

Please find attached Manitoba Hydro Licensing and Environmental Assessment Data Management Protocol (SSC-IR-313_Attachment.pdf).

Licensing and Environmental Assessment

Transmission Planning and Design

Data Management Protocol (DMP)

And Data Submission Workflow

Version 3.7 2016-05-17

Table of Contents

1. Section One – Applies to all Project Team Members

The following information pertains to all Manitoba Hydro project team members (i.e. consultants, sub-consultants and data custodians). Every project team member need to understand and follow these guidelines when sourcing, creating, editing and submitting data to be incorporated into a Manitoba Hydro project.

1.1. Purpose of DMP

This document describes and explains the implementation of a Data Management Protocol (DMP) that has been developed by Manitoba Hydro for its environmental assessment and monitoring projects. It has two components, 1) the collection, QA/QC and dissemination of spatial data via the Orientis/EPIMS systems and 2) the collection, cataloguing and dissemination of Non Spatial data products such as correspondence, charts, graphs, reference materials etc. Orientis/EPIMS are integrated data management (IDM) systems developed by Golder and Manitoba Hydro that will be used for managing environmental assessment and monitoring data and related files, documents and information products developed within and supporting transmission projects.

1.2. Audience

The primary audience of the DMP is consultants, contractors and 3rd parties that work for Manitoba Hydro, Transmission Business Unit, Licensing and Environmental Assessment Department projects where production of data, data files, spatial databases, reports and information products are their main deliverables.

1.3. Business Drivers

The DMP has been created for the following reasons:

- Ensure that datasets produced across the various consultant disciplines can be managed efficiently in a singular integrated database (Orientis/EPIMS);
- Enable Manitoba Hydro to use and leverage the Orientis/EPIMS data management system where data entering the platform is managed at a very high standard and of high integrity;
- Enable the transfer of data at the end of the project in an organized manner
- Facilitate consistent data collection across projects

1.4. Data Types Managed under the DMP

Consultants produce many different types of data and information products within an environmental assessment study or compliance monitoring program. The data types that are typically administered under a DMP would include, but not be limited to:

- GIS or spatially referenced data files, databases or images (vector and raster)
- Technical data (lab results, geotechnical data, etc)
- Digital Photographs/Videos
- Documents (Microsoft Word, PDF or Excel spreadsheet files, scanned images)
- Information products (Maps, charts, graphs, tables in various document formats)

1.5. Data Delivery

To facilitate common delivery and compatibility, all data delivered to Manitoba Hydro should be created on a Microsoft Windows compatible computer. Tools such as the EPA Metadata editor require Microsoft Windows to install and run, as do most of the ESRI GIS products.

1.5.1. Field Collected Data

Field collected data pertains to any data files that were either collected in the field or derivatives of the data.

Examples of field collected data include but are not limited to:

- GIS files depicting locations of sites, areas and discrete locations and the attributes pertaining to those sites.
- GPS waypoints, GPS tracks, and observations that were recorded on paper as part of a field survey program and then transcribed into a digital format.
- Geo-rectified paper and digital maps (e.g. Topographic NTS maps) that have been marked or redlined that describe activities, observations and data points. This data will be used to create GIS datasets.
- Resultant GIS files or summary files/tables/charts that depict an analysis of the hereby described field data.

ALL field data MUST be included, even null values (ie. plots with no data)

Acceptable file formats include but are not limited to:

- ESRI feature classes:
    - File Geodatabase ("GDB" 10.0 or higher) feature classes
- Microsoft Excel spreadsheet files containing coordinate and attribute information
    - Microsoft Word documents containing location data will **NOT** be accepted
- GPS waypoint and track files with corresponding ID's indicating the location of field observations
- Field notes must be transcribed to a digital format (Excel, database, etc.) from which GIS datasets can be created.
- Scanned field books are **NOT** accepted as field data, but may be submitted as supplemental information.

Data Standards for Field Collected Data

Field collected data generally falls into one of two formats:

1) **Spreadsheet**: generally a document such as a spreadsheet or comma separated file (.csv)
2) **Non-Spreadsheet**: generally a data format type that is created by a GPS unit or used within a GIS mapping software product

Format specific data standards for all field collected data are as follows:

Coordinate System:

Data must be presented in either of the two formats:

- NAD83 (UTM projection) *this is the standard for GIS datasets
- WGS84 (Latitude/Longitude in Decimal Degrees)
    - **Only spreadsheets and GPS data will be accepted in WGS-84**

Field Convention

- Field names are 15 characters or less; contact the data custodian who will obtain Hydro approval if a longer name is required.
- Field names are all unique, especially within the first 10 characters to support legacy SHP file exports.
- No use of illegal characters (#$%^&* or spaces). Use underscores or Title Case if necessary.
- Field entries should not be more than 250 characters long. If you need to include more, create a new field (e.g. COMMENTS_2)
- Flora and Fauna must have common and scientific name fields

Standard Fields: see Appendix "B"

- FIELD_ACT_ID – The field activity identifier that the dataset is tied to.
- ID (LOCATION_ID, SAMPLE_ID, OBS_ID if possible)
- WAYPOINT_ID – The collecting Company waypoint id or reference id
- **EASTING – UTM Easting or Longitude
- **NORTHING – UTM Northing or Latitude
- **DATUM – Datum Used, NAD83 or WGS84
- **PROJ_ZONE – 14N, 15N or LL
- DATE – in format <YYYYMMDD>, and if TIME is available use format <YYYYMMDDHHMMSS>
- COLLECTOR – in format <Name of person(s)> e.g. R. Johnson, L. Wiebe
- COMPANY – in abbreviated format e.g. WRCS or MMM, see Appendix "C" for reference
- DEVICE – Name of collecting device e.g. Name of GPS model, camera, data logger

Please see Appendix "D" for specific data models that have been developed for specific data collection activities.

** required in spreadsheet format only

Spreadsheet Field Collected Data

- Ideally, a structured spreadsheet for the data collection will be defined prior to the field work being performed. The spreadsheet will be available on Orientis/EPIMS. If no structure has been predefined, the 3rd party will define a structure and submit it to Hydro for approval prior to the field work being performed.
- Ensure accompanying metadata is completed in EPA Metadata Editor and saved as an XML file with the same name as the dataset spreadsheet (see metadata standards below)

Non-Spreadsheet Field Collected Data

- Should be in NAD83 UTM zone 14, except GPS data.
- Ensure accompanying metadata is completed (see metadata standards below) using EPA Metadata Editor.

1.5.2. Sourced/Derived Data (Non-Field)

Some GIS data files or product types are sourced from other agencies or derived from other existing data. Some of these types of datasets include but are not limited to:

1) Government Data: provided by local, provincial, or federal government bodies
2) External Data: provided by another external body (contractor, private company etc.)
3) Analysis Data: Data that has been created from other data, whether it be via analysis or modeling exercise (e.g. Wildlife modeling results, traditional land use polygons)

Data Standards for Sourced/Derived Data

Sourced/Derived data generally falls into one of two formats:

1) **ESRI** feature class
2) **Other**
   - Government and external data types generally do not need to be altered.
   - The only changes to this type of data will be in the form of supplemental metadata as described later in the metadata section and possibly re-projecting the data into NAD83 UTM zone 14 if not already.

1.5.3. Digital Photographs/Video

- All photographs will be *.jpg format and have geographic coordinates (Lat/Long) embedded in the EXIF data of the photo with a +/- 10m accuracy as per LEA-TN : Field Data Collection TN-2.1. This can be accomplished through the use of GPS enabled cameras or photo-tagging via processing of GPS tracklogs and digital photos.
- Photos/videos will be attached to the applicable ESRI Feature Class as attachments.
- If field data is submitted as a spreadsheet, sufficient reference for which photos reference which rows of data that the Data Custodian can create the attachments for submission to the IDM. Photos will be submitted on CD.
- Video files will have an accompanying XML metadata record.
- Video files will be submitted to Manitoba Hydro on DVD format media.

1.5.4. Technical Data Types

Technical data types are not within the scope of the DMP at this time. An example of a technical data type is a gINT borehole log or a chemical analysis report produced by a soils laboratory.

1.5.5. Data Naming Convention

All data submission into the Orientis/EPIMS IDM systems must adhere to Manitoba Hydro's unique file naming standard. Please refer to Appendix "A" of this document.

1.6.Metadata – Manitoba Hydro Metadata Standards

Metadata is a mandatory component to **ALL** data submissions. Without metadata, the submission is incomplete and will not be published to the Orientis/EPIMS IDM.

1.6.1. EPA Metadata Editor

The standard metadata tool that Manitoba Hydro has adopted is the EPA Metadata Editor (produced in the United States by the Environmental Protection Agency and other agencies). This tool offers an ESRI extension for ArcCatolog for editing ESRI spatial data as well as a standalone application for creating XML metadata records to accompany all other forms of data submissions. You can download this tool with custom look-up tables from Orientis or EPIMS.

Please refer to Appendix "E" for a description of the editor screens and what fields are required to be filled in. Yellow fields are mandatory, green are mandatory if applicable, and blue are optional.

1.6.2. Metadata Standards by Data Source

Depending on the type of data (i.e. field collected, sourced, derived, video/photo) different levels of metadata completion maybe required.

Field Collected Data

Regardless if your field collected data is in a spatial file format or tabular, you are required to fill in the entire EPA metadata record. The contractor/consultant performing the field work is expected to be familiar with all processes and activities relating to the collection and processing of the field data they are collecting. Thus they have the first hand knowledge required to complete a full metadata record.

Sourced Data

Sourced data originating from an external source should come complete with metadata. If not, the contractor/consultant must make every effort to obtain this metadata from the source. Leave whatever existing metadata accompanies the sourced data and add the following in the relevant sections:

1) Where or who was the data acquired from?
2) When was the data collected or downloaded?
3) Purpose: What is data being used for? Why was it commissioned?

Derived Data

Derived data represent that which has been derived or altered through some analytical, modelling or query methods. Like field collected data, the contractor/consultant is expected to be familiar with all processes and activities relating to the use of any source data and its processing to achieve the resultant data. Thus they have the first hand knowledge required to complete a full metadata record.

Video/Photo Data

Where this data is not submitted through Orientis/EPIMS Photo Video Tools or Terra Recon Snapshot software, this data must be accompanied by XML metadata file. Like sourced data, the following information must be populated within the metadata record:

1) Who and where was the data acquired?
2) When was the data collected?
3) Purpose: What is data being used for? Why was it commissioned?

1.7.Document Delivery

1.7.1. Schedule

All contracts/consultants must provide Manitoba Hydro's Licensing & Environmental Assessment (LEA) Department with all project data to date on CD named and structured as per below. The requirements below represent industry standards and allow for scalability. Upon submission, CDs or CD cases/folders should include name of consultant, project and submission date.

Data must be submitted after the first three months of the contract and every six months thereafter until project completion. CDs should be forwarded to:

By Courier:
Licensing and Environmental Assessment Department
Manitoba Hydro
820 Taylor (3)
Winnipeg, MB R3M 3T1
(204) 360-7859

By Mail:
Licensing and Environmental Assessment Department
Environmental Protection Officer
Manitoba Hydro
PO Box 7950 Stn Main
Winnipeg, MB R3C 0J1

1.7.2. Folder and Document Naming Convention

File folder and document naming conventions:

- Lower case letters only
- Avoid special characters (?, +, $, @, !, ?, *, &, ^, #, >, <, (,), etc.)

- Use underscore (_) in lieu of space
- File and folder names shall not exceed 30 characters
- If dates are used in file names, ensure in YYYYMMDD format

1.7.3. Folder Structure

If the contractor/consultant's organization already has corporate file management standards, contractor/consultant is to provide a cross-reference table aligning their file management structure to LEA's as per below.

Consultant Folder	MH Folder
	phase
	analysis
	correspondence
	data
	deliverables
	drawings
	minutes
	photos
	references

Consultants can add subfolders to the structure below as required. However, no more than 3 sub-folder levels shall be added under any given folder by the consultant.

1. **project** – name of project (e.g. Bipole_III)
   1.1. **phase** – name of project phase, generally aligned with scope of work awarded (e.g. public_engagement_round_1, monitoring_birds)
   1.2. **analysis** – all analysis or modeling data generated for the project
   1.3. **correspondence** – project-related letters, faxes, memorandums, e-mails or other transmittals to external parties such as DFO, Nav Waters, regulatory bodies, landowners, etc.; correspondence with client is not required

1.4. **data** – raw data collected during the project; all project related information and data received from surveyors or other field personnel – **to be used if Orientis/EPIMS is not utilized on project**
1.5. **deliverables** – all final project-related maps and reports **to be used if Orientis/EPIMS is not utilized on project**
1.6. **drawings** – all final drawings, figures, maps or sketches created for the project
1.7. **minutes** – minutes recorded by consultant for meetings related to the project including those with client
1.8. **photos** – all project related pictures or graphic image files (e.g. jpg) excluding drawings, figures, maps or sketches to be included under drawings above - **to be used if Orientis/EPIMS is not utilized on project**
1.9. **references** – all project-related reference materials and results of literature searches - **to be used if Orientis/EPIMS is not utilized on project**

1.8. Additional Support

The DMP was created to be a concise information source for project members on how to work with various data specifically for inclusion in the Orientis/EPIMS IDM systems. With the interest to minimizing bloating of this document with redundant information, the DMP will not include policies, supplemental info or workflows not directly related to sourcing, creating, editing and submitting data into the Orientis/EPIMS IDM systems. The following additional support information is available on the Orientis and EPIMS websites.

- EA Authoring
- Project team contact information
- Project team and data custodian video support
    - Orientis general overview
    - Data/map requests (Project team member)
    - Data/map submissions (Data custodian)
    - EIS tutorials
    - Alerts
    - Document check in/out
- Product management (i.e. Map library)
- Golder technical support
- Data catalogs
    - Metadata Library
- Scheduling
    - Helicopters
    - Field work
- Reference library

For data custodians, specific policies, technical notes, templates, style files and much more not covered explicitly under the DMP may be located on the Orientis/EPIMS websites under the Data Custodian access tab.

In the event a project team member is unable to find the answers they seek via the DMP or the resources available through the Orientis/EPIMS websites, question may always be directed to a Manitoba Hydro contact.

2. Section Two – Applies Specifically to Data Custodians

The following information pertains to all Manitoba Hydro data custodians. Here you will find policies, supplemental information and flow charts to help streamline the QA/QC and Orientis upload processes.

2.1. Data Custodian

The role of the data custodian is twofold: (1) to vet and QA/QC data uploads from contractors/consultants verifying DMP compliance before passing it on for upload into the Orientis/EPIMS IDM and (2) provide various mapping products for reports, internal use and public consultation.

2.2. Data QA/QC

The following steps should be observed during data submission QA/QC:

1. If a data submission is field collected, check to ensure it is complete and includes **ALL related field data previously submitted as well**. Field data submissions must be complete from the start of the project so they can replace, not append to, existing data in the Orientis/EPIMS IDM.
2. For sourced/derived data, check the Orientis/EPIMS IDM to ensure the data submission is unique. If not unique, can it be appended to or replace an existing dataset? If multiple similar datasets exist, a decision with Manitoba Hydro must be made for which version(s) of the data are to be maintained.
3. Ensure the data submission contains a metadata record and is fully DMP compliant (See Appendix "F"). If not, return to whoever submitted the data to ensure DMP compliance before re-submitting.
4. Upon receiving a DMP compliant data submission, follow the data custodian Orientis/EPIMS IDM placement workflow (see Appendix "G") for submission to Golder.

2.3.Publically Released Data

From time to time some data is requested for public consumption external from the project team. Such data may be provided in a GIS format or via a public web mapping application. Special precautions with this data must be taken.

Project infrastructure of data type ROUTE or INFRA is commonly requested for public release and consumption in web mapping applications. For all requests of this data type the data custodian must ensure the following changes are made:

To the Metadata:

- Access – Changed to Unclassified
- Access – Changed to No Confidentiality
- Primary Linkage – Removed
- Supplemental Info – Removed
- Data process Steps/Lineage – All Removed
- Abstract and Purpose – Updated to reflect public engagement use

- Distribution Contact /Contact/Metadata Contact fields should always be Licensing and Environmental assessment
- Entity and Attribute – Remove all
- Metadata dates updated

To the Feature Class/Data:

- All attribute fields except name and segment number should be removed.
- Title Changed – Add "P" to end of data set name (e.g. MMTP_ROUTE_RefinedAlternativesOctober_MH_HM_20141021P)
- Does not get loaded into IDM, does get posted to Public Data Library

2.4.Map Production

Typically the consultant charged to be the data custodian is also tasked with map production. Some consultants may have in-house mapping capabilities they can utilize for internal project needs however all mapping products to be used for reports or external communications will be produced by a single consultant tasked with map production.

Maps are an information product managed within the Orientis/EPIMS IDM system. Procedures for requesting maps are similar to requesting data. Video tutorials are available on the Orientis and EPIMS websites. Guidelines for map production are **not** specifically related to the DMP and are thus contained in a separate document available to data custodians.

Appendix A: Manitoba Hydro File Naming Convention and Standards

PRJ_DataType_Tile/Name_Agency_Modifier_Geometry_ Year/Date

Definitions

PRJ	Project (i.e. BPIII, MMTP), LB project type is being phased out - leave blank for provincial scope datasets.
DataType	Dataset Type (See List Below).
Tile	Tile Name for tile based data such as FRI, DOI (Use title case, no spaces or underscores).
Name	Name of dataset, include a descriptive name limited to 25 characters.
Agency	Original creator/owner of data. Agency name **does not change** if dataset has value added or is modified, instead use appropriate modifier.
Modifier	A modifier used to provide further information about the dataset (subset, analysis product, value added, query layer, clip, etc.).
Geometry	PT/LN/PY/TB/RL/RS designating Point/Line/Polygon/Table/Relationship/Raster.
Date/Year	Date format (YYYYMMDD), use Year format (YYYY) if month and day are unknown. To be used for data that is a time specific representation and that will not/cannot be updated (i.e. photos, videos, DOI, LiDAR, analysis derived). This will also be used commonly on ROUTE data types and field work datasets.

Data Type Modifiers

Analysis (A) – An analysis product generated from a model or analytic process.

Attribute Query (AQ) – A subset of data that has been created by an attribute query.

Clip (C) – A dataset that has been clipped to reduce size or for a specific area of interest.

Digitized (D) – A dataset that has been digitized from a non-spatial source (i.e. paper, PDF, Mylar, etc).

Field Data (FD) – Consultant collected data via a field work program.

Hydro Maintained (HM) – A dataset maintained by Manitoba Hydro through a regular update process.

Collaboratively Maintained (CM) – This will generally be a project based dataset maintained by Manitoba Hydro and consultant agencies. Changes to the dataset may be initiated by any of the involved agencies.

Not Modified (NM) – The default modifier for all raw datasets without any modifications.

Spatial Query (SQ) – A subset of data that has been created by one of several spatial query methods.

Value Added (VA) – A sourced dataset that has some value added to it either with the addition of geometry or attributes.

Specified data type definitions for the above naming convention

Abbreviation	Type	Definition
ACCESS	Access Management	Roads, trails, crossings, gates, restriction areas
ADMIN	Administrative Boundary	Boundary of an area used for administrative purposes, RM, FMU
AGRI	Agriculture	Types of Crops, Hog Barn Locations
AIR	Air Quality	Air quality measurements, models
AMPHIB	Amphibians	Habitat, Species distribution, Surveys
ANNO	Annotation	Annotation feature class
AQUA	Aquatics	Aquatic information that is neither water features nor Fish or Amphibian related. Ie stream crossings
BATH	Bathymetry	Water Depth Survey
BIRD	Birds	Habitat, Species distribution, surveys, electronic monitoring
BLC	Biophysical Land Classification	LCC, LCCEB, FRI, FRIEB, etc. May contain clips/tiles due to size of data.
CARIBOU	Caribou	Habitat, Distribution, GPS Collar Data, aerial surveys
CDSTRL	Cadastral	legal Property surveys, Reference Grid, Dominion Land Survey
DOI	Digital Ortho Image	Ortho Photography
ECON	Economy	Economic information
ECOSYS	Ecosystem/Habitat	Generic Habitat features
ENGAGE	Public Engagement	Data acquired through public engagement processes (i.e. Landowner/Stakeholder consultations, open house, LIC, meeting, engagement locations, etc.).
ENVPP	Environmental Protection Plan	Data created for Environmental Protection Program mapping. Data has been finalized and accepted by Manitoba Hydro from Sensitive Sites (SS) data collected during the EA Phase.
FISH	Fish	Habitat, Species distribution, Surveys
FORESTRY	Forestry	Data that describes forestry activities only, includes all data from forestry companies. Administrative boundaries (i.e. FML, FMU) and forest classification (i.e. stand type) are defined by data types ADMIN and BLC respectively.
GEOMORPH	Geomorphology	Data relating to landforms and the process that create them.
GEOTECH	Geotechnical	Geology surveys, physical structure and chemical composition, soils.
GGAS	Green House Gases	Model results
GRDH2O	Ground Water	Well sites, aquifers, flood plains
H2OQ	Water Quality	Sampling sites
HEALTH	Health	Health information (i.e. may include non-administrative areas or point locations representing spread of disease/infection, natural medicines, etc.).
HERITAGE	Heritage Resources	Heritage sites, plaques, centennial farms
HYDROG	Hydrography	Water features
INFRA	Infrastructure	Transmission lines, communication towers, generating stations, dump sites, hospitals, buildings
INVERT	Invertebrates	Habitat, Species distribution, Surveys
MAMMAL	Mammals	Habitat, Distribution, GPS Collar Data, aerial surveys
MAPGRID	Map Grid	Map Grid with defined scale and extent for production mapping.
MINE	Mining	Data that describes mining activities only, includes all data from mining companies. Administrative boundaries (i.e. Leases, permits, etc) and geologic survey's are defined by data types ADMIN and GEOTECH respectively.
MOOSE	Moose	Habitat, Distribution, GPS Collar Data, aerial surveys
NOISE	Noise	Noise measurements, sources
OBS	Observation	Any field observations made that are not specifically related to the specific survey being performed in the field at the time of the observation. For example, recording a moose observation while doing a building survey.
OWNER	Ownership	Property Ownership info, Repro maps, Landownership data
REC	Recreation	Snowmobile trails, atv trails, hunting areas, shooting areas, canoe routes
REPTILE	Reptiles	Habitat, Species distribution, Surveys
RESUSE	Resource Use	Activities on the land usually commercial in nature, trapping, berry picking, organic farming, commercial fishing.
ROUTE	Transmission Line Sighting	Any specific analysis products or routes related to the siting of a transmission line (i.e. alternative routes, corridors, preferred routes, etc). This replaces the previous use of INFRA for this purpose.
SENSOR	Sensor based datasets	Sensor based datasets such as camera traps and remote telemetry (excluding specific species such as Caribou)
SS	Sensitive Sites	Consultant identified sensitive sites during the Environmental Assessment (EA) process. Data not yet recognized by MH for incorporation into the Environmental Protection Plan (ENVPP).
STUDY	Study Area	Defines study areas
TK	Aboriginal Traditional Knowledge	TK Collected from First Nations or Métis
TRSP	Transportation	Road, rail, airport
VEG	Vegetation	Habitat, Distribution, Surveys
VISUAL	Visual Viewshed Survey	Used for Visual Viewshed Survey

Sample Naming Formats

- BPIII_HERITAGE_BPOverflightStops_NLHS_NM_PT_20100603
- PW75_HYDROG_50kRivers_CanVec_AQ_LN
- WUSK_BIRD_MovementSurvey_WRCS_FD_LN_20140425

Appendix B: Minimum Data Standards for Well Structured Data

FIELD_ACT_ID	ID	EASTING	NORTHING	DATUM	PROJ_ZONE	DATE	COLLECTOR	COMPANY	DEVICE	ATT1	ATT2	ATTN
BPIII_CON_FA30	8219	508315.29	5613235.493	NAD83	14N	2012/05/21 17:22:02	K. SMITH	MMM	Trimble Nomad	Consults to fill out the renmaining columns/records with their data		
MMTP_EA_FA67	3174	50.083666	-97.321126	WGS84	LL	2014/01/30 00:00:00	L. WRAY	WRCS	Garmin Handheld			

Record 8219 is a sample of a NAD83, UTM Zone 14 record

Record 3174 is a sample of a WGS84, Lat/Long in decimal degrees record

**Data to be placed in the first worksheet always

**Remove these comments, always use first row for your columns/header

**If submitting in UTM, it must be NAD83 with a UTM zone stated in metadata

**If submitting in WGS84, coordinates are in lat/long (decimal degrees)

**ID will be used as the primary key to other data tables/workbooks that are used for data management (field forms)

Attribute	Data Type	Length	
FIELD_ACT_ID	Text	40	(created in Filed Booking Calendar)
ID	Text	15	(based on data may be larger)
EASTING	Double	N/A	
NORTHING	Double	N/A	
DATUM	Text	10	
PROJ_ZONE	Text	10	
DATE	Date	N/A	
COLLECTOR	Text	50	
COMPANY	Text	25	
DEVICE	Text	25	
ATT1	Text	250	
ATT2	Text	250	
ATTN	Text	250	

Specific Data Models may be required for Long Term Monitoring

Appendix C: Contractor and Sub-consultant Acronyms

Agency	Acronym

Agency	Acronym

Appendix D: Data Models

Data models for specific field data have and will continue to be developed to keep data submission consistent for future analysis and use. Each model is to be filled out in its entirety, if there are additional attributes that a consultant feels are required to meet the requirements of the study being performed, please contact Manitoba Hydro to discuss and get a decision if this will be a onetime modification made by the consultant, or the change will be incorporated to the data model by Manitoba Hydro.

These models are fairly similar in structure and most are of one of these types:

- BASIC – Basic Point/Line/Poly feature class with predefined attributes and may include attachments
- Site/Obs – A model with Sites (maybe with attachments) and a related table for 1 or more Observations at that Site
- Complex – a data model with multiple geometry and or related tables related to one another

There are some concepts for the models:

- It is intended that a data model will be used to store the data for an entire years worth of activities for the study being performed. For example if a Caribou Recruitment is performed multiple times in a single year, the final dataset will contain all of the data for the year. The FIELD_ACT_ID can be used to review discreet field trips data within the dataset if required.
- *Discipline*_Transects models are meant to store all transect data (air, ground, etc) for all of the surveys in the *Discipline* performed for the Year
- Incidental Observations will contain data not related to the survey being performed, but noted as significant to the project. For example if a vegetation survey crew sees a Caribou it would get loaded into the Incidental Observations dataset.
- Load Type – There will be two types of dataset submissions to the IDM, Resubmit and Incremental, defined as follows:
    - Resubmit – Most of the data models and other dataset in general will be Load Type Resubmit. This means that if additional data needs to be added to a dataset, for example a second Caribou Recruitment survey, the GIS Custodian will download the current data from the IDM, add the new data, and Resubmit the updated dataset/metadata.
    - Incremental – This Load Type will be used for datasets that may have more than one company populating it will be a rare case except for Incidental Observations

The following models and the rules for using the models are below:

Data Model Name	Data Model Type	Typical Load Type
AMPHIB_SpringRoadSurvey	Site/Obs	Resubmit
AMPHIB_VisualSurvey	Site/Obs	Resubmit
AMPHIB_Wetland	Site/Obs	Resubmit
AMPHIB_Transects	Planned & Actual PT/LN	Resubmit
AQUA_FishHabitat	Basic	Resubmit
BIRD_AerialWaterfowl	Site/Obs	Resubmit
BIRD_Breeding	Site/Obs	Resubmit
BIRD_CarcassSurvey	Basic	Resubmit
BIRD_GrouseLek	Site/Obs	Resubmit

Data Model Name	Data Model Type	Typical Load Type
BIRD_MigrationDriving	Site/Obs	Resubmit
BIRD_NocturnalCrepuscularSurvey	Site/Obs	Resubmit
BIRD_RecorderSurvey	Site/Obs	Resubmit
BIRD_WetlandSurvey	Site/Obs	Resubmit
BIRD_Transects	Simple	Resubmit
CARIBOU_AerialTrackSurvey	Simple	Resubmit
CARIBOU_CMR	Simple	Resubmit
CARIBOU_Recruitment	Simple	Resubmit
CARIBOU_Transects	Simple	Resubmit
MAMMAL_AerialTrackSurvey	Simple	Resubmit
MAMMAL_ElkBreeding	Site/Obs	Resubmit
MAMMAL_TrackSurvey	Complex	Resubmit
MAMMAL_Transects	Simple	Resubmit
OBS_IncidentalObservation	Simple	Incremental
VEG_Stratum	Complex	Resubmit
VEG_SpeciesOfConservationConcern	Simple	Resubmit
VEG_TransectSurvey	Complex	Resubmit
VEG_Wetland	Simple	Resubmit
VEG_Transects	Simple	Resubmit
VISUAL_Assessment	Simple	Resubmit

Appendix E: EPA Metadata Editor

Instructions:

- The EPA Metadata Editor is the default tool for metadata creation for Manitoba Hydro. It can be used directly in ArcGIS or as a standalone application for creating XML metadata records for non-spatial data and spatial data created outside the ArcGIS environment.
- The latest version of the EPA Metadata Editor and the Manitoba Hydro custom domains can be downloaded from the Orientis Site
- The fields with definitions in the following sections are to be populated completely unless noted as optional.
- **NOTE: See section 2.3 regarding metadata changes for publicly released data**

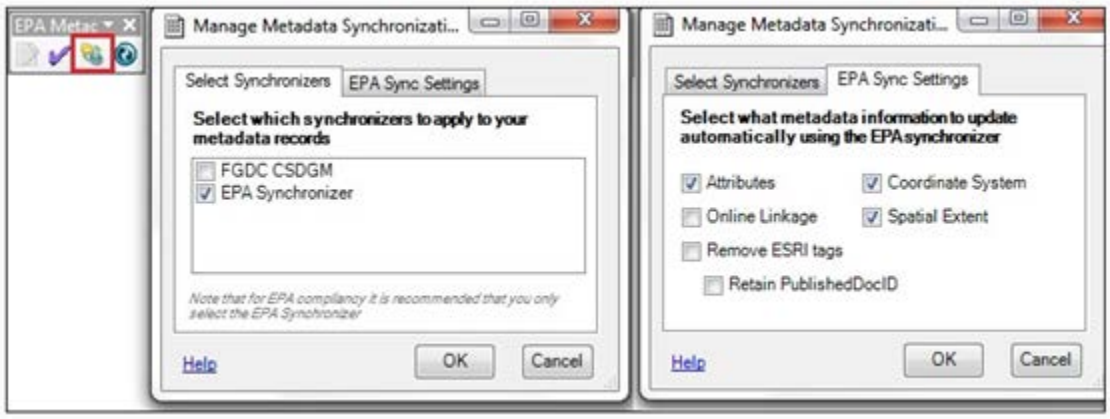
Tips:

- You can save XML files out of the EPA tool to use as templates for other data sets.
- There is an Import tool in the ArcCatalog EPA toolbar that allows you to import metadata from an existing feature class, allowing less repetition entering metadata

Using the EPA Synchronizer in ArcGIS:

Synchronizers are only available in the ArcGIS environment and should be accessed and configured as follows.

The EPA Synchronizer is accessed from the EPA metadata toolbar. Clicking the EPA Synchronizer button from the toolbar will open the EPA Synchronizer interface. Users can select which synchronizers to use and which elements to synchronize.



To use the EPA Synchronizer, take the following steps:

Set the EPA Synchronizer as the Default Synchronizer

- Open the EPA Synchronizer Manager by clicking on the "EPA Synchronizer Manager" button from the Metadata Toolbar
- Select the "Select Synchronizers" tab from the EPA Synchronizer Manager interface
- Select the EPA Synchronizer and deselect all other available synchronizers

Select Which Attributes to Synchronize

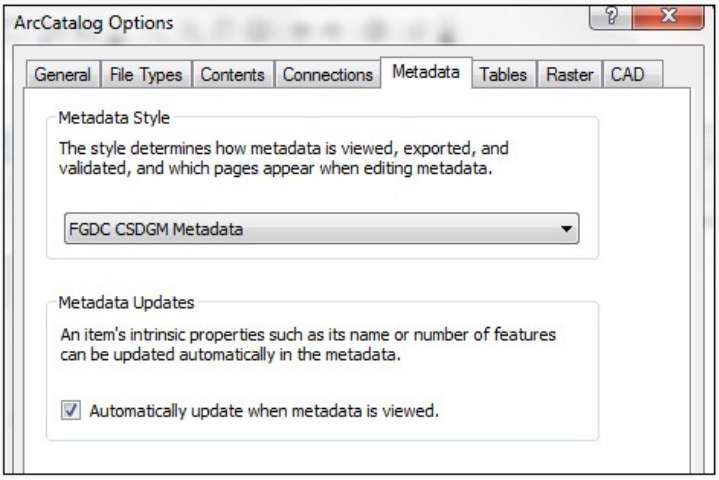
- Select the "EPA Sync Settings" tab from the EPA Synchronizer Manager interface
- Choose which elements to synchronize with your data set. For MB Hydro LEA data, please select Attributes, Coordinate System and Spatial Extent only!
- Click 'OK'

Apply Synchronization

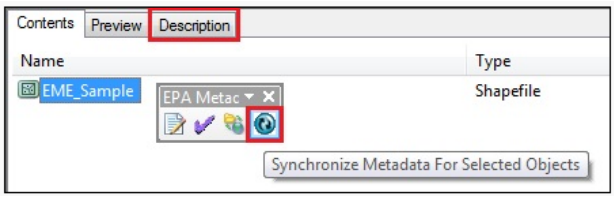
- Synchronization can either be applied *manually* or it may be enabled as an *automatic* background process.

  NOTE: Automatic synchronization generally results in a slight performance hit and delay viewing metadata. MB Hydro recommends this feature always be turned on however if the consultant wishes not to enable this feature, it is their responsibility to ensure all submitted data is manually synchronized to reflect the most up to date information.

- The background process applies synchronization every time the data set is viewed in the description tab.
- To enable automatic background synchronization, in ArcCatalog, go to: Customize->ArcCatalog Options and select the 'Metadata' tab
- Enable the checkbox for 'Automatically update when metadata is viewed.'
- Select the data set, and view the metadata record in the description tab. This will automatically apply synchronization.

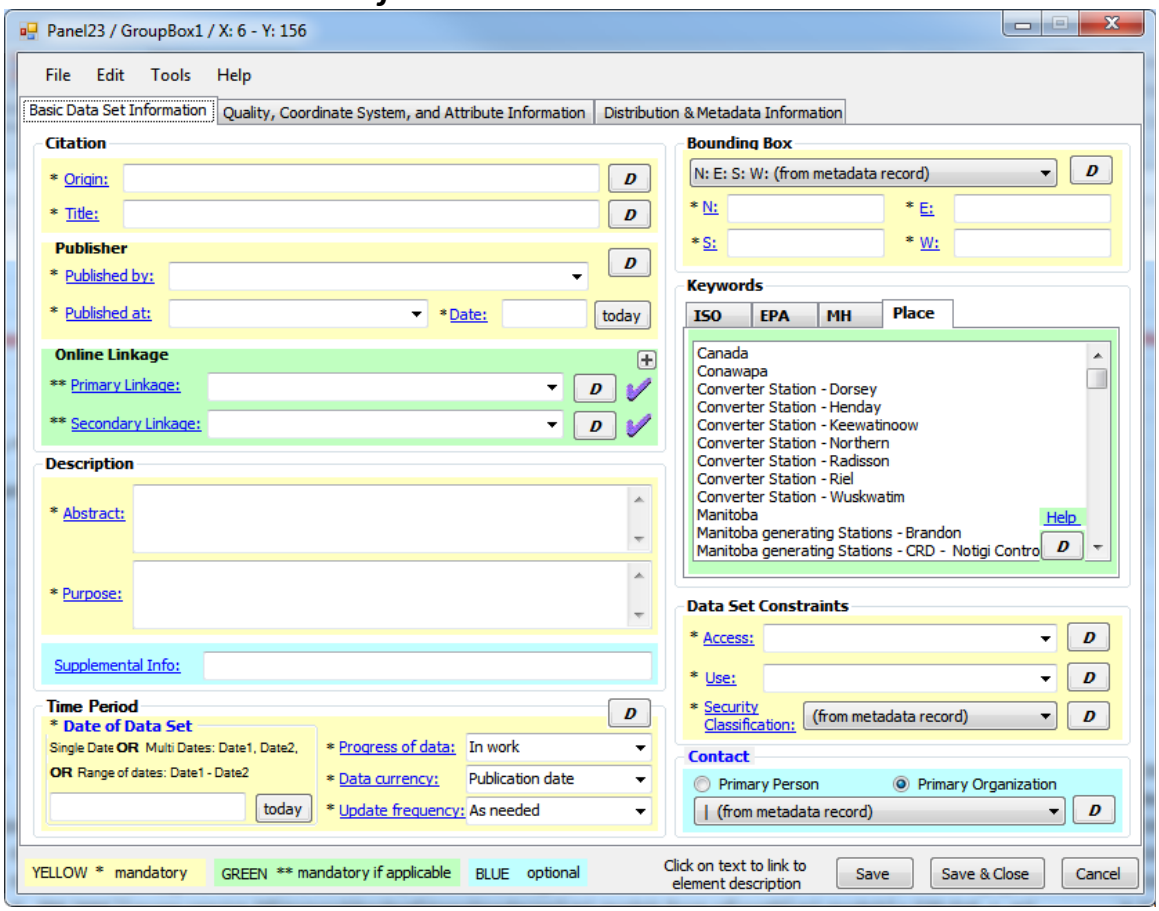


- To manually synchronize metadata, select the data set in the contents window, and click the **'Synchronize Metadata'** button in the EPA Metadata Toolbar. This will force synchronization for your data set and metadata record, using the settings you have specified in the EPA Synchronizer Manager.



Metadata Field Definitions

Screen #1: Basic Data Set Information



Citation

- Origin – The Agency the dataset was created by. For external data providers it will be the Agency that created the dataset.
- Title – The DMP compliant name of the dataset (Appendix A).

Publisher

- Published by – This will almost always be MH LEA, except for external datasets.
- Published at – Winnipeg for MH LEA, except for external datasets.
- Date – The date the dataset was published, for MH created/commissioned data, this will be the date delivered to MH (uploaded to Orientis/EPIMS). For external data the date will be taken from the external metadata or the date the data was obtained by or on behalf of MH.

Description

- Abstract – Describe WHO (company and key individuals) did the work, WHEN it was done including FIELD_ACT_IDs, WHAT was done and WHERE the work was done. All in terms that a layman will understand.
- Purpose - Ensure there is sufficient description of WHY the work was done that a layman may understand what the data represents, how it may be used and why it was commissioned.
- Supplemental Information – Fill out as necessary with additional information about the dataset, including any technical information about overlays, definition queries, source datasets and

methodologies used to create the dataset. For External datasets describe how the datasets was obtained, who obtained it, where it was obtained from, and when it was obtained.

Time Period

- Time Period – Date should be the latest date that the data sources used were collected, or the range of source dates that the dataset was compiled. This can also be a list of dates of FIELD_ACT_IDs for when the data was captured.
- Progress of Data – Select the appropriate choice for the dataset
- Data Currency – Will mainly be the Ground Condition for field collected data, which references the Time Period of the sources used.
- Update Frequency – Select the appropriate choice for the dataset

Bounding Box

- Synchronizers – Pre-populated, edit as necessary
- Manual – Fill out the Bounding box entries manually (not required for stand alone entry)

Keywords

- ISO – Select at least one appropriate choice for the dataset
- EPA – Select at least one appropriate choice for the dataset
- MH – Select at least one appropriate choice for the dataset
- Place – Select at least one appropriate choice for the dataset, Study Area should always be selected, if none applicable ask MH to Add to list.

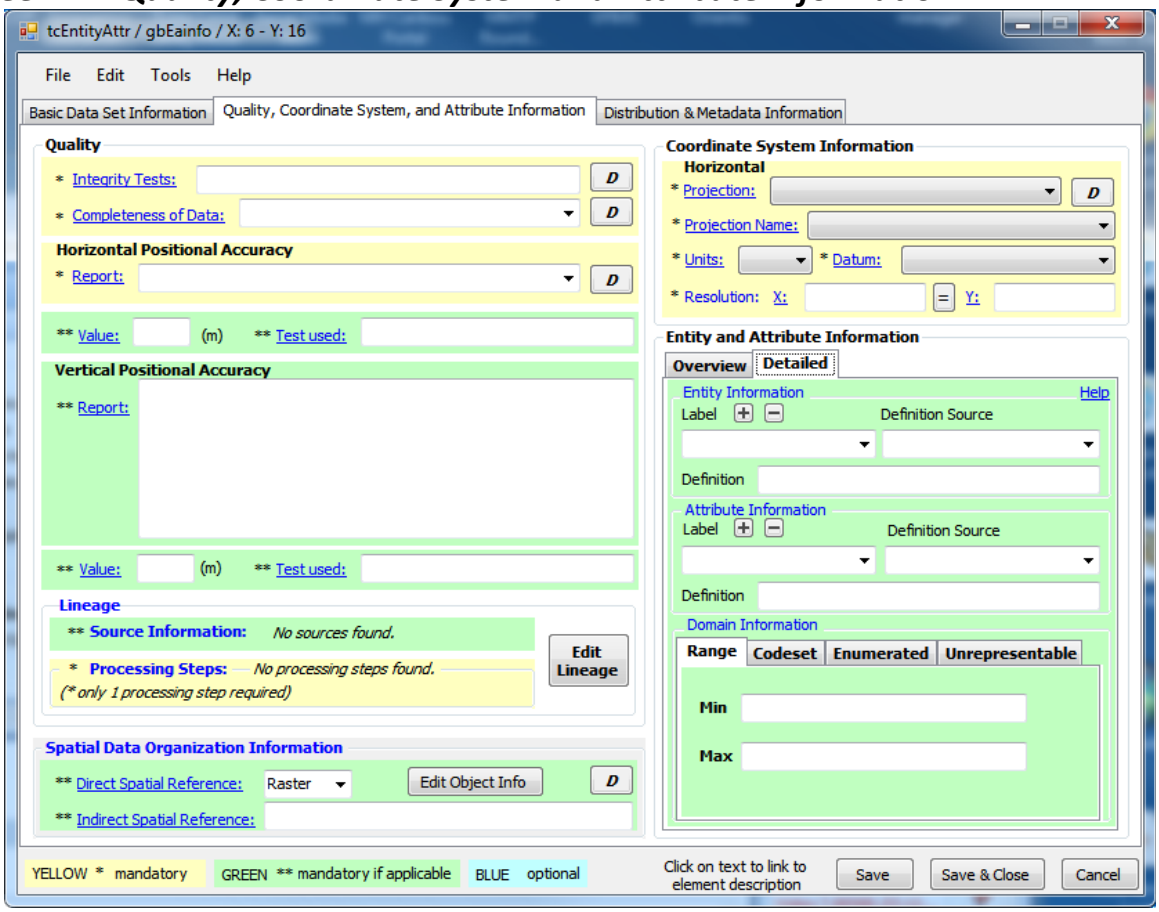
Data Set Constraints

- Access – Select the appropriate choice for the dataset and edit as required
- Use – Select the appropriate choice for the dataset and edit as required
- Security Classification – Select the appropriate choice for the dataset and edit as required

Contact

- Primary Person or Primary Organization – Should use person for all data created for/by Manitoba Hydro, otherwise organization
- Contact – Select the company/person that the data was commissioned for, almost always MH LEA.

Screen #2: Quality, Coordinate System and Attribute Information



Quality

- Integrity Tests – Select the default and modify as required. This should reflect what QA was done on the dataset.
- Completeness of Data – Select the best option from the pull down and modify as required.
- Report – Select the best option from the pull down that reflects accuracy.
- Edit Lineage – Use this button to open up the next screen (below) and fill out and updated to this dataset you have performed.

Coordinate System Information

- Manual – Fill out the Coordinate System Information entries manually
- Synchronizers – Pre-populated, edit as necessary

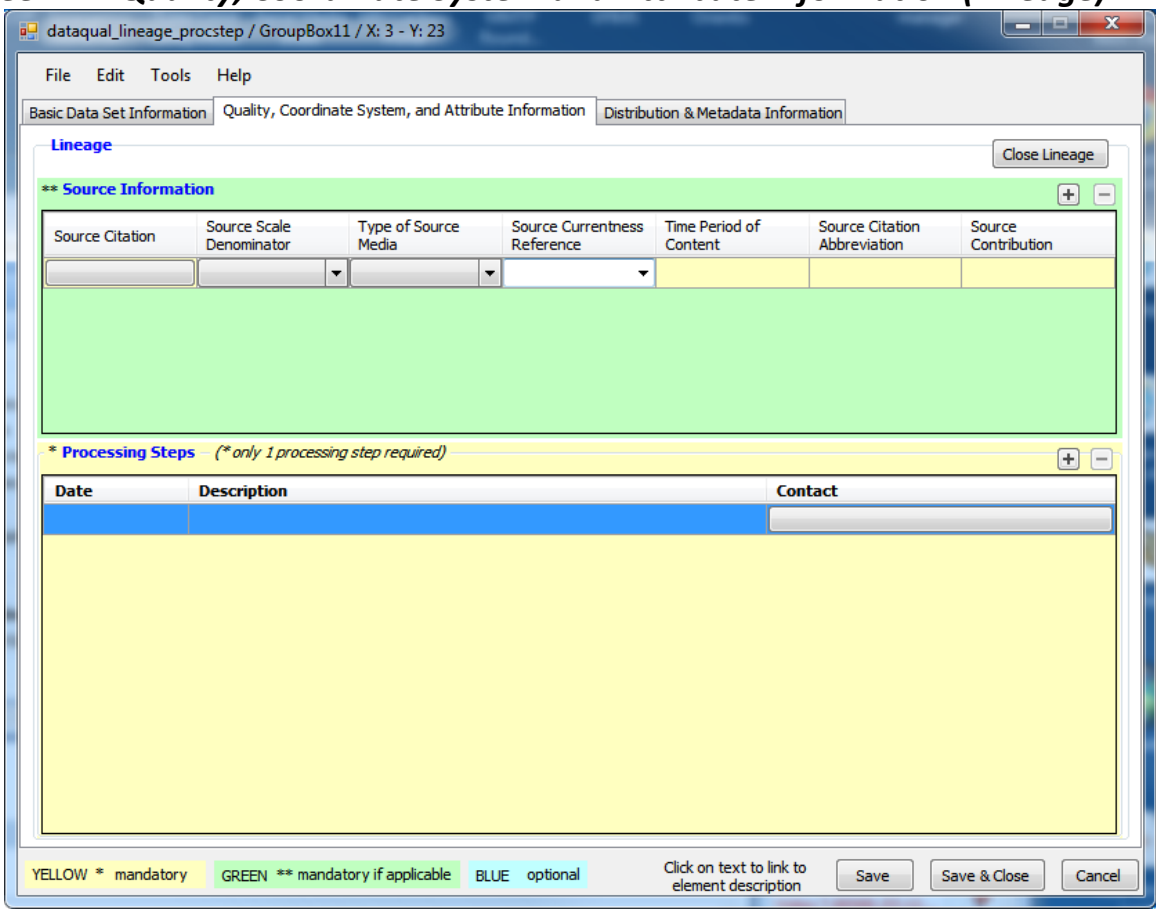
Entity and Attribute Information (Overview)

- Overview Description – Enter a summary of the fields for the dataset. This may include logical grouping of fields or a description of theme(s) within the data fields.

Entity and Attribute Information (Detailed)

- Entity Label – Should be the dataset name
- Attribute Label – The attribute name (pre-populated from synchronizer)
- Attribute Definition – This is the description of the attribute label
- Domain Information
    - Enumerated – Enter Values and definitions of defined list for attribute

Screen #2: Quality, Coordinate System and Attribute Information (Lineage)

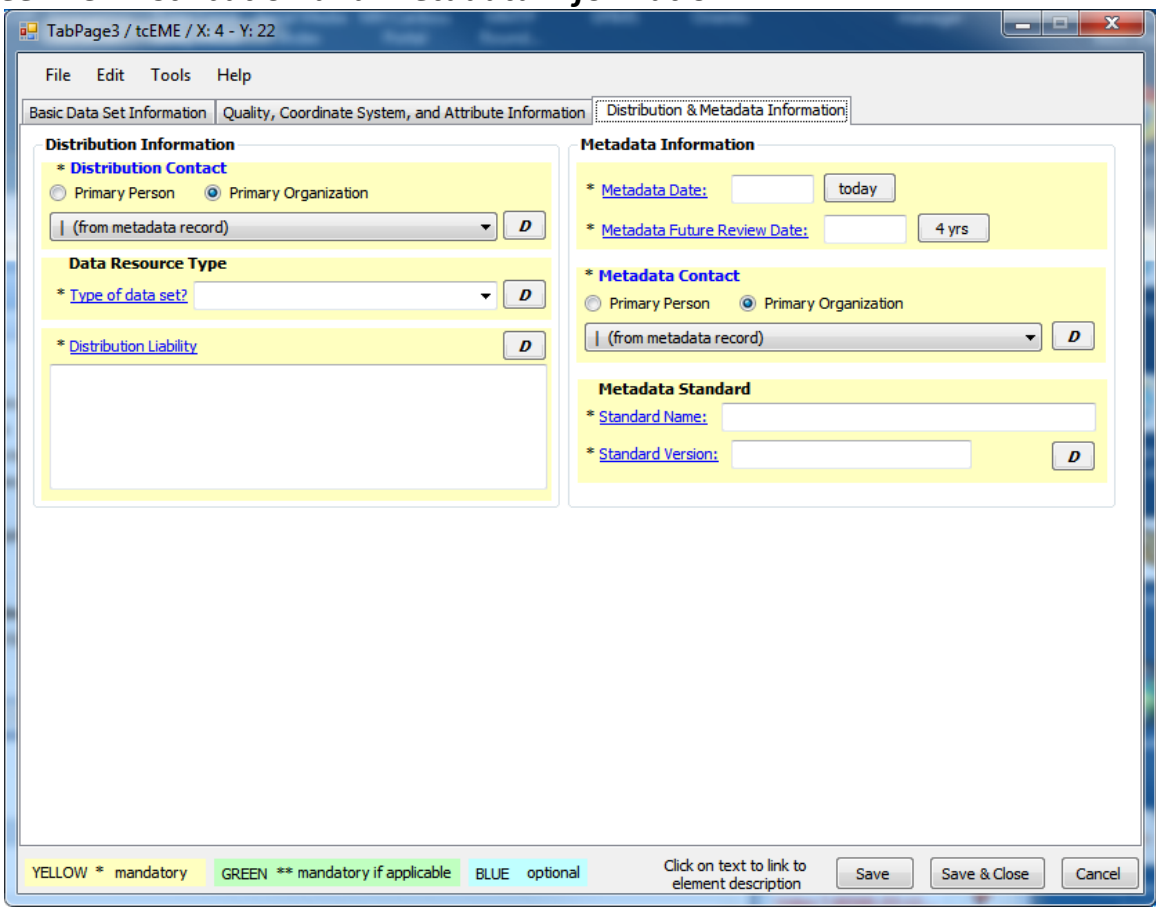


Processing Steps

- Date – (YYYYMMDD format) Date that a change to (or initial creation of) the dataset was done.
- Description – A brief description of the change done. May include adding additional data, removing data, etc. Describe the Why, Where, What of the change.
- Contact – Will bring up the Contact info:
    - Primary Person or Primary Organization – Should use person for all data created for/by Manitoba Hydro, otherwise organization
    - Contact – Select the company/person that was responsible for the dataset creation/change.

Use the “Close Lineage” button to return to the Quality, Coordinate System and Attribute Information tab.

Screen #3: Distribution and Metadata Information



Distribution Information

- Primary Person or Primary Organization – Should use organization
- Contact – Select the organization that is responsible for the dataset distribution. This will be MH LEA for all MH Created/commissioned datasets.
- Type of data set – Select the best option from the pull down
- Distribution Liability – Select the default and modify as required.

Metadata Information

- Metadata Date – Select “today” button to populate and update if required. Format YYYYMMDD
- Metadata Future Review Date – Select “4 yrs” button to populate and update if required. Format YYYYMMDD
- Primary Person or Primary Organization – Should use person for all data created for/by Manitoba Hydro, otherwise organization
- Contact – Select the company/person that was responsible for the metadata creation. Should be the origin company in almost all cases.
- Metadata Standard – Hit the “D” button to populate
    - Standard Name – Should be no need to change default
    - Standard Version – Should be no need to change default

Appendix F: DMP Data Checklist

Sub-Consultant	
Dataset Name	

Naming Conventions

☐	**Project**: BPIII, Wusk, MMTP, LWESI, KTP
☐	**Type**: Dataset Type (use Specified Type Definitions in Appendix A)
☐	**Theme**: Name of Dataset; **Tile Name** (for tile based data such as FRI, DOI)
☐	**Agency:** Creator/Owner of Data
☐	**Modifier:** Code providing additional info about data set
☐	**Geometry:** Code indicating type of geometry the data represent.
☐	**Version/Date/Year** of Data (1.0, 1.1 or YYYYMMDD – 20100605) (optional)

Data Fields

☐	All field names fifteen characters or less
☐	Field names unique, especially in first 10 characters to support legacy SHP file exports
☐	No use of illegal characters (#$%^&* or spaces), use underscores or Title Case if necessary
☐	Field entries must not be more than 250 characters long, use additional fields where necessary
☐	Flora and Fauna must have common and scientific name fields

Standard Fields

☐	**FIELD_ACT_ID** (The field activity identifier that the dataset is tied to)
☐	**ID** (LOCATION_ID, SAMPLE_ID, OBSERV_ID if possible)
☐	**EASTING** (X coordinate in metres)
☐	**NORTHING** (Y coordinate in metres)
☐	**DATUM** (Reference datum of data eg. NAD83)
☐	**PROJ_ZONE** (Projection of data eg. UTM Zone 14N)
☐	**DATE** (in format <yyyymmdd> if time available <YYYYMMDDHHMMSS>)
☐	**COLLECTOR** (name of person eg. J. Johnson)
☐	**COMPANY** (in abbreviated form eg. WRCS or MMM
☐	**DEVICE** (name of collecting device: Name of GPS model, camera, logger eg. Garmin GPS 60

Data

☐	X,Y coordinates in either NAD83 UTM or WGS84 Lat/Long Decimal Degrees
☐	X,Y coordinates all accounted for, no NULL records (applies to field collected data only)
☐	Is the coordinate system defined correctly (Does it appear in the right part of the world?)
☐	Metadata embedded in GIS file or XML metadata record supplied with submission?

Metadata

Applies to all Field Collected and Derived data. Must be embedded in GIS file or supplemental XML file.

☐	**Citation**: Origin, Title
☐	**Publisher:** By, At, Date
☐	**Description**: Abstract, Purpose, Supplemental Info
☐	**Time Period**: Date of Data set, Progress of data, Data Currency, Update frequency
☐	**Keywords**: ISO, EPA, MH, Place
☐	**Data Set Constraints**: Access, Use, Security Classification
☐	**Contact**: Primary Person, use Person name/ Organization name from lookup
☐	**Quality**: Integrity Tests, Completeness of data
☐	**Horizontal Positional Accuracy**: Report
☐	**Processing Steps**: Date, Description, Contact Person/Organization
☐	**Coordinate System Information (Horizontal):** Projection, Zone (if applicable.), Units, Datum
☐	**Entity and Attribute Info:** Overview and Detailed Entity Label, Attribute Label/Definition/Enum List
☐	**Distribution Information:** Primary Organization, Type of Datasets, Distribution Liability
☐	**Metadata Information**: Date, Future Review Date, Contact

Applies to all Sourced, Video/Photo and Technical data. All original metadata must be preserved with the addition of the following:

☐	**Supplemental Info:** Who acquired the data?
☐	**Supplemental Info:** Where was the data acquired, collected or downloaded?
☐	**Supplemental Info:** When was the data acquired, collected or downloaded?
☐	**Purpose for Data Collection:** What is the data being used for? Why was it commissioned?
☐	**Keywords**: ISO, EPA, MH, Place

Data Delivery

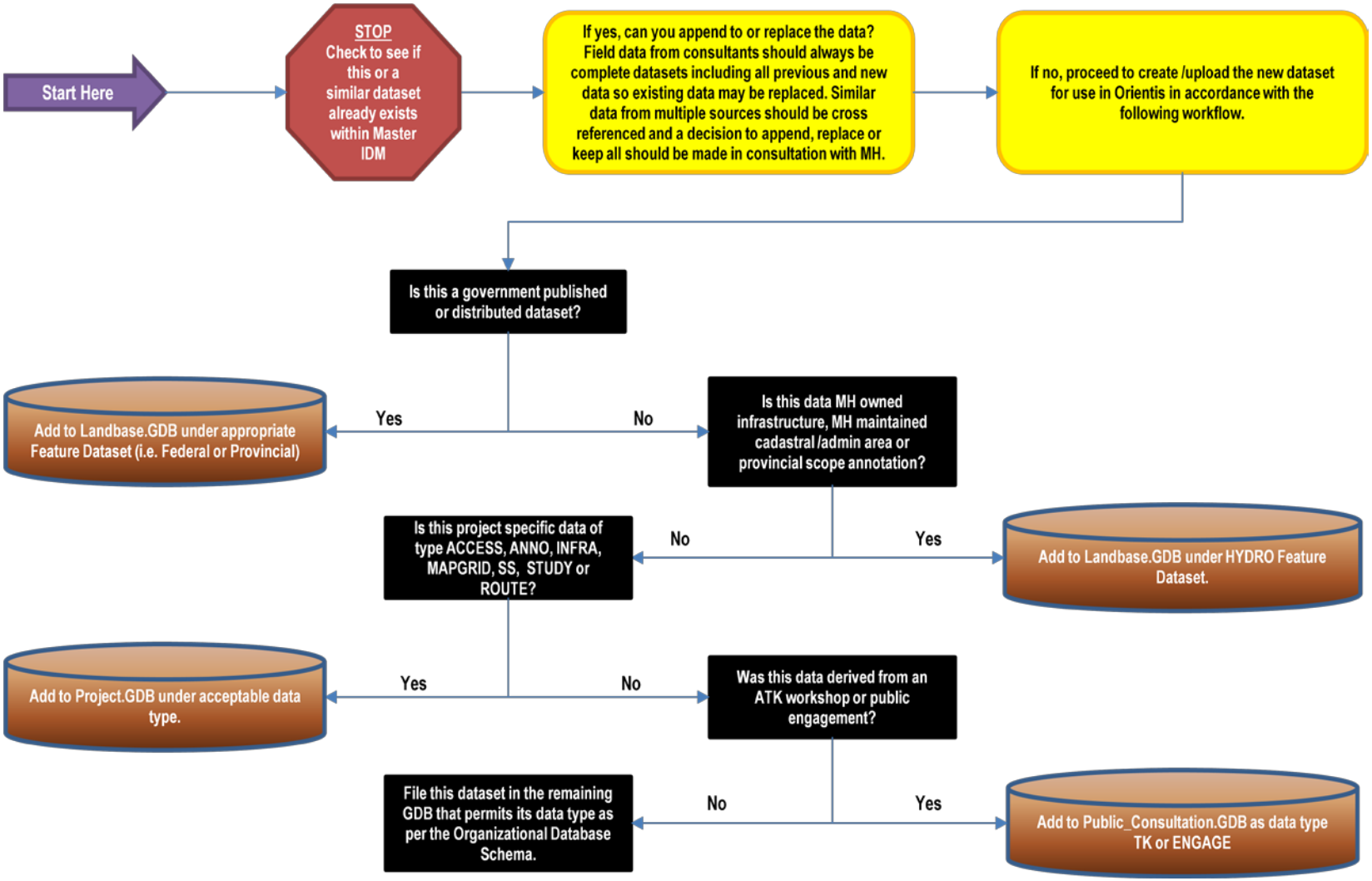
☐	**Files complete with metadata have been zipped**
☐	**Files have been uploaded to Orientis or EPIMS site**

Appendix G: Master IDM Database Structure

UPDATE with next RELEASE

Level 1	Master IDM													
Level 2	Environmental Assessment Phase (EA)										Award of License	Environmental Protection Program (EPP)		
	Landbase			Project	Atmospheric	Aquatics	Terrestrial	Socio_Economic	Public_Consultation	LandCoverClass		Project_EPIMS	EPP_Field	EPP_Analysis
	FEDERAL	*PROVINCIAL*	*HYDRO*											
Level 3	All Data Types	All Data Types	ADMIN	ACCESS	AIR	AMPHIB	BIRD	ADMIN	TK	BLC		AMP	AGRI	AGRI
			ANNO	ANNO	GGAS	AQUA	CARIBOU	AGRI	ENGAGE			ENVPP	AMPHIB	AMPHIB
			CDSTRL	INFRA	NOISE	FISH	ECOSYS	ECON				INFRA	AQUA	AQUA
			INFRA	MAPGRID		GRNDH2O	GEOMORPH	FORESTRY				MAPGRID	BIRD	BIRD
				SS		H2OQ	GEOTECH	HEALTH					CARIBOU	CARIBOU
				STUDY		HYDROG	INVERT	HERITAGE					FISH	FISH
				ROUTE			MAMMAL	INFRA					GRNDH20	GRNDH20
							REPTILE	LANDUSE					HYDROG	HYDROG
							VEG	MINE					INVERT	INVERT
							MOOSE	OWNER					MAMMAL	MAMMAL
								REC					MONITOR	MONITOR
								RESUSE					NOISE	NOISE
													REPTILE	REPTILE
													RESUSE	RESUSE
													MOOSE	MOOSE
													VEG	VEG

Appendix H: Data Custodian Orientis Upload Protocol



SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-047**

QUESTION:

Please provide a list of the approved cleanup procedures.

RESPONSE:

There is no list of "approved clean-up procedures". Manitoba Hydro was simply attempting to explain that when errors or issues were encountered, the data was either sent back to the originator to correct the errors or the originator provided instructions for approval by senior staff how to correct the errors.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-047**

QUESTION:

Please provide details on the "further verification process".

RESPONSE:

As explained in the response to SSC-IR-047, "further verification process" is referring to the review of submitted data by the designated Manitoba Hydro Data Custodian in relation to Manitoba Hydro standards. This simply represents another layer of effort to further contribute to overall data quality and integrity. Please refer to Manitoba Hydro's response to SSC-IR-316 and SSC-IR-313.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-047**

QUESTION:

Please provide the "Manitoba Hydro Standards".

RESPONSE:

The Manitoba Hydro Standards being referenced in the response to SSC-IR-047 refer to the Data Management Protocol as attached as SSC-IR-313_Attachment.pdf.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-047**

QUESTION:

Please identify the Data Custodian(s) involved in MMTP.

RESPONSE:

Data Custodians involved in MMTP included the following staff from Stantec:

- Sarah Garner, Adv.GIS, BA
- Evan Rodgers, Adv.GIS, BA

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-051**

QUESTION:

Is the "EPRI process" referred to on page 2 different from the modified EPRI-GTC methodology referred to elsewhere and, if so, how?

RESPONSE:

The use of the terminology of 'EPRI' or 'EPRI-GTC' or 'EPRI methodology' is used interchangeably throughout the EIS and related IRs to refer to the methodology that is applied within the Manitoba Hydro transmission line routing process.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-056**

QUESTION:

Please ask Mr. Matthewson what biases he was referring to and provide that information.

RESPONSE:

1 Please see response to SSC-IR-335.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-057**

QUESTION:

Please confirm that Manitoba Hydro does not provide such training to the routing team.

RESPONSE:

The question referred to above, is interpreted to relate to whether there is specific training provided to the Manitoba Hydro routing team related to dealing with the biases that may affect route development. No such specific training is provided. As noted in the response to SSC-IR-056:

> *"The process and data-driven nature of the EPRI-GTC siting methodology used by Manitoba Hydro contributed significantly to reducing potential issues related to bias of Routing Team members. The concept and use of several types and levels of multi-disciplinary teams with an equally diverse composition of contributing Subject Matter Experts (SME) throughout a project will collectively strive to check and minimize not only any potential influence of individual biases but a number of other factors that, while important from one perspective, may not be as important to others involved. The overarching objective of this approach is to fairly and openly consider all input from team members and the various stakeholders that they represent in order to arrive at comprehensive, balanced and reflective decisions. This approach was applied in all aspects of the development of alternate routes for the project, where all transmission line routing decisions were made by group consensus."*

Please see SSC-IR-336 and SSC-IR0-337 for additional information.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-058**

QUESTION:

Please confirm that Manitoba Hydro has no policies, procedures and/or protocols in place to address biases that affect the development of alternate routes.

RESPONSE:

This is not confirmed. As stated in response to SSC-IR-056, the process and data-driven nature of the EPRI-GTC siting methodology used by Manitoba Hydro contributed significantly to reducing managing potential biases of Routing Team members.

The Alternate Corridor Model, developed in multi-stakeholder workshops, is one element of the methodology that helped to manage bias in route development.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-059**

QUESTION:

Please confirm that Manitoba Hydro takes no steps after the development of alternate routes to determine whether or not biases affected some or all of those alternate routes.

RESPONSE:

This is not confirmed.

Please see response to SSC-IR-338 re: evaluation after development. The steps taken during the transmission line routing process, including the development of mitigative segments, addresses the influence of potential bias.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-074**

QUESTION:

The information requested is not contained in the answer to SSC-IR-075. Please provide the requested information.

RESPONSE:

1 The response refers to CEC-IR-075.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-078**

QUESTION:

The answer to the second question is missing. Does Manitoba Hydro intend to ask the provincial government to exercise the power under section 9(8) of the Expropriation Act? Also, please advise if Manitoba Hydro has had any discussions with the provincial government regarding the attached letter to Premier Brian Pallister and Crown Services Minister Ron Schuler dated February 3, 2017 and, if so, please identify the participants in those discussion and provide details of those discussions (including correspondence).

RESPONSE:

No decision has been made as to whether such a request will be made. Manitoba Hydro first wishes to pursue voluntary easement agreements.

Manitoba Hydro will not provide any information regarding communications between it and the Premier and/or Minister.

HILL
SOKALSKI
WALSH
OLSON

LITIGATION COUNSEL

Writer: Kevin D. Toyne
Direct Phone: 204.954.0751
Email: ktoyne@hillco.mb.ca

Assistant: Kerry MacDonald
Phone: 204.943.6740 x233
Email: kmacdonald@hillco.mb.ca

Suite 2670, 360 Main Street
Winnipeg, Manitoba R3C 3Z3
P 204.943.6740
F 204.943.3934
E lawyers@hillco.mb.ca
hillco.mb.ca

Dave Hill
Bob Sokalski
Sherri Walsh
Derek M. Olson
Christian Monnin
Kevin D. Toyne
Michael J. Weinstein
Rohith Mascarenhas
Jennifer L. Gaba
Brett A. Steidl
Amy J. MacAngus
(Articling Student)

Counsel:

Hon. Peter S.
Morse, Q.C. (Retired)

Hon. Richard J.
Scott, O.C. O.M. Q.C.

February 3, 2017

The Honourable Brian Pallister
Premier of Manitoba
Room 204 Legislative Building
450 Broadway
Winnipeg, MB R3C 0V8

The Honourable Ron Schuler
Minister of Crown Services
Room 343 Legislative Building
450 Broadway
Winnipeg, MB R3C 0V8

Dear Sirs:

Re: Manitoba Minnesota Transmission Project
Our File: 16359

I represent the Southeast Stakeholders Coalition (the "SSC"). The SSC is a group of individuals affected by Manitoba Hydro's proposed Manitoba Minnesota Transmission Project (the "MMTP"). As set out in greater detail below, I write to you to request that your government commit in writing that you will not under any circumstances exercise the power set out in section 9(8) of *The Expropriation Act*.

As you are well aware, Manitoba Hydro has expropriated land formerly owned by many Manitobans so that the Bipole III Transmission Project ("Bipole III") can be built. Manitoba's *Expropriation Act* expressly grants landowners the opportunity to object to the proposed expropriation of their property. Objecting landowners are entitled to an inquiry into the proposed expropriation.

However, section 9(8) of the statute provides the provincial Cabinet with the power to take away the rights of objecting landowners to object to proposed expropriations and participate in inquiries. The former NDP government exercised that power by issuing Order-in-Council 495/2014 on November 19, 2014. Landowners affected by Bipole III lost the ability to object to proposed expropriations as a result of this Order-in-Council.

The SSC has been granted standing as a participant in the recently commenced Clean Environment Commission hearing concerning the MMTP. The SSC will be requesting that the CEC recommend an alternative route for the MMTP that shifts it further east into the Rural Municipality of Reynolds. If the SSC is unsuccessful in shifting the MMTP, it anticipates that Manitoba Hydro will eventually seek to expropriate property currently owned by SSC members.

Suite 2670, 360 Main Street
Winnipeg, Manitoba R3C 3Z3
P 204.943.6740
F 204.943.3934
E lawyers@hillco.mb.ca
hillco.mb.ca

The former NDP government's exercise of section 9(8) of *The Expropriation Act* was profoundly disrespectful to Manitobans affected by Bipole III and the rule of law. Manitobans that will be affected by the MMTP deserve to be treated better by your government than those affected by Bipole III were treated by the former NDP government.

On behalf of the SSC, I ask that you confirm in writing that your government will not under any circumstances exercise the power set out in section 9(8) of *The Expropriation Act* to deny landowners affected by MMTP the right to object to any proposed expropriation of their property.

Yours truly,

HILL SOKALSKI WALSH OLSON LLP

Per:

Kevin D. Toyne

KDT/km

cc: Hon. Kelvin Goertzen, Minister of Health, Active Living and Seniors
cc: Cliff Graydon, MLA Emerson
cc: Bob Lagasse, MLA Dawson Trail
cc: Dennis Smook, MLA La Verendrye
cc: client

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-080**

QUESTION:

Please confirm that Manitoba Hydro considers the amount of time and cost associated with expropriation and inquiries to be a "Schedule Risk".

RESPONSE

As noted in the response to SSC-IR-116:

"The Schedule Risks criteria in the Preference Determination Model receives a 5% weighting and is described in Table 5-9 as including "consideration of the need for additional approvals, seasonality of construction, overall level of complication expected that could result in delays"

The factors that further inform these considerations include:

- *land acquisition;*
- *transmission line crossings;*
- *accessibility and seasonal construction issues; migratory bird timing restrictions; and*
- *other approvals.*

The amount of time associated with land acquisition is a factor listed above, and is considered in schedule risk.

Costs are not considered in Schedule Risk.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-090**

QUESTION:

The answers to (b) and (c) are premised on a mathematical error. These questions seek information about the workshop's focus on 80 of 6500 routes (1.2%) as opposed to 6500 of 750,000 routes (0.86%). Please provide answers to the questions asked. Also, please advise if Manitoba Hydro considers this type of error to be a data anomaly, processing error, processing anomaly and/or data artifact (see CEC-IR-074)?

RESPONSE:

The responses to (b) and (c) were premised on the question. No math was done to prepare the response. The 80 routes and 1.2% were provided in the question and never provided or calculated as part of the EIS or the response, therefore it is unclear what "mathematical error" is being referred to.

Lines 104-113 in the response to CEC-IR-071 describe how 87 Segments become 750,000 routes and how many of these are illogical. Determining what percent (0.86%, 1.2% or other) of routes are remaining relative to any number of illogical routes misses the point of the workshop.

The workshop focused on determining a preferred route based on the 87 segments that were brought forward to the evaluation step. As described in response to SSC-IR-090, "Routes and segments were discussed as a group and strengths and weaknesses are highlighted. Decisions are made as a group and consensus is reached prior to moving on to the next stage."

If as a result of eliminating routes greater than 120% longer than the shortest route, or only considering the top 5 or 10 routes from each perspective eliminated route segments that were preferred from any of the perspectives, then additional routes/segments would be considered and further discussed and evaluated.

In response to SSC-IR-090:

b) After eliminating the illogical routes, the workshop focused on the top routes from each perspective.

Figures 5-7, page 5-37, 5-8, page 5-46, and 5-9, page 5-50, show the top routes (56 in total) from each perspective considered for each border crossing. These 56 routes contained 75 Segments. This means 86% of the 87 segments were still under consideration at this stage. Although the workshop focused on less than 1% of the routes, this included 86% of the original 87 segments.

c) The workshop facilitators proposed we focus on the top routes from each perspective. All present agreed.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-093**

QUESTION:

Please confirm that each of DWM and EEL should have received the same 1.5 Community score that DKT received.

RESPONSE:

The statement above is not confirmed. The scores assigned during the route evaluation workshops were assigned appropriately.

The "Community" ranking was influenced by feedback received during public and First Nations and Metis engagement processes. Route DKT was rated as 1.5 from a Community perspective because it neither paralleled M602F (Route FWZ, preferred by the public) nor was it one of the western routes (Routes DWM and EEL, preferred by First Nations and Metis).

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-093**

QUESTION:

Please confirm that assigning the appropriate Community score to DWM and EEL results in DKT being the preferred route to Piney East.

RESPONSE:

This statement is incorrect.

See response to SSC-IR-327.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-093**

QUESTION:

Please confirm that the 13 Manitoba Hydro employees participating in the workshop assigned inappropriate Community scores to prevent DKT from being the preferred route to Piney East.

RESPONSE:

Manitoba Hydro does not agree.

The appropriate scores were given during the workshop (see SSC-IR-327) based on input received during the First Nation and Metis Engagement Process (see Chapter 4, Section 4.5.2) and Public Engagement Process (See Section 3.7.2.1 and Technical Data Report-Summary of Round 1 PEP; Table 5-2, page 30).

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-095**

QUESTION:

Please identify the source(s) for the statement "the number of transmission lines crossed was in fact considered as part of the Risk to Schedule for routes SU, SY, TC, UC, UM, DKT, EEL, FWZ and DWM", as well as where in the meeting notes found at Appendix 5C such consideration is recorded.

RESPONSE:

Transmission line crossings were considered as part of risk to schedule that was captured in the notes for the Round 1 workshop. Specifically please see:

Appendix 5C (page 183 of 239 of the Chapter 5 pdf file) under Schedule (short for Risk to Schedule):

"Route UM has the most Transmission Line Crossings, all others are equal."

Appendix 5C (page 186 of 239 of the Chapter 5 pdf file) under Risk to Schedule:

"Route FZW… crosses D602F…"

"Route DKT crosses D602F…"

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-095**

QUESTION:

Please confirm that the number of crossings only affected the Risks to Schedule criteria for Piney West to ensure that AQS received a better score than BZG?

RESPONSE:

This is entirely inaccurate (See SSC-IR-330).

As noted in SSC-IR-095 "The number and type of transmission lines crossed was a consideration, along with several other considerations, for risk to schedule in all preference determination steps for MMTP."

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-095**

QUESTION:

Please confirm that the 13 Manitoba Hydro employees participating in the workshop assigned inappropriate scores to BZG and considered the number of crossings as part of Risks to Schedule for just the Piney West crossings to prevent BZG from being the preferred route to Piney West.

RESPONSE:

1 This is not correct.

2 Please see the responses provided for SSC-IR-330 and SSC-IR-331.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-093 and SSC-IR-095**

QUESTION:

Please confirm that if DKT and BZG were the preferred routes for their respective border crossings, the Final Preferred Route for the MMTP would be some variation of those two almost identical routes.

RESPONSE:

Manitoba Hydro cannot confirm this. Had DKT or BZG been selected and further route options generated for subsequent Rounds, and more westerly options eliminated, a Final Preferred Route based upon earlier versions of DKT or BZG would likely have been developed and selected. However, this significant subsequent work was not conducted because, following the EPRI-GTC methodology and the necessary narrowing of geospatial considerations involved in transmission line routing, all routes in this more easterly area (including DKT and BZG) were eliminated. Below is the background and rationale:

Both routes were alternatives evaluated in Round 1 comparative evaluation of alternatives. Route BZG terminated at the Piney West border crossing. Route DKT terminated at the Piney East border crossing.

With respect to route DKT (Piney East):

DKT was a route alternative evaluated as a finalist in preference determination for the Piney East border crossing. While route DKT was not the best scoring route in the preference determination step for this border crossing, it was subsequently screened into the final preference determination step to include an additional eastern route to the final preference determination step, where the preferred routes to each crossing were compared. Hence, it was

treated as if it were a preferred route to the Piney East border crossing, and was subsequently not selected as the final preferred route.

With respect to route BZG (Piney West):

As noted in Appendix 5C, route BZG was a finalist considered in preference determination for the Piney West border crossing because the alternate route evaluation metrics indicated that it was one of the top routes from a built perspective. Route BZG was screened forward ahead of route alternatives with more favorable statistics from a built perspective, because of the top built routes; it had more favorable statistics from an engineering perspective.

Route BZG was not selected as the preferred route to the Piney West border crossing as outlined in Chapter 5, page 5-53 to page 5-55. It would be illogical, and contrary to the EPRI-GTC methodology, to select a route that scored considerably lower than other alternatives.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-100**

QUESTION:

What is the "current status of the Crown Consultation Process"? If Manitoba Hydro has not received a recent update from the provincial government, please request one and provide it.

RESPONSE:

Manitoba Hydro has requested an update from the Province in order to respond to this Information Request. The update will be provided if and when it is received.

SUBJECT AREA: **Routing, None**

REFERENCE: **SSC-IR-103**

QUESTION:

Please ask Mr. Matthewson what biases he was referring to and provide that information.

RESPONSE:

This response is based on the quote referred to regarding bias (from SSC-IR-056; pages 14-15 of transcript of proceedings held at Hydro Building Winnipeg, Manitoba Thursday, January 19, 2017) as follows:

> *"Everybody has different interests, so we needed a methodology and approach that tries to make things objective and not be influenced by those biases."*
>
> *"those biases" refer to lines 19-20 (page 14 of the above noted transcripts):*
>
> *"certain biases that I may inherently have that I may not be aware of".*

Mr. Matthewson was referring to cognitive biases[1].

The responses provided to SSC-IR-056, SSC-IR-320, SSC-IR-336 further discuss how the methodology followed in the transmission line routing process helps to manage bias.

[1] A predisposition to think in certain ways (Statt, D.A. 2003. A student's dictionary of psychology. Psychology Press.)

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-104**

QUESTION:

Please confirm that Manitoba Hydro does not provide such training to the workshop participants.

RESPONSE:

While there was no formal "bias training" on the agenda as part of the workshops, it was certainly acknowledged and addressed as one of numerous aspects of the overall process and exercises that were carried out by participants. As noted in the response to SSC-IR-056:

> *"The concept and use of several types and levels of multi-disciplinary teams with an equally diverse composition of contributing Subject Matter Experts (SME) throughout a project will collectively strive to check and minimize not only any potential influence of individual biases but a number of other factors that, while important from one perspective, may not be as important to others involved."*

The overarching objective of this approach is to fairly and openly consider all input from team members and the various stakeholders that they represent in order to arrive at comprehensive, balanced and reflective decisions. Rather than provide specific training on bias to workshop participants, the methodology was relied upon and questioning in group discussions was encouraged.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-105**

QUESTION:

Please confirm that Manitoba Hydro has no policies, procedures and/or protocols in place to address biases that affect the evaluation of possible routes.

RESPONSE:

As stated in response to SSC-IR-056, the process and data-driven nature of the EPRI-GTC siting methodology used by Manitoba Hydro contributed significantly to managing potential bias of Routing Team members.

Therefore, Manitoba Hydro does have a procedure (The EPRI-GTC Routing Methodology) in place to address biases that affect the evaluation of possible routes.

The concept and use of several types and levels of multi-disciplinary teams with an equally diverse composition of contributing Subject Matter Experts (SME) will collectively strive to check and minimize not only any potential influence of individual biases but a number of other factors that, while important from one perspective, may not be as important to others involved. The overarching objective of this approach is to fairly and openly consider all input from team members and the various stakeholders that they represent in order to arrive at comprehensive, balanced and reflective decisions. This approach was applied during route evaluation where all decisions were made by group consensus.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-106**

QUESTION:

Please confirm that Manitoba Hydro takes no steps after the evaluation of possible routes to determine whether or not biases affected the evaluation some or all of those possible routes.

RESPONSE:

This is confirmed. The steps taken during the evaluation of all possible routes minimizes bias by using the EPRI-GTC Routing Methodology to route the Manitoba Minnesota Transmission Line.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-106**

QUESTION:

Please confirm that the reason Manitoba Hydro took no steps to determine whether or not bias affected the evaluation some or all of those possible routes is because Manitoba Hydro did not want DKT and BZG to be selected as the preferred routes to their respective border crossings.

RESPONSE:

This is not confirmed. Chapter 5 outlines in detail the process used to route the Manitoba-Minnesota Transmission Project, including the people involved (external stakeholders, consultants, Manitoba Hydro employees from many different departments / divisions) the tools used, the decisions made and the rationale for those decisions. Chapters 3 and 4 provide additional information on the input from the Public and First Nation and Metis engagement processes and how that shaped many of the decisions made. This information shows clearly how Manitoba Hydro developed a final preferred route for the Manitoba-Minnesota Transmission Project that balanced the many diverse perspectives that influenced the routing process.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-115**

QUESTION:

Please explain the how the Total Projects Costs for each of DKT, BZG and AQS were determined and, more specifically, (i) why the cost for AQS is less than each of DKT and BZG and (ii) why the cost of DKT is less than BZG.

RESPONSE:

Total project costs were based on 3 main factors as follows:

1) General construction cost (a per kilometer construction cost estimate) +
2) Heavy angle cost (a cost was added for each heavy angle tower required) +
3) Clearing Costs (a clearing cost was added per acre of forest / wetland crossed).

Total Project Cost = (length x $/km) + (no. of heavy angle towers x $/tower) + (hectares of forest/wetland x $/ hectares).

(i) The cost for AQS is less than DKT and BZG because it is shorter than both routes (15 and 18 km respectively).

(ii) The cost for DKT is less than BZG because it is 3 km shorter than BZG and has 5 fewer heavy angle structures.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-133**

QUESTION:

How is an easement a form of compensation?

RESPONSE:

Compensation is paid as part of the granting of an easement.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-141**

QUESTION:

How many landowners have indicated to Manitoba Hydro that expropriation will be necessary?

RESPONSE:

To date, approximately 8 landowners have indicated that expropriation may be necessary. However, as discussions with landowners are ongoing, this number may go up or down.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-147 and SSC-IR-149**

QUESTION:

Please confirm that routes DKT and BZG were eliminated by Manitoba Hydro to try to develop goodwill with First Nations for current or future projects other than MMTP.

RESPONSE:

DKT and BZG were not eliminated by Manitoba Hydro to try to develop goodwill with First Nations.

SUBJECT AREA: **Route Selection**

REFERENCE: **SSC-IR-154**

QUESTION:

Please confirm that the "potential increased amount of work" being referred to is work involving the provincial government and not Manitoba Hydro.

RESPONSE:

This quote, as found on page 5-90, is generally referencing work of the Province on Crown Consultation; however, in some instances Manitoba Hydro may be called upon to provide information to be used in the process.

SUBJECT AREA: **Public Participation**

REFERENCE: **SSC-IR-174**

QUESTION:

Please provide details about the meeting between Manitoba Hydro and the RM of La Broquerie on Monday, March 20, 2017.

RESPONSE:

The meeting was held during a scheduled Council meeting and Manitoba Hydro was considered by Council to be a delegation. Manitoba Hydro representatives provided an update as to where the project was in the regulatory review process and how Manitoba Hydro is working with their constituents. It also addressed questions regarding process.

In addition, Manitoba Hydro presented a benefit program for municipalities (6) traversed by the new right-of-way. The program is valued at 2% of the cost of the new right-of-way representing total funding of $4.27 million to be used on community programs or projects. Hydro requested a follow up meeting with Council to collect feedback in the development of the program. A similar program is being offered to Indigenous communities.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-185**

QUESTION:

Was the November 13, 2013 workshop cancelled due to lack of interest by invited stakeholders? If not, why did the workshop not take place?

RESPONSE:

Confirmed attendance, from those who indicated an interest in attending a project workshop, led to only two workshops. The outcomes of the workshops held are provided in the Round 1 Public Engagement Technical Data Reports in Section 3.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-186**

QUESTION:

Please confirm that this answer refers to the list of five participants for the November 15, 2013 meeting and 6 participants for the November 19, 2013 meeting on page 5.

RESPONSE:

Manitoba Hydro confirms this statement.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-186**

QUESTION:

Invitations were sent to 75 groups. Only 9 participated. Does Manitoba Hydro agree that the stakeholder group workshop process was a failure due to only 12% of invited stakeholders participating? What steps could Manitoba Hydro have taken – but failed to do so – that would have resulted in a more appropriate turn out at these workshops?

RESPONSE:

Manitoba Hydro disagrees with the assertion that the workshop process was a failure.

The workshops were held early in the engagement process and were but one of many tools used to collect information from interested stakeholder groups. For example, some stakeholders chose, instead, to set up direct meetings or attend meetings with Manitoba Hydro representatives to share their interests.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-187**

QUESTION:

The technical data reports do not contain meeting notes or records of meetings, and contain only general information (see for example pages ii, 4 – and Appendix 5C). Is specific information available and if not, why not?

RESPONSE:

Section “ii” is an executive summary and the information supporting this summary are found within the appendices. Pages 4-10 outline the information collected through the workshop and includes segment feedback and quotes from the workbooks/exit surveys. Appendix 5C contains the information collected from participants at the workshop and has the notification methods, feedback mechanisms, workshop presentation and mapping activities.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-187**

QUESTION:

Eleven individuals participated in the workshops. Only three workbooks are contained in Appendix 5C. Did Manitoba Hydro provide the other 8 participants with workbooks and, if so, why are they not included? If Manitoba Hydro failed to provide workbooks to the other 8 participants, why?

RESPONSE:

There were three working groups for the 11 participants across the two workshops. Each working group maintained one workbook.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-187**

QUESTION:

Please confirm that Manitoba Hydro employees did not fill out any of the three workbooks contained in Appendix 5C.

RESPONSE:

A Manitoba Hydro representative sat with each group and worked with participants to complete the workbooks. The Manitoba Hydro representative recorded only the views of the participants and not their own views.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-192**

QUESTION:

Please confirm that no specific Crown land (as opposed to Crown land in general) was identified or referred to.

RESPONSE:

Manitoba Hydro confirms that First Nations did not share the location of any future planned TLE selections on specific Crown lands in proximity to MMTP with Manitoba Hydro.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-195**

QUESTION:

Did representatives from Long Plain First Nation raise concerns about specific unoccupied Crown lands (as opposed to unoccupied Crown land in general)? If so, please provide details.

RESPONSE:

Long Plain First Nation shared site-specific concerns about Crown lands. Please refer to the ATKs Management Report located in Appendix A of the Environmental Impact Statement for more information.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-198**

QUESTION:

Did Long Plain First Nation identify any specific Crown lands potentially affected by the MMTP that are or may be the subject of TLE selections by that First Nation? If so, please provide details.

RESPONSE:

Long Plain First Nation did not share any specific Crown lands near MMTP that might be subject to TLE selections by the First Nation.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-199**

QUESTION:

Did representatives from Swan Lake First Nation raise concerns about specific unoccupied Crown lands (as opposed to unoccupied Crown land in general)? If so, please provide details.

RESPONSE:

Swan Lake First Nation shared site-specific concerns about Crown lands. Please refer to the ATKs Management Report located in Appendix A of the Environmental Impact Statement for more information.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-200**

QUESTION:

Did Swan Lake First Nation identify any specific Crown lands potentially affected by the MMTP that are or may be the subject of TLE selections by that First Nation? If so, please provide details.

RESPONSE:

No, Swan Lake First Nation did not identify any specific Crown lands that may be the subject of TLE selections.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-206**

QUESTION:

Did Dakota Plains Wahpeton First Nation refer to specific Crown lands (as opposed to Crownlands in general)? If so, please provide details.

RESPONSE:

Dakota Plains Wahpeton First Nation shared geographically specific areas of concern, which included Crown land, as found in their ATK report which has been filed with the Clean Environment Commission.

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-208**

QUESTION:

Did Peguis First Nation identify any specific Crown lands potentially affected by the MMTP that are or may be the subject of TLE selections by that First Nation? If so, please provide details.

RESPONSE:

Yes, Peguis First Nation specifically mentions the Peguis Traditional Land Entitlement (TLE) notification area in the draft Report to Peguis First Nation and Manitoba Hydro:

> *"The geographic focus of the project was identified by Peguis First Nation as starting with the southern section of the Peguis Traditional Land Entitlement (TLE) notification area all the way down the US border, then from the Red River Valley to the Ontario border…"*

SUBJECT AREA: **FNMEP**

REFERENCE: **SSC-IR-209**

QUESTION:

Did Roseau River Anishinabe First Nation identify any specific Crown lands potentially affected by the MMTP that are or may be the subject of TLE selections by that First Nation? If so, please provide details.

RESPONSE:

Roseau River Anishinabe First Nation did not identify any specific Crown lands that are or may be the subject of TLE selections.

SUBJECT AREA: **Centennial Farms**

REFERENCE: **SSC-IR-217**

QUESTION:

Please confirm that the Fournier farm is a centennial farm, and that the excerpted statements from sections 6.3.2 and 12.4 are incorrect. Also, please advise if Manitoba Hydro considers this type of error to be a data anomaly, processing error, processing anomaly and/or data artifact (see CEC-IR-074)?

RESPONSE:

Subsequent investigation has determined that the Fournier Farm is a Centennial Farm. However, the statements in Sections 6.3.2 and 12.4 are still correct. The Fournier farm buildings are outside of the LAA and therefore the statement in Section 6.3.2 that there are no Centennial Farms sites within the Final Preferred Route right-of-way is still correct. The statement in Section 12.4 that "No centennial farms are located within the Existing Corridor and the Final Preferred Route PDA or LAA" is also still correct. Only sites within the defined PDA and LAA were considered during the routing analysis.

This data was not included in data package received from the Province of Manitoba.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-220**

QUESTION:

Does Manitoba Hydro agree that paying money to landowners along the proposed right-of-way before a final route has been recommended by the Commission and approved by the Minister:

(a) disrespects the Commission, the participants and the entire Commission process;

(b) improperly presumes that the Commission and Minister will simply give Manitoba Hydro what it wants;

(c) appears to be a bribe intended to minimize landowner opposition to the proposed route;

(d) potentially wastes money that the "ticking time bomb" (as the Chair of Manitoba Hydro's Board of Directors refers to Manitoba Hydro) cannot afford to waste?

If not, why not?

RESPONSE:

(a) No.

(b) No.

(c) No.

(d) The process of negotiating with landowners and acquiring easements in Manitoba Hydro's experience takes months. If that process is not begun until after a license has been issued for the project, the commencement of construction for the project will be delayed. The work cannot begin on private land absent an easement having been negotiated or a right to enter the land and construct having been otherwise obtained. A delay in the commencement of construction would result in costs in excess of the amounts that Manitoba Hydro is prepared to pay to acquire rights to an easement agreement where, in due course, it turns out that the route changes and no easement on certain properties where rights have been acquired are in

fact required. This process is in no way intended to be disrespectful, nor is it presumptuous of a licence being obtained. Further, the voluntary easement agreement does not preclude the property owner from participating in the regulatory process, nor does it indicate support for the project.

SUBJECT AREA: **Construction**

REFERENCE: **SSC-IR-239**

QUESTION:

Please provide details regarding the third-party biosecurity monitoring program implemented for the Bipole III transmission project and, if available, details of any currently known modifications that may be made if the MMTP proceeds to construction.

RESPONSE:

Manitoba Hydro has retained a third party to supply biosecurity monitors to the Bipole III Transmission Project. The monitors are stationed at the access points to construction sites and inspect each vehicle and pedestrian entering and exiting the sites to ensure compliance with Manitoba Hydro's biosecurity procedures. Non-compliances are documented and reported to Manitoba Hydro staff either for immediate resolution where possible or for follow-up corrective actions if the non-compliance has already taken place. Weekly monitoring reports are posted on the Manitoba Hydro website at https://www.hydro.mb.ca/projects/bipoleIII/document_library.shtm.

At this point, no modifications to the program are expected for MMTP.

SUBJECT AREA: **Construction**

REFERENCE: **SSC-IR-240**

QUESTION:

If different from the actions referred to in the answer to SSC-IR-242, what are the "prescribed actions for non-compliance" being referred to?

RESPONSE:

The actions referred to in answer to SSC-IR-242 are the prescribed actions for non-compliance.

SUBJECT AREA: **Construction**

REFERENCE: **SSC-IR-243**

QUESTION:

How can farm-level biosecurity measures "pose a safety risk" and, if they do, what steps are taken by Manitoba Hydro to reconcile compliance and safety?

RESPONSE:

Farm-level biosecurity measures can pose a safety risk to Manitoba Hydro employees and contractors. An example of a safety risk related to biosecurity measures would be a site-specific requirement to pressure wash equipment and vehicles in extreme cold temperatures. Build-up of ice could pose a slipping hazard to individuals working on the site so an alternate measure would have to be considered. Another example would be a requirement from a specific property to use a disinfectant that has not been previously evaluated and approved by Manitoba Hydro occupational health staff nor have a safe work procedure developed to ensure that all personnel are aware of the specific hazards and correct safe work procedures for that product. In both cases, reconciling compliance and safety would be managed on a case by case basis through negotiations with the landowner either for a different cleaning procedure or the use of a mutually-agreed upon disinfectant. The goal would be to satisfy the biosecurity needs of the landowner without compromising the safety of staff and contractors.

SUBJECT AREA: **Pre-Construction Activities**

REFERENCE: **SSC-IR-246**

QUESTION:

Why are surveyors determining the right-of-way when that matter is before the Commission?

RESPONSE:

Surveying is part of the easement process. Please see the response to SCC-IR-366.

SUBJECT AREA: **Pre-Construction Activities**

REFERENCE: **SSC-IR-246**

QUESTION:

Does Manitoba Hydro agree that engaging surveyors to determine the right-of-way before a final route has been recommended by the Commission and approved by the Minister:

(a) disrespects the Commission, the participants and the entire Commission process;

(b) improperly presumes that the Commission and Minister will simply give Manitoba Hydro what it wants; and

(c) potentially wastes money that the "ticking time bomb" (as the Chair of Manitoba Hydro's Board of Directors refers to Manitoba Hydro) cannot afford to waste?

If not, why not?

RESPONSE:

(a) No.

(b) No.

(c) No.

Please see the response to SSC-IR-361. In order to proceed with the acquisition of easements, one must determine the boundaries of the right of way for the project. The determination of boundaries of rights-of-way are done by land surveyors.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-256**

QUESTION:

Please provide an update on the number of easements that have been acquired.

RESPONSE:

To date, 6 landowners have signed voluntary easement agreements on the new right-of-way.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-256**

QUESTION:

Please explain why Manitoba Hydro has purchased properties when the route for the MMTP has not been finalized.

RESPONSE:

Manitoba Hydro, prior to selecting the Final Preferred Route, approached land owners adjacent to an existing transmission line and inquired if they would be interested in Manitoba Hydro acquiring their properties. The properties provided a unique opportunity in the area to extend the routing of MMTP to parallel existing transmission infrastructure.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Does Manitoba Hydro consider the residential properties and residential portions of properties of landowners to be affected by the proposed route of the MMTP to be "non-urban residential land" or "ex-urban"?

RESPONSE:

1 MMTP traversed lands are non-urban residential land and not ex-urban.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please confirm that the sample of ex-urban developments outside Winnipeg did not include any residential developments affected by the construction of a HVTL within a new right of way (as opposed to within a pre-existing right of way).

RESPONSE:

That is correct.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Does Manitoba Hydro agree that the property value decline associated with proximity to HVTL is greater when the HVTL is constructed (i) within a new right of way; and (ii) after residential development has occurred? If not, please provide data to support Manitoba Hydro's position.

RESPONSE:

As stated on page 24 of the report:

> *"The property value decline associated with proximity to HVTLs is situationally specific. It is difficult to develop a general rule about the extent of value reduction associated with proximity to transmission lines, since these relationships are contingent on a host of site-specific variables."*

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please confirm that the announcement of a proposed HVTL within a new right of way can cause "pre-development" owners to suffer a loss.

RESPONSE:

Manitoba Hydro cannot agree with this assertion. As stated in pg. iii of the report:

"Typically, these "pre-development" owners are:

a. *farmers who wish to sell to a developer;*
b. *developers who are holding land in anticipation of conversion to residential/commercial/industrial use; and*
c. *owners of larger residential properties beyond the city limits, which are used either as residential/recreation properties or as investments on the chance that urban growth may make their properties attractive for denser development.*

This research sheds no light on how HVTLs may affect the land values in these situations, largely because the provincial assessment records contain too few observations of sales before and after Manitoba Hydro constructed the line to support valid statistical analysis."

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please confirm that the review conducted by Prairie Research Associates "sheds no light on how HVTL may affect the land values" for "owners of larger residential properties beyond the city limits, which are used either as residential/recreational properties".

RESPONSE:

As stated in page iv of the report:

> *"This research sheds no light on how HVTLs may affect the land values in these situations, largely because the provincial assessment records contain too few observations of sales before and after Manitoba Hydro constructed the line to support valid statistical analysis."*

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please confirm that the results of the review conducted by Prairie Research Associates "must not be transferred to larger rural undeveloped properties (usually an acre or more in size that lie along a proposed HVTL".

RESPONSE:

That is correct.

As stated on page iv on the report:

> *"These results must not be transferred to larger rural undeveloped properties (usually an acre or more in size) that lie along a proposed HVTL. Such properties are usually diverse, as some owners having constructed residences, while others are holding the land or renting the land for agriculture. It is invalid to conclude that any or all of these larger properties will experience a 3% reduction in future sales value by virtue of a new transmission line. Any claim for compensation would be unique to each property and must include consideration of the situation's specific attributes: the situation of the residence on the property, the existence of trees, and other topographical factors. No statistical studies of how HVTLs have affected larger residential properties like these exist anywhere in North America. This is for three reasons. First, the property assessment data prepared for this research by Manitoba Assessment do not include the range of amenity factors (e.g., view, existence of ponds, wildlife) that affect price. This precludes statistical analysis. Second, unlike the residential properties included in the three subdivisions, the variation in properties of this type is very high. Third, the number of properties is small with few transactions; this, more than anything, has limited the statistical analysis of how HVTLs affect land values of rural residential properties."*

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Prairie Research Associates admits that they "found no North American studies in which a high voltage line was constructed close to established residential areas after residential development was completed." Is Manitoba Hydro aware of any such studies conducted outside of North America and, if so, please provide details and copies of those studies.

RESPONSE:

No such studies that measured the property value impact of a high voltage line constructed after residential development was completed were found, as of mid-2016 when the literature search for this report concluded.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please confirm that there are “no valid statistical analysis of how HVTLs affect” “rural-recreational-residential properties”.

RESPONSE:

No such studies were found as part of the research that concluded mid-2016.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please confirm that the results of the review conducted by Prairie Research Associates "must not be applied to larger rural residential properties that lie along any proposed HVTL".

RESPONSE:

Correct.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please confirm that "[n]o statistical studies of how HVTLs have affected such larger residential properties exist."

RESPONSE:

This is confirmed.

As noted on page iv the full quote is:

> *"No statistical studies of how HVTLs have affected larger residential properties like these exist anywhere in North America."*

The properties referred to are *rural* undeveloped and residential properties.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Has Manitoba Hydro conducted any post-Bipole III "research on the relationship between the construction of HVTLs and changes in property values"? If so, please provide details and copies of studies.

RESPONSE:

No, but Manitoba Hydro is currently developing a research strategy.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Does Manitoba Hydro agree that "HVTLs may exert a negative impact on values to a certain extent" on ex-urban residential land? If not, why not?

RESPONSE:

Manitoba Hydro believes each case is situationally-specific and must be analyzed on its own merits.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Does Manitoba Hydro agree that "[p]roperties directly abutting the HVTL right-of-way may be priced lower than those set back and insulated from the line"? If not, why not?

RESPONSE:

No. Manitoba Hydro believes each case is situationally-specific and must be analyzed on its own merits.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Does Manitoba Hydro agree that "purchasers will pay a reduced price for [rural-residential-recreational] properties that are adjacent to the HVTL right-of-way"? If not, why not?

RESPONSE:

No. Manitoba Hydro believes each case is situationally-specific and must be analyzed on its own merits.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Page 33 of Appendix A refers to "Soini et al (2011)" while Table 3 refers to "Soini, Katherina et al (2010)". Please advise if this is a typo and, if not, please provide updated detail and information regarding both studies.

RESPONSE:

Both of these references refer to the same study. "Soini, Katherina et al (2010)" contains the typo, and should instead be "Soini, Katherina et al (2011)".

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please provide details of the "European studies [that] examine the effects of siting HVTLs after residential development".

RESPONSE:

Many of these studies are opinions based on survey data, which not surprisingly find that residents perceive negative impacts. The two studies cited in the report appear below.

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Soini, Katerina et al. (2011)	Residents in a rural area of Finland	2,172 residential households (not necessarily owners)	Mailed questionnaire with a final response rate	Confirmed that transmission lines are seen as negative elements of the landscape. This perception was counter-balanced by an acceptance that HVTLs are necessary for modern life. This study confirms that non-farmer residents in rural areas have a deep "antipathy" to any change in the landscape.	This is a sophisticated survey using state-of-the-art statistical techniques to analyze responses. It is relevant to the RRR properties in Manitoba.
Sims and Dent (2003)	Residents and land surveyors (appraisers) in Midlands, UK	109 homeowners, 96 land surveyors	Mailed questionnaire to homeowners	This study treated HVTLs as a health hazard and asked respondents to rate lines above and below ground as potential contamination from the perspective of health, visual, and noise. Respondents rated both above and below ground lines as "contaminants." Substations were seen as posing similar health hazards. Land surveyors had similar views.	This study focusses on HVTLs and associated infrastructure from a health perspective (EMFs), but gathers perception of homeowners and appraisers. It offers no scientific basis for the existence of EMFs, but is trying to establish that a perception of these negative effects does occur and it can lead to property value impacts.

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SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-221 - Attachment**

QUESTION:

Please advise whether the "negative impacts on property values" that may be caused by cell towers is relevant to determining the extent of negative impact on property values from the construction of an HVTL within a new right-of-way and, if so, how? If not, why not?

RESPONSE:

The impact of cell towers development is very specific to the property, its location, and nature of development. Cell towers confer immediate benefits to users in close proximity in the form of improved reception. The closer the proximity, the better the reception. This makes cell tower development and any effect on property values irrelevant to assessing the impact HVTLs may have on property values.

SUBJECT AREA: **Land Values**

REFERENCE: **SSC-IR-222**

QUESTION:

Does Manitoba Hydro agree that a 500kV line will have a greater impact on property values than a 230 kV line? If not, why not?

RESPONSE:

Manitoba Hydro does not agree. Any potential impact of a transmission line on property values is situationally specific, and must be analyzed on its own merits.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-254**

QUESTION:

How many "Mines and Quarries (Active)" were identified during public engagement activities?

RESPONSE:

No new "Mines and Quarries (Active)" (as defined in response to SSC-IR-254) were identified during public engagement activities.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-254**

QUESTION:

Were any "Mines and Quarries (Active)" affected by the Bipole III transmission project and, if so, how did Manitoba Hydro deal with those properties (ie, easement, expropriation, payment of damages)?

RESPONSE:

No.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-254**

QUESTION:

Were any privately held mineral rights falling outside the scope of "Mines and Quarries (Active)" affected by the Bipole III transmission project and, if so, how did Manitoba Hydro deal with those properties (ie, easement, expropriation, payment of damages)?

RESPONSE:

There was one landowner for Bipole III Transmission Project who had rights to an inactive gravel quarry who opted for Structure Impact Compensation rather than damages for quarry material.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-254**

QUESTION:

Are any "Mines and Quarries (Active)" affected by the proposed MMTP and, if so, how does Manitoba Hydro intend to deal with those properties (ie, easement, expropriation, payment of damages)?

RESPONSE:

Yes. These will be dealt with on a case-by-case basis.

SUBJECT AREA: **Methodology**

REFERENCE: **SSC-IR-254**

QUESTION:

Are any privately held mineral rights falling outside the scope of "Mines and Quarries (Active)" affected by the proposed MMTP and, if so, how does Manitoba Hydro intend to deal with those properties (ie, easement, expropriation, payment of damages)?

RESPONSE:

Yes. These will be dealt with on a case-by-case basis.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-256**

QUESTION:

Please confirm if one of two properties referred to belonged to "Landowner I" (see section 3.10.2.2.14).

RESPONSE:

Manitoba Hydro confirms this statement.

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-256**

QUESTION:

Please confirm if one of the two properties referred to belonged to "Landowner J" (see section 3.10.2.2.15).

RESPONSE:

Manitoba Hydro confirms that one of the two properties belonged to "Landowner J".

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-256**

QUESTION:

Please provide the actual dates that Manitoba Hydro acquired these two properties.

RESPONSE:

Manitoba Hydro acquired the two properties on the following dates:

- September 10, 2015
- November 15, 2016

SUBJECT AREA: **Land Acquisition**

REFERENCE: **SSC-IR-256**

QUESTION:

Please advise what Manitoba Hydro will do with these two properties if the MMTP is constructed along a different route that does not affect either property.

RESPONSE:

No decision has been made in this regard.

SUBJECT AREA: **Engagement**

REFERENCE: **CEC-IR-032**

QUESTION:

Please provide details about the "ongoing engagement with a variety of agricultural stakeholders" as that engagement relates to the proposed MMTP.

RESPONSE:

Manitoba Hydro has provided each landowner along the new right-of-way a project liaison to understand and address any outstanding concerns raised, agricultural or otherwise. Discussions with Manitoba Hydro will continue if approval is granted for the project through construction and operation. Manitoba Hydro will work with individual landowners to understand potential concerns such as biosecurity and access.

Manitoba Hydro continues to notify (email, email campaigns, phone calls, and website) and engage with groups who have indicated an interest to be kept informed of project milestones. Groups include individual landowners, groups of landowners and those outlined in CEC-IR-026.