

MANITOBA-MINNESOTA TRANSMISSION PROJECT

Clean Environment Commission Hearing



Human environment

Valued components assessed

Heritage	Infrastructure & Services	Employment & Economy	Agriculture
Land & Resources	Visual Quality	Human Health Risk	Community Health

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Human health risk presentation roadmap



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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Why human health risk?

- Inherent importance of health to human wellbeing
- Project emissions may alter human health risk

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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Human health risk assessment

Physical exposure to project emissions

- Physical/Chemical agents – dust or herbicides
- Noise
- EMF


Evaluates health risks associated with these exposures

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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Regulatory guidance

Human Health Risk Assessment (2012)



Human Health Impacts: Noise (2011)



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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Additional regulatory guidance

- *The Pest Control Products Act* (2006)
- International Commissions on Non-Ionizing Radiation Protection (2010)

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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

What we heard

Changes in environment could affect human health

Changes in

- air quality
- ambient noise levels
- Country foods
- electric and magnetic fields



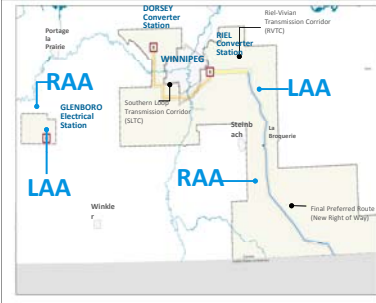
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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Issues considered through routing

Proximity to

- Residences
- Schools
- Other developed areas



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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Lessons learned

- Air quality can be affected by
 - Dust
 - Vehicle emissions
- Ambient noise can be affected by
 - Construction
 - Operations
 - Maintenance

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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Lessons learned

- Herbicide use may affect
 - Soil quality
 - Country food quality
- Operations can lead to a change in local EMF levels

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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Methods

- Desktop review and analysis
- Assessed potential human health risks using results from:
 - Air quality assessment
 - Noise assessment
 - Vegetation management plan
 - EMF science update


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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Human health risk assessment

Changes in health risks from changes in

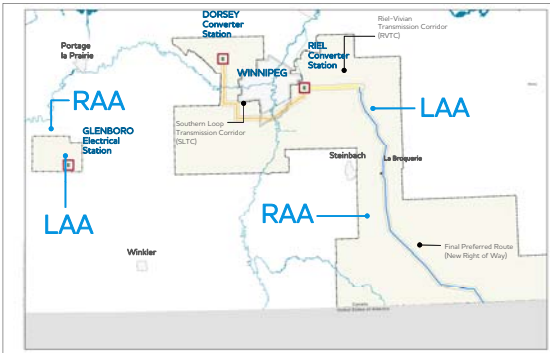
- Air quality
- Ambient noise
- Country food quality
- EMF levels



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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Human health risk assessment areas



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Overview What We Heard What We Assessed Key Issue Review Mitigation, Monitoring and Follow-up Findings and Conclusions

Health risks: vehicle emissions & dust

Changes in health risk from vehicle emissions and dust

Changes in air quality will be

- Localized
- Short-term
- Will not be measurable



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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions


Health risks: vehicle emissions & dust

Summary of health risk
Negligible changes in

- Air quality
- Human exposure
- Health risk

Key mitigation measures

- Emission & dust control




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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions

Health risks: noise

Construction

- Predicted to exceed daytime guideline
- Exceedances will be intermittent and temporary
- Noise levels will meet daytime guideline at 500m



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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions


Health risks: noise

Operations – Transmission lines

- Inaudible increase in ambient noise levels

Operations – Stations

- Predicted to be below daytime guidelines
- Dorsey & Glenboro may exceed night-time guidelines



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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions


Health risks: noise

Summary of health risk

- Changes in ambient noise represent a negligible human health risk

Key mitigation measures

- Passive and/or active noise reduction at stations





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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions

Health Risks: Herbicides

- Repeated or incorrect application may result in build up in the environment
- Herbicides could enter country foods if used incorrectly
- Herbicides in country foods could be a human health risk




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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions

Health risks: herbicides and country foods

- Not used during construction
- Used during maintenance
- Used to control tree growth
- Use is strictly regulated
 - safe for use in Manitoba




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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions

Health risks: herbicides and country foods

- Application rates are set to prevent environmental effects
- Application frequency lower than what regulation allows
- Use will not alter country food quality




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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions

Health risks: herbicides and country foods

Herbicide use represents a negligible change in human health risk.




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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions

Key mitigation measures

- Application will meet regulatory requirements
- Applied with decreasing frequency
- Notice of usage
- Will not be used in known harvesting areas




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Overview What We Heard What We Assessed **Key Issue Review** Mitigation, Monitoring and Follow-up Findings and Conclusions

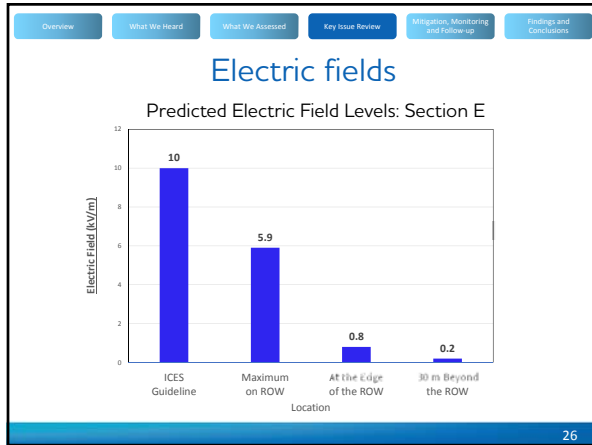
Electric and magnetic fields

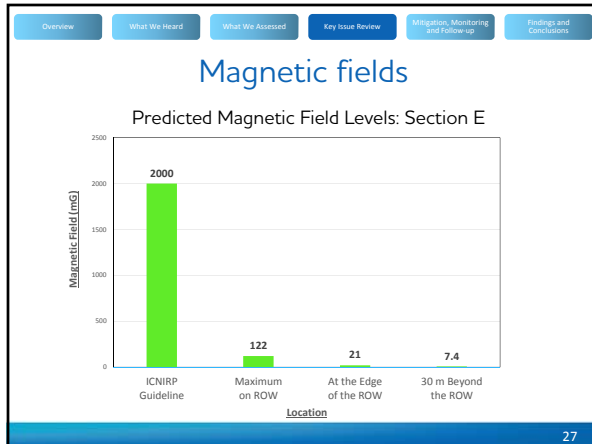
EMF levels meet recommended limits

- within the right-of-way
- outside the right-of-way



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Overview What We Heard What We Assessed Key Issue Review Mitigation, Monitoring and Follow-up Findings and Conclusions


Electric and magnetic fields

Summary of health risk

- Changes in EMF levels represent a negligible in human health risk

Key mitigation measures

- Route selected to limit proximity to residences and developed areas where practical



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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Cumulative effects

Air quality

- Potential effect if construction activities overlap with other construction projects
- Mitigation of emissions and dust will limit effects

Noise

- Noise from future projects could interact to increase noise levels
- Noise mitigation measures at stations will reduce effects of project-related noise

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Overview What We Heard What We Assessed Key Findings Mitigation, Monitoring and Follow-up Conclusions

Cumulative effects

Herbicides

- Project use of herbicides will not alter country foods.
- No cumulative effects with other projects

EMF

- Potential for cumulative exposure to EMF with other projects
- Scientific evidence indicates that EMF from transmission lines are not a human health risk

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Overview What We Heard What We Assessed Key Findings **Mitigation, Monitoring and Follow-up** Conclusions

Ongoing engagement

With respect to herbicide usage on-going engagement to

- Identify harvesting areas
- Provide notification of herbicide use

With respect to EMF, Manitoba Hydro will continue to monitor EMF studies and will make the information available to the public.

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Overview What We Heard What We Assessed Key Findings **Mitigation, Monitoring and Follow-up** Conclusions

Change in Human Health Risk

- Vehicle emissions and dust
 - Vehicle emissions and dust represent a negligible human health risk
- Noise
 - Ambient noise levels during construction and operations are not predicted to exceed typical ambient noise levels on a continuous basis. Occasional exceedances will be of short duration
 - Ambient noise levels at Dorsey and Glenboro stations could exceed residential desirable noise guideline of 45 dBA
 - Predicted changes in ambient noise levels do not consider attenuation
 - Passive/active noise reduction can reduce ambient noise at Dorsey and Glenboro

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Overview What We Heard What We Assessed Key Findings **Mitigation, Monitoring and Follow-up** Conclusions

Change in Human Health Risk

- Herbicide usage
 - Herbicide use will be infrequent and will not alter country food quality and will not alter human health risks associated with eating country foods
- EMF
 - EMF are well below limits recommended by regulatory agencies within and beyond the right-of-way

Project residual effects are considered to be not significant

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