



INFORMATION SESSION

With Representatives of
First Nations and Northern Affairs Aboriginal Communities

About the Manitoba Crown Consultation With Respect to
the Churchill River Diversion Hydro Project Final Licence

September 17, 2009 9:30 a.m. to 2:00 p.m.
Juniper Centre, 108 Nelson Road, Thompson

Purpose of Information Session

This Information Session is being hosted by the Government of Manitoba for purposes of sharing information with invited communities about:

- the final provincial Water Power Act licensing process for the Churchill River Diversion Hydro Project; and
- the Crown consultation process framework for the final licence.

Agenda

9:30 a.m.

Registration and Refreshments

10 a.m. to noon

Purpose of Information Session and Introductions – Barb Connell, Consultation Facilitator

Introductory Remarks – Rob Matthews, Manitoba Water Stewardship

Overview of Churchill River Diversion Project – Rick Bowering, Technical Advisor, Manitoba Water Stewardship

Water Power Act Licensing Process – Rob Matthews, Manitoba Water Stewardship

Questions

noon to 1 p.m.

Lunch

1 p.m. to 2 p.m.

Crown Consultation Process Framework and Next Steps – Barb Connell, Consultation Facilitator

Questions

Closing Comments

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the data.

3. The third part of the document focuses on the role of technology in data management and analysis. It discusses how modern software solutions can streamline data collection, storage, and processing, thereby improving efficiency and accuracy.

4. The fourth part of the document addresses the challenges associated with data management, such as data quality, security, and privacy. It provides strategies to mitigate these risks and ensure that the data remains reliable and secure throughout its lifecycle.

5. The fifth part of the document discusses the importance of data governance and the role of various stakeholders in ensuring that data is used ethically and in compliance with relevant regulations and standards.

6. The sixth part of the document provides a detailed overview of the data lifecycle, from data creation and collection to data storage, processing, and final disposal. It emphasizes the need for clear policies and procedures to govern each stage of the data lifecycle.

7. The seventh part of the document discusses the role of data in decision-making and the importance of providing timely and accurate information to management and other stakeholders. It highlights how data-driven insights can lead to more informed and effective decision-making.

8. The eighth part of the document discusses the future of data management and the emerging trends in the field, such as artificial intelligence, machine learning, and cloud computing. It provides a glimpse into how these technologies will shape the way we manage and analyze data in the years to come.

9. The ninth part of the document provides a summary of the key findings and recommendations of the study. It emphasizes the need for a holistic approach to data management that takes into account all aspects of the data lifecycle and the organization's overall goals and objectives.

10. The tenth part of the document provides a list of references and sources used in the study. It includes books, articles, and other publications that provide additional information and insights into the topics discussed in the document.

Churchill River Diversion Project

Overview Presentation

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Rick Bowering, P. Eng

September 17, 2009



Outline

- Review of Churchill River Diversion
 - Where is it?
 - What is its purpose?
 - How is it operated?
- Churchill River Diversion operation
 - Summer
 - Winter
- Review of levels and flows

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2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to support informed decision-making.

3. The third part of the document focuses on the role of technology in modern data management. It discusses how advanced software solutions can streamline data collection, storage, and analysis, thereby improving efficiency and accuracy.

4. The fourth part of the document addresses the challenges associated with data security and privacy. It provides guidelines for implementing robust security measures to protect sensitive information from unauthorized access and breaches.

5. The fifth part of the document discusses the importance of data quality and integrity. It outlines strategies for identifying and correcting errors in data collection and processing to ensure the reliability of the information used for analysis.

6. The sixth part of the document explores the various applications of data analysis in different industries. It provides examples of how data insights can be used to optimize performance, identify trends, and make strategic decisions.

7. The seventh part of the document discusses the ethical considerations surrounding data collection and analysis. It emphasizes the need for transparency, informed consent, and responsible use of data to protect individual privacy and rights.

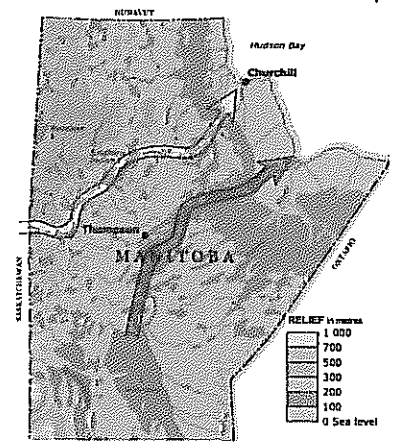
8. The eighth part of the document provides a summary of the key points discussed throughout the document. It reiterates the importance of data-driven decision-making and the need for a strong data management framework.

9. The ninth part of the document offers recommendations for future research and development in the field of data management. It suggests exploring emerging technologies and methodologies to further enhance data collection and analysis capabilities.

10. The tenth part of the document concludes with a final statement on the value of data in driving organizational success. It encourages a data-driven culture where information is used to inform every aspect of the organization's operations.

Churchill-Nelson System

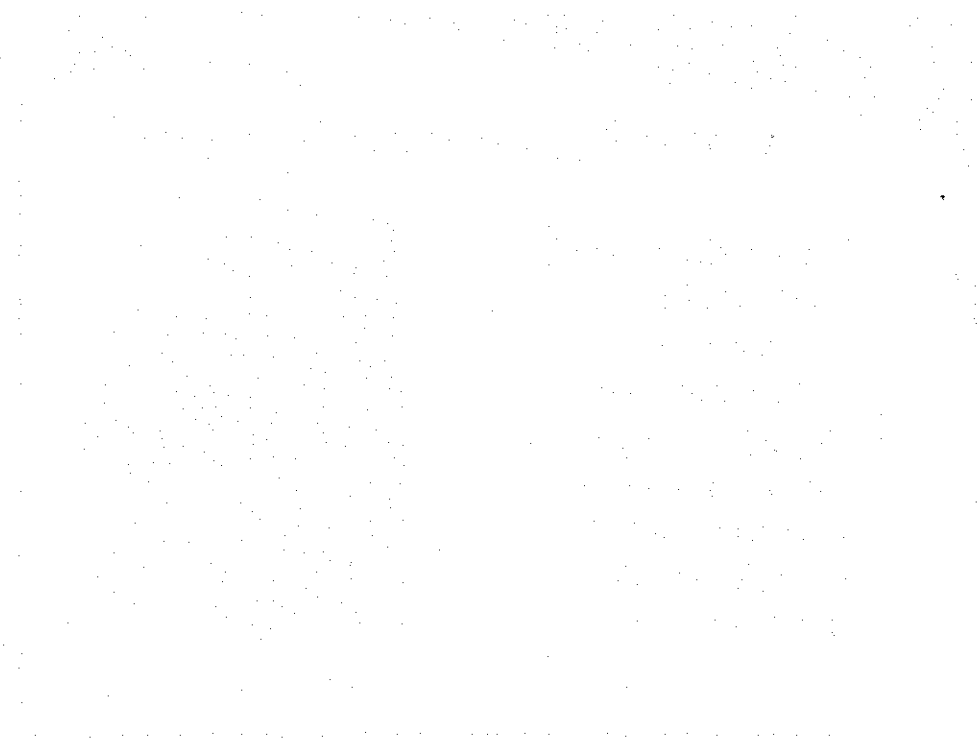
- Two major rivers in Northern Manitoba:
 - Nelson River
 - Churchill River
- Together they drain most of the prairies and parts of NW Ontario and the northern USA



Churchill-Nelson System

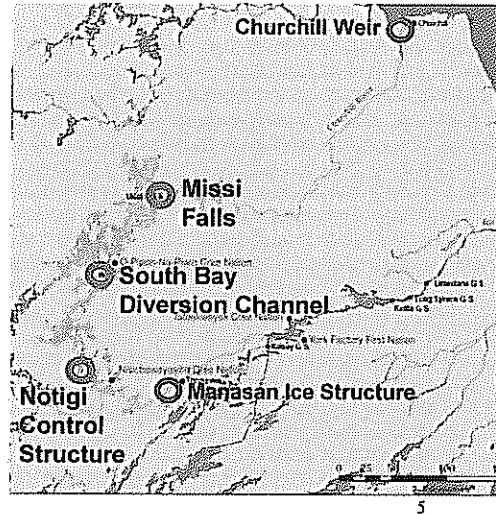
- Nelson River drainage area = 410,000 sq. mi.
- Churchill River drainage area = 111,000 sq. mi.





Project Components

- Project area is shown in orange
- 2 control structures
- An excavated channel
- 2 mitigation structures
 - Manasan Ice Structure
 - Churchill Weir



Missi Falls Control Structure

What is it?

- Dam and Spillway control structure
- Small house unit – power to operate structure

What does it do?

- Holds water in SIL
- Regulates the volume of water passing down the lower Churchill River



1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice to ensure transparency and accountability. This is particularly crucial for businesses operating in highly regulated industries where compliance is a top priority.

2. The second section delves into the various methods used for data collection and analysis. It highlights the need for robust systems that can handle large volumes of information efficiently. Modern software solutions are often preferred over manual processes due to their speed and accuracy. However, it also notes that human oversight remains essential to catch any anomalies or errors that automated systems might miss.

3. In the third part, the author explores the challenges associated with data security. With the increasing reliance on digital storage, the risk of cyberattacks and data breaches has become a significant concern. Implementing strong security protocols, such as encryption and multi-factor authentication, is necessary to protect sensitive information. Regular security audits and updates are also recommended to stay ahead of evolving threats.

4. The fourth section addresses the issue of data privacy. Organizations must be transparent about how they collect, use, and share user data. Obtaining explicit consent from users and providing them with easy-to-use options to manage their preferences are key components of a privacy-compliant strategy. Staying up-to-date with global privacy regulations, such as the GDPR, is also essential to avoid legal repercussions.

5. Finally, the document concludes by discussing the future of data management. As artificial intelligence and machine learning continue to advance, these technologies will play an increasingly important role in analyzing complex datasets and identifying trends. Organizations should invest in research and development to leverage these innovations effectively and gain a competitive edge in the market.



South Bay Diversion Channel

What is it?

- A 5.8 mile long, 200 foot wide excavated channel – 35 feet deep



What does it do?

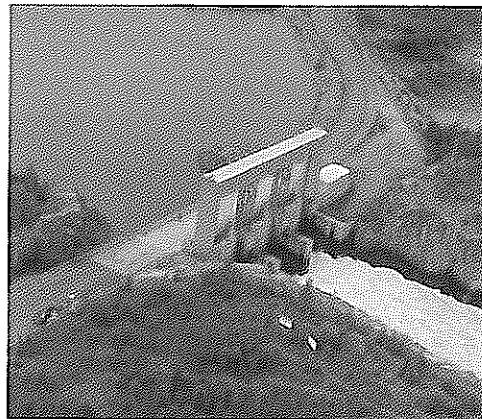
- Diverts water from Southern Indian Lake to the Rat River system (Notigi)

7

Notigi Control Structure

What is it?

- Dam and Spillway control structure



What does it do?

- Regulates the volume of water released into the Burntwood River system

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Manasan Ice Control Structure

What is it?

- Mitigation project
- Ice boom and weir



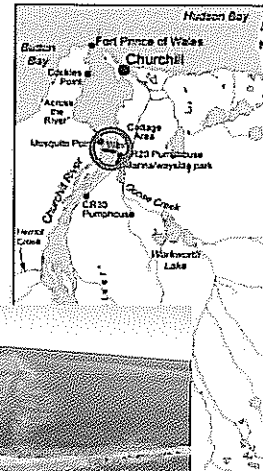
What does it do?

- Reduces the risk of ice jam flooding in Thompson

Churchill Weir

What is it?

- Mitigation project
- 2.5 mile long rock filled weir
- Goose Creek enhancement
- Marina



What does it do?

- Improves habitat for fish
- Improves recreational opportunities for local residents
- Enhances reliability of Town of Churchill water supply

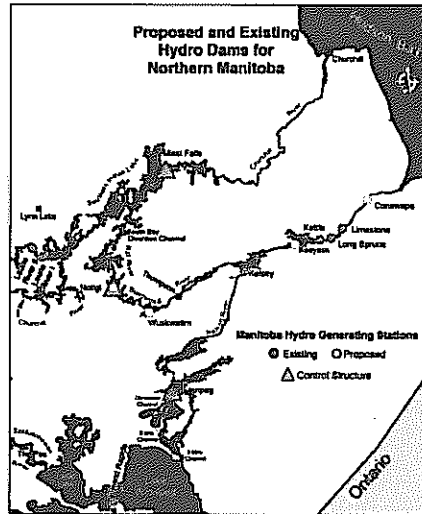


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PHYSICS 435
LECTURE 10
SPECIAL RELATIVITY
I. INTRODUCTION
A. MOTIVATION
1. GALILEAN RELATIVITY
2. EINSTEIN'S POSTULATES
3. THE GALILEAN TRANSFORMATION
4. THE LORENTZ TRANSFORMATION
5. TIME DILATION
6. LENGTH CONTRACTION
7. RELATIVISTIC VELOCITY ADDITION
8. THE RELATIVISTIC DOPLER EFFECT
9. THE RELATIVISTIC MASS
10. THE RELATIVISTIC ENERGY
11. THE RELATIVISTIC MOMENTUM
12. THE RELATIVISTIC FORCE
13. THE RELATIVISTIC EQUATIONS OF MOTION
14. THE RELATIVISTIC POTENTIAL
15. THE RELATIVISTIC WAVE EQUATION
16. THE RELATIVISTIC SCHRÖDINGER EQUATION
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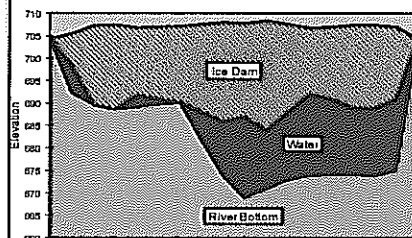
Why CRD was built

- Development on the lower Churchill more expensive than on the Nelson
 - Poor access
 - Longer distances
- Diversion increases lower Nelson flows by about 25%
- More reliable flows during the winter months



Lake Winnipeg Outlet in Winter

Lake Winnipeg's outlet is shallow with many islands



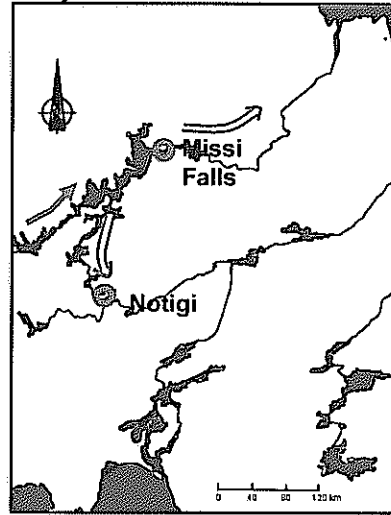
In winter ice build-up restricts the channel capacity

- Ice is much less of a problem along the Burntwood River



How is CRD Operated?

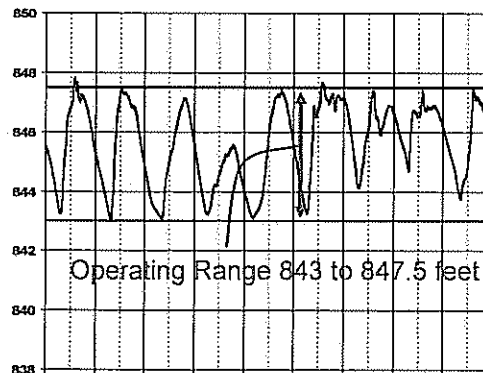
- Churchill R. inflows are stored in SIL
- Flows are released from the Notigi Structure into the Burntwood River, and from Missi Falls into the lower Churchill River



13

How is Southern Indian Lake Operated?

- Inflows are stored in the summer and released into the Burntwood in winter
- Lake levels rise over spring and summer
- Levels drop over fall and winter as additional flows are diverted to the Burntwood system
- Minimum releases to the Lower Churchill River are 500 cfs in summer and from 1500 – 4000 cfs in winter



Lake Levels 2000 - 2008

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River Flows and Lake Levels

Now we will look at flows and lake levels at three locations:

- Footprint Lake
- Southern Indian Lake
- Lower Churchill River

We will compare conditions before and after the diversion was put into operation.

15

River Flows and Lake Levels

What to notice:

- Higher river flows and lake levels along the Burntwood River
- Lower flows along the lower Churchill River
- Seasonal demands for power have changed some of the annual flow and lake level patterns

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1948

1. The first part of the report deals with the general situation of the country and the progress of the work during the year. It is followed by a detailed account of the work done in each of the various departments.

2. The second part of the report deals with the work done in each of the various departments. It is followed by a detailed account of the work done in each of the various departments.

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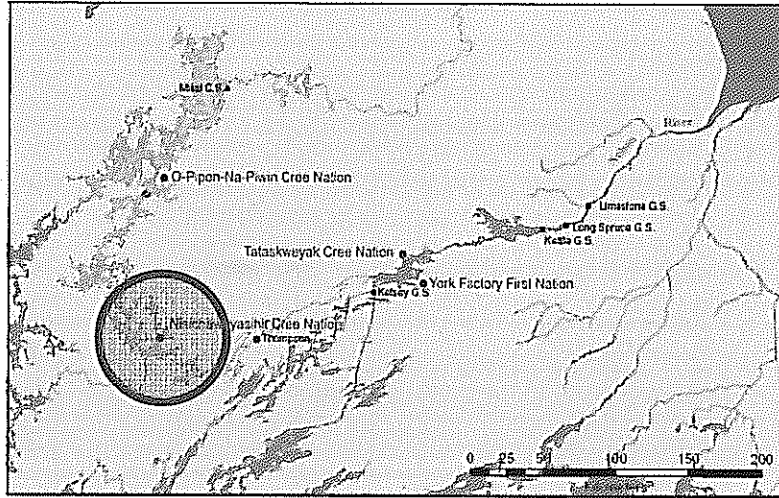
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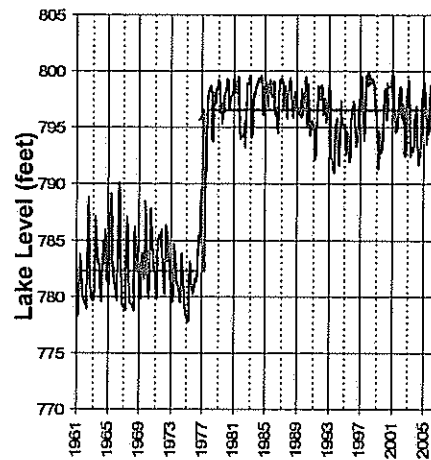
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Footprint Lake



Footprint Lake Levels

- Average levels increased by 14.3 ft.
 - Average before diversion = 782.3 ft.
 - Average after diversion = 796.6 ft.



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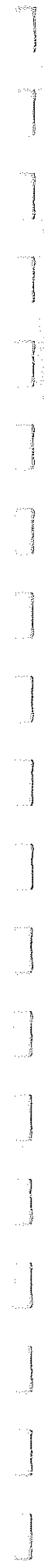
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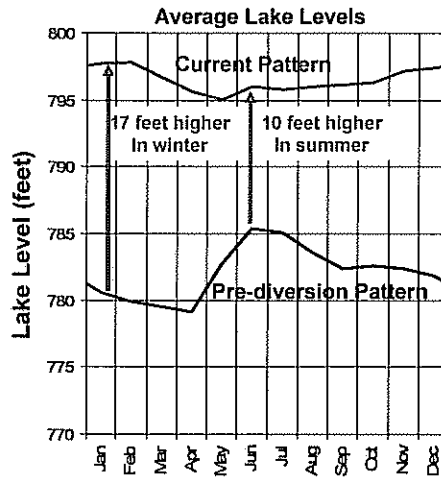
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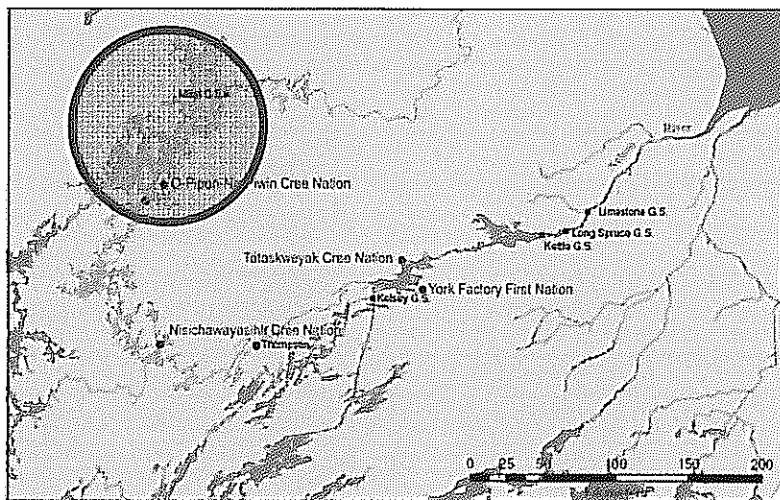


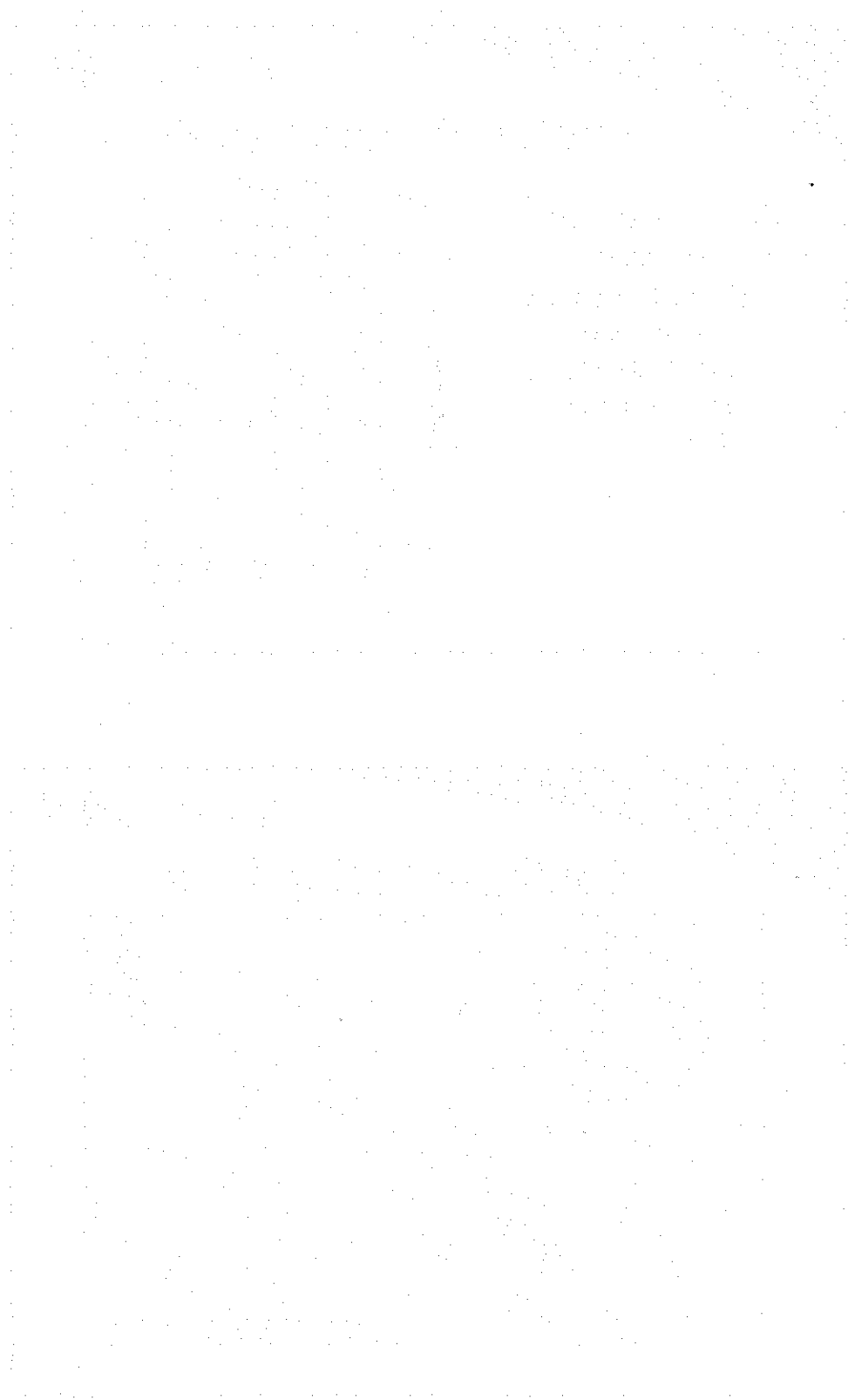
Footprint Lake Levels

- Seasonal pattern has changed:
 - Highest levels now occur in winter
 - Historically highest levels occurred in June



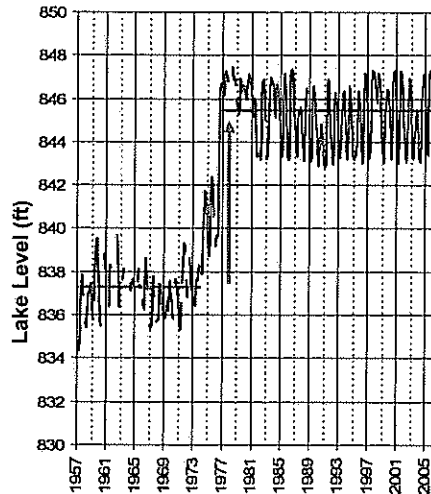
Southern Indian Lake





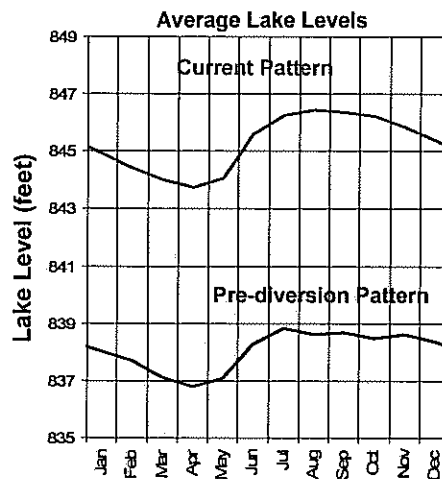
Southern Indian Lake

- Average levels increased by 8.2 ft.
 - Average before diversion = 837.3 ft.
 - Average after diversion = 845.5 ft.



Southern Indian Lake Monthly Levels

- Seasonal pattern has not changed:
 - Highest levels still occur in summer
 - Lowest levels still occur in late winter



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2. The second section focuses on the role of technology in modern accounting. It highlights how software solutions can streamline processes, reduce errors, and provide real-time insights into financial performance. However, it also notes the need for robust security measures to protect sensitive information from cyber threats.

3. The third part addresses the challenges of budgeting and financial forecasting. It suggests that organizations should use historical data and market trends to create realistic budgets. Regular reviews and adjustments are essential to stay on track, especially in dynamic economic environments.

4. The final section discusses the importance of financial reporting and communication. It stresses that clear, concise reports are vital for stakeholders to understand the company's financial health. Regular communication helps build trust and supports informed decision-making.

5. The document also touches upon the significance of tax compliance. It advises businesses to stay updated on the latest tax regulations and seek professional advice when necessary. Proper tax management can significantly impact the bottom line and ensure legal adherence.

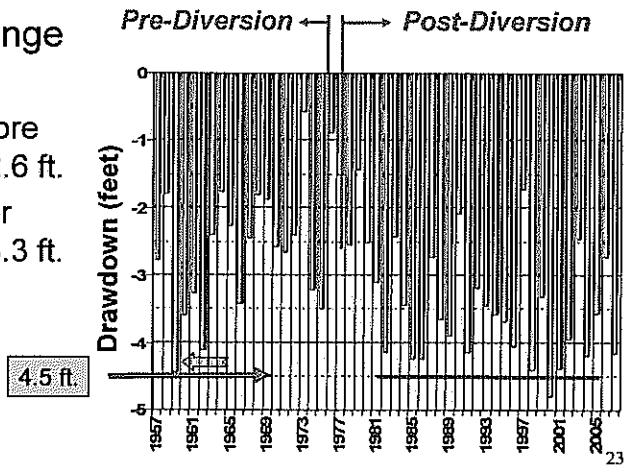
6. Additionally, it mentions the importance of risk management in financial planning. Identifying potential risks and developing mitigation strategies can help organizations navigate uncertainties and protect their assets.

7. The text concludes by reinforcing the idea that financial management is an ongoing process. Continuous learning and adaptation are key to long-term success. Encouraging a culture of financial responsibility and transparency can lead to sustainable growth and stability.

Southern Indian Lake

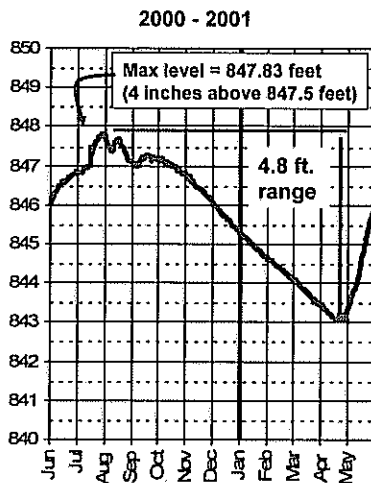
Maximum 12 Month Drawdown

- Operating Range = 4.5 ft.
 - Average before diversion = 2.6 ft.
 - Average after diversion = 3.3 ft.

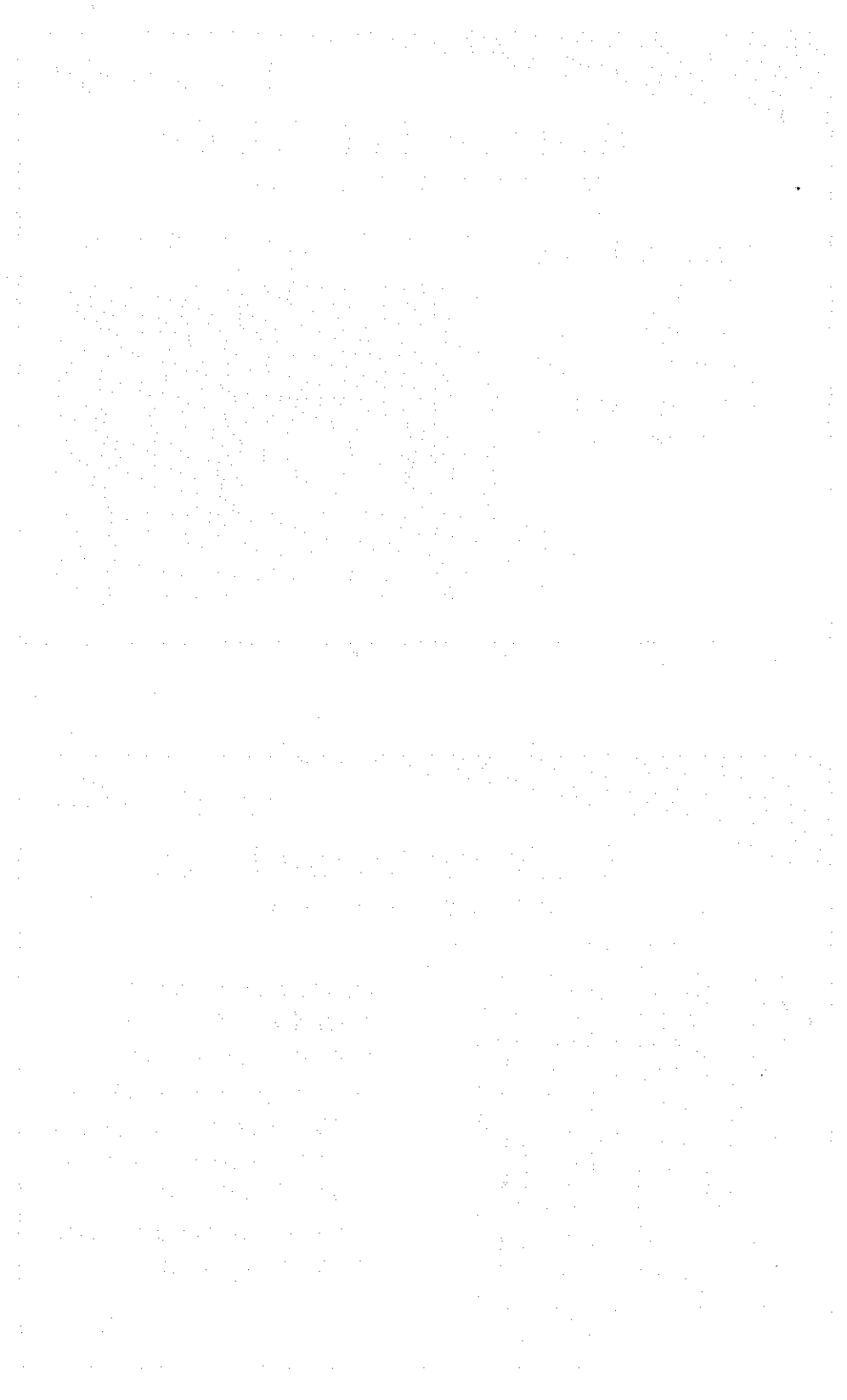


Southern Indian Lake

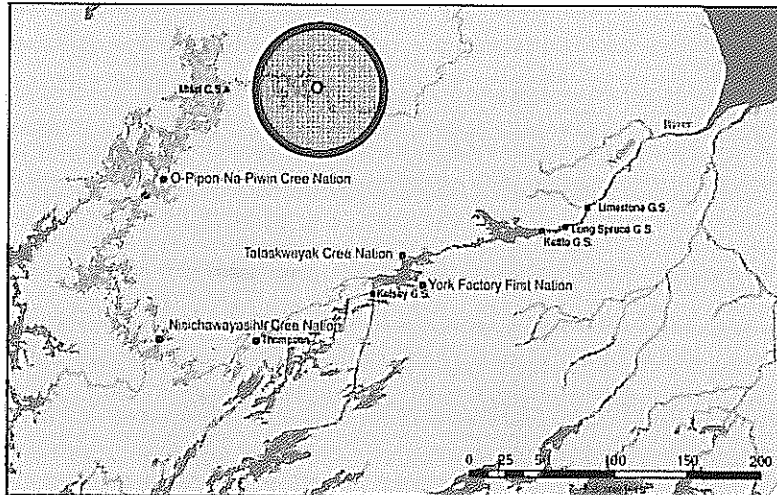
2000 – 2001 operation



- During a major flood controlling SIL levels becomes top priority
 - In summer of 2000 Missi Falls and Notigi flows were increased to bring lake to 847.5 ft.
- Once within range reverted to normal operation



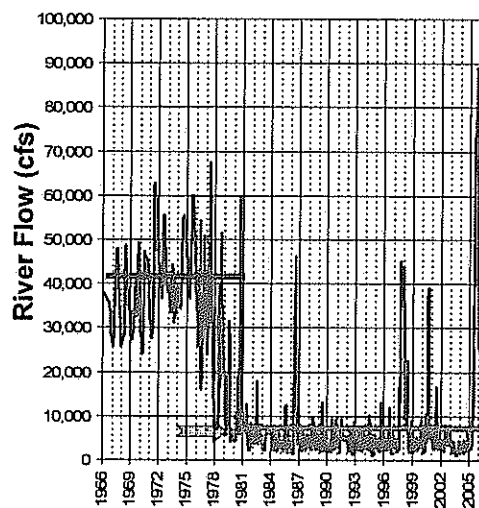
Churchill River below Fidler Lake



25

Churchill River below Fidler Lake

- Reduced flows in lower Churchill:
 - Average flow in decade before diversion = 40,100 cfs.
 - Average flow after diversion = 7,100 cfs.
- Maximum flows are similar



26

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice to ensure transparency and accountability.

2. The second part outlines the procedures for handling discrepancies between the recorded amounts and the actual cash flow. It suggests a systematic approach to identify the source of the error and correct it promptly to avoid any financial misstatements.

3. The third part details the requirements for the monthly financial statements, including the balance sheet, income statement, and cash flow statement. It provides a checklist of items to be reviewed and verified before the statements are finalized.

4. The fourth part discusses the role of the internal audit function in monitoring the financial reporting process. It highlights the need for independence and objectivity in the audit to provide an unbiased assessment of the financial data.

5. The fifth part concludes with a summary of the key points and a call to action for all staff involved in the financial reporting process to adhere strictly to the established policies and procedures.

6. The sixth part provides a detailed explanation of the accounting principles that govern the recording and reporting of financial transactions. It covers topics such as the accrual basis of accounting, the matching principle, and the cost principle.

7. The seventh part discusses the impact of changes in accounting standards on the financial statements. It explains how these changes can affect the comparability of financial data over time and across different entities.

8. The eighth part outlines the responsibilities of the management in ensuring the integrity of the financial reporting process. It stresses the importance of a strong internal control system and a culture of ethical behavior.

9. The ninth part provides a list of common errors and their potential consequences. It offers practical tips to avoid these errors and maintain the accuracy of the financial records.

10. The tenth part concludes with a final reminder of the importance of the financial reporting process in providing reliable information to stakeholders and supporting the overall success of the organization.

Summary of Flows and Levels

- An average of 27,100 cfs is being diverted from the Churchill to the Burntwood River.
- Footprint Lake levels have increased by an average of 14.4 feet.
- River flow at Thompson has increased from an average of 4,000 cfs to 30,600 cfs.
- Southern Indian Lake levels have increased an average of 8.2 feet.
- Lower Churchill Flows have been significantly reduced.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the data.

3. The third part of the document focuses on the role of technology in data management and analysis. It discusses how modern software solutions can streamline data collection, storage, and processing, thereby improving efficiency and accuracy.

4. The fourth part of the document addresses the challenges associated with data management, such as data quality, security, and privacy. It provides strategies to mitigate these risks and ensure that the data remains reliable and secure throughout its lifecycle.

5. The fifth part of the document concludes by summarizing the key findings and recommendations. It stresses the importance of continuous monitoring and improvement of the data management process to stay aligned with the organization's goals and objectives.



Churchill River Diversion Project

Final Licensing Process

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Rob Matthews

Manitoba Water Stewardship

September 17, 2009



Presentation Outline

- Overview of Water Power Act
- Historical overview of Churchill River Diversion (CRD) licence
 - What is the Interim Licence
 - Describe Augmented Flow Program
- Hydro's request for Final Licence
- Final Licensing Process
 - What does this involve

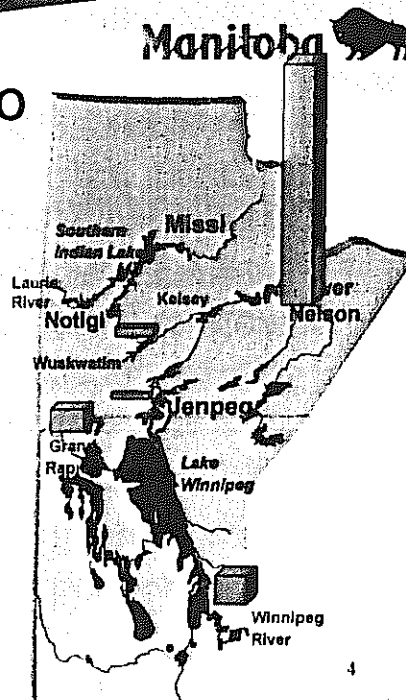
Water Power Act

- The Water Power Act provides authority for Province to regulate water power development
- The Water Power Regulation provides guidance or rules for administration of the Act

3

Manitoba Hydro System

- Most Manitoba power generation is on the Lower Nelson River (75% of capacity)



4

CRD Interim Licence

- Granted to Hydro, the right to use provincial Crown resources (land and water power) for purposes of generating electricity
- CRD used to augment flow for generating stations on Nelson River

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CRD Interim Licence

- Authorizes Hydro to:
 - construct works
 - divert waters of Churchill River into Burntwood/Nelson River system
 - impound waters on Southern Indian Lake (SIL) and Rat River System

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CRD Interim Licence

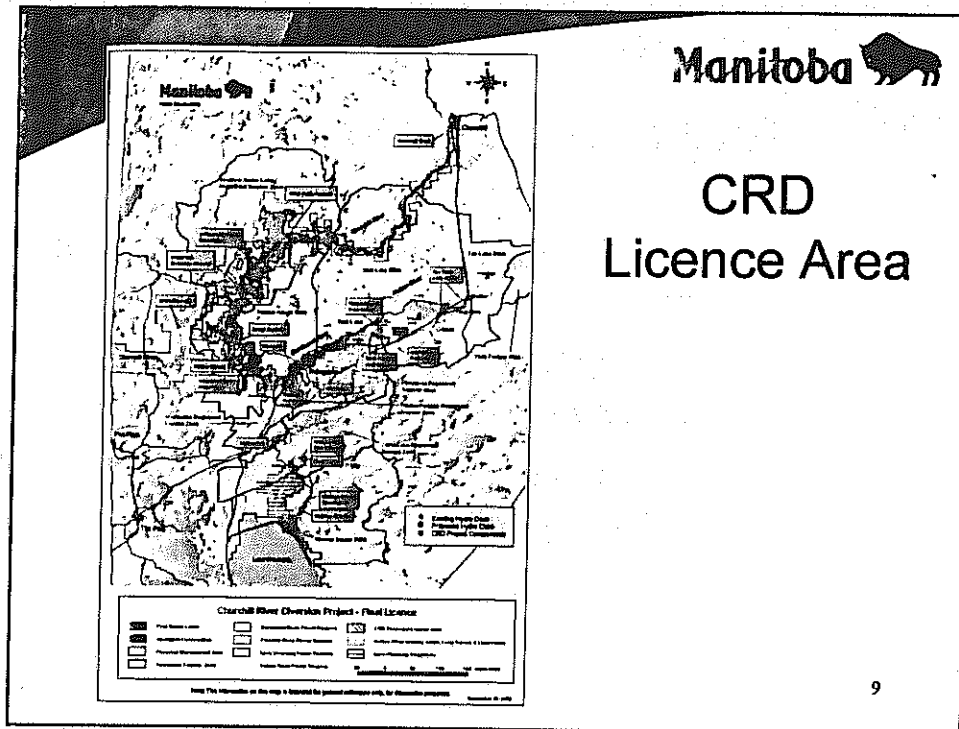
- Issued to Hydro in 1973
- Remains a valid and ongoing licence
- Allows Hydro to operate project in accordance with terms of Interim Licence
- Upon fulfillment of its obligations, Hydro is entitled to a Final Licence

7

Obligations Under the Interim Licence

- Surveys and plans
 - Severance Line Plan
 - As Constructed Plans
- Physical works
 - Missi & Notigi Control Structures
 - South Bay Diversion Channel
- Mitigatory works
 - Manasan Ice Control Structure
 - Churchill Weir

8



-
- ## CRD Operation
- Hydro tested CRD operation over period (1978-1986) to optimize operation of project
 - Resulted in Augmented Flow Program (AFP) in 1986
 - Affected range of water levels on SIL and flows released through Notigi Control Structure into Burntwood River system
- 10

Augmented Flow Program

- Hydro has requested annual approvals for AFP
- Annual approvals granted by Minister of Water Stewardship
- Upon approval, AFP forms part of operating regime set out in Interim Licence

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Key Licensing Parameters

Location	Control Aspect	Interim Licence	Augmented Flow Program
Southern Indian Lake	Maximum Water Level	847 ft.	847.5 ft.
	Minimum Water Level	844 ft.	843.0 ft.
	Maximum Annual Change	2 ft.	4.5 ft.
Notigi	Minimum Water Level	838 ft.	834 ft.
Thompson	Maximum Flows or Levels	Av. Mean Flow plus 30,000 c.f.s.	619 ft. (Summer) 623 ft. (Winter)
Diversion Flow (Notigi)	Maximum Flow	30,000 c.f.s.	35,000 (Summer) 34,000 (Winter)
	Maximum Daily Change	10,000 c.f.s.	10,000 c.f.s.
Flow (Missi)	Minimum Flows	500 c.f.s. (Open Water) 1500 c.f.s. (Ice Covered)	No Changes Specified

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Request for Final Licence

- Before requesting its final licence, Hydro also sought to resolve issues related to adverse effects of CRD Project (including AFP) with First Nations and communities
- May 2009 Hydro requested Final Licence from Government of Manitoba
- Request includes Augmented Flow Program
- Envisions project be operated in same manner as historically operated (since 1986)

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Final Licence

- Would contain terms and conditions described in Interim Licence
- May contain any other terms and conditions specified by Minister of Water Stewardship
- Licensing decision made under authority of Water Power Act
- Term of Final Licence is 50 yr. from Initial Development (50 yr. from September 1, 1976)

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Water Power Act CRD Licensing Flow Chart



Project is Constructed & Operated Under Interim Licence,
Licensees Submit Final (as constructed) Plans to Manitoba and Request Final Licence

Crown Consultation Initiated

Manitoba Reviews Submissions from Licensees including Compliance Report,
Required Plans (Severance Line) & Hydraulic Monitoring Implementation Guide

Submissions from Licensees Accepted

Manitoba Considers Information from Crown Consultation Process

Minister of Water Stewardship Makes Decision About Issuance of Final Licence

Minister of Water Stewardship Issues Final Licence (including any additional terms)

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Duty to Consult



- Government of Manitoba has a duty to consult in a meaningful way with First Nations, Metis communities and other aboriginal communities about government decisions that might affect the exercise of Treaty or aboriginal rights

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Duty to Consult

- Government of Manitoba will attempt to address concerns in good faith
- Government of Manitoba will consider possible accommodation measures as part of licensing decision

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Crown Consultation for CRD Final Licence

- Does not affect any agreements with communities
- Does not deal with final licensing process for Lake Winnipeg Regulation Project
- Does not deal with licensing processes for future Water Power Projects

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Other Considerations

- CRD Project predates Manitoba Environment Act (1988)
- CRD Project, including Augmented Flow Program, is considered to be an existing development under the Environment Act
- CRD Project as currently operated does not require Environment Act Licence

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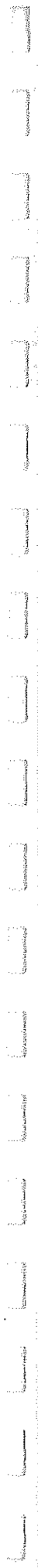
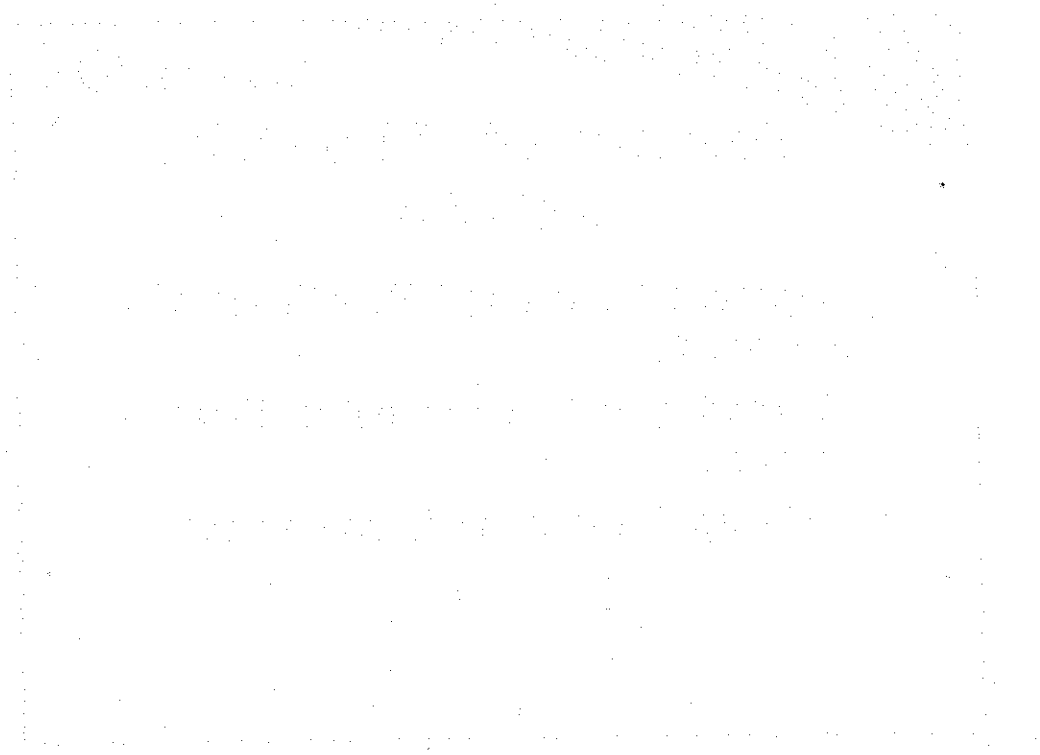
Manitoba Hydro Activities

- Communications with communities and organizations about request for Final Licence
- Planned Public Open Houses in Thompson and Churchill for sharing information about CRD Project and licence request

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Government of Manitoba Activities

- Approved Augmented Flow Program for 2009/2010
- Reviewing Hydro's request for Final Licence
- Initiating Crown consultation process



Churchill River Diversion Project

Information about Crown Consultation Framework

Barb Connell, Consultation
Facilitator

September 17, 2009



Presentation Outline

- Crown consultation framework
- Next steps

Guiding Principles

- Consultation process is intended to be:
 - Mutually acceptable
 - Community-specific
 - Respectful and inclusive
 - Reasonable and workable

3

Consultation Framework

- Consultation framework lays out process steps:
 - information sharing from Province
 - communities confirm interest
 - development of consultation plans
 - undertake consultation
 - consider how concerns might be addressed
 - document consultation
 - government decisions and reporting to communities

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Consultation Framework

Phase 1

- Manitoba informs communities about CRD Final Licensing process and Crown consultation
- Manitoba hosts Information Session with community representatives
- Communities confirm interest in Crown consultation

5

Consultation Framework

Phase 2

- Develop consultation plan for mutually acceptable consultation process
- Undertake consultation according to the plan
- Document community interests, concerns and other consultation information

6

Consultation Framework

Phase 3

- Review consultation information with each community
- Consider how concerns might be addressed
- Prepare Record of Consultation

7

Consultation Framework

Decision Making

- Manitoba Water Stewardship will consider consultation information and accommodation measures before decision is made about the CRD Final Licence

8

Consultation Framework

Reporting

- Manitoba Water Stewardship will report to communities on licensing decision and how concerns were addressed

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Information Package

- Consultation Backgrounder
- Consultation Planning
- Community Support Costs Guideline
- CRD Final Licensing Backgrounder
- Map of Project Region
- Flow Chart of Consultation Framework
- Community Confirmation Form

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Consultation Planning

- Consultation Plan Topics
 - Community consultation coordination
 - Types of consultation sessions e.g. focus groups (Elders, resource users, youth etc.), community meetings, workshops
 - Meeting recorder
 - Need for translation
 - Suitable timeframe
 - Budget
 - Involvement of Manitoba Hydro

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Community Support Costs

- Community Consultation Arrangements
 - Community Consultation Coordinator to facilitate organization of consultation
 - Meeting room, refreshments, audio and visual aids, translation services, meeting recorder
 - Elders honoraria for their participation

12

Community Support Costs

- Other Support Costs
 - Manitoba Water Stewardship will consider any requests for additional support costs

13

Next Steps

- Communities consider interest in Crown consultation process
- Communities advise Manitoba Water Stewardship of interest
- Crown and communities jointly develop community-specific consultation plans

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Request to Communities

- Consider information heard today
- Advise Manitoba Water Stewardship within 6 weeks of community interest in consultation
- Complete Community Confirmation Form

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Schedule of Activities

- Information Session – Sept. 09
- Confirm community interest – end of Oct. 09
- Develop community-specific plans – Nov/Dec 09
- Initiate consultation – Jan. 2010
- Undertake community consultation sessions – Jan. – June 2010

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