



Welcome to our Water Management Planning Public Information Centre for the Ivanhoe River Projects

Thank you for your continued interest in these projects. Public and Aboriginal Community as well as regulatory agency comments and input on environment, social issues and economic considerations have helped to make these better projects.

Today's Public Information Centre (PIC) will give you up-to-date information on the Class Environmental Assessment (Class EA) process for the projects and provide an opportunity to learn more about the Water Management Planning (WMP) process.

Today's PIC is part of the Water Management Planning process for the Ivanhoe projects.

We welcome your additional input. If you have further comment or observations please fill out a comment form before you leave our meeting.

For your convenience copies of the presentation material, as well as current project information, can be found on our website:

www.xeneca.com

Thank you for joining us today.

www.xeneca.com



Company Information

Xeneca Power Development Inc. is primarily engaged in the identification, development, permitting and construction of waterpower electricity generating facilities in the Province of Ontario.

Operating ethically and in compliance with all Federal and Provincial policies regulating waterpower facilities in Ontario, Xeneca believes in and promotes sustainable development and the creation of green, renewable energy.

Xeneca prides itself for its contributions to develop sound, practical and effective public policy on waterpower in Ontario. Xeneca believes in and practices, good corporate citizenship and governance.



Blanche River



Lapinagam Rapids, Kapuskasing River

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Project Team:



Hatch Energy – Oakville/Niagara Falls; Provides a complete range of services for the assessment, planning, implementation & operation of waterpower projects.



Woodland Heritage – Sault St. Marie; Archaeological Investigation.



KBM Forestry Consultants – Thunder Bay; Individual & industry stakeholder consultation, Water Management Planning.



Blu Metric Environment is dedicated to the provision of engineering & project management services to the waterpower & hydraulic structures industry.



NRSI provides innovative, practical & cost-efficient environmental & biological support for waterpower projects.



Ontario Resource Management Group Inc.

ORMG provides its private, business & government clients with natural resource consulting services that help expand and sustain their personal or business enterprises.

Government Agencies Involved:

The Ministry of the Environment & the Ministry of Natural Resources are the lead agencies for the review of the Class EA for Waterpower Projects; the Ministry of Energy and Infrastructure & Ministry of Tourism and Culture are also involved in the review.

Federal agencies involved include: *Fisheries and Oceans Canada, Environment Canada & Transport Canada.*

How Hydroelectric Power Works

- The diagram shown below outlines the components found in a typical hydro-electric facility. Hydro facilities vary in size and in design. Adjustments to their layout may be made, but the essential components usually remain the same.
- The five essential components of a hydro-electric plant, excluding the dam, are: **the intake, penstock, turbine, generator and the tailrace.**

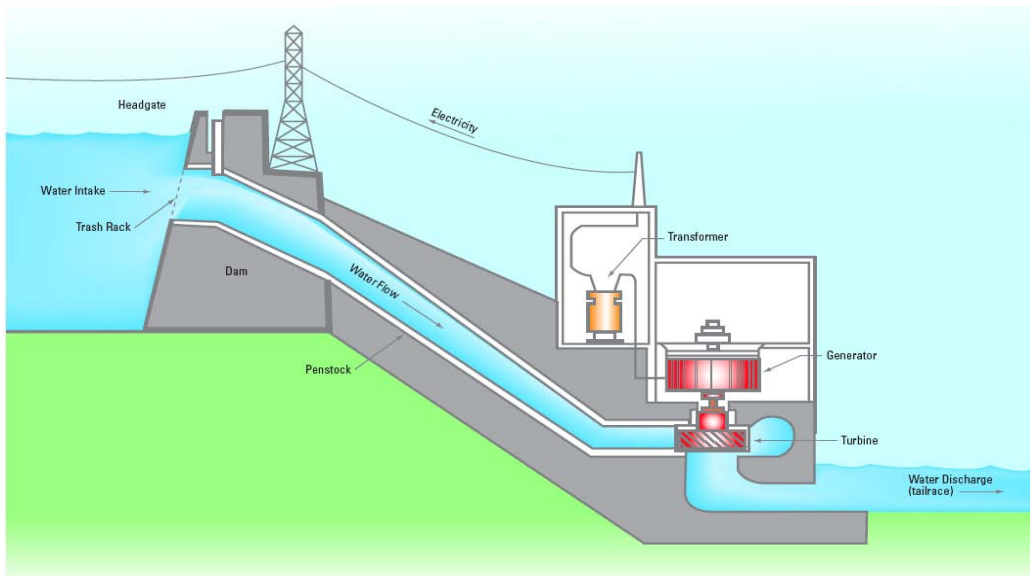


Photo Courtesy of Ontario Power Generation

How electricity is generated:

1. water flows into the intake and is directed into the penstock.
2. The movement of the water turns the turbine which is connected to a generator
3. The generator, set in motion by the action of the turbines, creates electricity.
4. The water then passes into the tailrace and back into the river system.

The turbine & the generator function jointly and are housed together in a powerhouse. The control gate can be managed to let in more or less water depending on the flow of the water body.

Benefits of Waterpower

Renewable

- Hydropower “fuel” is essentially unlimited and is not depleted during the production of electricity.

Clean

- Hydropower uses water to generate electricity. It does not produce air pollution or create toxic by-products.

Natural

- Hydropower facilities harness the energy of flowing and falling water to generate electricity.

Efficient

- Modern hydropower turbines are capable of converting more than 90% of available energy into electricity, which is more efficient than any other form of generation.

Reliable

- Hydropower can go from zero power to maximum output rapidly and predictably; making hydropower very good for meeting ever-changing electricity demands.

Local and Secure

- Water from our rivers is a domestic resource that is not subject to disruptions from foreign suppliers, cost fluctuations or transportation issues.

Local contribution

- Significant contribution to local tax base revenue, monies will be spent locally during construction on goods, services, and labour to the extent practicable.

Job creator

- Full and part-time employment opportunities during the construction and operation phases.

Water Management Plans (WMPs)

WMPs are part of Ontario's *Lakes and Rivers Improvement Act* . They are intended to:

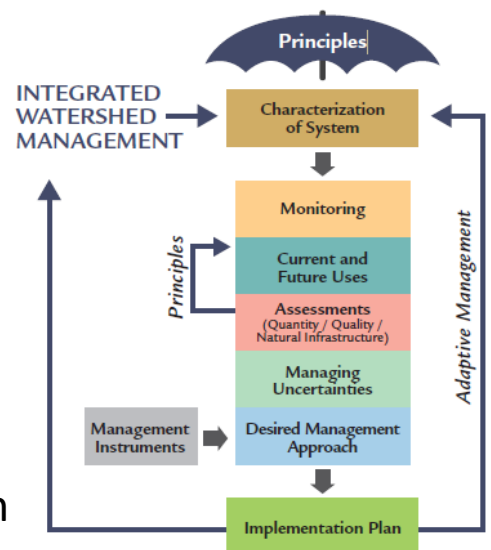
- Develop amendments to and/or follow WMPs for existing facilities.
- Identify water flow and level compliance requirements for waterpower facilities and water control structures.
- Ensure compliance with a WMP is achieved through consensus among water resource users who work toward agreement on operating plans and monitoring programs.

• WMPs are a legislated responsibility of the Ministry of Natural Resources (MNR) and are developed according to provincial guidelines found in the "*Water Management Planning Guidelines for Waterpower*."

• WMPs goal is to balance environmental, social and economic objectives; ensure sustainability of aquatic ecosystem.

• Most of Xeneca waterpower projects are on river systems with existing WMPs. Where a WMP does not yet exist, one will be created.

Figure 2: Water Management Framework



Source: Conservation Ontario



Water Management Planning Process at Ivanhoe

Today we wish to present an accurate, detailed and complete picture of our updated Ivanhoe projects and operating regimes. This includes:

- The boundary and existing conditions within the anticipated Zone of Influence
- The degree to which the system is proposed to be altered
- Any identified potential effects
- Proposed impact management strategies
- Associated post-construction monitoring

We believe our final water management plan objectives should be informed, in part, through agency, public and Aboriginal consultation and the identification of existing uses and values within the anticipated ZOI. Please speak to any Xeneca staff or consultant to provide feedback and to provide local or traditional knowledge.

MAIN PROJECT UPDATES:

- The Chute GS has undergone significant changes since 2011.
- In addition, flows beyond Third Falls will now be re-naturalized.
- Additional 2013 summer field work studies have been completed.
- Brook Trout habitat assessment and spawning surveys in tributaries flowing into Ivanhoe River.

These changes are reflected in the panels today so that you may have an opportunity to understand and comment on the proposal in a meaningful way.

Artist Rendering of Recreation and Aesthetic Values at The Chute



Third Falls GS – Artist Renderings



Summer



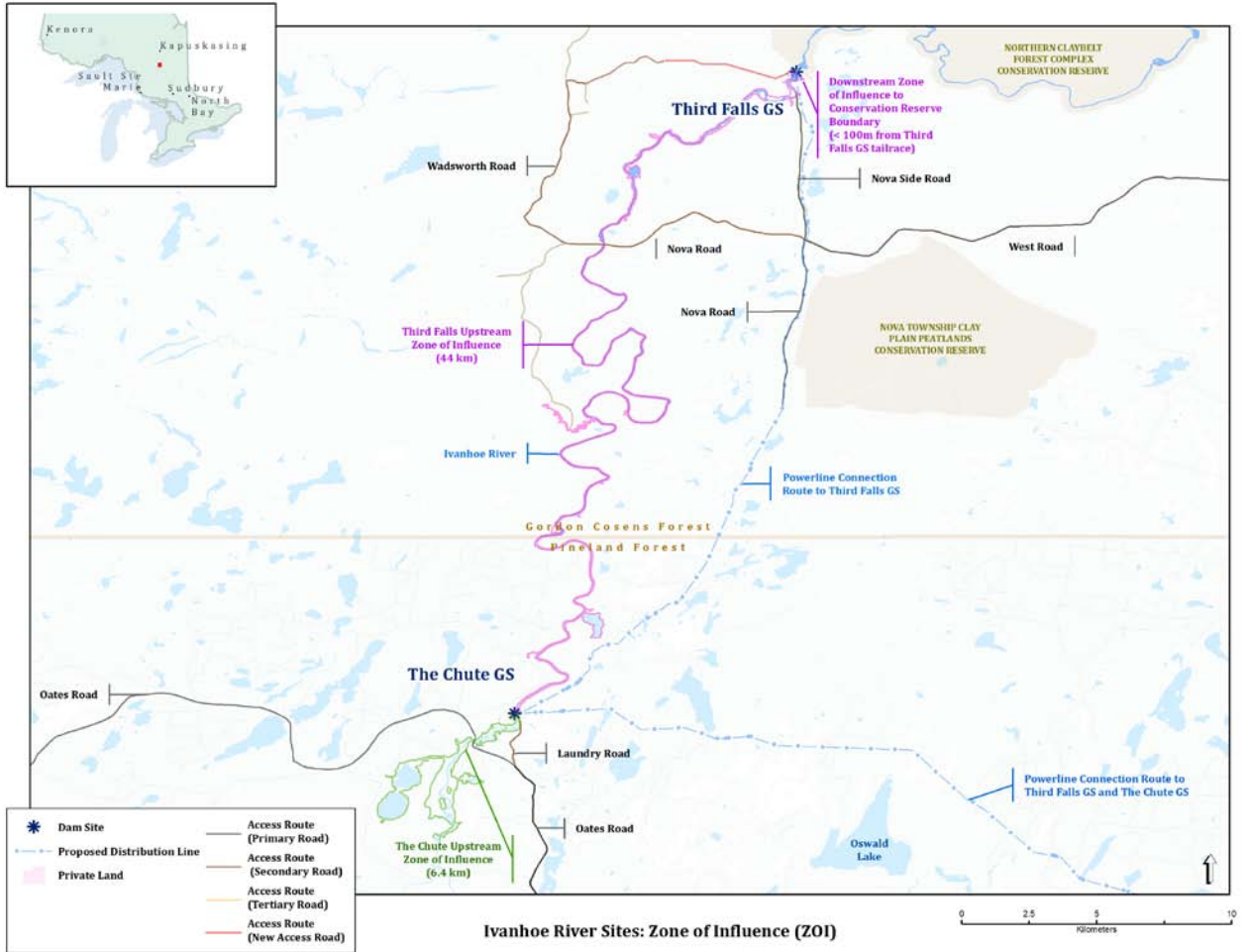
Fall



The Chute GS – Artist Rendering



Zone of Influence



Project Updates



Run-of-River at Third Falls



Extensive monitoring of post operation effects to ensure consistency with model predictions



Assessment of ecological productivity and adaptive management (effort to maintain good fishing)



Operational constraints and flow splitting at The Chute to protect spawning



Post Construction Monitoring

Environmental Component	Frequency and Timing
Fish Communities	Sampling will occur in years 3,6,9 of facility operations
Benthic Invertebrates	Sampling will occur once in years 1,3,6,9
Fish Habitat Compensation	The first five years of operation
Walleye/White Sucker spawning habitat	TBD with DFO
Brook Trout and Tributaries	
Moose aquatic Feeding habitat	
Fish Stranding	Two years following construction (spring, summer & fall)
Fish Entertainment and impingement	First year following construction when turbine is at max capacity
Headpond vegetation surveys	Every two years after construction for 10 years
Bat Roost Surveys	Once . Prior to clearing headpond vegetation
Canadian Warbler habitat	
Water levels	At 15 minute intervals for duration of facility lifetime
Flow rates	At 15 minute intervals for duration of facility lifetime
Ice Scour	Year 1 and year 5 of operation
Water Temperature	Hourly for facility lifetime Three times/year during freshet, summer low flow and fall mid-flow periods in years 1-3
Surface water Quality	Three times/year during freshet, summer low flow and fall mid-flow periods in years 1-3
Fish Tissue Mercury Concentrations	Sampling in years 1,2,3,6,9 (forage fish) and 3,6,9 (large fish)
Erosion and Sedimentation Control	Monitoring stations annually years 1-5 + 7 & 10
EACOM Bridge on Oats Rd.	

Changes to the River and Operational Effects

CHANGE

- Structures in the river
- Headpond fluctuations
- Some changes to insect and other food production

MITIGATION

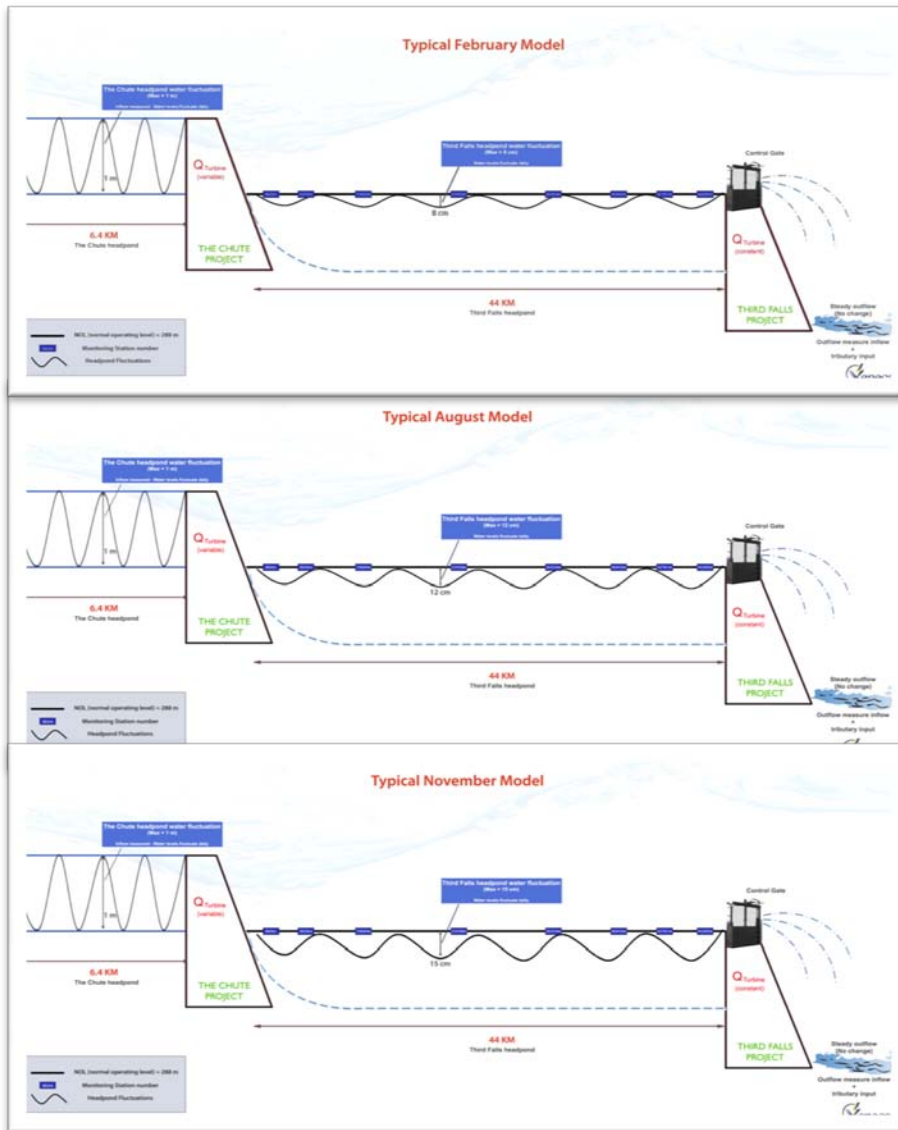
- Operations commitments during spawn
- Maintenance of ecological function and fish productivity

EFFECT

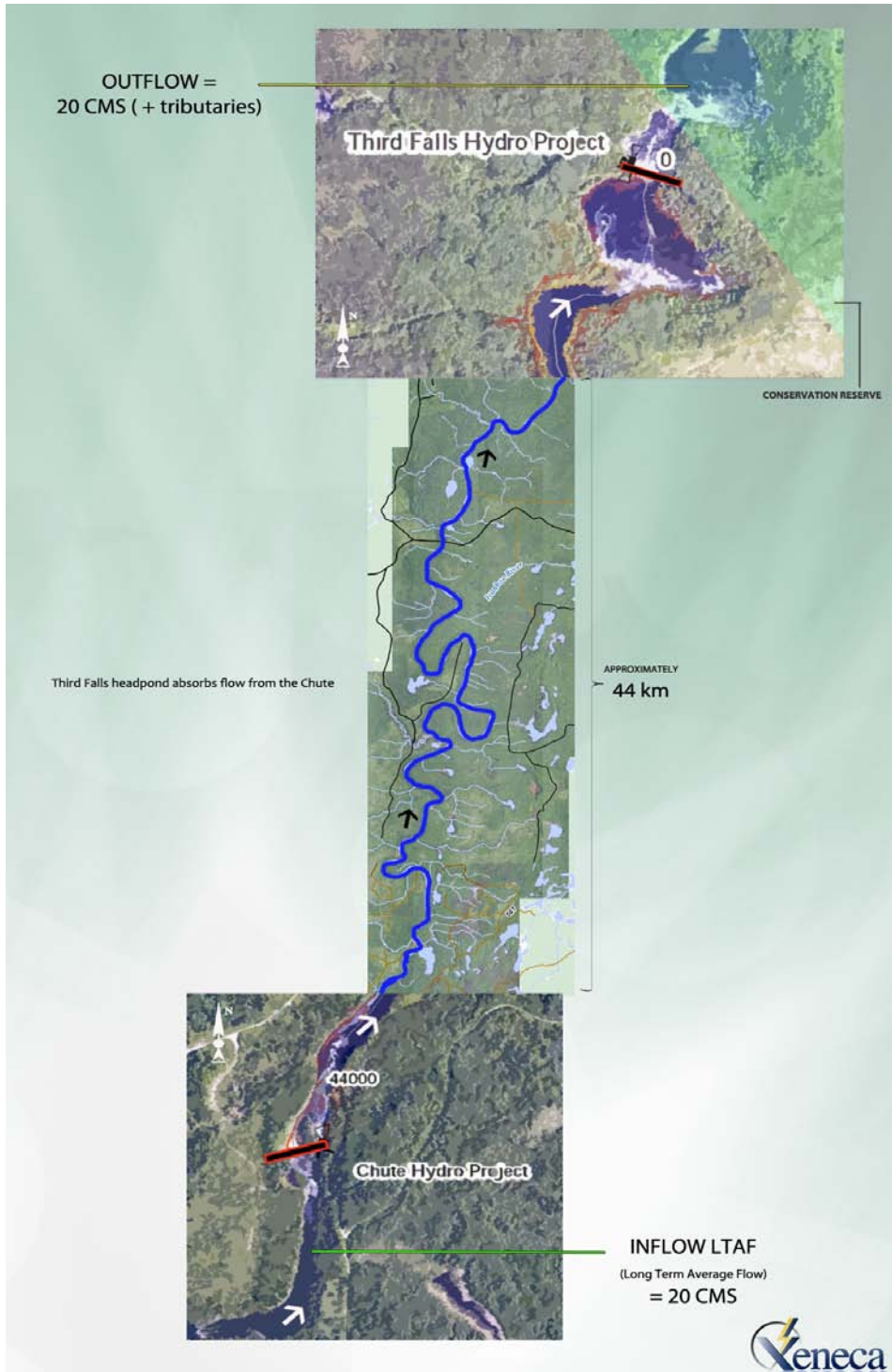
- Nominal changes to:
 - Water temperature,
 - sedimentation,
 - erosion,
 - water quality

Operational Effects

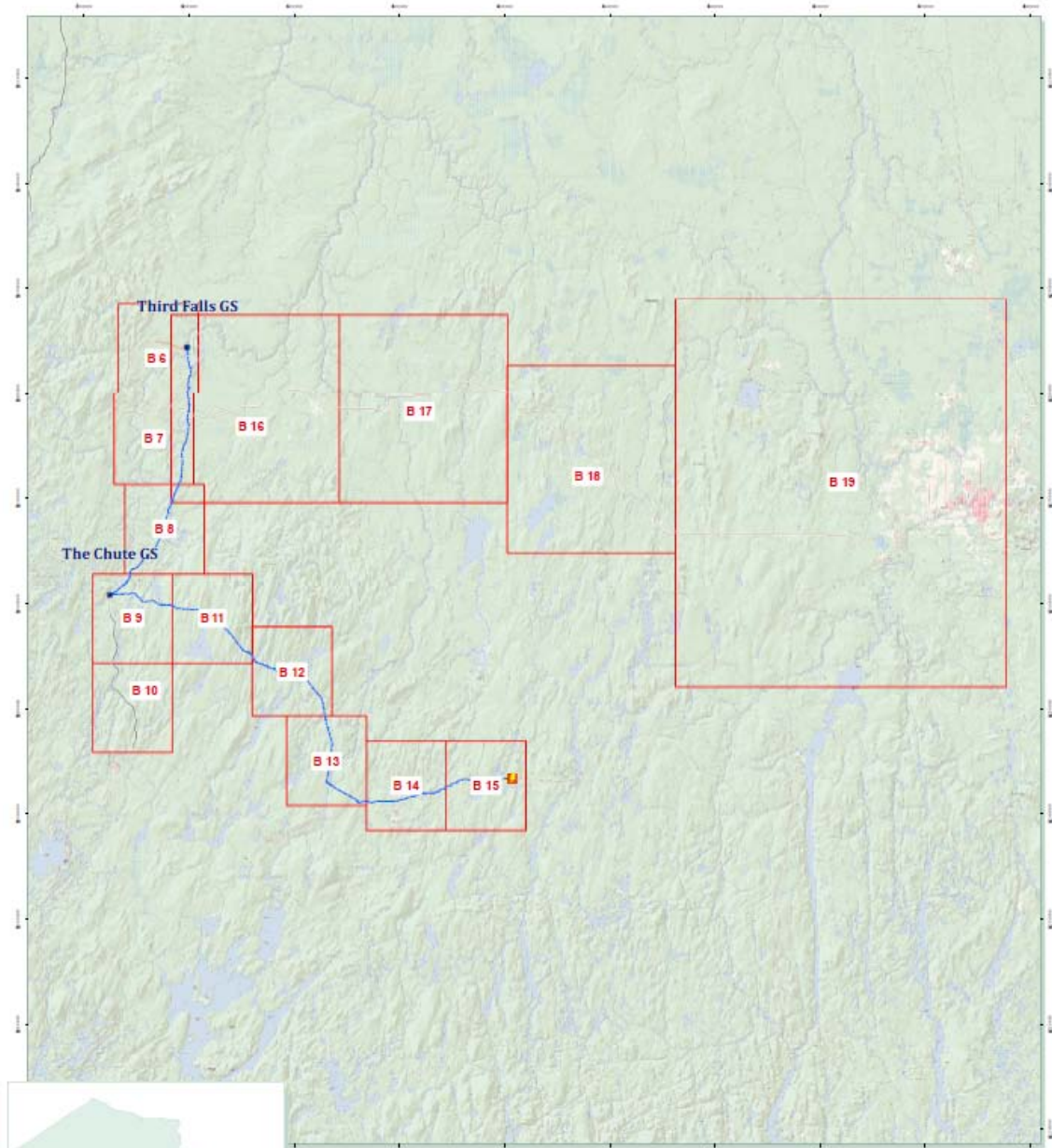
Please see the diagrams below which illustrates how we will operate The Chute GS to restore it to run-of-river:



Operational Effects

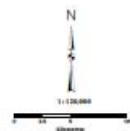


Access & Power Lines

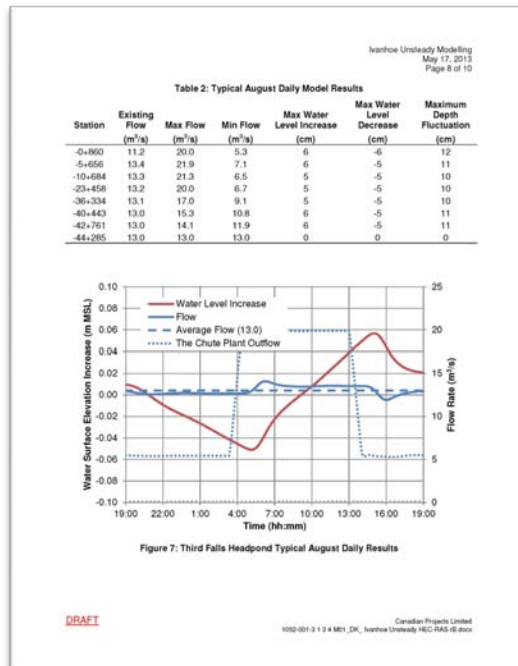
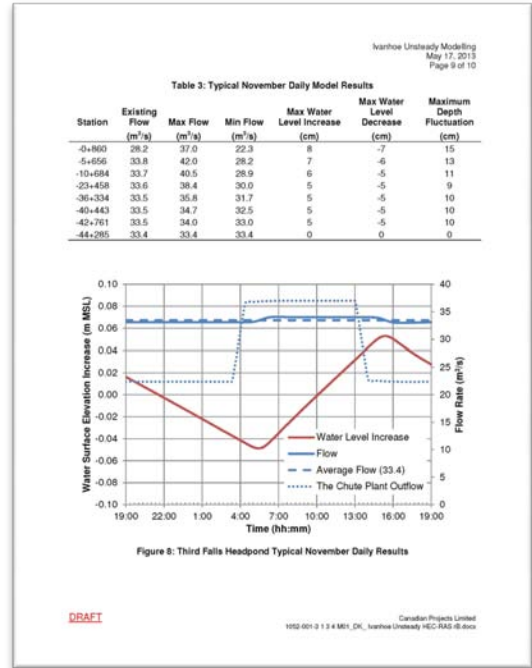
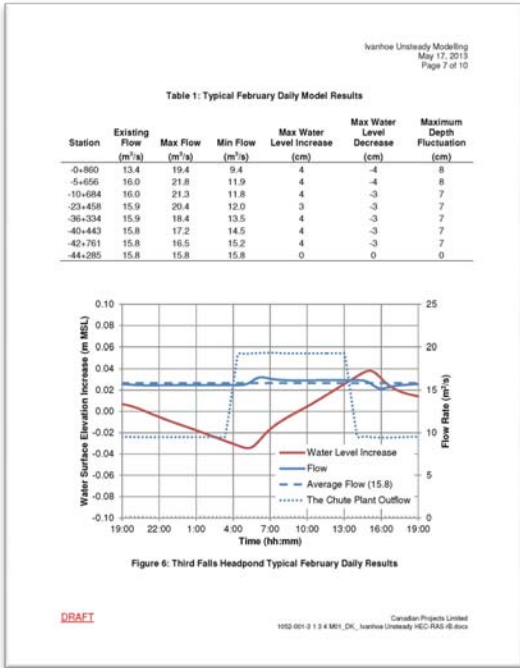


Metreman data based on the Toporama 1:60,000 scale topographic reference product developed by Natural Resources Canada (2014) and the Local Information Geomatics data as released by the Ministry of Natural Resources. Map produced by Xeneca Environmental Services, Inc. under the Creative Commons Attribution License.

**Site Access and Powerline Route Index Map
Tile Set B (Ivanhoe River Sites)**



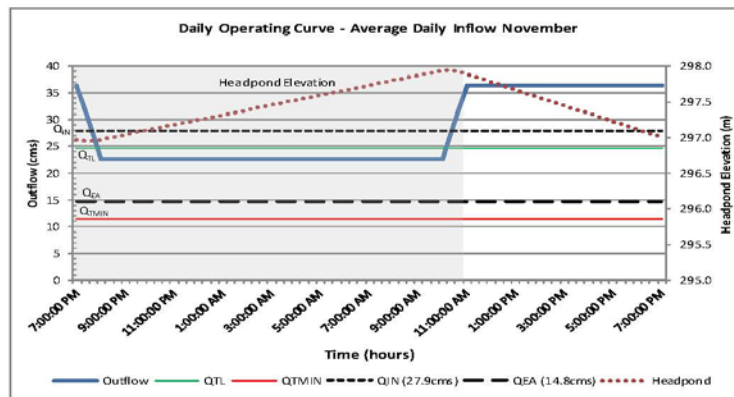
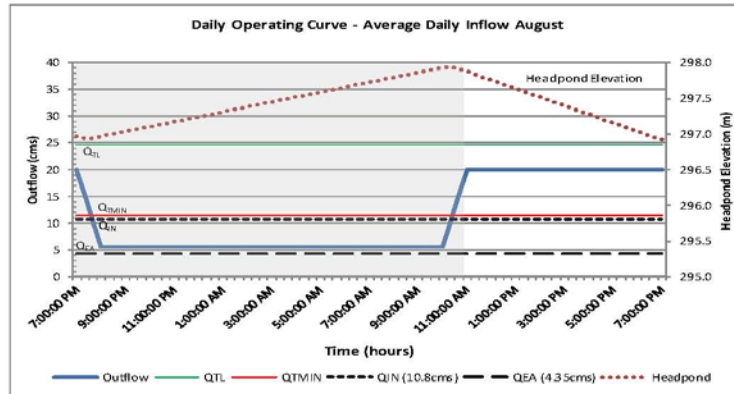
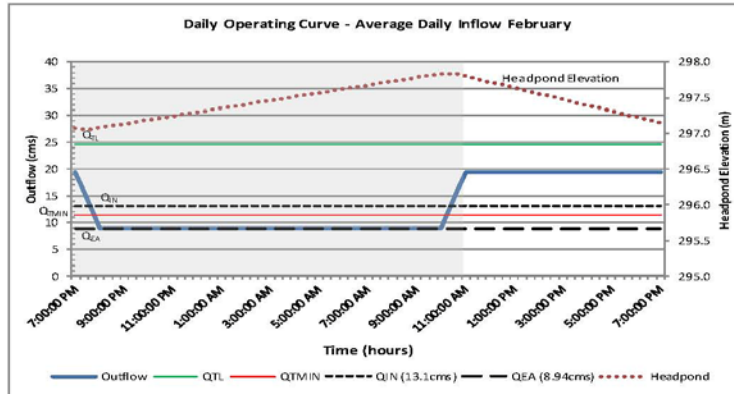
Third Falls Headpond Fluctuations



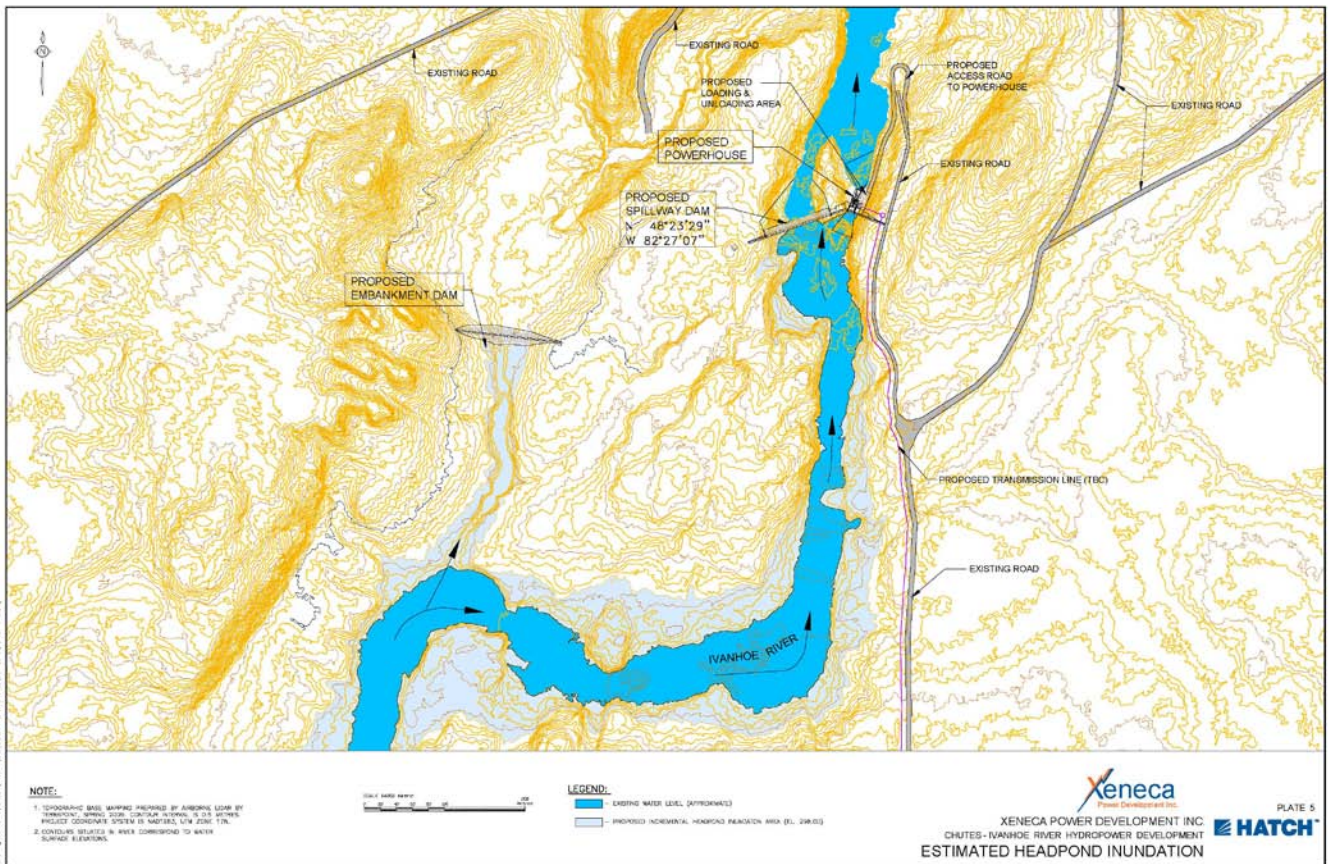


The Chute Headpond Fluctuations

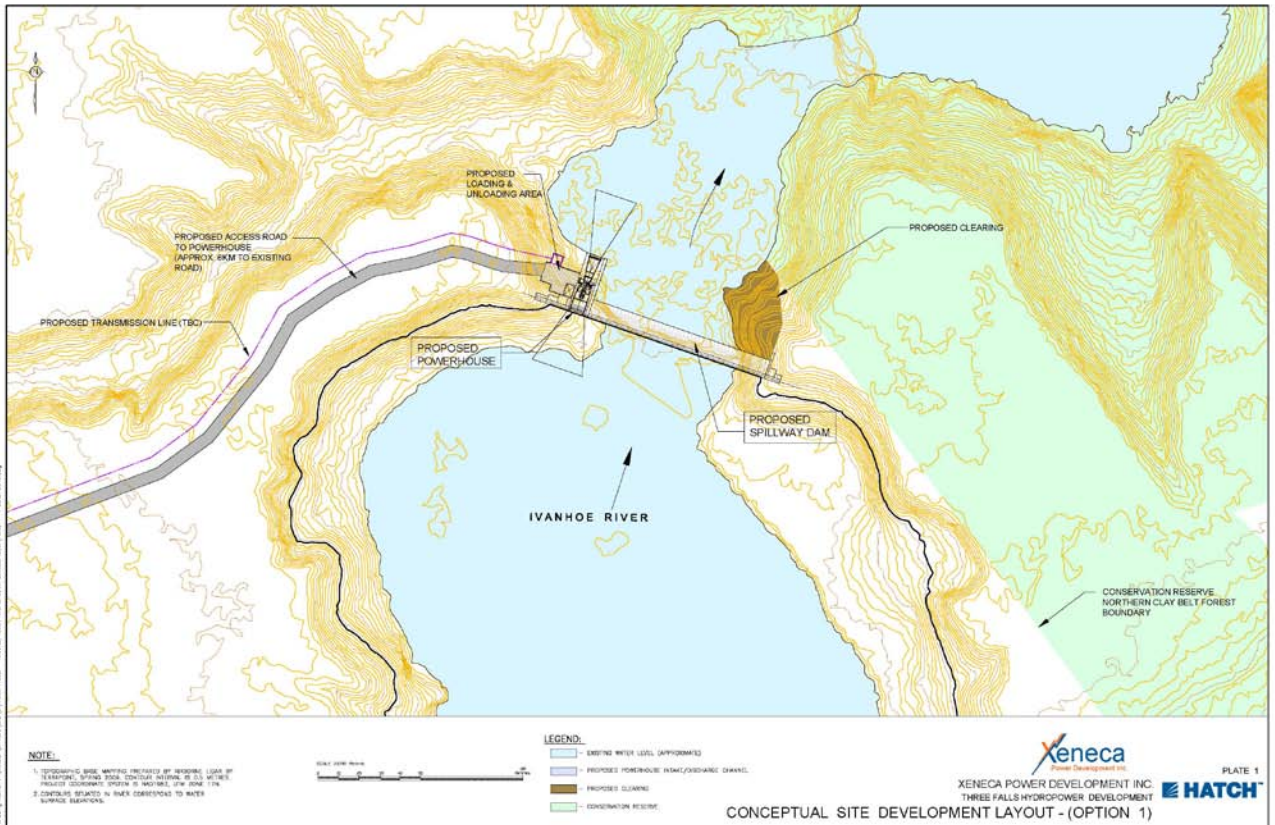
Typical Monthly Operations The Chute



Conceptual Design – The Chute



Conceptual Design – Third Falls



2010 - 2013 Biology Summary

Walleye spawning surveys

- 36 angling stations
- 173 egg mats sets
- 33 Gill nets sets
- 3 Fyke Nets sets
- 3 Trap Net sets
- 4 Spotlight surveys

Sturgeon spawning surveys

- 24 egg mats
- 14 XL multifilament gill net sets
- 9 Trot Lines

Summer fish community sampling

- 53 RIN net sets
- 20 minnow traps sets
- 9 electro-fishing stations
- 6 gill net Sets
- 5 trot line sets

Fall sturgeon surveys

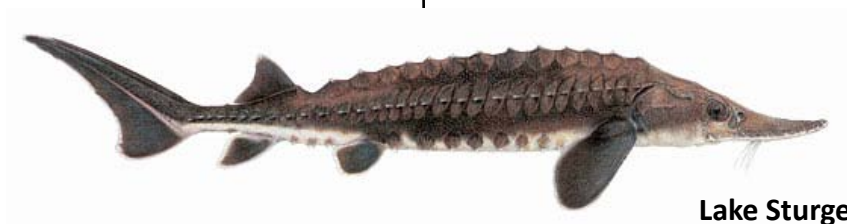
- 49 XL multifilament gill net sets
- 22 sturgeon PIT tagged
- 22 sturgeon DNA samples

Brook trout tributary surveys

- mapping of potential spawning habitat
- spawning surveys planned for fall of 2013

Invertebrate sampling

- 25 Hester-Dendy benthic sampling sites
- Invertebrates taxonomy
- Visual survey of aquatic habitat
- Methyl Mercury (fish tissue)
 - 60 Samples taken



Lake Sturgeon

2010 - 2013 Biology Summary (continued)

Vegetation community mapping

- 12 eco sites observed (ELC)
- 137 plant species

Breeding bird surveys

- 82 species observed
- 9 confirmed breeding
- 15 evidence of probable breeding
- 55 evidence of possible breeding
- 3 others observed

Herpetofauna

- 1 species of snake
- 4 species of frogs
- 1 species of salamander

Mammals

- 23 species identified as potentially present
- 13 species observed

Incidental observations of all other wildlife, amphibians, butterflies & dragonflies including mammals, reptiles

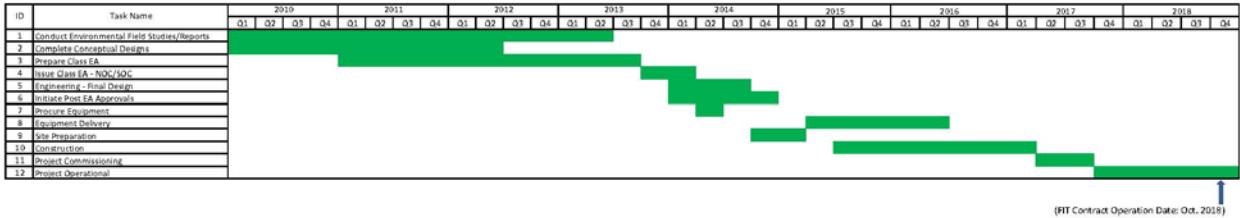


Northern Spring Peeper



Timeline – Next Steps

Ivanhoe River Project - The Chute and Third Falls
FTT Schedule



*Archeological studies, EA monitoring and field studies will be ongoing throughout the development process and First Nation and non-Aboriginal engagement is encouraged.



Thank you for visiting today's Public Information Centre (PIC)

We appreciate your continued interest in the projects. Your comments, concerns and input on environment, social issues and economic considerations have helped to make better projects.

We encourage everyone who has an interest in this project to fill out & submit a comment card before leaving so that we can track ideas & concerns.

Xeneca's overall consultation process does not end with this PIC as we will continue to communicate regularly with stakeholders throughout the development & operational phases.

Your participation today is important; we appreciate your time & effort. We are committed to doing it right.

Thank you for coming.

To Contact Xeneca:

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