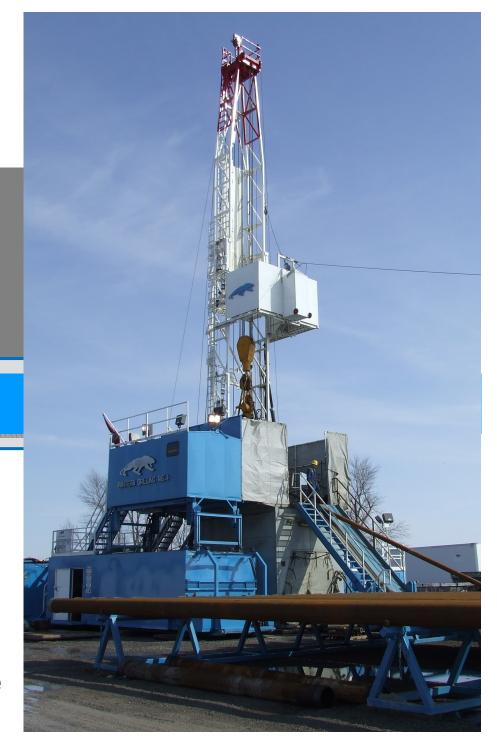


# Heritage Pool

March 31, 2009 EB-2008-0405 Technical Conference





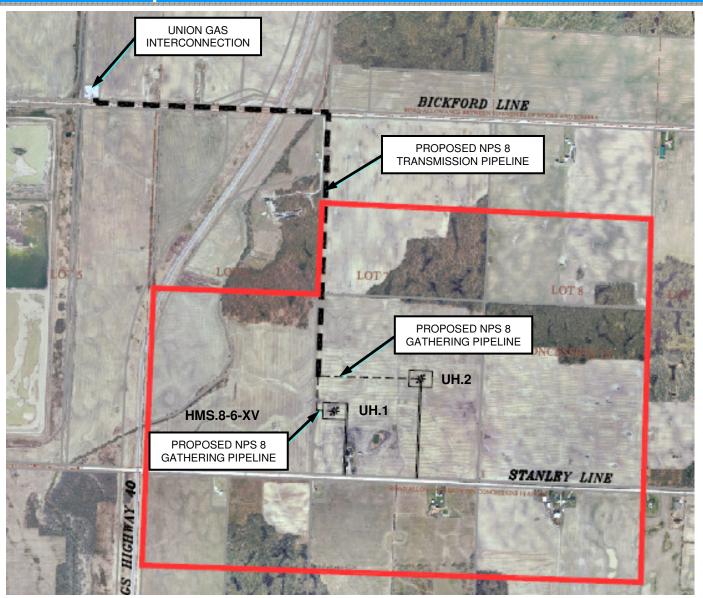


# **Project Summary**

- Working capacity 26,900 10<sup>3</sup>m<sup>3</sup> (0.95 Bcf)
- Proposed facilities
  - 2 I/W wells
  - 2.4 km of NPS 8 pipeline
  - filter/separation, measurement and compression
- Application
  - Designated gas storage area
  - Injection/Withdrawal order
  - Favorable report to the Ministry of Natural Recourses (MNR)
- Environmental Protection Plan
- July 1, 2009 in-service



# Facilities Map

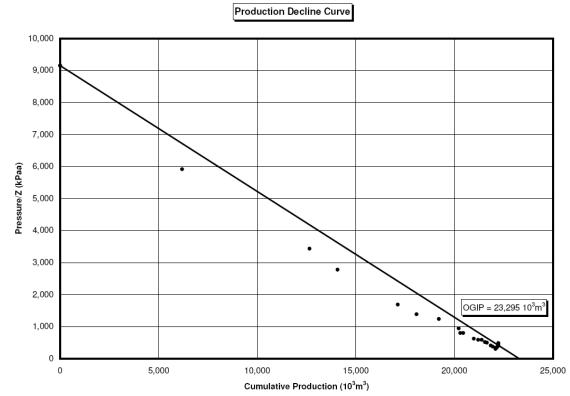






# Production History and Reservoir Parameters

- Heritage Pool discovered in 1992
- Discovery well HMS.8-6-XV
- Discovery pressure 7,269 kPaa
- Produced 22,234.2 10<sup>3</sup>m<sup>3</sup> (March 1994 September 2007)
- Current pressure
  - 413 kPaa
- Original Gas-In-Place
  - 23,295 10<sup>3</sup>m<sup>3</sup>







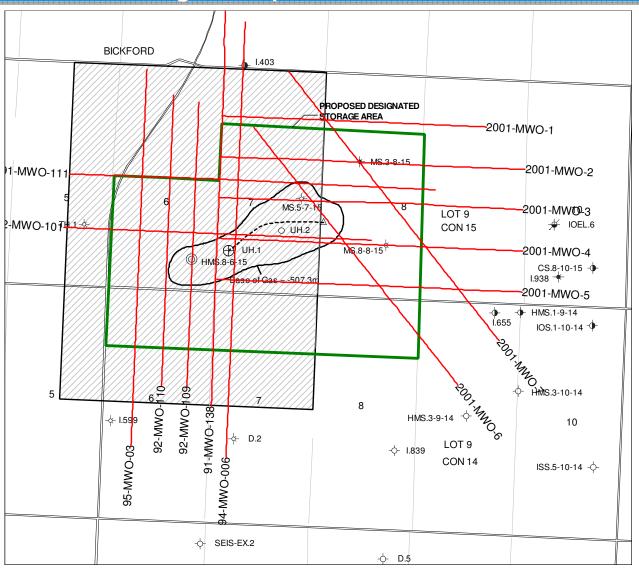
# Stratigraphic Test Well

- Union Heritage 1 (UH.1) drilled in 2008 to further delineate reservoir characteristics
  - Cored reservoir and caprock
    - Caprock core sample from UH.1
    - Threshold pressure testing
    - Geomechanical testing
  - Completed micro-fracture test
    - Closure Pressure 15,794 kPaa
    - Closure Pressure Gradient 23.1 kPa/m





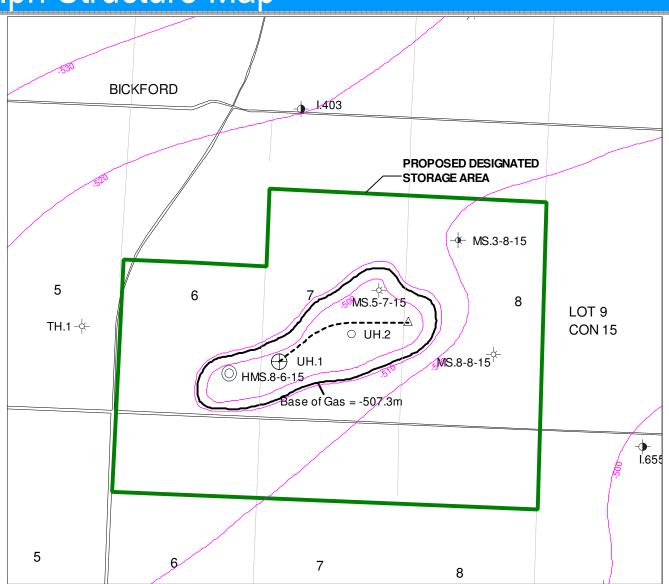
# Seismic Coverage Map





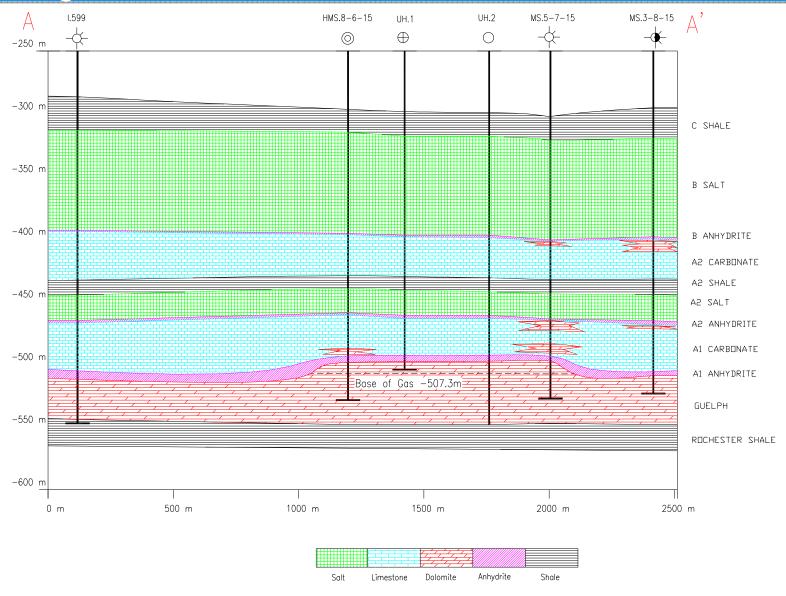


**Guelph Structure Map** 





# Heritage Pool Cross Section







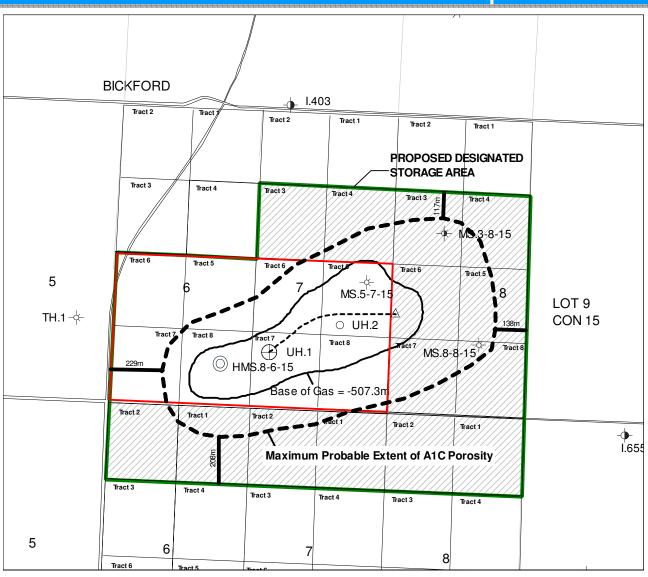
# Proposed Designated Storage Area (DSA)

- 2D and 3D Seismic
- Well information
- Follows MNR Drilling Tracts
- Includes additional lands compared to Unit Area
- DSA boundary accepted by MNR





# Proposed DSA and Extra Lands Map





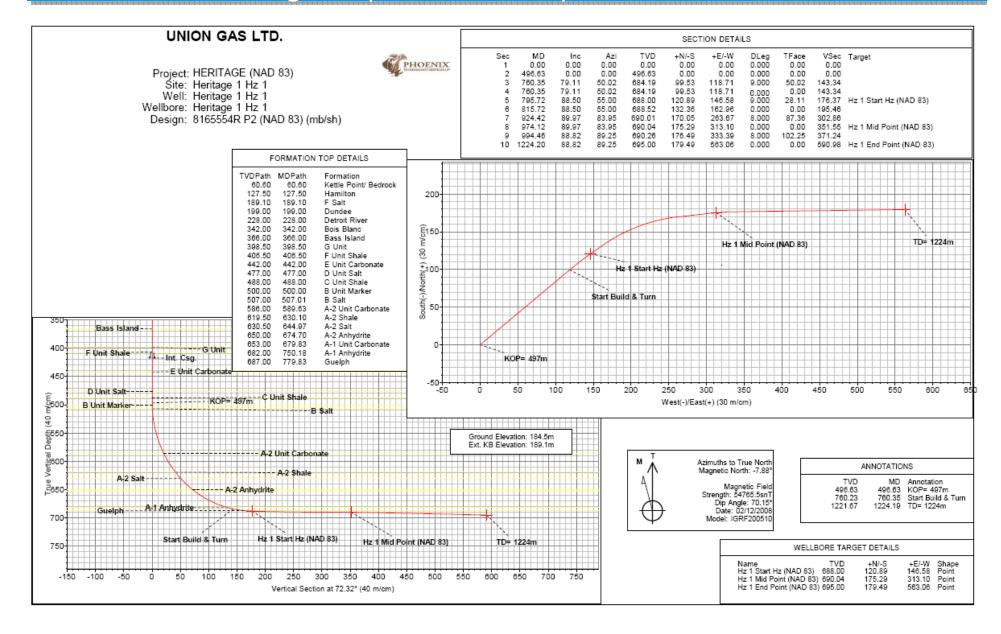


### **Proposed Facilities**

- Wells
  - Horizontal leg of UH.1 (UH.1.H1)
  - 1 New Vertical I/W Well (UH.2)
  - Convert HMS.8-6-XV to Guelph Observation Well
- Pipelines
  - 1.9 km of NPS 8 transmission pipeline
  - 540 m of NPS 8 gathering pipeline
- Stations
  - filter/separation,
  - measurement, and
  - compression



# **Union Heritage 1 (Horizontal 1)**







#### Construction Schedule

- Wells
  - UH.1.H1 June 2009 (upon approval)
  - UH.2 Following evaluation of UH.1.H1 results
- Pipelines
  - June 2009
- In-service
  - July 1, 2009





# Design, Operation and Construction

- Pool will be designed, constructed and operated in accordance with CSA Z341
- Risk Assessment (cl. 7.1)
  - Completed a Risk Assessment with external HAZOP facilitator
  - Comprehensive review of construction and operations
  - Submitted to MNR Feb 27, 2009
  - Satisfies requirements of CSA Z341
- Assessment of Neighbouring Activities (cl. 7.2)
  - Submitted to MNR Dec 19, 2008
  - No issues of concern
  - Satisfies requirements of CSA Z341
- Facilities operated in accordance with Union's O&M procedures and emergency response plans





# **Proposed Storage Operations**

- Cushion Pressure 2,100 kPaa
- Cushion Capacity 5,400 10<sup>3</sup>m<sup>3</sup>
- Planned Maximum Operating Pressure 10,623 kPaa (16.5 kPa/m)
- Total Capacity 32,300 10<sup>3</sup>m<sup>3</sup>
- Working Capacity 26,900 10<sup>3</sup>m<sup>3</sup>





#### Market Need

- Storage will become part of Union's overall portfolio
- Storage will be sold ex franchise at market prices
- NGIER decision confirmed need for additional storage
- Union is confident there is demand for the storage
- Ex franchise storage will not be part of Union's regulated activities
- Costs of project will not be passed on to Union's ratepayers





#### **Environmental Protection Plan**

- An Environmental Protection Plan (EPP) was completed by Union in November 2008.
- The EPP documents a plan for the protection of the environment during construction.
- The EPP includes a natural heritage and physical environment inventory report completed by Jacques Whitford for the proposed development. The EPP was forwarded for comment to OPCC members, municipalities, St. Clair Region Conservation Authority and First Nations.
- There have been no significant concerns raised.



## **Proposed Mitigation**

- Archaeology Stage I and II completed by D. R. Poulton, no artifacts were found.
- Agricultural Land
  - Soybean Cyst Nematode (SCN) Testing complete, and negative.
  - Wet soil shut down practice to be implemented.
  - Post construction tiling will be completed.
- Water Well Monitoring Will be completed again prior to drilling.
- Watercourses Two minor crossings necessary, permits have been secured from the Conservation Authority.
- Natural Area/Wetland avoided, construction activities to take place on agricultural land.
- Vegetation small amount to be removed and some pruning.
- Species at Risk
  - Potential to encounter the Eastern Milksnake, Butler's Gartersnake & Eastern Foxsnake.
  - Information sheets with mitigation to be presented to all workers as a requirement prior to working at the site.

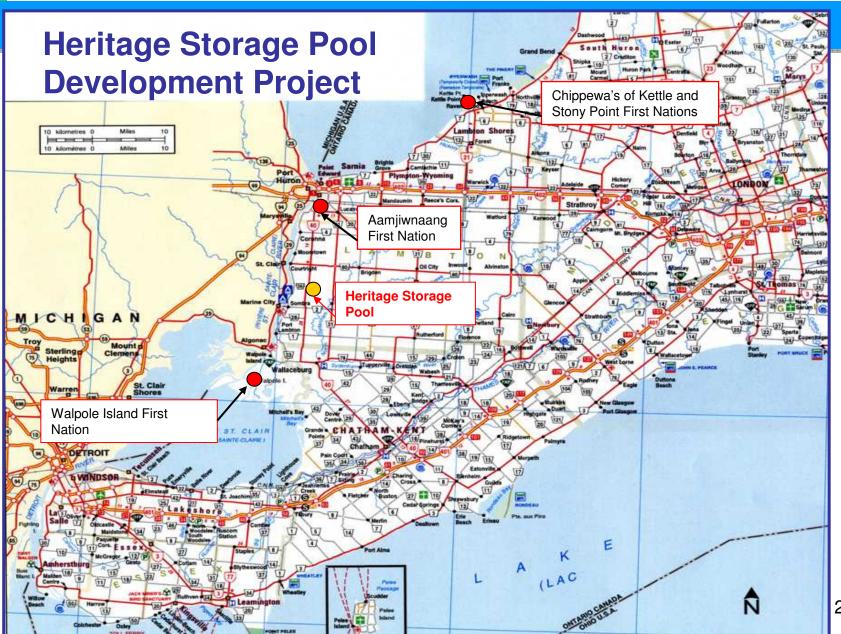




#### **First Nation Consultation**

- Union met with Walpole Island First Nation (WIFN) on April 30, 2008 to present overview of the project.
- Union met with WIFN on May 14, 2008, to discuss seismic operations and storage designation processes.
- Letters forwarded December 18, 2008 to WIFN, Aamjiwnaang First Nation (Chippewa's of Sarnia) and Chippewa's of Kettle and Stoney Point First Nation describing project and Environmental Protection Plan (EPP).
- Project update and EPP provided to WIFN on January 16, 2009.
- February 25, 2009, Union presented an overview of Storage (Storage 101) to WIFN.









#### **Land Matters**

- Have all necessary P&NG and GSL for private properties
- Working to obtain necessary lease agreements for government properties and interests
- Have agreements in place for well locations and access roads
- Have signed agreements (easement and LOU) in place for transmission pipeline
- Have purchased in fee simple station site
- Ongoing meetings with directly effected landowners to keep them up to date on project
- Will implement lands relation program when construction starts
- Landowners have no identified any significant issues during negotiations





# Damages and Insurance

- Union has process in place to deal with damages and insurance issues
- Damages are paid in accordance with storage lease agreements, easement agreements, the letter of understanding and the construction commitment letter.
- Land relation agent will meet with landowners after construction to review construction damages and make appropriate payments
- Union has sufficient insurance in place to cover any unforeseen events including environmental issues





# Summary

- Union has completed the required engineering and geological reports to demonstrate the area should be designated as a storage area and used as a storage pool
- The pools will be operated as per the CSA code and Ontario Regulations
- There are no significant landowner or environmental concerns