

Municipal Technical Studies April 2006 - March 2008

Status Report on Work Completed by Municipalities

Municipality	Short Description of Work to be Undertaken	Name of Study (Include names of reports produced by study if different)	Area within CTC Source Protection Region inclusive in Study	Start Date (Month & Year)	Target Date for Completion (Month & Year)
Regional Municipality of Peel	<p>Phase 1 Funding April 2006 - March 31, 2007 Technical Studies for municipal residential groundwater-based systems included:</p> <ul style="list-style-type: none"> • Geologic and hydrostratigraphic refinements; • Numerical modelling and new WHPA delineations; • Contaminant source reviews; and • Vulnerability and sensitivity assessment and scoring for new WHPAs. <p>Studies were carried in accordance with the MOE's Assessment Report: Graft Guidance Modules (GM#3), October 2006, and Peel Terms of Reference.</p>	<p>(i) Region of Peel Wellhead Protection Area Study for Municipal Residential Groundwater Systems located within Credit River Watershed (AquaResource Inc.; April 2007)</p> <p>(ii) Revised Final Report - Wellhead Protection Area Study for Municipal Residential Groundwater Systems Located within the Toronto and Regional Conservation Authority Watersheds, Caledon East Wells 2, 3 and 4 and Palgrave Wells 2 and 3 (Earthfx Inc, October 2007).</p>	Region of Peel Local Area: active municipal wellfields located within the Town of Caledon.	Apr-06	31-Mar-07
Regional Municipality of Peel	<p>Phase 2 Funding April 2007 - March 31, 2008 Groundwater Technical Study to include:</p> <ul style="list-style-type: none"> • Refinement of vulnerability; • Inventory of Issues and Threats & Constructed Preferential Pathways; and • Tier 1 SQRA within the new wellhead protection areas delineated during the 2006 provincially-funded groundwater technical studies. 	"Study on Issues, Threats, and Tier I Risk Assessments, Region of Peel Wellhead Protection Areas"	Region of Peel Local Area: active municipal wellfields located within the Town of Caledon.	Sep-07	31-Mar-08
Regional Municipality of Peel (Collaborative) (in partnership with Town of Cobourg, Regional Municipality of Durham, Regional Municipality of Halton, City of Hamilton, Regional Municipality of Niagara, Town of Port Hope, County of Prince Edward, City of Toronto, Regional Municipality of York, CTC Source Protection Region, Halton-Hamilton Source Protection Region, Niagara Peninsula Conservation Authority, Trent Conservation Coalition Source Protection Region, Quinte Conservation; and in cooperation with: Environment Canada National Water Research Institute; Department of Fisheries and Oceans; Ontario Ministry of the Environment, Central Region and Environmental Monitoring and Reporting Branch; Ontario Clean Water Agency; Ontario Water Works Research Consortium; Western Lake Ontario Water and Wastewater Group; Regional Public Works Commissioners; Ontario Power Generation)	<p>Phase 1 Funding April 2006 - March 31, 2007 Undertake Assessment Studies and Develop Tools to Evaluate Present and Future Risks to Drinking Water Supplies in the Lake Ontario Basin</p> <ul style="list-style-type: none"> • Detailed analysis of existing information (gap analysis) - joint activity of Environment Canada and Stantec • Preliminary delineation of Intake Protection Zones (IPZs) for all the Ontario municipal drinking water intakes on Lake Ontario (work done by Stantec, MOE module 4) • Develop a plan for data collection • Analyze data on water quality from rivers/streams, open lake and intakes to understand water quality variability • Complete a numerical model scoping investigation (modelling workshops) - Stantec • Development of a pathogen monitoring plan • Analysis of issues and threats to the watersheds 	<p>7 reports will be produced for:</p> <p>Cobourg Durham Hamilton-Halton Prince Edward County Peel Port Hope Toronto</p> <p>1 report from Environment Canada</p> <p>1 report - Watershed Threats</p>	Lake Ontario	15-Mar-06	30-Apr-07

Funding Received	Staff Resource Allocation (Include lead staff including where a consultant has been hired to complete work)	Revised Start Date (If the start date has changed from Column E)	Revised Target Date for Completion (If the Completion Date has been revised from Column F)	Rationale for Revision & Response Strategy (If revisions have been made to the Start and Completion dates (Please include initial revised target date for completion in this column for tracking purposes.)	Percentage Complete	Brief Explanation of Status (Including facilitating/constraining factors)	Report(s) Received
\$201,560.00	Study lead: Alina Korniluk Consultants - (i) AquaResource Inc. for wellfiles located within the CVC watershed (ii) Earthfx Inc. for wellfiles located within the TRCA watersheds.			Studies completed in accordance with anticipated schedules. Minor delays were due to draft report refinements.	100%	Studies completed and Reports submitted to MOE and TRCA October 18 - Just received revised report. TRCA will receive a digital copy of the files and a hard copy.	Yes
\$133,500.00	Study lead: Rodney Bouchard Consultant - R.J. Burnside and Associates				10%	<ul style="list-style-type: none"> • RFP out week of May 28, 2007 • Bids Received June 15, 2007 • Consultant selection July 12, 2007. • PO issued to RJ Burnside on August 20, 2007. • Consulting services contract issued August 28, 2007. • Project Kickoff on September 25, 2007. 	
\$650,000.00	Larry Moore, Project Coordinator, Ontario Clean Water Agency Andrew Valickis, Project Manager, Ontario Clean Water Agency Greg Aickele, Project Lead, Region of Peel Consultant - Stantec		28-Nov-07		85%	<p>Phase 1 Environment Canada Report, June 2007 released (final report to come)</p> <ul style="list-style-type: none"> • Gap analysis of studies and data consultant/EC – completed May 31, 2007 • Database and mapping – completed May 31, 2007 • Assessment of lake wide interactions between pollutant sources and intakes based on available information – completed April 30, 2007 • Provide feedback to each partner on lake wide considerations for delineation of IPZs and to respective CAs – completed May 15, 2007 • Develop a work plan for analytical approaches to evaluate intake water quality and vulnerability – completed June 30, 2007 <p>Evaluation of Consultation, June 13, 2007 released</p> <p>Project Status Report – Lake Ontario Collaborative IPZ Technical Study June 15, 2007</p> <ul style="list-style-type: none"> • Wrapping up Phase 1 work • Phase 1 draft report under review (comments in) • Pathogen monitoring plan underway • Watershed study moving along 	

<p>Regional Municipality of Peel (Collaborative)</p> <p>(in partnership with Town of Cobourg, Regional Municipality of Durham, Regional Municipality of Halton, City of Hamilton, Regional Municipality of Niagara, Town of Port Hope, County of Prince Edward, City of Toronto, Regional Municipality of York, CTC Source Protection Region, Halton-Hamilton Source Protection Region, Niagara Peninsula Conservation Authority, Trent Conservation Coalition Source Protection Region, Quinte Conservation; and in cooperation with: Environment Canada National Water Research Institute; Department of Fisheries and Oceans; Ontario Ministry of the Environment, Central Region and Environmental Monitoring and Reporting Branch; Ontario Clean Water Agency; Ontario Water Works Research Consortium; Western Lake Ontario Water and Wastewater Group; Regional Public Works Commissioners; Ontario Power Generation)</p>	<p>Phase 2 Funding April 2007 - March 31, 2008</p> <ul style="list-style-type: none"> Refinement of the preliminary IPZs (if necessary) - Stantec Analysis/inventory of key intake threats and risk assessment (MOE modules 5 & 6) Collect data to address gaps (early spring/fall) - Stantec Identify and map current locations of all direct discharges to the intakes Analyze data on water quality from rivers/streams, open lake and intakes to understand water quality variability Use three dimensional modelling to identify intake protection zones Finalize pathogen plan and implement if approved 	<p>7 reports will be produced for:</p> <p>Cobourg Durham Hamilton-Halton Prince Edward County Peel Port Hope Toronto</p>	<p>Lake Ontario</p>	<p>Nov-07</p>	<p>1-Dec-08</p>
<p>Region of Halton</p> <p>(partnered with Credit Valley Conservation)</p>	<p>Phase 2 April 2007 - March 31, 2008</p> <ul style="list-style-type: none"> TOT, SWAT analyses Vulnerability scoring & mapping Sensitivity / uncertainty assessment <p>2 studies to be completed overall</p>	<p>Well Field Vulnerability Assessment-Source Protection Technical Studies, Regional Municipality of Halton</p>	<p>CVC</p>	<p>Apr-07</p>	<p>31-Jan-08</p>
<p>York Region</p>	<p>Phase 1 April 2006 - March 31, 2007</p> <p>Study 1</p> <ul style="list-style-type: none"> Modelling work on capture zones - Vulnerability analysis and scoring of wellhead protection areas 	<p>Vulnerability Analysis and Scoring of Wellhead Protection Areas</p>	<p>York Region</p>	<p>Aug-06</p>	<p>Apr-07</p>
	<p>Study 2</p> <ul style="list-style-type: none"> Geochemistry Assessment - Water quality characterization study and issues identification 	<p>Water Quality Characterization and Issues Identification</p>	<p>York Region</p>	<p>Aug-06</p>	<p>Sep-07</p>
<p>York Region</p> <p>(partnered with Lake Simcoe Region CA, Toronto and Region CA)</p>	<p>Phase 2 April 2007 - March 31, 2008</p> <p>Study 1</p> <ul style="list-style-type: none"> Inventory and Evaluation of threats and issues 	<p>Issues Evaluation and Threats Inventory in Wellhead Protection Areas</p>	<p>York Region</p>	<p>Jun-07</p>	<p>May-08</p>
	<p>Study 2</p> <ul style="list-style-type: none"> Water quality risk assessment 	<p>Tier 1 Water Quality Risk Assessment of Groundwater Supply Systems</p>	<p>York Region</p>	<p>Jun-07</p>	<p>Jun-08</p>
<p>Town of Erin</p>	<p>Phase 1 April 2006 - March 31, 2007</p> <ul style="list-style-type: none"> TOT Analyses SWAT analyses & mapping Issues identification 	<p>Threats Inventory and Issues Evaluation Within Wellhead Protection Areas, Town of Erin</p>	<p>Town of Erin</p>	<p>May-06</p>	<p>31-Mar-07</p>

\$2,195,000	Larry Moore, Project Coordinator, Ontario Clean Water Agency Andrew Valickis, Project Manager, Ontario Clean Water Agency Greg Aickele, Project Lead, Region of Peel Consultant - Stantec					0%	Finalizing workplans (August 2007)	
\$80,395.00	Study Lead - Sudhakar Kurli Consultant - AquaResource					30%	All the relevant well logs were submitted for refining the MODEL. SWAT analysis is being completed. Vulnerability/Sensitivity assessment is under completion. Draft report is expected by the end of October 2007.	
\$100,000.00	Study Lead - Lina Ariza Consultant - MacViro	-	Nov-07	Start and completion dates (revised target) as per Agreement with MOE		95%	Revisions to draft report currently underway. York Region intends to meet with MOE staff prior to finalizing this study to discuss results and concerns around implementation.	
\$100,000.00	Study Lead - Lina Ariza Consultants - Earth and Azimuth Environmental Inc.		Sep-07	Start and completion dates as per Agreement with MOE		100%	Report complete.	
\$140,993.00	Study Lead - Lina Ariza Consultants - Jacques Whitford		May-08	Start and completion dates as per Agreement with MOE		10%	Detailed work plan submitted to MOE as per Agreement. Currently working on updating the threats inventory in WHPAs	
see above	Municipal staff - Lina Ariza Consultants - Jacques Whitford		Jun-08	Start and completion dates as per Agreement with MOE		5%	Detailed work plan submitted to MOE as per Agreement. Technical work to start once Vulnerability Analysis and threats inventory are completed.	
\$16,940.00	Study Lead - Lisa Hass, Town Manager Consultant - Blackport Hydrogeology Inc.		Oct-07	Draft was completed in February 2007, report needs to be finalized incorporating new information since April 2007, final report will be submitted in October 2007		95%	Draft complete, some new information that was not included in the original draft is being incorporated into the final report so the report will be complimentary (i.e. no discrepancies) with the Phase 2 work	

Town of Erin (lead CVC)	Phase 2 April 2006 - March 31, 2008 <ul style="list-style-type: none"> • Vulnerability scoring & mapping • Threats inventory, evaluation • Identify contaminants, Hazard rating • Issues evaluation; risk assessments 	Source Protection Technical Studies, Erin and Hillsburgh Water Supply Systems, Town of Erin	Town of Erin	May-07	28-Feb-08
Town of Mono	Phase 1 April 2006 - March 31, 2007 <ul style="list-style-type: none"> • Focus on WHPA delineation for the new Island Lake well and the new Cardinal Woods well. • In addition, threats assessments completed for all WHPAs in CVC Description of Technical Study: <ul style="list-style-type: none"> • Addition of pathogen security/prohibition zone in WHPA • Updating ISI mapping • Development of AVI index • Assignment of vulnerability zones in WHPA • Completion of a threats inventory • Issues evaluation • Development of list of preferential pathways 	Threats Assessment, Town of Mono, March 2007	Town of Mono	Aug-06	31-Mar-07
Region of Durham	Phase 1 April 2006 - March 31, 2007 <ul style="list-style-type: none"> • Assess aquifer vulnerabilities for the Uxville and Uxbridge municipal water supplies using isotopic indicators 	Source Water Protection, Isotope Sampling and Analysis, Uxville & Uxbridge Municipal Supply Wells	Uxville	Apr-06	31-Jan-07
Town of Orangeville (Tier 3 Water Budget Pilot Study)	MNR Funded <ul style="list-style-type: none"> • Estimate the quantity of water flowing through the watershed • Understand the pertinent processes and pathways water flows in the watershed • Assess the sustainability of water supply sources from a quantity perspective More specifically: <ul style="list-style-type: none"> • Summary of Orangeville water supply infrastructure • Analysis of existing baseflow, hydrological, and hydrogeological, monitoring data • Preliminary recommendation and assessment of exposure targets • Water use threat inventory database and study database • Geological/hydrogeological conceptual model • Groundwater model development and calibration • Preliminary results of scenario analysis 	Tier 3 Water Quantity Risk Assessment	Town of Orangeville		31-Mar-08

\$23,500	Study Lead - Kerry Mulchansingh, CVC Consultant - Blackport Hydrogeology Inc.				25-30%	Work in progress.	
\$82,200.00	Study Lead - Mark Early, Planner, Town of Mono Consultant - R.J. Burnside & Associates (Dwight Smikle)				100%	Study complete. Sending report to CTC.	
\$10,200.00	Study Lead - Beata Golas Consultant - Gartner Lee		31-Mar-07		100%	Report complete.	

<p>Town of Orangeville, Town of Mono</p>	<p>Town of Orangeville General - assessment of susceptibility of aquifers to contamination, threats, preferential pathways inventory, and risk assessment</p> <ul style="list-style-type: none"> • SWAT analyses • Vulnerability scoring & mapping • Threats inventory, evaluation • I.D. contaminants, Hazard rating • Issues I.D., evaluation; risk assessments • Development of list of preferential pathways <p>Town of Mono</p> <ul style="list-style-type: none"> • Hazard rating, risk assessments 	<p>Water Quality Risk Assessment</p>	<p>Town of Orangeville, Town of Mono</p>	<p>May-07</p>	<p>31-Mar-08</p>
<p>Nottawasaga Valley CA (Lead)</p> <p>(in partnership with Town of Orangeville, Town of Shelburne, Town of Mono, Town of Erin, Township of East Garafraxa, Township of Amaranth, East Luther-Grand Valley, Melancthon, Mulmur, Conservation Ontario, MOE, MNR, MMAH, Lake Erie SPR, South Georgian Bay-Lake Simcoe SPR, CTC SPR)</p>	<p>Phase 1-3 January 2007 - December 31, 2007 Investigate technical and communications challenges of municipalities dealing with cross-boundary issues with regards to SWP</p> <ul style="list-style-type: none"> • Technical Study Complete geological cross-sections and flux calculations across SPR boundaries to assess the status and challenges for understanding of groundwater systems across regional boundaries (include interpretation of geological cross sections, groundwater divides, and balancing of fluxes across watershed boundaries). Discuss and document challenges of and develop recommendations to address technical capacity issues within a municipality with regards to the implementation of multiple SWP plans. • Communications Tool Discuss and document challenges of and develop recommendations for implementing multiple source protection plans within a single municipality Discuss and document for each SPR the challenges associated with the regions' varying approaches to communications and develop recommended approaches to address challenges 	<p>Dufferin Headwaters Pilot Study</p>	<p>Town of Orangeville, Town of Mono, Town of Erin, Township of East Garafraxa, Township of Amaranth</p>	<p>Jan-07</p>	<p>Dec-07</p>

\$143,409	Study Lead - Doug Jones Consultant - R.J. Burnside					<50%	Work in progress.
\$70,000	Ryan Post, Nottawasaga Valley Conservation Authority Golder Associates is completing the geological cross-sections AquaResources is completing the flux calculations	N/A	June 2008 for geological cross-sections and flux calculations, December 2007 for remaining deliverables.	Discussions with Golder Associates and AquaResources in March 2007 indicated that the flux calculations are not anticipated to be completed until early 2008. It is our intention to submit all of the deliverables prior to the December 31, 2007 project completion date with the exception of the flux calculations, for which a six month extension has been granted by the MOE		70%	The project is currently in its third phase - the deliverable write-up. Both the technical and communication deliverables are currently being written up for anticipated peer review at the end of September. The creation of the maps had been on hold due to data sharing agreement issues; however, these issues have been resolved and the data is expected soon.