

DRINKING WATER SOURCE PROTECTION

ACT FOR CLEAN WATER

Thames-Sydenham and Region Source Protection Committee
Upper Thames River Source Protection Area

Amended Proposed
Assessment Report

Revised - August 12, 2011

APPROVED

1.0 Introduction and Background



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Thames - Sydenham and Region
Upper Thames River Conservation Authority
1424 Clarke Road, London, ON, N5V 5B9

July 4, 2011

Dear reader

Re: **Upper Thames River Amended Proposed Assessment Report posted for comments**

The Thames-Sydenham and Region Source Protection Committee has posted the enclosed report for review and comment by stakeholders. This report includes updates and amendments to the Proposed Assessment Report for the Upper Thames River Source Protection Authority. Comments received through the first posting (draft proposed report) were considered by the Source Protection Committee and the report has been revised. Comments received in response to the second posting were submitted with the Proposed Assessment Report to the Ministry of the Environment (MOE).

Based on directions from the Director of Source Protection Programs Branch, MOE, updates and amendments were made to the Proposed Assessment Report to include further technical work conducted. These include the Tier 2 water budget drought scenario analysis, the delineation, vulnerability assessment and threats assessment of WHPA-E, and threats assessment of sewer line threats. The updates and amendments made are summarized in Appendix 4. This version of the Assessment Report once approved will be used by the Source Protection Committee for the development of the Source Protection Plan which is to be submitted to the MOE in August 2012.

The Amended Proposed Assessment Report for the Upper Thames River Source Protection Area represents a significant milestone in the Source Protection Committee’s progress in the completion of the first Source Protection Plans for the Thames-Sydenham and Region. The Source Protection Committee realizes that this report is a “living document” which may be updated as more information becomes available in the future.

We hope that you have had an opportunity to attend previous open houses that were held throughout the region, and plan to attend the open houses to be held in July 2011. More information on this assessment report and the past and current consultation is available on the web site given at the bottom of this letter.

Yours truly,
THAMES-SYDENHAM and REGION


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Upper Thames River Source Protection Area Assessment Report

Table of Contents

Appendices.....	iv
List of Figures.....	iv
List of Maps.....	iv
List of Tables.....	vii
1.0 Introduction and Background.....	1-1
1.1 Document Overview.....	1-2
1.2 Clean Water Act Rules and Regulations.....	1-5
1.2.1 Regulations.....	1-5
1.2.2 Technical Rules.....	1-6
1.2.3 Local Guidance Documents.....	1-6
1.2.4 Tables of Drinking Water Threats.....	1-6
1.2.5 Mapping Symbology.....	1-7
1.2.6 Source Protection Plan.....	1-7
1.3 Source Protection Committee.....	1-8
1.4 Role of the Conservation Authorities.....	1-10
1.5 Terms of Reference.....	1-11
1.6 Thames-Sydenham and Region Source Protection Region.....	1-12
1.6.1 Upper Thames River Source Protection Area.....	1-12
1.7 Technical Studies.....	1-13
1.8 Consultation.....	1-14
1.9 Schedule.....	1-16
1.10 Local Acceptance, Approvals and Next Steps.....	1-17
1.10.1 Engaging First Nations.....	1-19
1.10.2 Amendments to the Assessment Report.....	1-20
2.0 Watershed Characterization.....	2-1
2.1 Watershed Characterization Report.....	2-1
2.2 Data Sources.....	2-2
2.3 Components of the Watershed Characterization Report.....	2-4
2.3.1 Watersheds and Subwatersheds.....	2-4
2.3.2 Physical Geography.....	2-4
2.3.3 Human Geography.....	2-14
2.3.4 Water Quality.....	2-18
2.3.5 Water Quantity.....	2-22
2.3.6 Drinking Water Systems.....	2-22
2.4 Data Gaps.....	2-28
3.0 Water Budget and Water Quantity Stress Assessment.....	3-1
3.1 What is a Water Budget?.....	3-2
3.2 Components of the Water Budget.....	3-3
3.2.1 Precipitation.....	3-3
3.2.2 Evapotranspiration.....	3-3
3.2.3 Surface Runoff.....	3-4
3.2.4 Recharge.....	3-4
3.2.5 Water Use (Demand).....	3-4
3.2.6 Water Budget Summary.....	3-9

Upper Thames River Source Protection Area Assessment Report

3.3	Phases of Water Budget Work	3-10
3.3.1	Conceptual Water Budget	3-10
3.3.2	Tier 1 Water Budget	3-11
3.3.3	Tier 2 Water Budget	3-12
3.3.4	Tier 3 Water Budget	3-13
3.3.5	Peer Review of the Water Budget	3-13
3.4	Water Quantity Stress Assessment.....	3-14
3.4.1	Uncertainty in the Stress Assessment.....	3-21
3.5	Significant Groundwater Recharge Areas	3-22
3.6	Data Gaps and Next Steps.....	3-24
4.0	Vulnerability Assessment.....	4-1
4.1	Peer Review of Vulnerability Assessment.....	4-2
4.2	Intake Protection Zones	4-3
4.3	Wellhead Protection Areas	4-3
4.3.1	Technical Studies	4-4
4.3.2	WHPA-A	4-7
4.3.3	WHPA-B, WHPA-C and WHPA-D	4-7
4.3.4	WHPA-E and WHPA-F	4-7
4.3.5	Vulnerability Assessment of the WHPA.....	4-23
4.3.6	Uncertainty in WHPA Vulnerability	4-47
4.4	Highly Vulnerable Aquifers	4-48
4.4.1	Uncertainty of HVA	4-52
4.5	Significant Groundwater Recharge Areas	4-52
4.5.1	Uncertainty of SGRA	4-54
4.6	Data Gaps and Next Steps.....	4-54
5.0	Issues Evaluation	5-1
5.1	What is a Drinking Water Quality Issue?	5-1
5.2	Impact of Identifying an Issue.....	5-6
5.3	Issue Evaluation Methodology	5-6
5.4	Issues Evaluation Technical Studies	5-9
5.5	Identified Issues	5-10
5.6	Work Plan.....	5-14
5.7	Data Gaps	5-14
6.0	Conditions Assessment	6-1
6.1	Conditions Assessment Methodology	6-3
6.1.1	Situations Where Conditions May Exist.....	6-3
6.1.2	Information Used to Identify Conditions.....	6-4
6.1.3	Risk Assessment Methodology for Conditions	6-5
6.2	Conditions Assessment Findings	6-7
6.3	Data Gaps and Next Steps for Conditions	6-8
7.0	Threats and Risk Assessment – Water Quality	7-1
7.1	Drinking Water Quality Threat Identification and Risk Assessment Methodology.....	7-3
7.1.1	Prescribed Drinking Water Threats	7-4
7.1.2	Other Activities	7-14
7.1.3	Threats Arising from Conditions	7-14
7.1.4	Threats Arising from Issues.....	7-15

Upper Thames River Source Protection Area Assessment Report

7.1.5	Local Guidance and Technical Studies	7-16
7.2	Drinking Water Quality Threats and Risk Assessment.....	7-17
7.2.1	Threats Identified through Mapping of Impervious Surfaces, Managed Lands and Livestock Density	7-18
7.2.2	Number of Locations of Significant Threats.....	7-18
7.2.3	Threats in Birr Wellhead Protection Areas	7-22
7.2.4	Threats in Dorchester Wellhead Protection Areas	7-22
7.2.5	Threats in Kilworth-Komoka Wellhead Protection Areas – WELLS DECOMMISSIONED	7-23
7.2.6	Threats in City of London Wellhead Protection Areas.....	7-24
7.2.7	Threats in Melrose Wellhead Protection Areas	7-25
7.2.8	Threats in Thorndale Wellhead Protection Areas.....	7-25
7.2.9	Threats in Beachville Wellhead Protection Areas.....	7-26
7.2.10	Threats in Embro Wellhead Protection Areas	7-27
7.2.11	Threats in Hickson Wellhead Protection Areas	7-28
7.2.12	Threats in Ingersoll Wellhead Protection Areas	7-28
7.2.13	Threats in Innerkip Wellhead Protection Areas	7-29
7.2.14	Threats in Lakeside Wellhead Protection Areas.....	7-30
7.2.15	Threats in Mount Elgin Wellhead Protection Areas	7-31
7.2.16	Threats in Tavistock Wellhead Protection Areas.....	7-31
7.2.17	Threats in Thamesford Wellhead Protection Areas.....	7-32
7.2.18	Threats in Woodstock Wellhead Protection Areas	7-33
7.2.19	Threats in Mitchell Wellhead Protection Areas.....	7-34
7.2.20	Threats in Sebringville Wellhead Protection Areas	7-35
7.2.21	Threats in Shakespeare Wellhead Protection Areas.....	7-36
7.2.22	Threats in St. Marys Wellhead Protection Areas.....	7-37
7.2.23	Threats in St. Pauls Wellhead Protection Areas.....	7-38
7.2.24	Threats in Stratford Wellhead Protection Areas	7-38
7.2.25	Threats in HVA and SGRA.....	7-39
7.3	Tier 2 Risk Assessment.....	7-40
7.4	Data Gaps	7-40
8.0	Great Lakes.....	8-1
8.1	Impact of Considering Great Lakes.....	8-2
8.2	Great Lakes Agreements	8-3
8.2.1	Great Lakes Water Quality Agreement.....	8-3
8.2.2	The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem ..	8-5
8.2.3	The Great Lakes Charter and the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement.....	8-6
8.3	Proposed Working Groups	8-7
8.4	Next Steps for Great Lakes	8-8
9.0	Data Gaps and Next Steps.....	9-1
9.1	Data Gaps	9-1
9.2	Next Steps.....	9-4

Upper Thames River Source Protection Area Assessment Report

Appendices

- Appendix 1 – Maps (bound separately)
- Appendix 2 – Section Summaries (bound separately)
- Appendix 3 – System Summaries (bound separately)
- Appendix 4 – Assessment Report Consultation
- Appendix 5 – Watershed Characterization Summary (bound separately)
- Appendix 6 – Conceptual Water Budget (bound separately)
- Appendix 7 – Assessment Report Checklist
- Appendix 8 – Issues Evaluation Methodology
- Appendix 9 – Issues Evaluation Flagged Parameters
- Appendix 10 – Threats and Risk Assessment
- Appendix 11 – Glossary of Terms and Acronyms
- Appendix 12 – References
- Appendix 13 – Uncertainty Analysis

List of Figures

- Figure 1-1 Source Protection planning schedule overview1-17
- Figure 5-1 Thames-Sydenham and Region Issues Evaluation Methodology5-8

List of Maps

- 1-1 Thames-Sydenham and Region Source Protection Region
- 1-2 Upper Thames River Source Protection Area
- 1-3 Municipal Drinking Water Systems
- 1-4 Areas of Settlement
- 2-1 Population Density
- 2-2 Federal Lands
- 3-1 Thames-Sydenham & Region Tier 1 Water Budget Subwatersheds
- 3-2 Average Precipitation Distribution
- 3-3 Average Evapotranspiration Distribution
- 3-4 Mean Annual Recharge
- 3-5 Surface Water Potential for Stress
- 3-6 Groundwater Potential for Stress
- 4-1 Vulnerability Overview of Wellhead Protection Area (WHPA)
 - 4-1-1 Birr Wellhead Protection Area (WHPA)
 - 4-1-2 Dorchester Wellhead Protection Area (WHPA)
 - 4-1-2a Dorchester Wellhead Protection Area (WHPA-E)
 - 4-1-3 Kilworth-Komoka Wellhead Protection Area (WHPA) - DECOMMISSIONED
 - 4-1-4 London – Fanshawe Wellhead Protection Area (WHPA)
 - 4-1-4a London – Fanshawe Wellhead Protection Area (WHPA-E)
 - 4-1-5 London – Hyde Park Wellhead Protection Area (WHPA)
 - 4-1-6 Melrose Wellhead Protection Area (WHPA)
 - 4-1-7 Thorndale Wellhead Protection Area (WHPA)

Upper Thames River Source Protection Area Assessment Report

- 4-1-8 Beachville Wellhead Protection Area (WHPA)
- 4-1-9 Embro Wellhead Protection Area (WHPA)
- 4-1-10 Hickson Wellhead Protection Area (WHPA)
- 4-1-11 Ingersoll Wellhead Protection Area (WHPA)
- 4-1-12 Innerkip Wellhead Protection Area (WHPA)
- 4-1-13 Lakeside Wellhead Protection Area (WHPA)
- 4-1-14 Mount Elgin Wellhead Protection Area (WHPA)
- 4-1-15 Tavistock Wellhead Protection Area (WHPA)
- 4-1-16 Thamesford Wellhead Protection Area (WHPA)
- 4-1-16a Thamesford Wellhead Protection Area (WHPA-E)
- 4-1-17 Woodstock Wellhead Protection Area (WHPA)
- 4-1-17a Woodstock Wellhead Protection Area (WHPA-E)
- 4-1-18 Mitchell Wellhead Protection Area (WHPA)
- 4-1-19 Sebringville Wellhead Protection Area (WHPA)
- 4-1-20 Shakespeare Wellhead Protection Area (WHPA)
- 4-1-21 St. Marys Wellhead Protection Area (WHPA)
- 4-1-21a St. Marys Wellhead Protection Area (WHPA-E)
- 4-1-22 St. Pauls Wellhead Protection Area (WHPA)
- 4-1-23 Stratford Wellhead Protection Area (WHPA)
- 4-2-1 Significant Groundwater Recharge Areas
- 4-2-2 Significant Groundwater Recharge Areas (SGRA) Vulnerability
- 4-3-1 Aquifer Vulnerability
- 4-3-2 Highly Vulnerable Aquifers (HVA)
- 7-1-1 Birr Drinking Water Threats Impervious Surface Areas
- 7-1-2 Dorchester Drinking Water Threats Impervious Surface Areas
- 7-1-3 Kilworth-Komoka Drinking Water Threats Impervious Surface Areas - DECOMMISSIONED
- 7-1-4 London – Fanshawe Drinking Water Threats Impervious Surface Areas
- 7-1-5 London – Hyde Park Drinking Water Threats Impervious Surface Areas
- 7-1-6 Melrose Drinking Water Threats Impervious Surface Areas
- 7-1-7 Thorndale Drinking Water Threats Impervious Surface Areas
- 7-1-8 Beachville Drinking Water Threats Impervious Surface Areas
- 7-1-9 Embro Drinking Water Threats Impervious Surface Areas
- 7-1-10 Hickson Drinking Water Threats Impervious Surface Areas
- 7-1-11 Ingersoll Drinking Water Threats Impervious Surface Areas
- 7-1-12 Innerkip Drinking Water Threats Impervious Surface Areas
- 7-1-13 Lakeside Drinking Water Threats Impervious Surface Areas
- 7-1-14 Mount Elgin Drinking Water Threats Impervious Surface Areas
- 7-1-15 Tavistock Drinking Water Threats Impervious Surface Areas
- 7-1-16 Thamesford Drinking Water Threats Impervious Surface Areas
- 7-1-17 Woodstock Drinking Water Threats Impervious Surface Areas
- 7-1-18 Mitchell Drinking Water Threats Impervious Surface Areas
- 7-1-19 Sebringville Drinking Water Threats Impervious Surface Areas
- 7-1-20 Shakespeare Drinking Water Threats Impervious Surface Areas
- 7-1-21 St. Marys Drinking Water Threats Impervious Surface Areas
- 7-1-22 St. Pauls Drinking Water Threats Impervious Surface Areas
- 7-1-23 Stratford Drinking Water Threats Impervious Surface Areas
- 7-1-24 Impervious Surface Area in Highly Vulnerable Aquifers (HVA)
- 7-1-25 Impervious Surface Area in Significant Groundwater Recharge Areas (SGRA)
- 7-2-1 Birr Drinking Water Threats Managed Lands and Livestock Density
- 7-2-2 Dorchester Drinking Water Threats Managed Lands and Livestock Density
- 7-2-3 Kilworth-Komoka Drinking Water Threats Managed Lands and Livestock Density - DECOMMISSIONED
- 7-2-4 London – Fanshawe Drinking Water Threats Managed Lands and Livestock Density

Upper Thames River Source Protection Area Assessment Report

- 7-2-5 London – Hyde Park Drinking Water Threats Managed Lands and Livestock Density
- 7-2-6 Melrose Drinking Water Threats Managed Lands and Livestock Density
- 7-2-7 Thorndale Drinking Water Threats Managed Lands and Livestock Density
- 7-2-8 Beachville Drinking Water Threats Managed Lands and Livestock Density
- 7-2-9 Embro Drinking Water Threats Managed Lands and Livestock Density
- 7-2-10 Hickson Drinking Water Threats Managed Lands and Livestock Density
- 7-2-11 Ingersoll Drinking Water Threats Managed Lands and Livestock Density
- 7-2-12 Innerkip Drinking Water Threats Managed Lands and Livestock Density
- 7-2-13 Lakeside Drinking Water Threats Managed Lands and Livestock Density
- 7-2-14 Mount Elgin Drinking Water Threats Managed Lands and Livestock Density
- 7-2-15 Tavistock Drinking Water Threats Managed Lands and Livestock Density
- 7-2-16 Thamesford Drinking Water Threats Managed Lands and Livestock Density
- 7-2-17 Woodstock Drinking Water Threats Managed Lands and Livestock Density
- 7-2-18 Mitchell Drinking Water Threats Managed Lands and Livestock Density
- 7-2-19 Sebringville Drinking Water Threats Managed Lands and Livestock Density
- 7-2-20 Shakespeare Drinking Water Threats Managed Lands and Livestock Density
- 7-2-21 St. Marys Drinking Water Threats Managed Lands and Livestock Density
- 7-2-22 St. Pauls Drinking Water Threats Managed Lands and Livestock Density
- 7-2-23 Stratford Drinking Water Threats Managed Lands and Livestock Density
- 7-2-24 Percent Managed Lands in Highly Vulnerable Aquifers (HVA)
- 7-2-25 Livestock Density in Highly Vulnerable Aquifers (HVA)
- 7-2-26 Percent Managed Lands in Significant Groundwater Recharge Area (SGRA) with Vulnerability Score = 6
- 7-2-27 Livestock Density in Significant Groundwater Recharge Area (SGRA) with Vulnerability Score = 6
- 7-3-1 Birr Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-2 Dorchester Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-2a Dorchester (WHPA-E) Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-3 Kilworth-Komoka Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats - DECOMMISSIONED
- 7-3-4 London – Fanshawe Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-4a London – Fanshawe (WHPA-E) Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-5 London – Hyde Park Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-6 Melrose Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-7 Thorndale Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-8 Beachville Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-9 Embro Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-10 Hickson Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-11 Ingersoll Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-12 Innerkip Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats

Upper Thames River Source Protection Area Assessment Report

- 7-3-13 Lakeside Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-14 Mount Elgin Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-15 Tavistock Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-16 Thamesford Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-16a Thamesford (WHPA-E) Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-17 Woodstock Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-17a Woodstock (WHPA-E) Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-18 Mitchell Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-19 Sebringville Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-20 Shakespeare Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-21 St. Marys Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-21a St. Marys (WHPA-E) Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-22 St. Pauls Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats
- 7-3-23 Stratford Areas Where Activities Related to Pathogens, Chemicals or DNAPL are or would be Drinking Water Threats

List of Tables

Table 1-1 SPC members and representation.....	1-9
Table 1-2 SPC Mission Statement and Guiding Principles.....	1-10
Table 1-3 Municipalities in the UTRSPA.....	1-12
Table 1-4 Summary of planned UTRSPA Assessment Report Consultation.....	1-16
Table 1-5 First Nations of the TSR SPR.....	1-19
Table 2-1 Watershed Characterization Report Data Sources.....	2-2
Table 2-2 Habitat and Temperature Assessments in the UTRSPA.....	2-9
Table 2-3 Population Density of Municipalities in the Upper Thames River SPA Watershed..	2-14
Table 2-4 Municipal Drinking Water Systems Serving the Upper Thames River Source Protection Area.....	2-24
Table 2-5 Watershed Characterization Data Gaps relevant to the Upper Thames River Source Protection Area.....	2-29
Table 3-1 Groundwater use in the UTRSPA (m ³ /day).....	3-7
Table 3-2 Surface Water use in the UTRSPA (m ³ /day)†.....	3-8
Table 3-3 Tier 2 water budget summary (m ³ /day).....	3-10
Table 3-4 Potential for stress based on <i>percent water demand</i> under current and future municipal water demand.....	3-17

Upper Thames River Source Protection Area Assessment Report

Table 3-5 Surface water potential for stress based on Tier 1 stress assessment (Month of August).....	3-18
Table 3-6 Groundwater potential for stress (Average Annual Conditions).....	3-18
Table 3-7 Groundwater potential for stress (Maximum Monthly Conditions).....	3-19
Table 3-8 Data gaps related to Water Budget and Water Quantity Stress Assessment.....	3-24
Table 4-1 Summary of Technical Reports for UTR Municipal Systems.....	4-5
Table 4-2 Thames-Sydenham and Region GUDI wells.....	4-8
Table 4-3 WHPA vulnerability scoring (Technical Rules Table 2 a and b).....	4-41
Table 4-4 List of Groundwater Wells and Vulnerability Scores for WHPA-A, B, C, D.....	4-41
Table 4-5 List of GUDI Wells and Vulnerability Scores for WHPA-E.....	4-43
Table 4-6 Vulnerability Assessment Data Gaps Relevant to the Upper Thames River SPA...4-54	
Table 5-1 Schedule 1 Parameters (from O. Reg. 169/03 of the Safe Drinking Water Act, 2002) and their Treated Drinking Water Quality Standards.....	5-2
Table 5-2 Schedule 2 Parameters (O. Reg. 169/03 of the Safe Drinking Water Act, 2002) and their Treated Drinking Water Quality Standards.....	5-3
Table 5-3 Schedule 3 Parameters (O. Reg. 169/03 of the Safe Drinking Water Act, 2002) and their Treated Drinking Water Quality Standards.....	5-4
Table 5-4 Table 4 Parameters (from the Technical Support Document for the Ontario Drinking Water Standards, Objectives and Guidelines, MOE 2006) with their Treated Drinking Water Aesthetic Objectives and Operational Guidelines.....	5-5
Table 5-5 Technical Studies on Drinking Water Quality Issues Evaluation.....	5-9
Table 5-6 Drinking Water Quality Issues Identified in the Upper Thames River Source Protection Area.....	5-11
Table 5-7 Determination of Sources of an Issue.....	5-15
Table 6-1 Technical Studies on Drinking Water Threats and Risk Assessment.....	6-2
Table 6-2 Threat Level Determination for Conditions.....	6-6
Table 7-1 Technical Studies on Drinking Water Threats and Risk Assessment.....	7-2
Table 7-2 Activities Prescribed as Drinking Water Threats.....	7-4
Table 7-3 Threat Level Determination.....	7-6
Table 7-4 Chemical Hazard Scorings for Various Combinations of Percentage of Managed Lands and Livestock Densities.....	7-12
Table 7-5 Number of Locations of Significant Drinking Water Threats in Middlesex County and City of London.....	7-19
Table 7-6 Number of Locations of Significant Drinking Water Threats in Oxford County.....	7-20
Table 7-7 Number of Locations of Significant Drinking Water Threats in Perth County, City of Stratford and Town of St. Marys.....	7-21
Table 7-8 Number of Locations of Significant Drinking Water Threats in HVA and SGRA.....	7-21
Table 7-9 Significant Threats in the Birr WHPA.....	7-22
Table 7-10 Significant Threats in the Dorchester WHPA.....	7-23
Table 7-11 Significant Threats in the Kilworth-Komoka WHPA - WELLS DECOMMISSIONED 7-23	
Table 7-12 Significant Threats in the City of London-Fanshawe WHPA.....	7-24
Table 7-13 Significant Threats in the City of London-Hyde Park WHPA.....	7-24
Table 7-14 Significant Threats in the Melrose WHPA.....	7-25
Table 7-15 Significant Threats in the Thorndale WHPA.....	7-26
Table 7-16 Significant Threats in the Beachville WHPA.....	7-27
Table 7-17 Significant Threats in the Embro WHPA.....	7-27
Table 7-18 Significant Threats in the Hickson WHPA.....	7-28

Upper Thames River Source Protection Area Assessment Report

Table 7-19	Significant Threats in the Ingersoll WHPA	7-29
Table 7-20	Significant Threats in the Innerkip WHPA.....	7-30
Table 7-21	Significant Threats in the Lakeside WHPA	7-30
Table 7-22	Significant Threats in the Mount Elgin WHPA.....	7-31
Table 7-23	Significant Threats in the Tavistock WHPA	7-32
Table 7-24	Significant Threats in the Thamesford WHPA	7-33
Table 7-25	Significant Threats in the Woodstock WHPA (Urban well system)	7-34
Table 7-26	Significant Threats in the Woodstock WHPA (Rural well system)	7-34
Table 7-27	Significant Threats in the Mitchell WHPA	7-35
Table 7-28	Significant Threats in the Sebringville WHPA	7-36
Table 7-29	Significant Threats in the Shakespeare WHPA	7-36
Table 7-30	Significant Threats in the St. Marys WHPA	7-37
Table 7-31	Significant Threats in the St. Pauls WHPA	7-38
Table 7-32	Significant Threats in the Stratford WHPA.....	7-39
Table 7-33	Levels of Threats Related to Pathogens, Chemicals and DNAPLs in HVAs and SGRAs	7-40
Table 9-1	Work Plan to fill Data and Analysis Gaps	9-2

1.0 Introduction and Background

Following the tragedy in Walkerton (May, 2000) when the town's drinking water became contaminated with a specific strain of *Escherichia coli* (*E. coli*) and *Campylobacter* bacteria, Justice O'Connor presided over the Walkerton Inquiry. Justice O'Connor made 121 recommendations in a two-part report which recommended a multi-barrier approach to protecting Ontario's drinking water. Many of Justice O'Connor's recommendations were implemented with the introduction of the Safe Drinking Water Act, 2002 (*SDWA*). The *SDWA* dealt with the treatment, distribution and testing of drinking water as well as the training of operators and notification protocols. The Clean Water Act, 2006 (*CWA*) addressed Justice O'Connor's recommendations pertaining to the watershed-based protection of drinking water sources referred to as Drinking Water Source Protection.

The Clean Water Act, 2006 required the establishment of Source Protection Committees to oversee the process locally. The Source Protection Committee developed and consulted on a work plan document called the Terms of Reference and submitted it to the Minister of the Environment for Approval. Based on the approved Terms of Reference the Source Protection Committee was to complete an Assessment Report and Source Protection Plan. The Assessment Report is a science-based document that forms the basis of the Source Protection Plan. The Plan is to contain policies to reduce the risk associated with threats to the drinking water sources identified in the Assessment Report.

The Clean Water Act, 2006 requires that Assessment Reports be completed for each Source Protection Area within a Source Protection Region (*SPR*). The Assessment Reports are to contain detailed information that identifies *vulnerable* areas associated with drinking water systems, assesses the level of vulnerability, identifies *issues* related to the drinking water sources, identifies activities within those vulnerable areas which pose threats to the systems, and assesses the risk due to threats. The three Source Protection Areas of the Thames-

Upper Thames River Source Protection Area Assessment Report

Sydenham and Region *SPR* as shown in the Map 1-1. An Assessment Report is prepared for each Source Protection Area.

1.1 Document Overview

This Assessment Report is modular in nature. It is comprised of several Sections and Appendices. The Sections are, in effect, a summary of various technical studies which are described later in this section. Each of the Sections is summarized in Section Summaries contained in Appendix 2. Material pertinent to a specific drinking water system is summarized in System Summaries included in Appendix 3. Maps form a large part of the content of the Assessment Report, and are contained in Appendix 1. Tabloid sized (11"x17") maps are included in this report, and may be printed on letter sized paper and remain mostly legible. The entire document is available on Compact Disk (CD) complete with the appendices to the Assessment Report.

Each Section of the Assessment Report is outlined below:

Introduction and Background (Section 1)

The first section provides an overview of the process and background behind the Assessment Report. It refers to mapping products related to the extent of the Source Protection Region and Source Protection Areas as well as the municipal partners involved in developing the Source Protection Plan.

Watershed Characterization (Section 2)

The Watershed Characterization Reports for the region were completed in 2008. A three volume report was produced for the Thames Watershed and Region which included the Upper Thames River Source Protection Area and the Lower Thames Valley Source Protection Area. A summary of the report was developed which included all of the mapping products used in the Watershed Characterization Report. The summary of the Thames Watershed and Region Watershed Characterization Report is included in Appendix 5. The summary and the full Watershed Characterization Reports are available in portable document format (Adobe PDF) on Compact Disk (CD).

Water Budget and Water Quantity Stress Assessment (Section 3)

A Conceptual Water Budget was developed for the Thames-Sydenham and Region. This report is included as Appendix 6 of this Assessment Report. The Conceptual Water Budget compiles water quantity information from the region, such as precipitation and water takings, for use in the Tier 1 Water Budget. In the Tier 1 Water Budget, a preliminary stress assessment indicating the potential for water quantity stress in subwatersheds of the region is undertaken. The potential for stress determines whether additional work is required to refine the water budget in that *subwatershed*. If the potential stress could affect a drinking water system included in the Terms of Reference for the region (generally municipal drinking water systems), the additional refinement is completed through a Tier 2, and potentially a Tier 3 Water Budget. If, however, the potential stress does not have an impact on the water systems in the area, the work should be undertaken through different programs. The Thames-Sydenham and Region Tier 1 Water Budget has identified a potential for stress which would affect municipal drinking water systems in the Upper Thames River Source Protection Area. In the Tier 2 Water Budget, the analysis was further refined to confirm the potential for stress on drinking water systems. Further, a Tier 3 local area risk assessment and water budget will be done to assess the water quantity threats at each drinking water system exhibiting a potential for stress in the Tier 2 assessment.

Vulnerability Assessment (Section 4)

The Vulnerability Assessment section is a summary of the identification of the *vulnerable areas*, the assessment of vulnerability within those areas, and the *uncertainty* in that assessment as required by the Clean Water Act. The work related to this section was undertaken through a number of technical studies which were generally completed on the geographic scale of the upper tier municipalities (counties). This section summarizes the work completed on a Source Protection Area basis for each type of vulnerable area. The work is also summarized for each drinking water system in the System Summaries included in Appendix 3. A peer review of the vulnerability assessment work was undertaken.

Issues Evaluation (Section 5)

The Issues Evaluation Section describes the methods applied and the findings of the drinking water quality *issues* evaluation process across the Source Protection Area. The detailed methodology for the *issues* evaluation process is included in Appendix 8. A table of *issues* identified is included in the Issues Evaluation section as well as a description of the impact of

Upper Thames River Source Protection Area Assessment Report

identifying an *issue*. The findings reported in this section are also included in the System Summaries in Appendix 3.

Conditions Assessment (Section 6)

The Conditions Assessment section of the Assessment Report includes a description of the work undertaken to assess the potential *conditions* (drinking water threats due to past activities) which have been identified to date. This is an ongoing process.

Threats and Risk Assessment (Section 7)

The Threats and Risk Assessment section of this Assessment Report includes a list of the types of *threats* which are or would be a risk to drinking water systems in the region and the number of locations where significant threats are believed to exist. It is not the intent of this report to identify individuals who are believed to be engaged in those activities nor is it intended to identify specific properties where those activities exist. Policies developed in the Source Protection Plan will be focused on general types of activities which 'are or would be' *threats* to drinking water. This section also outlines the additional work required to investigate activities believed to be threats. An overview of this information is presented in the System Summaries included in Appendix 3.

Great Lakes (Section 8)

The Great Lakes section includes the required references to other work undertaken in the region related to Great Lakes water quality and how the Assessment Report supports and complements that work and vice-versa. It identifies additional work required in this area once all the Assessment Reports for Source Protection Areas that drain into the Great Lakes are completed.

Data Gaps and Next Steps (Section 9)

Data gaps and next steps are listed in this section. Data gaps such as infrequent groundwater sampling or inaccurate tile drainage network information were identified through the technical studies and have been included in this Assessment Report so that they may be considered in the future. Several of the gaps identified in the Proposed Assessment Report are now filled, thus allowing for the materials to be available to the Source Protection Committee for the development of the *Source Protection Plan*. The remaining few gaps in the Upper Thames River Source Protection Area Assessment Report are noted in Section 9.

1.2 Clean Water Act Rules and Regulations

The Clean Water Act, 2006 established the requirements to develop a Source Protection Plan and set up the framework to develop that plan. In order to define the work and enable aspects of the work to be completed, regulations and *rules* were required. The development of these *rules* and regulations was led by the Drinking Water Source Protection Branch of the Ministry of the Environment. These regulations were developed through consultation with stakeholders including the Source Protection Committee chairs and committees and the staff of the Conservation Authorities working with the Source Protection Committees. Many consultation sessions were held with sector representatives of those who may be impacted by the *rules* and regulations.

1.2.1 Regulations

A regulation established Source Protection Areas and Regions (O. Reg. 284/07). This regulation established the Thames-Sydenham and Region Source Protection Region and the three Source Protection Areas described in the sections to follow. This Source Protection Region recognized in regulation a partnership established by the Conservation Authorities to prepare for the work which the Clean Water Act requires.

A regulation was introduced to establish Source Protection Committees (O. Reg. 288/07). The regulation described the make-up of the committees and also the process for establishing the committees. The regulation required that the Source Protection Authorities in the region form the committee while the chair is appointed by the Minister of the Environment.

A General Regulation (O. Reg. 287/07) provides requirements for the Terms of Reference, Assessment Reports and Source Protection Plans. The General Regulation also establishes the 21 activities which can be considered drinking water *threats*. The requirements of the Act, Regulation and *rules* are summarized in the Assessment Report Checklist which is included in Appendix 7. The checklist indicates where the requirements have been satisfied in this Assessment Report.

1.2.2 Technical Rules

In order to fully define the contents of, and methodologies used in developing Assessment Reports, the Ministry of the Environment (MOE) released *Technical Rules: Assessment Report* (December 12, 2008). The Director (MOE) amended those *rules* (November 2009).

The *Technical Rules: Assessment Report* replaced interim guidance which was developed by MOE to guide much of the technical work initiated in 2006 and 2007. The guidance was developed in a modular manner with each module describing a specific component of the work. Much of the technical work followed those guidance modules which provided the basis for the organization of many of the technical studies. The guidance modules were detailed and descriptive. The organization of this report is partially reflective of those modules.

1.2.3 Local Guidance Documents

The *rules* and regulations leave room for local discretion by the Source Protection Committee and system operating authorities. In many cases, local guidance documents were required to provide consistent guidance across the region. This local guidance developed by the Thames-Sydenham and Region in consultation with municipality staff and consultants includes:

- Issues Evaluation Methodology
- Threats and Risk Assessment
- Transport Pathways Consideration

1.2.4 Tables of Drinking Water Threats

Along with the *Technical Rules: Assessment Report*, the province released 'Tables of Drinking Water Threats', which list the vulnerability and establish the circumstances under which threats can be considered significant, moderate or low risk. The tables provided describe the activities related to chemical and pathogen threats separately. The MOE threats tables, as they are commonly called, describe specific circumstances which affect the risk level of the activity. Circumstances include such factors as the volume of contaminant, the method of release into the environment, the type of contaminant, and the area in which the activity is undertaken. The tables are organized by Prescribed Drinking Water Threats (activities) established in the General Regulation (O. Reg. 287/07). The tables of drinking water threats are posted on the MOE website at http://www.ene.gov.on.ca/environment/en/resources/STD01_078436.html.

The circumstances, along with the vulnerability assessment of the vulnerable areas, determine the level of risk associated with an activity in a particular location. The MOE tables of circumstances are available at

http://www.ene.gov.on.ca/environment/en/legislation/clean_water_act/STDPROD_081301.html.

1.2.5 Mapping Symbology

Along with the *Technical Rules: Assessment Report*, the province also released and updated guidance on Assessment Report mapping standards, called the Mapping Symbology for the Clean Water Act (November 2009). This guidance facilitates consistency in mapping products produced in the 19 Source Protection Regions in the province. This guidance has been used to develop the various mapping products included in this Assessment Report and the supporting studies, with a few minor exceptions which enabled a more reader-friendly product to be generated.

1.2.6 Source Protection Plan

Following the completion of the Assessment Report, a Source Protection Plan must be developed by the Source Protection Committee by August 2012. The focus of the Source Protection Plan is to reduce or manage risks to drinking water sources. The Source Protection Plan will contain policies focused on activities which are identified as threats. The Regulation 287/07 (“General Regulation”) was amended in July 2010 to include the requirements of a Source Protection Plan. These policies may include:

- education and outreach programs (leading to voluntary risk reduction)
- incentive programs (leading to voluntary risk reduction)
- land-use planning approaches (e.g., official plans, zoning bylaws, site plan controls, development permits)
- new or amended provincial instruments (e.g., Certificates of Approval)
- risk management plans
- prohibition
- restricted land uses.

The more restrictive policies listed above would only be applied to significant drinking water threats. Similarly, the policies related to significant threats are mandatory and must be

implemented, whereas the policies related to moderate and low risk drinking water threats are optional and leave some discretion to Source Protection Committee and possibly the implementer. The Source Protection Plan may also include various policies related to monitoring of the policies implemented, to ensure that the required outcome is achieved.

1.3 Source Protection Committee

In the Thames-Sydenham and Region, the Conservation Authorities are required to form a Source Protection Committee (SPC) for the region as part of their responsibilities as Source Protection Authorities. They are also required to provide support to that committee. In order to carry out their responsibilities, each Conservation Authority meets individually as a Source Protection Authority. While many of their responsibilities can be undertaken individually, Conservation Authorities (and Source Protection Authorities, as appropriate) established various committees to undertake those items which required collective involvement.

A Management Committee was established to undertake the day-to-day administration related to the program. The Management Committee includes the General Managers of the three Conservation Authorities who meet regularly with the Source Protection Project Manager. The Management Committee, among other things, ensures that the Source Protection Committee has the resources to undertake their responsibilities as funded by the MOE.

A striking committee was formed to provide appointment recommendations to the Source Protection Authorities.

The Clean Water Act identifies the general make-up of the Source Protection Committee as having one third of its members representing each of the municipalities, sectors and other stakeholders. The Conservation Authorities in the region further refined the make-up of each third. A discussion paper was developed and distributed to the municipalities in the region for their input. Discussions with First Nations encouraged their participation on the Source Protection Committee. Those discussions led to the appointment of the three First Nations members on the Source Protection Committee. These members were appointed by the London District Chief's Council to represent the eight First Nations in the region.

Upper Thames River Source Protection Area Assessment Report

The make-up and representation of the Source Protection Committee are summarized in Table 1-1.

Table 1-1 SPC members and representation

Chair		Robert Bedggood
Municipalities	Chatham-Kent, Lakeshore, Leamington	Sheldon Parsons
	Lambton	Darrell Randell
	London	Patrick Donnelly
	Middlesex	James Maudsley
	Elgin	Brent Clutterbuck
	Oxford	Pat Sobeski
	Perth, Stratford, St. Marys, Huron	Joe Salter
Sectors	Agriculture	John Van Dorp
		Patrick Feryn
		Don McCabe
	Industry/ Commercial	Dean Edwardson
		Earl Morwood
Pits and Quarries	Paul Hymus	
Oil and Gas	Joe Van Overberghe	
Other		George Marr
		Doug McGee
		Joseph Kerr
		Carl Kennes
		Valerie M'Garry
		John Trudgen
		Charles Sharina
First Nations		Augustus Tobias
		Kennan Johnson
		Darlene Whitecalf
Liaisons	Medical Officers of Health	Jim Reffle
	Province	Teresa McLellan
	Source Protection Authority	Murray Blackie

Once established, the Source Protection Committee was required to establish rules of order and operating procedures. The Source Protection Committee's rules of order are posted on the region's web site at the address included in the footer of this report. In order to guide them through the Source Protection planning process, the Source Protection Committee developed a

Upper Thames River Source Protection Area Assessment Report

Mission Statement and Guiding Principles. The Source Protection Committee's guiding principles and mission statement are summarized as follows:

Table 1-2 SPC Mission Statement and Guiding Principles

Mission Statement Protect sources of drinking water by developing a plan based on science and local cooperation.
Guiding Principles We value: <ul style="list-style-type: none">• Fair and reasonable solutions• Consensus within our diverse area group• Clarity of information• Open communication• Respecting diversity of opinion

More detail on the committee's Mission Statement and Guiding Principles is posted on the region's web site, listed in the footer of this page.

The Source Protection Committee meets regularly to review and assess work conducted for the Assessment Report, to consider amendments to the Terms of Reference, and to discuss source protection planning for the region. The meetings are open to the public. The meeting agenda and minutes are available at the region's web site.

The Source Protection Committee has initiated the source protection planning process, by developing threats policy discussion papers based on information from the Assessment Report, drafting policies to address significant drinking water threats, and by consulting with various sectors including persons affected. Work on the source protection plans will continue into 2012, as described in Section 1.2.6.

1.4 Role of the Conservation Authorities

The Conservation Authorities provide the resources to the SPC to complete their work. This includes the provision of technical and administrative staff such as hydrogeology, engineering, geographic information system and communications specialists. This team is led by the Source Protection Project Manager, Chris Tasker, and technical leads at each of the Source Protection Authorities.

1.5 Terms of Reference

The first major task of the Source Protection Committee was to develop a work plan to guide the source protection planning process for the following five years. The work plan – called the Terms of Reference, was developed with input from municipalities and stakeholders.

The Terms of Reference outlines who does what, when it will happen and how much it will cost. It guides the Source Protection Committee through the completion of the Assessment Report and the Source Protection Plan.

Two municipal working groups, for surface water and groundwater related studies, were established to help complete the work plan for the Terms of Reference. The groups were chaired by SPC members and comprised of municipal staff and water treatment plant operators, who provided technical input.

Public Open Houses on the Terms of Reference were held in September of 2008 at Ridgetown, St. Marys and Wyoming. A follow-up Public Meeting was held in London. In addition, comments were received through the posting of the Terms of Reference on the region's web site. The SPC submitted the proposed Terms of Reference to the Source Protection Authorities on December 18, 2008. Comments were received by the *SPAs* and submitted to the Minister of the Environment for approval. The Terms of Reference for the Upper Thames River Source Protection Area was approved by the Minister of the Environment and the notice of approval posted on the *Environmental Registry* on April 20, 2009. This approval sets the due date of this Assessment Report one year from the posting of the approval of the Terms of Reference, to be April 20, 2010. However due to an adjustment in work plans to fill several gaps and to allow for adequate consultation on the Assessment Report, an extension in submission of the *UTRSPA* Proposed Assessment Report was requested of the MOE. This request for a new due date of October 29, 2010 was granted by the Director, Source Protection Programs Branch, MOE. Further technical work was conducted (see Section 1.10.2), and the Director required that updates and amendments be made to the Proposed Report. This resulted in the current Amended Proposed Assessment Report, due August 8, 2011.

1.6 Thames-Sydenham and Region Source Protection Region

The Thames-Sydenham and Region (*TSR*) Source Protection Region (*SPR*) is located in southwestern Ontario bounded by Lake Erie in the south and by Lake Huron to the north of the western end of the region. It is surrounded by the Lake Erie Source Protection Region to the east and the Essex Region Source Protection Area to the west of its southern end. To the north and west of the northern part of the region is the Ausable-Bayfield Maitland Valley Source Protection Region. The region is shown in Map 1-1.

The Thames-Sydenham and Region (*TSR*) is comprised of three Source Protection Areas. The Upper Thames River Source Protection Area (*UTRSPA*) is to the north and east of the region. The Lower Thames Valley Source Protection Area (*LTVSPA*) is to the south and west of the Upper Thames River Source Protection Area while the St. Clair Region Source Protection Area (*SCRSPA*) is north of the Lower Thames Valley Source Protection Area. The three Source Protection Areas are also shown in Map 1-1.

1.6.1 Upper Thames River Source Protection Area

The Upper Thames River Source Protection Area includes parts of the municipalities listed in Table 1-3 below.

Table 1-3 Municipalities in the UTRSPA

Township of Blandford-Blenheim	County of Oxford
Township of East Zorra-Tavistock	Township of Perth East
County of Elgin	Township of Perth South
Municipality of Huron East	County of Perth
County of Huron	Municipality of South Huron
Town of Ingersoll	Township of South-West Oxford
City of London	Town of St. Marys
Municipality of Lucan-Biddulph	City of Stratford
Township of Malahide	Municipality of Strathroy-Caradoc
Municipality of Middlesex Centre	Municipality of Thames Centre
County of Middlesex	Municipality of West Perth
Municipality of North Perth	City of Woodstock
Township of Norwich	Township of Zorra

There are no First Nations in the *UTRSPA*.

Upper Thames River Source Protection Area Assessment Report

In the Upper Thames River Source Protection Area, the municipalities receive most of their drinking water from 21 municipal groundwater well supply systems located within the source protection area. The exceptions are the City of London, Delaware and Ballymote which primarily rely on Lake Huron and Lake Erie surface water intakes located outside the source protection region (SPR). The communities of Mt. Brydges and Kilworth/Komoka also receive their drinking water from a Lake Huron intake located outside of the SPR. Private wells supply water to the remainder of the residents in the region. Map 1-3 shows the location of the well supply systems and surface water intakes that serve the Upper Thames River Source Protection Area.

The largest settlement in the area is the City of London, while other significant settlements include the City of Stratford, Town of St. Marys, Ingersoll, Woodstock and Dorchester. Settlement areas are shown in Map 1-4. The approximate population of these settlement areas is indicated by the relative size of the symbol indicating the location of the settlement. These populations have been included based on available information or estimated based on the number of parcels in the settlement area.

More details on the area, its water systems and the population of the area are included in Section 2 - Watershed Characterization.

1.7 Technical Studies

The Assessment Report is a summary and compilation of a number of technical studies including:

- Watershed Characterization
- Conceptual Water Budget
- Various levels of Water Budgets (Tier 1, 2 or 3)
- Municipal Technical Studies

The Municipal Technical Studies were completed through partnerships between the municipalities and the Conservation Authorities. Leads for each study were established. The studies were led by the Conservation Authorities (CAs) or by a municipality. Most of the municipal technical studies (such as the vulnerability assessment, issues evaluation and threats assessment studies) were organized based on the geographic extent of the upper tier

municipalities (counties). Drinking water system operating authorities or municipal staff participated in the studies through steering committees for those projects which were not led by the municipalities directly. The watershed characterization and the water budget studies were led by the CAs and completed by CA staff.

Vulnerability Assessment technical reports were peer reviewed by a four member peer review committee comprised of hydrodynamic and groundwater modelling experts with experience in vulnerability assessment studies. This peer review is described in more detail in Section 4.0 Vulnerability Assessment. The water budget work was also subject to a peer review process. The Ministry of Natural Resources (MNR) also participated in the peer review as well as people who have been involved in water budget work of the neighbouring Source Protection Areas. Many of these studies are still ongoing, however components from the studies have been compiled into these Assessment Reports.

1.8 Consultation

Regulations require consultation on the Assessment Reports. This consultation, much like that of the Terms of Reference, requires a public meeting and posting of the Assessment Report for comment. Two posting periods are required: one posted by the Source Protection Committee for consultation on the draft proposed Assessment Report; and the second posted by the Source Protection Authority for comments on the proposed Assessment Report. The proposed Assessment Report is then submitted to the Ministry of the Environment along with comments received in the final posting period. The Director may then approve the Assessment Report or require amendments to the report. If the Director requires amendments, then the Director would require that those affected by the amendments are consulted with.

The Source Protection Committee identified the need to undertake a more detailed and locally focused consultation on the contents of the Assessment Report. A multi-phase consultation plan was developed and is included in Appendix 4 (and on the web site). The plan identifies four consultation phases. The first two phases of consultation provide a more local focus on the vulnerable areas associated with the municipal water supplies. The first phase includes the (peer reviewed) vulnerability assessment of the areas while the second phase adds discussion on the threats and issues identified in the vulnerable areas. Both phases include individual

Upper Thames River Source Protection Area Assessment Report

correspondence with property owners in the proposed vulnerable areas as well as advertisements in local newspapers. Maps of the areas and fact sheets were distributed with invitations to attend the local meetings. These materials were also made available on the region's web site.

The third phase of consultation is the required public meeting and posting of the draft proposed Assessment Report, and then the proposed Assessment Report for comment. This phase is more regional in scope involving open houses in each of the Source Protection Areas. The fourth phase of consultation involves posting of the amendments to the proposed Assessment Report for comment, and public meetings. Advertisements were placed in local newspapers.

The draft proposed Assessment Report must be published on the Internet for a 35 day comment period, and copies made available to stakeholders including the public. A copy of the notice of the posting of the draft proposed Assessment Report must be published in newspapers and distributed to the municipal clerks in which any part of the *SPA* is located, First Nation band chiefs if any part of a band reserve is included in the *SPA*, landowners engaging in an activity known by the SPC that is or would be a significant threat, other SPCs listed in the Terms of Reference, persons or bodies related to Great Lakes Water Quality Agreements, Remedial Action Plans and Lakewide Management Plans for their comments. At least 21 days after publishing the draft proposed report on the Internet, the required public meeting must take place.

The proposed Assessment Report must be published on the Internet for a 30 day comment period, and copies of the report submitted to municipal clerks and band chiefs (if any part of a band reserve is in the *SPA*). There are no First Nation reserves in the *UTRSPA*. Similarly, the Amended Proposed Assessment Report is published on the Internet for a 30 day comment period and copies sent to municipal clerks.

Upper Thames River Source Protection Area Assessment Report

Table 1-4 Summary of planned UTRSPA Assessment Report Consultation

Item	Planned Schedule (week of)
Posting draft proposed Assessment Report for comment	July 16, 2010
Public Open Houses	August 9, 2010
Close of Comment Period	August 20, 2010
Posting proposed Assessment Report for Comment	September 20, 2010
Close of the comment period	October 25, 2010
Submission of the proposed Assessment Report to MOE	October 29, 2010
Posting amended proposed Assessment Report for Comment	July 4, 2011
Public Open Houses	July 25, 2011
Close of the comment period	August 8, 2011
Submission of amended proposed Assessment Report to MOE	August 8, 2011

1.9 Schedule

The due date of the Assessment Report was set with the posting of the approval of the Terms of Reference for the Source Protection Area. The Clean Water Act identifies that Assessment Reports are to be submitted within one year of the posting of the approval of the Terms of Reference. As described earlier, the due date to submit the proposed *UTRSPA* Assessment Report was extended to October 29, 2010. This allowed for some aspects of the work to be completed as per the amended provincial guidance.

Upon submission of the proposed Assessment Report and based on further technical work conducted (see Section 1.10.2), the Director (Source Protection Programs Branch, MOE) required that updates and amendments be made to the Proposed Report. This resulted in the current Amended Proposed Assessment Report, due August 8, 2011. This Assessment Report fills several data gaps identified in the Proposed Assessment Report. The following schedule describes at high level the work conducted so far, and the Source Protection Planning process.

Upper Thames River Source Protection Area Assessment Report

Figure 1-1 Source Protection planning schedule overview

	2005	2006	2007	2008	2009	2010	2011	2012	
Watershed Studies	[Blue bar spanning 2005 to 2011]								
Municipal Technical Studies		[Blue bar spanning 2006 to 2011]							
Terms of Reference				[Blue bar]					
Assessment Report(s)					[Blue bar spanning 2008 to 2011]				
Source Protection Plans					[Blue bar spanning 2009 to 2012]				

1.10 Local Acceptance, Approvals and Next Steps

The Assessment Report consultation plan illustrates a number of review and acceptance stages in the development of the Assessment Reports for the Source Protection Areas. This ultimately culminates in the approval of the Assessment Reports by the Director of Source Protection Programs Branch of the Ministry of the Environment.

Local acceptance of the Assessment Reports is also included in the consultation process. Prior to inclusion in the Assessment Report the components have been reviewed and accepted by the Source Protection Committee. This review included:

- involvement of municipal operators in the technical studies;
- peer review of the work;
- presentations to the Source Protection Committee by those undertaking the work;
- review of the products from the technical studies which are to be included in the Assessment Report;
- review of summary level information included in the Assessment Report in the form of section summaries and system summaries;
- consideration of municipal and other stakeholder comments on the draft proposed, and proposed Assessment Report; and
- ultimately, the acceptance of the Assessment Report by the SPC.

Municipal and other local involvement in the development of the Assessment Report has been included in many ways. Municipalities have been involved in many of the technical studies throughout the region, especially those which are focused on the sources of drinking water for

Upper Thames River Source Protection Area Assessment Report

their municipal systems. Operating Authority staff participated in technical steering committees on these projects. Where appropriate, operating Authority staff kept their commissions or councils up to date on the completion of the technical work. Updates on the progress of Source Protection Planning have been distributed to municipalities throughout the work stages of the Assessment Report. Municipal comments were also requested on the Watershed Characterization Reports and the Conceptual Water Budget. Representatives on the Source Protection Committee have been instrumental in keeping their representation updated on the Source Protection Planning process including organizing and attending meetings with stakeholders.

During the first two phases of the consultation, municipal staff and councils were circulated invitations to the open houses and offers were made of presentations to municipal councils. Municipal Planners were invited to attend a municipal planners forum where the materials included in the Assessment Reports were discussed.

The third phase of consultation is comprised of two steps: consulting on the draft proposed Assessment Report, and then on the proposed Assessment Report. In the third phase of consultation, the notice of publishing of the draft proposed Assessment Report must be sent to municipal clerks of municipalities in which any part of the *SPA* is located, and First Nation band chiefs if any part of a band reserve is included in the *SPA*. There are no First Nation reserves in the *UTRSPA*. The draft proposed Assessment Report was distributed on Compact Disk (CD) to the municipalities for their comments. Through ongoing involvement in the Assessment Report development process as discussed above, the municipal input has been incorporated into the Assessment Report. Municipalities and other stakeholders had 35 days from the time the notice was posted to review and provide comments on the draft proposed Assessment Report. These comments were considered by the Source Protection Committee in finalizing the proposed Assessment Report.

The proposed Assessment Report was posted on the Internet for a 30 day comment period. This posting asked for comments to be submitted to the Source Protection Authority. Further, a copy of the proposed Assessment Report was submitted to the municipal clerks.

Upper Thames River Source Protection Area Assessment Report

The proposed report was updated and amended as required by the Director, due to additional technical work carried out, as described in Section 1.10.2. The Amended Proposed Assessment Report will also be posted on the Internet for a 30 day comment period.

In submitting the Assessment Report to the Ministry of the Environment, the Source Protection Authority is to include any outstanding comments including any municipal or First Nations concerns over the Assessment Reports. The Director can approve the Assessment Report as submitted or require further amendments to the Assessment Report.

1.10.1 Engaging First Nations

The *TSR* source protection region includes eight First Nations, seven of which have reserves as shown on Map 1-1. Caldwell First Nation, established in the area near Rondeau Bay in the *LTVSPA* currently does not have a reserve. There are no First Nations in the *UTRSPA*. Table 1-5 lists the First Nation communities in the *TSR SPR*.

Table 1-5 First Nations of the TSR SPR

Bkejwanong First Nation (Walpole Island)
Caldwell First Nation
Chippewas of Aamjiwnaang (Sarnia)
Chippewas of Kettle and Stony Point First Nation
Chippewas of the Thames First Nation*
Delaware Nation Council*
Munsee-Delaware Nation*
Oneida Nation of the Thames*

Note: There are no First Nations in the UTRSPA

*These First Nations are located on or near the Thames River, downstream of the UTRSPA

Four of the eight First Nations in the region have reserves on or near the Thames River in the *LTVSPA*, directly downstream of the *UTRSPA*. These four First Nations, the Delaware Nation Council, Chippewas of the Thames, Munsee-Delaware Nation and Oneida Nation of the Thames, rely on groundwater sources of drinking water. Some of these groundwater wells are classified as groundwater under the influence of surface water, or *GUDI* wells (Oakridge Environmental Ltd. July 2007, Oakridge Environmental Ltd. June 2007 and First Nations Engineering, May 2009). These wells are influenced by the upstream Thames River, in both water quality and quantity.

Upper Thames River Source Protection Area Assessment Report

While the First Nations have been encouraged to participate in the development of the Assessment Reports in the Thames-Sydenham and Region in a number of ways, initially that participation was rather limited and very informal in nature. First Nations forums were set up in 2008-2009 across the region.

First Nations participate on the Source Protection Committee with the appointment of three First Nations members. Previously various staff of the Southern First Nations Secretariat and councillors from the First Nations have participated in various ways including informal participation in tours and meetings of the Source Protection Committee, forums and workshops held at various stages in the Source Protection Planning process. A First Nations liaison hired by the Conservation Authorities has been instrumental in the involvement of First Nation communities in many aspects of Source Protection Planning. Interest has been expressed in the participation in some of the technical studies.

1.10.2 Amendments to the Assessment Report

Several of the gaps identified in the Proposed Assessment Report are now filled. These include the Tier 2 water budget drought scenario analysis, the delineation, vulnerability assessment and threats assessment (vulnerability scoring approach) of *WHPA-E*, and threats assessment of sewer line threats. Filling of those data gaps in early 2011 allowed them to be included in the current Amended Proposed Assessment Report, thus allowing for the materials to be available to the Source Protection Committee for the development of the *Source Protection Plan*. The *Source Protection Plan* is required to be submitted in August 2012. Section 9 indicates the remaining few gaps in the Upper Thames River Source Protection Area Assessment Report.

The Assessment Report can be amended if the Source Protection Committee becomes aware of the need to amend the report. Changes in understanding or factors such as land use which may have an impact on the Assessment Report may be brought to the attention of the Source Protection Committee. As a result of this new information or understanding, the Source Protection Committee may amend the Assessment Report in the future. The Source Protection Committee will also need to consider amendments to the Assessment Report when the Source

Upper Thames River Source Protection Area Assessment Report

Protection Plan is reviewed. The period for review of the Source Protection Plan will be established by the Minister in the approval of the Source Protection Plan.

Any amendments to the Assessment Report would require consultation of those affected by the amendments.

Upper Thames River Source Protection Area Assessment Report
