

# DRINKING WATER SOURCE PROTECTION

ACT FOR CLEAN WATER

South Georgian Bay  
Lake Simcoe  
Source Protection  
Region



## Assessment Report updates

SPC: August 25, 2011

# Status

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- **Proposed Assessment Report:**
  - Submitted to MOE December 2010
  - Official MOE comments received July 29<sup>th</sup>, 2011
  - Additional MOE Minor comments received August 17, 2011
- **Draft Updated Assessment Report**
  - Included updates on:
    - IPZ-3, Washago/Sandcastle IPZ-1, Rama intake & water budget
  - Public consultation completed (no comments received)
- **Amended Proposed (Updated) Assessment Report**
  - To be submitted August 30<sup>th</sup>, 2011
  - Revise based on MOE's Official and Additional comments



# Summary of MOE official comments

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- Groundwater vulnerability:
  - Increased vulnerability due to water quality is not consistent with Director's Approval (applies to certain Golder studies only)
- Remove Colgan DWS as wells have been decommissioned
- Provide greater clarification/justification for assigning TCE as an Issue within Cannington DWS
- Water Budget – update Tier II and future monthly stress
- Washago/Sandcastle IPZ-1 setback and separation
- Director's Letters of approval not included (Centroid for impervious surfaces)
- Minor editorial suggestions



# Groundwater Vulnerability

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- Only impacts a subset of systems completed by Golder
- Method included an increase in vulnerability score if evidence of raw water contamination
- Rationale: windows in aquifer that could not be detected with course models used
- Director's approval provided, but apparently not for what we were requesting...



# Groundwater vulnerability

System Name		Vuln	Modifier	Vuln with Water Quality Modifiers
<b>City of Barrie</b>				
Barrie	Wells 3A, 4, 5, 7, 17, 18, 19	LOW	Chloride and Sodium	<b>MEDIUM</b>
	Wells 11, 14, 12, 15	LOW	VOC, Chloride and Sodium	<b>HIGH</b>
	Well 10	LOW	-	LOW
	Wells 9 and 13	LOW	Nitrate, chloride and sodium	<b>MEDIUM</b>
	Well 16	LOW	-	LOW
<b>Township of Essa</b>				
Angus	Mill Street Well 1	LOW	-	LOW
	Centre Street Wells 1 and 2	LOW	-	LOW
	Brownley Wells 4, 5 and 6	LOW/MEDIUM	Nitrate	<b>MEDIUM</b>
Glen Ave (Thornton)	Glen Ave Well 1 and 2	MEDIUM	-	MEDIUM
	Thornton Wells 3 and 4	MEDIUM	-	MEDIUM
<b>Town of Wasaga Beach</b>				
Jenetta Street	Well 1	LOW	-	LOW
	Well 2	LOW	-	LOW
	Well 3	LOW	-	LOW
Powerline Road	Well 1	LOW	-	LOW
	Well 2	LOW	-	LOW
	Well 3	LOW	-	LOW
	Well 4	LOW	-	LOW
<b>Town of Midland</b>				
Vindin	Well 6, 11, 12, 14, 16, 17	LOW/MEDIUM	Chloride and Sodium	<b>MEDIUM</b>
Heritage	Well 7A and 7B	LOW	Chloride and Sodium	<b>MEDIUM</b>
Dominion	Well 9	LOW	Chloride and Sodium	<b>MEDIUM</b>
Russell	Well 15	LOW/MEDIUM	Chloride and Sodium	<b>MEDIUM</b>
Sunnyside	Well 20, 24, 25, 26	LOW/HIGH	-	LOW/HIGH
<b>Town of Penetanguishene</b>				
Payette	Wells 1, 2, and 3	LOW/MEDIUM	Chloride	<b>HIGH</b>
Robert Street	Wells 2 and 3	LOW	TCE	<b>HIGH</b>
Lepage	Wells 1 and 2	LOW/HIGH	-	LOW/HIGH
<b>Township of Tiny</b>				
Bluewater			No change	
Cooks Lake			No change	
Georgian Bay Estates			No change	
Georgian Highlands			No change	
Georgian Sands	Well 1-1	LOW/HIGH	Nitrate	<b>HIGH</b>
	Well 2-1	LOW/HIGH		<b>HIGH</b>
	Well 2-2	LOW/HIGH		<b>HIGH</b>
	Well 14-1	LOW/HIGH		<b>HIGH</b>
Lafontaine	Well 23-1	LOW/HIGH	Nitrate	<b>HIGH</b>
	Well 23-4	LOW/HIGH		<b>HIGH</b>
Lafontaine			No change	

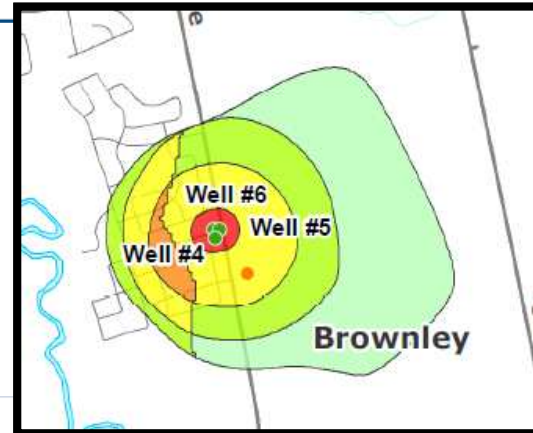
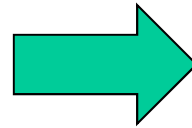
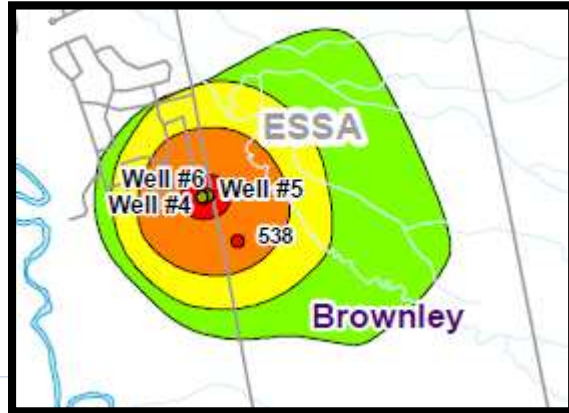
# Converting AVI to Vulnerability Score

**Table 2(a): Wellhead Protection Area Vulnerability Scores – ISI or AVI**

<b>Groundwater Vulnerability Category for the Area</b>	<b>Location Within a Well Head Protection Area</b>				
	<b>WHPA-A</b>	<b>WHPA-B</b>	<b>WHPA-C</b>	<b>WHPA-C1</b>	<b>WHPA-D</b>
<b>High</b>	10	10	8	8	6
<b>Medium</b>	10	8	6	6	4
<b>Low</b>	10	6	4	4	2



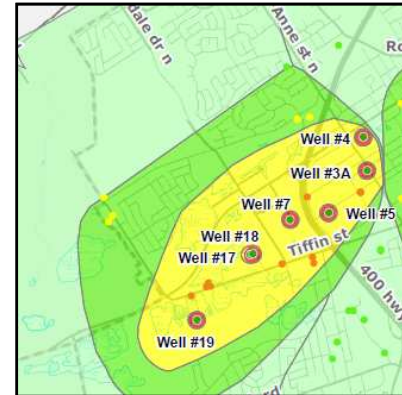
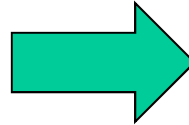
# Significant threats



WHPA	Threat Category	Number of Parcels with Significant Activity Threats	
		OLD	NEW
	The establishment, operation or maintenance of a waste disposal site within the meaning of Part V or the Environmental Protection Act.	0	0
	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	3	2
	The application of agricultural source material to land.	3	1
	The storage of agricultural source material.	3	1
	The management of agricultural source material.	0	0
	The application of non-agricultural source material to land.	0	0
	The handling and storage of non-agricultural source material.	0	0
	The application of commercial fertilizer to land.	0	0
	The handling and storage of commercial fertilizer.	3	1
	The application of pesticide to land.	3	1
	The handling and storage of pesticide.	3	1
	The application of road salt.	0	0
	The handling and storage of road salt.	0	0
	The storage of snow.	0	0
	The handling and storage of fuel.	5	2
	The handling and storage of a dense non-aqueous phase liquid.	0	0
	The handling and storage of an organic solvent.	0	0
Angus - Brownley	The management of runoff that contains chemicals used in the de-icing of aircraft.	0	0
	The use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard.	0	0
	<b>Total Threats</b>	<b>23</b>	<b>9</b>

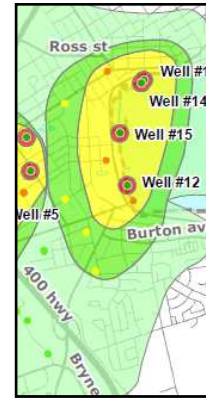
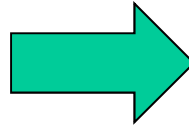
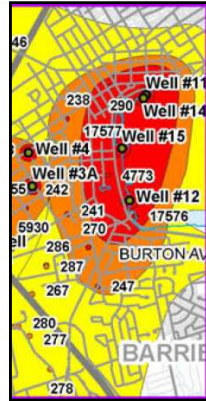
Note: Agricultural threats removed due to a very recent change in land use (agriculture → subdivision)

# Significant threats – 3A, 4, 5, 7,17, 18, 19



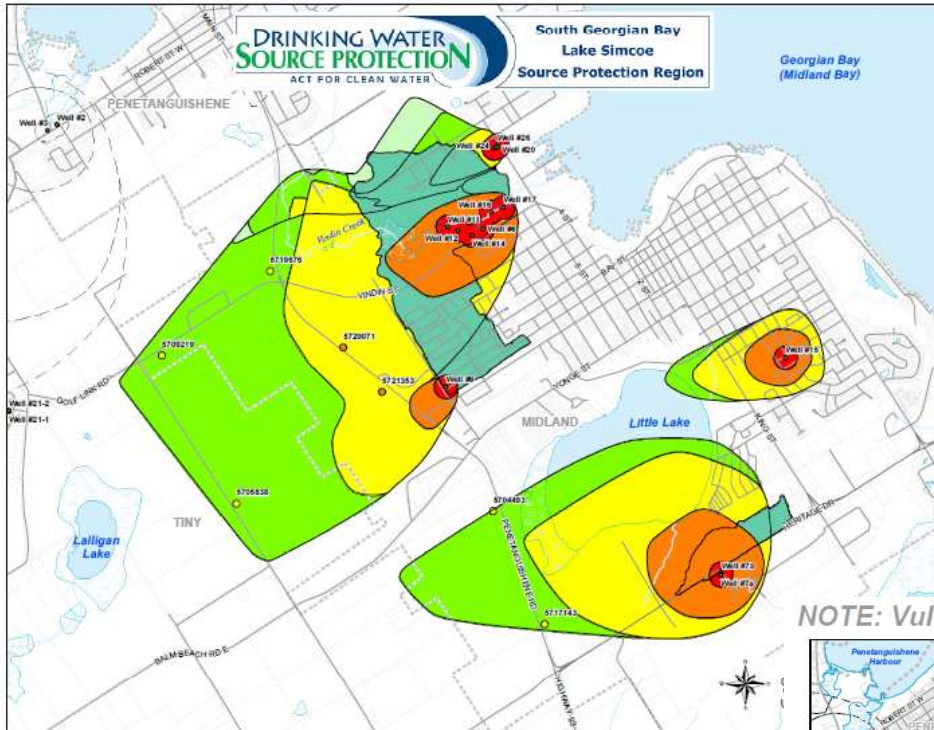
Threat Category	Number of Parcels with Significant Activity Threats	
	Old	New
The establishment, operation or maintenance of a waste disposal site within the meaning of Part V or the Environmental Protection Act.	3	2
The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	58	58
The application of agricultural source material to land.	0	0
The storage of agricultural source material.	0	0
The management of agricultural source material.	0	0
The application of non-agricultural source material to land.	0	0
The handling and storage of non-agricultural source material.	12	6
The application of commercial fertilizer to land.	0	0
The handling and storage of commercial fertilizer.	12	8
The application of pesticide to land.	4	4
The handling and storage of pesticide.	12	8
The application of road salt.	1	1
The handling and storage of road salt.	2	2
The storage of snow.	1	1
The handling and storage of fuel.	32	24
The handling and storage of a dense non-aqueous phase liquid.	175	175
The handling and storage of an organic solvent.	22	14
The management of runoff that contains chemicals used in the de-icing of aircraft.	0	0
The use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard.	0	0
<b>Total Threats</b>	<b>334</b>	<b>306</b>

# Significant threats – 11, 12, 14, 15

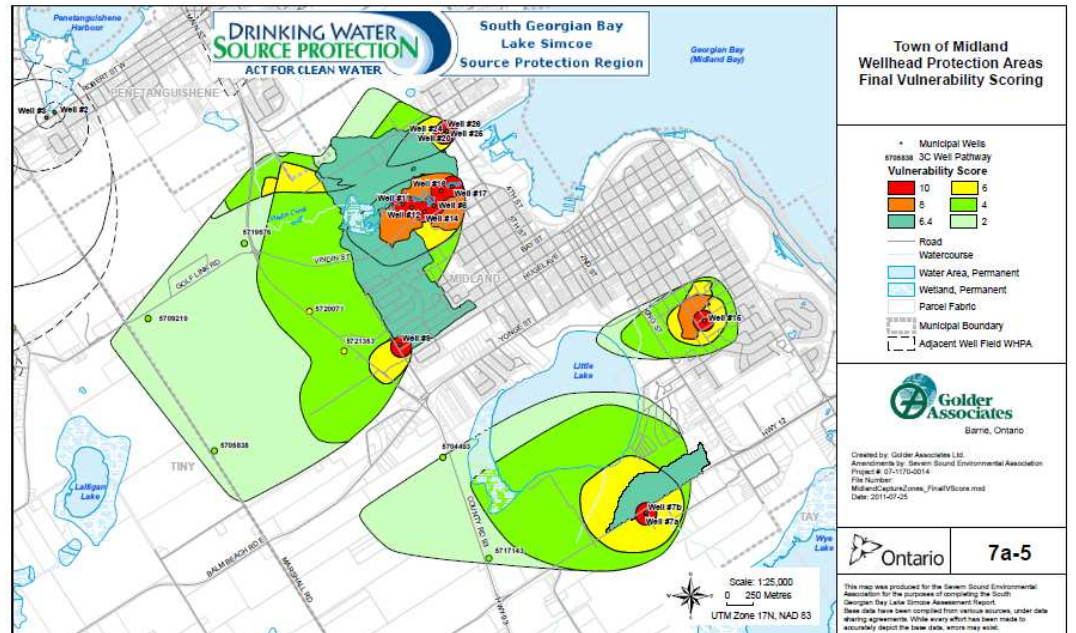


Threat Category	Number of Parcels with Significant Activity Threats	
	Old	New
The establishment, operation or maintenance of a waste disposal site within the meaning of Part V or the Environmental Protection Act.		0
The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	44	44
The application of agricultural source material to land.	0	0
The storage of agricultural source material.	0	0
The management of agricultural source material.	0	0
The application of non-agricultural source material to land.	0	0
The handling and storage of non-agricultural source material.	3	0
The application of commercial fertilizer to land.	0	0
The handling and storage of commercial fertilizer.	9	1
The application of pesticide to land.	1	0
The handling and storage of pesticide.	9	1
The application of road salt.	1	1
The handling and storage of road salt.	1	1
The storage of snow.	0	0
The handling and storage of fuel.	47	5
The handling and storage of a dense non-aqueous phase liquid.	97	92
The handling and storage of an organic solvent.	33	0
The management of runoff that contains chemicals used in the de-icing of aircraft.	0	0
The use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard.	0	0
<b>Total Threats</b>	<b>246</b>	<b>148</b>

**NOTE: Vulnerability Scoring After Modifiers**

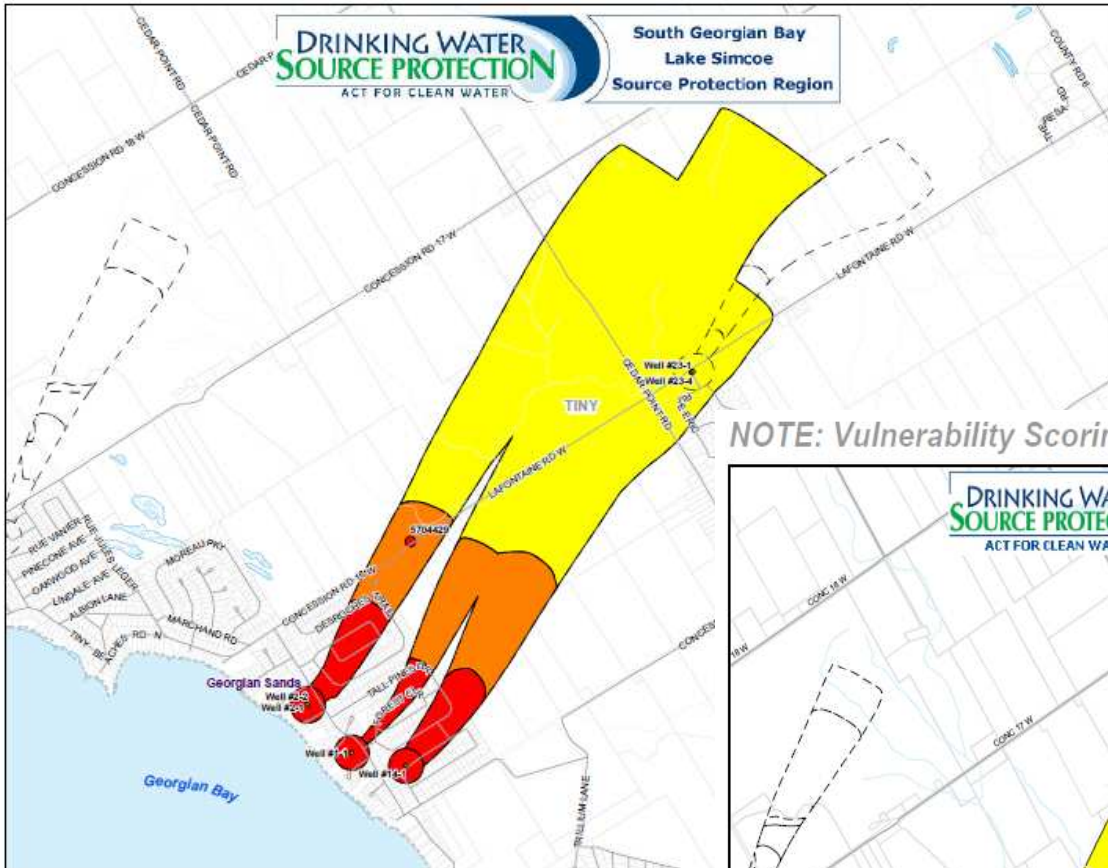


**NOTE: Vulnerability Scoring Prior to Modifiers (For Revision to Updated AR)**

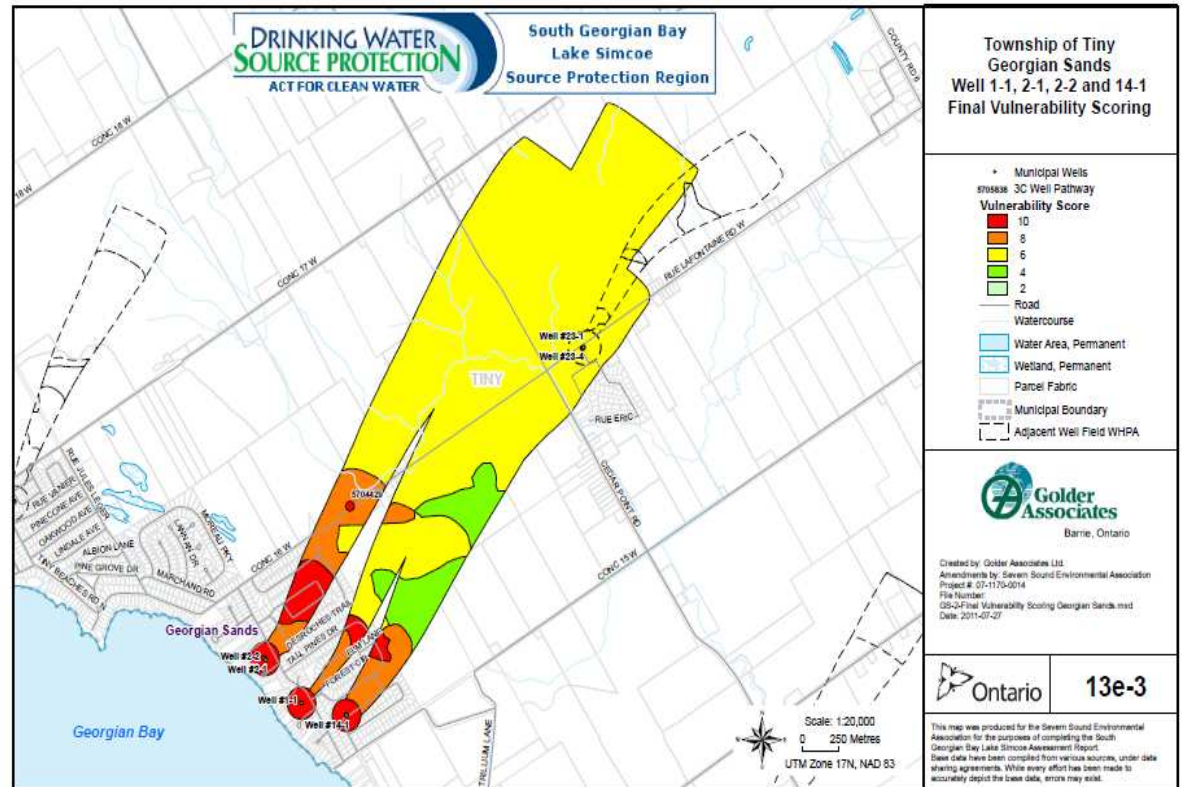


Threat		Before		After	
		Midland Well Supply			
		# threats	# parcels	# threats	# parcels
1	The establishment, operation or maintenance of a waste disposal site within the meaning of Part V or the Environmental Protection Act.		0		0
2	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.		6		6
3	The application of agricultural source material to land.		0		0
4	The storage of agricultural source material.		0		0
5	The management of agricultural source material.		0		0
6	The application of non-agricultural source material to land.		0		0
7	The handling and storage of non-agricultural source material.		0		0
8	The application of commercial fertilizer to land.		0		0
9	The handling and storage of commercial fertilizer.		1		1
10	The application of pesticide to land.		0		0
11	The handling and storage of pesticide.		1		1
12	The application of road salt.		0		0
13	The handling and storage of road salt.		0		0
14	The storage of snow.		0		0
15	The handling and storage of fuel.		7		7
16	The handling and storage of a dense non-aqueous phase liquid.		29		29
17	The handling and storage of an organic solvent.		5		5
18	The management of runoff that contains chemicals used in the de-icing of aircraft.		0		0
19	An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.				
20	An activity that reduces the recharge of an aquifer.				
21	The use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard.		0		0
<b>TOTAL</b>		49	35	49	35
<b>TOTAL NUMBER OF SIGNIFICANT THREATS:</b>		<b>49</b>		<b>49</b>	
<b>TOTAL PARCELS WITH SIGNIFICANT THREATS:</b>		<b>35</b>		<b>35</b>	

**NOTE: Vulnerability Scoring After Modifiers**

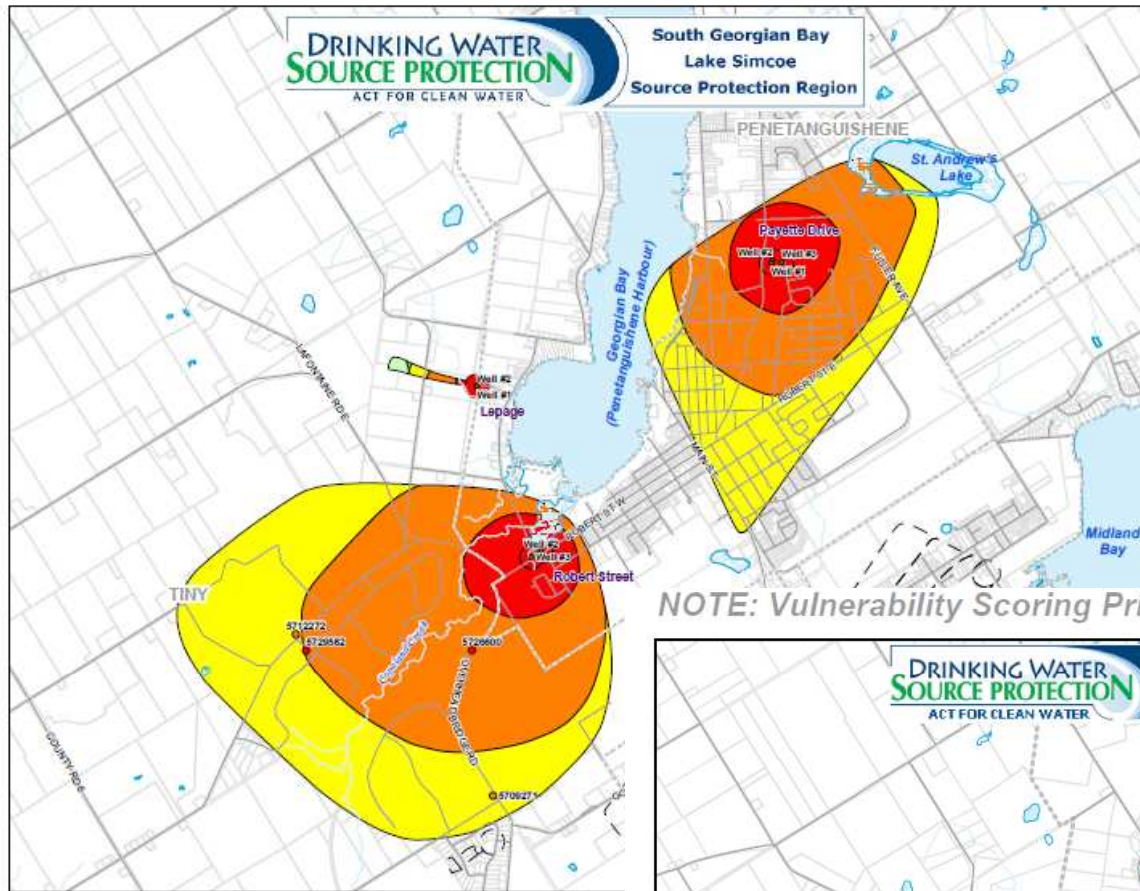


**NOTE: Vulnerability Scoring Prior to Modifiers (For Revision to Updated AR)**

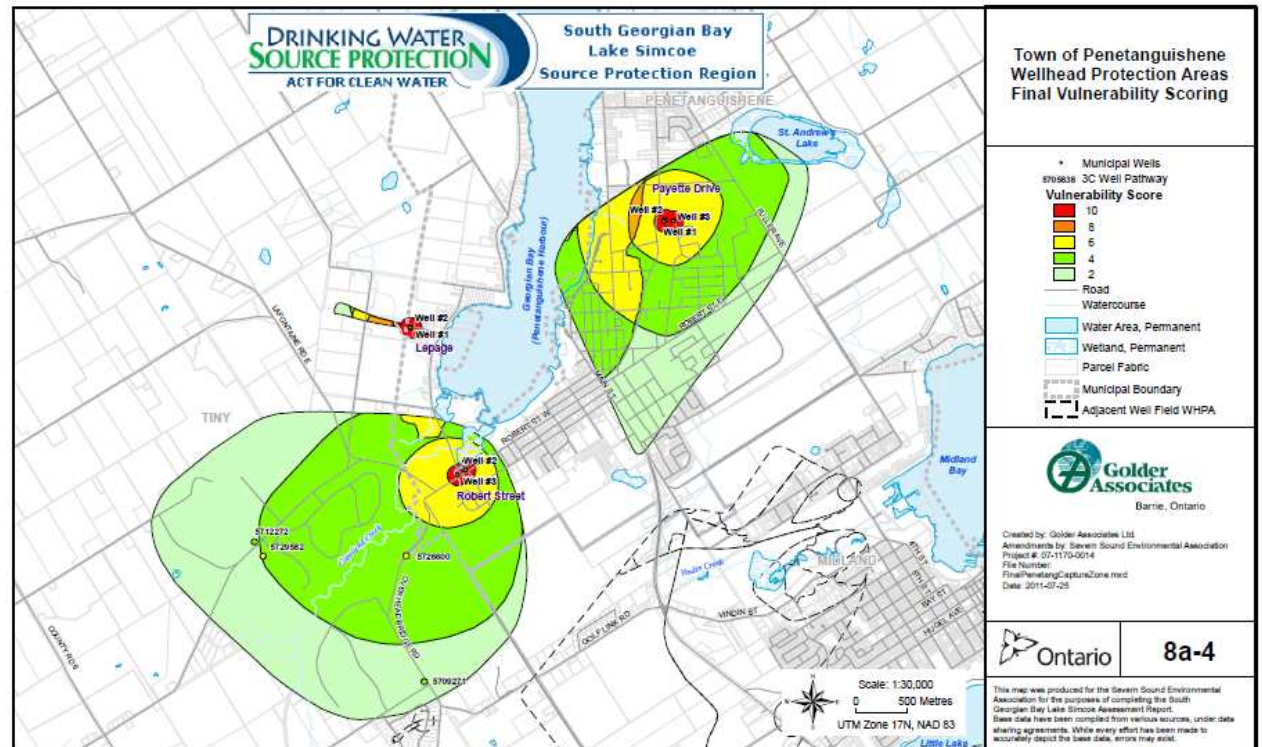


Threat	Before		After	
	# threats	# parcels	# threats	# parcels
1 The establishment, operation or maintenance of a waste disposal site within the meaning of Part V or the Environmental Protection Act.		0		0
2 The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.		258		258
3 The application of agricultural source material to land.		30		29
4 The storage of agricultural source material.		25		24
5 The management of agricultural source material.		0		0
6 The application of non-agricultural source material to land.		2		2
7 The handling and storage of non-agricultural source material.		1		1
8 The application of commercial fertilizer to land.		256		255
9 The handling and storage of commercial fertilizer.		22		21
10 The application of pesticide to land.		1		1
11 The handling and storage of pesticide.		1		1
12 The application of road salt.		0		0
13 The handling and storage of road salt.		0		0
14 The storage of snow.		0		0
15 The handling and storage of fuel.		6		6
16 The handling and storage of a dense non-aqueous phase liquid.		0		0
17 The handling and storage of an organic solvent.		0		0
18 The management of runoff that contains chemicals used in the de-icing of aircraft.		0		0
19 An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.				
20 An activity that reduces the recharge of an aquifer.				
21 The use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard.		2		2
<b>TOTAL</b>	604	272	600	271
<b>TOTAL NUMBER OF SIGNIFICANT THREATS:</b>	<b>604</b>		<b>600</b>	
<b>TOTAL PARCELS WITH SIGNIFICANT THREATS:</b>	<b>272</b>		<b>271</b>	

**NOTE: Vulnerability Scoring After Modifiers**



**NOTE: Vulnerability Scoring Prior to Modifiers (For Revision to Updated AR)**



**DRINKING**

**Golder Associates**  
Barrie, Ontario

Created by: Golder Associates Ltd.  
Amendments by: Severn Sound Environmental Association  
Project #: 01-1170-0014  
File Number:  
FinalPenetangCapZone med  
Date: 2011-07-25

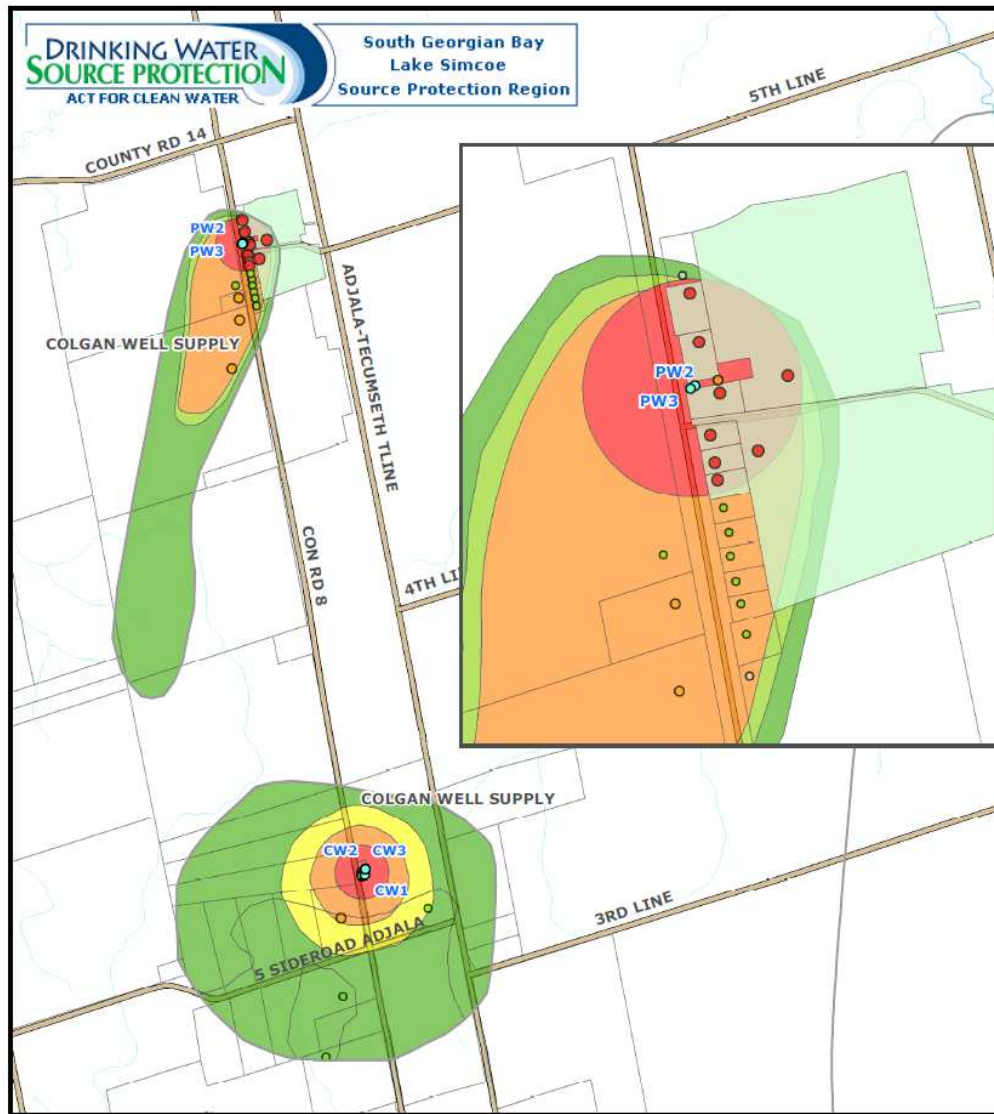
**Ontario** **8a-4**

This map was produced for the Severn Sound Environmental Association for the purposes of completing the South Georgian Bay Lake Simcoe Assessment Report. Base data have been compiled from various sources, under data sharing agreements. While every effort has been made to accurately depict the base data, errors may exist.

Threat	Before		After		
	Robert Street				
	# threats	# parcels	# threats	# parcels	
1	The establishment, operation or maintenance of a waste disposal site within the meaning of Part V or the Environmental Protection Act.		1		1
2	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.		30		1
3	The application of agricultural source material to land.		0		0
4	The storage of agricultural source material.		0		0
5	The management of agricultural source material.		0		0
6	The application of non-agricultural source material to land.		0		0
7	The handling and storage of non-agricultural source material.		0		0
8	The application of commercial fertilizer to land.		0		0
9	The handling and storage of commercial fertilizer.		0		0
10	The application of pesticide to land.		0		0
11	The handling and storage of pesticide.		0		0
12	The application of road salt.		0		0
13	The handling and storage of road salt.		0		0
14	The storage of snow.		0		0
15	The handling and storage of fuel.		3		2
16	The handling and storage of a dense non-aqueous phase liquid.		8		8
17	The handling and storage of an organic solvent.		2		1
18	The management of runoff that contains chemicals used in the de-icing of aircraft.		0		0
19	An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.				
20	An activity that reduces the recharge of an aquifer.				
21	The use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard.		0		0
<b>TOTAL</b>		44	37	13	9
<b>TOTAL NUMBER OF SIGNIFICANT THREATS:</b>		<b>44</b>		<b>13</b>	
<b>TOTAL PARCELS WITH SIGNIFICANT THREATS:</b>		<b>37</b>		<b>9</b>	

Threat	Before		After	
	Payette			
	# threats	# parcels	# threats	# parcels
1	The establishment, operation or maintenance of a waste disposal site within the meaning of Part V or the Environmental Protection Act.	0	0	0
2	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	1	2	2
3	The application of agricultural source material to land.	0	0	0
4	The storage of agricultural source material.	0	0	0
5	The management of agricultural source material.	0	0	0
6	The application of non-agricultural source material to land.	0	0	0
7	The handling and storage of non-agricultural source material.	0	0	0
8	The application of commercial fertilizer to land.	0	0	0
9	The handling and storage of commercial fertilizer.	0	0	0
10	The application of pesticide to land.	0	0	0
11	The handling and storage of pesticide.	0	0	0
12	The application of road salt.	0	0	0
13	The handling and storage of road salt.	1	0	0
14	The storage of snow.	0	0	0
15	The handling and storage of fuel.	2	1	1
16	The handling and storage of a dense non-aqueous phase liquid.	11	11	11
17	The handling and storage of an organic solvent.	1	1	1
18	The management of runoff that contains chemicals used in the de-icing of aircraft.	0	0	0
19	An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.			
20	An activity that reduces the recharge of an aquifer.			
21	The use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard.	0	0	0
<b>TOTAL</b>		16	13	14
<b>TOTAL NUMBER OF SIGNIFICANT THREATS:</b>		<b>16</b>	<b>14</b>	<b>14</b>
<b>TOTAL PARCELS WITH SIGNIFICANT THREATS:</b>		<b>13</b>	<b>14</b>	<b>14</b>

# Colgan Water Supply System



*The Township of Adjala-Tosorontio decommissioned PW1 & PW2 in 2010.*

Threat	Before		After		
	Colgan				
	# threats	# parcels	# threats	# parcels	
1	The establishment, operation or maintenance of a waste disposal site within the meaning of Part V or the Environmental Protection Act.	0	0	0	0
2	The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.	6	6	0	0
3	The application of agricultural source material to land.	0	0	0	0
4	The storage of agricultural source material.	0	0	0	0
5	The management of agricultural source material.	0	0	0	0
6	The application of non-agricultural source material to land.	0	0	0	0
7	The handling and storage of non-agricultural source material.	0	0	0	0
8	The application of commercial fertilizer to land.	1	1	0	0
9	The handling and storage of commercial fertilizer.	0	0	0	0
10	The application of pesticide to land.	0	0	0	0
11	The handling and storage of pesticide.	0	0	0	0
12	The application of road salt.	0	0	0	0
13	The handling and storage of road salt.	0	0	0	0
14	The storage of snow.	0	0	0	0
15	The handling and storage of fuel.	1	1	0	0
16	The handling and storage of a dense non-aqueous phase liquid.	0	0	0	0
17	The handling and storage of an organic solvent.	0	0	0	0
18	The management of runoff that contains chemicals used in the de-icing of aircraft.	0	0	0	0
19	An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.				
20	An activity that reduces the recharge of an aquifer.				
21	The use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard.	0	0	0	0
<b>TOTAL</b>		<b>8</b>	<b>8</b>	<b>0</b>	<b>0</b>
<b>TOTAL NUMBER OF SIGNIFICANT THREATS:</b>		<b>8</b>		<b>0</b>	
<b>TOTAL PARCELS WITH SIGNIFICANT THREATS:</b>		<b>8</b>		<b>0</b>	

# Cannington TCE

- TCE identified as a drinking water Issue in Arena well field
- Proposed AR stated “...concentrations have not exceeded the Ontario Drinking Water Quality Standard in the Wells.”
- MOE comment: Provide greater clarification/justification for assigning TCE as an Issue within Cannington DWS or remove as an Issue



## Background

- TCE was first detected in Well 4 in about 1998. Observed concentrations originally showed an increasing trend but were low relative to the ODWQS of 0.050 mg/L at the time. From 2000 to 2006 the concentrations in Well 4 were between 0.001 and 0.003 mg/L.
- TCE began to appear in Well 8 in 2001. Between 2001 and 2006 an increasing trend was observed. The observed concentrations were between 0.001 and 0.0045 mg/L.
- TCE was observed in low concentrations in Well 6 on one occasion prior to 2006.



## Background

- In 2006, the ODWQS was reduced to 0.005 mg/L . As a result the concentrations in these wells were recognized as having potential to exceed the ODWQS. Durham Region subsequently took action to lower the observed concentrations.
- Durham Region adjusted the relative pumping rates between Wells 4, 6, and 8. The overall yield of the wells was reduced and the balance of pumping rate between the wells was changed. As a result, Durham Region has been able to maintain conditions where the measured concentrations of TCE in the raw water from all three wells has remained less than the ODWQS and in fact when examined graphically the measured TCE concentrations show declining trends. The concentrations have not yet exceeded the ODWQS value but this is considered to be a result of the efforts to manage pumping rates.



## Proposed solution:

- TCE to remain a drinking water Issue
- Revise Assessment Report text to more clearly explain that if not properly managed through pumping rates then an increasing trend, leading to an exceedance would likely occur
- Revised text has been sent to MOE, and they have confirmed explanation provided justifies TCE being classified as an Issue at the Arena well field.

