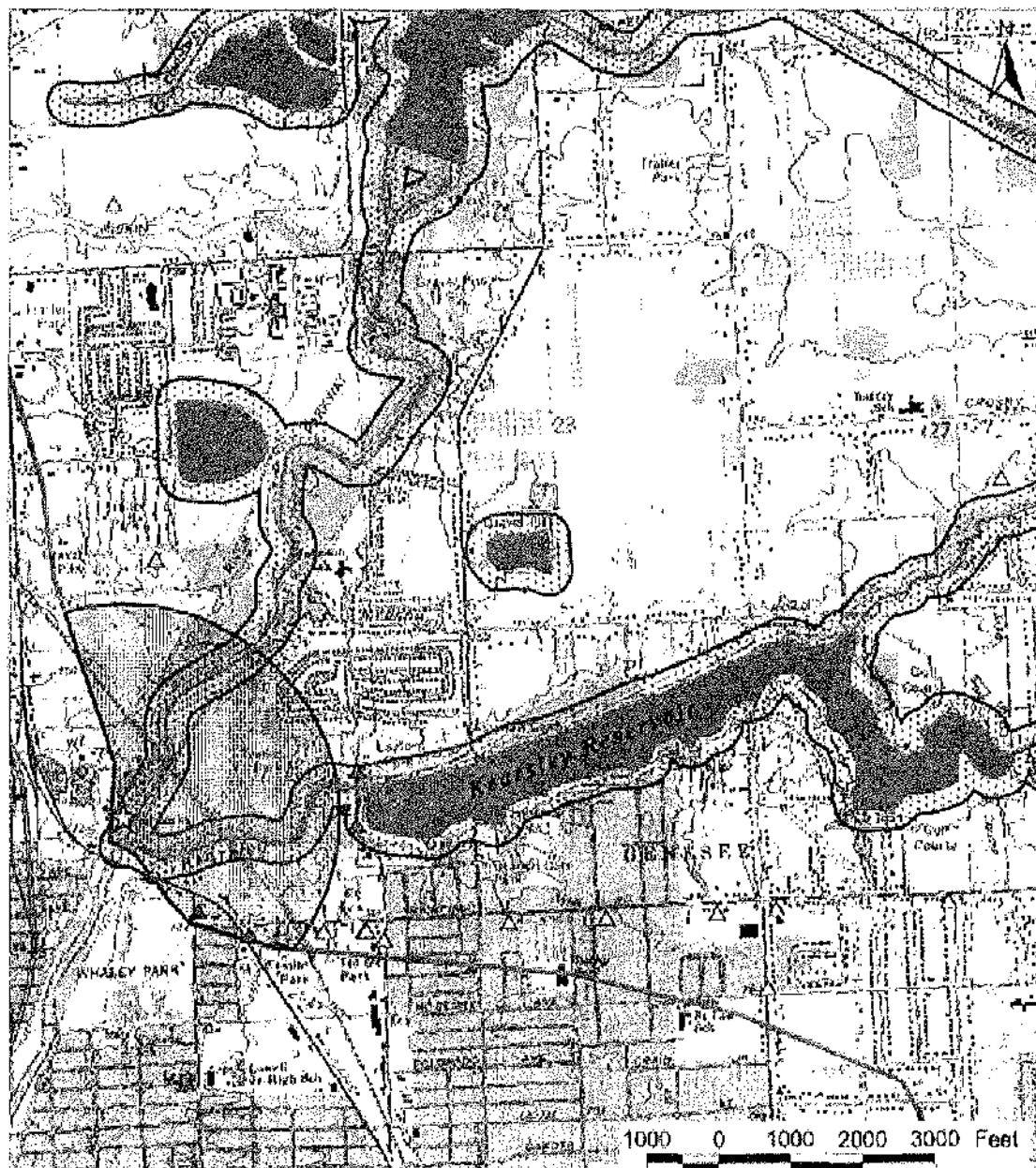


Explanation

- | | | | |
|---|------------------------------------|---|--------------------------|
|  | Pilot Water-supply Intake |  | Lakes |
|  | Potential Contaminant Source (PCS) |  | Critical Assessment Zone |
| | SWA Boundary |  | Susceptible Area |
|  | Rivers and Creeks | | |

From: Benzie, Richard (DEQ)
Sent: Wednesday, January 28, 2015 10:44 AM
To: Berndt, Jason (DEQ)
Cc: Shekter Smith, Liane (DEQ); Fisher, Brant (DEQ)
Subject: RE: CAZ description

Not that it matters for your discussion, but Sault Ste. Marie is also in a connecting channel. Maybe DeTour as well?

Did we ever develop a CAZ for the Flint River? Do we need to if it will only be a rarely used, emergency intake in another 18 months?

From: Berndt, Jason (DEQ)
Sent: Wednesday, January 28, 2015 9:28 AM
To: Goodwin, Kevin (DEQ)
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ); Fisher, Brant (DEQ)
Subject: RE: CAZ description

Hi Kevin,

The assessment methodology for the intakes is slightly different based on the three surface water supply types. There are approximately 55 Great Lakes intakes, 14 Great Lakes connecting channel intakes, and 8 inland river intakes.

The Great Lakes (55) and connecting channels intakes (14) used the "Assessment Protocol for Great Lakes Sources" which was developed by a Region 5 states workgroup in August 2000. Your statement was correct on the two factors used to calculate sensitivity of each intake is length (L) of the intake pipeline and depth (D) of the intake structure. Sensitivity equals $L \times D$ as a unit less value. Sensitivity < 25k has a CAZ radius of 3000 feet, 25k – 125k with radius of 2000 feet, and >125k a radius of 1,000 feet. The other factors you mentioned contributing to the CAZ, as well potential contaminant sources, discharges, and water quality are taken into consideration with the Sensitivity analysis to determine an overall Susceptibility of the intake.

The connecting channel intakes (approx. 14) from roughly Port Huron to Wyandotte also utilized a flow model analysis of the St. Clair – Detroit River Waterway. This program included MDEQ, USGS, USACE, USEPA, and DWSD. This helped to identify concerns in contaminant tracking and develop contingency plans.

The inland river intakes (approx. 8) were watershed based assessments. In addition to the CAZ based on a Sensitivity analysis, these assessments identified buffers in the watershed upstream of the intake. These 300-foot buffers or susceptible areas were created along the shoreline of all drainages upstream of the intake. These were additional areas to identify potential risks or contaminant sources.

I attached an example of a watershed based assessment for Blissfield. More source water assessment program information is available on our website at:

http://www.michigan.gov/deq/0,4561,7-135-3313_3675_3693---,00.html

Also, we should meet to follow up on our water quality standards comparisons for our programs and proceed with the integration toolkit. I will be in Lansing tomorrow and again on February 18th.

Jason Berndt
 Environmental Quality Analyst
 Office of Drinking Water and Municipal Assistance
 Gaylord Field Office
 517-284-6543
 989-705-3420