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 x 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.

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From: Goodwin, Kevin (DEQ)
Sent: Tuesday, January 27, 2015 3:08 PM
To: Berndt, Jason (DEQ)
Subject: CAZ description

Hi Jason –

Was going to give you a call this p.m. to discuss some CAZ 'stuff' – but looks like you're out of the office. Until we can talk – I wanted to see if the description below (quoted), which is currently in our Assessment Methodology of the Integrated Report, is relevant to inland surface water intakes as well (e.g. Raisin River)? This language is worded relative to Great Lakes/Connecting Channels, but based on the GIS layer we have (which I'm told came from the drinking water program originally) it looks like a similar approach is applied inland perhaps.

"For public water supply intakes that are located in the Great Lakes or connecting channels, a concept of a Critical Assessment Zone (CAZ) around each intake was developed based on a Sensitivity Factor calculated for each intake. The two attributes used to develop the Sensitivity Factor are the water depth above the intake structure and the perpendicular distance from shore or length of the intake pipeline. Other factors such as localized flow patterns, thermal effects, wind effects, lake bottom characteristics, benthic nepheloid layers, etc., may be used to complete the sensitivity analysis. A radius for the CAZ, ranging from 3,000 feet for the most sensitive intakes to 1,000 feet for the least sensitive intakes, is assigned based on the Sensitivity Factor. A shape with this radius is then drawn around the intake to illustrate the CAZ. If the CAZ intersects the shoreline, then the geographic extent of the assessment unit is determined on a case-by-case basis as the most influential 12-digit HUCs that are along the shoreline within the CAZ. For intakes that are located in open waters of the Great Lakes where the CAZ does not intersect the shoreline, the geographic extent of the assessment unit is 1.5 square miles."

That said, I seem to remember from a Source Water Protection standpoint that anything 'upstream' was considered? If so, I'm just trying to wrap my head around how that differs from a CAZ...(and if not, well...I'm wrong, which is likely). It'd be helpful to chat if you have some time in the next day or so. Thanks...

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