Response to Todd Feenstra's comments and questions raised during the Open Comments portion of the August 9, 2022, Water Use Advisory Council meeting. His comments and questions are summarized below, with the Department of Environment, Great Lakes, and Energy's (EGLE's) responses following each:

1. How are perennial streams defined and identified? Does it have to have flow in it year-round or not?

   Perennial versus non-perennial stream determinations are made by EGLE aquatic biologists using a standardized qualitative analysis procedure. Information provided by third parties is helpful but isn't sufficient to make a determination for stream regulation under Part 327, Great Lakes Preservation (Part 327), of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

   In February 2015, the Department of Environmental Quality formally recorded its procedure for identifying perennial streams and the portions of streams that are perennial versus non-perennial in Water Resources Division Policy and Procedure WRD-SWAS-026. The actual methods used weren't new or modified at that time, but they were formally recorded and standardized for staff reference. The procedure is based on previous work cited in other states, from the U.S. EPA, and the U.S. Army Corps of Engineers.

   A perennial stream has continuous flow in parts of its stream bed year-round during years of normal rainfall as a result of groundwater discharge or surface runoff. During unusually dry years, a perennial stream may cease flowing for days, weeks, or months depending on the severity of the drought.

   The reason for this broad definition is so determinations of stream permanence are based on normal/average weather conditions, not anomalous or occasional drought conditions.

   Key indicators when conducting a field investigation besides the presence of flowing water include: terrestrial vs. aquatic plants, water temperature, leaf litter/debris accumulation, macroinvertebrate community, fish community, and stream bed physical characteristics such as riffle-pool sequences, sediment sorting and deposition, channel sinuosity, defined bed and banks, and bankfull bench presence.

2. What are the stream temperature classes?

   Stream temperature classes are defined by the Department of Natural Resources (DNR)-Fisheries Division. Delineations between classes are based on the average July temperature, not the maximum temperature, and are set by the fish species typically found in each temperature class.

   Cold streams have average temperatures in July less than 63.5° F. Cold-transitional streams have average July temperatures between 63.5° and 67.1° F. Cool streams have average July temperatures between 67.1° and 69.8° F. Warm streams have average July temperatures over 69.8° F.

Stream temperatures within a class can vary widely depending on the weather and even on a daily basis, primarily dependent on the amount of direct sunlight received. Although typically having more stable temperatures, even some cold and cold-transitional streams in Michigan can fluctuate daily up to 12 degrees or more and commonly exceed 70° during the daytime.

3. The comment was made that "the intent (of Part 327) is to protect cold water streams".

   Actually, the intent of the law is to protect all streams of all sizes and temperature classifications from experiencing a shift or change in its specific nature, character, or ecology as a result of new water uses. The composition of the fish community is the indicator used to mark change in the ecology of a stream. The intent to protect all streams is clearly evidenced by the adverse resource impact (ARI) limits in Part 327 for all stream temperature classes including warm streams. In fact, the ARI flow-reduction thresholds for warm streams are lower than those for cool streams, are comparable to cold streams, and there's even a lower ARI threshold for warm small rivers than for all cold streams. Cold-transitional streams have a much lower ARI threshold than all other stream types simply because smaller flow reductions result in greater changes to the fish community in this temperature class. The lower threshold for cold-transitional streams isn't necessarily because of a preference for preserving certain cold water species such as trout and salmon over cool and warm water species. In fact, cold-transitional streams are allowed to have a greater amount of change to the fish community (5 percent reduction of thriving fish population) than cold streams are (1 to 3 percent reduction in thriving fish).

4. Examples were given of some stream segments that were suggested should be eliminated or truncated based observed no/low flow, or should be reclassified based on their temperature.

   Note that upon determination of non-perennial flow at a point or for a segment of a stream by EGLE aquatic biologists, a withdrawal that previously failed isn't assured to now pass the assessment. A new impact assessment will be modeled, using new distances from the proposed well to the perennial streams. This may or may not result in a passed assessment due to the likelihood of causing an ARI.

   Similarly, changing the temperature classification of a stream based on the methodology adopted by the DNR won't necessarily improve a withdrawal's assessment of the likelihood of an ARI, depending on the new and old temperature classifications.

5. Is there a lower limit for stream size/flows that are regulated and protected?

   Yes, per MCL 324.32706a, cool and warm streams with drainage area less than 3 mi^2 are combined into the downstream receiving stream's network and water management area. They aren't eliminated, but they're not regulated separately on their own.

Cool and warm streams with drainage area less than 20 mi^2 and less than 1 cubic foot per second of index flow are also combined into the downstream receiving stream's network and water management area.

And finally, for assessment of withdrawals to be made by well, cool and warm streams with a drainage area more than 3 mi^2 but less than 6 mi^2 are also combined into the downstream receiving stream's network and water management area. This doesn't apply to withdrawals to be made by surface water intake from a stream.

Cold and cold-transitional streams don't have a minimum drainage area; all are regulated.

These provisions only apply to determinations made by the Water Withdrawal Assessment Tool. A site-specific review or permit review could ignore these minimum stream size thresholds. No Site Specific Review or permit decision has ignored these thresholds to date.

6. Should small streams be protected?

   From the policy perspective, the Legislature clearly intended to protect all streams including small streams, with the limited exceptions as noted in MCL 324.32706a. Small streams typically comprise about 75 percent of the total length of river networks. From the hydrogeological perspective, it's likely that any reduction in stream flows resulting from water withdrawals would be observed first and more pronounced in smaller streams and in upgradient, headwaters portions of watersheds thereby providing advanced notice of the onset of changes occurring to a river system. From the biological perspective, small first and second order streams are critically important to the overall health and ecology of river systems by transmitting nutrients from the landscape, controlling water quality, and by providing spawning, nursery, and refuge habitat for diverse organisms.

7. How do we deal with or communicate about the regulation of withdrawals' impacts on small streams located relatively far from a relatively deep well?

   The scientific and cultural importance of small streams to the overall health of our water resources provides ample justification for their preservation. The effects of pumping a deep well on a stream that is located a long distance away will inherently be minimal based on the streamflow depletion models and geologic data currently available to EGLE in the assessment process. If the effects on streamflow are believed to be over-estimated, more site-specific data can be collected and a more appropriate model can be substituted, if applicable. The most accurate and most representative scientific assessment available will be used to make any regulatory decision.