STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

November 27, 2019

VIA E-MAIL

Ms. Arlene Anderson-Vincent
Natural Resource Manager
Nestlé Waters North America, Inc.
19275 8 Mile Road
Stanwood, Michigan 49346-8806

Dear Ms. Anderson-Vincent:

SUBJECT: Proposed Monitoring Plan – Permit 1701
White Pine Springs Well PW-101

In April 2019, Nestlé Waters North America (NWNA) submitted a proposed monitoring plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE). The plan is composed of three documents. They are: *Monitoring Plan Stream Flow and Hydrological Baseline and Groundwater* prepared by ARCADIS; *White Pine Springs Aquatic Life and Aquatic Habitat Monitoring Plan and Quality Assurance Project Plan* prepared by Advanced Ecological Management; and *White Pine Springs Wetland Monitoring Plan* prepared by Environmental Consulting & Technology, Inc. All documents are dated April 2019.

Permit 1701 was issued to NWNA on April 2, 2018, and included specific conditions to monitor environmental conditions surrounding White Pine Springs Well PW-101 (PW-101) and adjacent areas. General Condition 5 of the permit required NWNA to submit the monitoring plan for approval by the department. Staff have reviewed the proposed monitoring plan and offer the following comments.

Comments are presented by area and type of monitoring. Section references refer to sections in the submitted plans. Note that the plans and comments may include references to EGLE by its previous name, the Michigan Department of Environmental Quality (MDEQ or DEQ).

Streamflow Monitoring Plan Comments:

The intent of the monthly streamflow monitoring recommendation was two-fold; one to verify the model outputs and two to prevent a potential adverse resource impact (ARI) by supplementing the historic data sets already established for these stations and see if any noticeable change is apparent once pumping at PW-101 increases to 400 gallons per minute (gpm). The latter is difficult to accomplish with discrete flow data, especially when those data are influenced by recent precipitation. Several challenges to monthly low-flow stream monitoring were discussed in the monitoring workplan with proposed changes to address

these challenges. The changes to the streamflow monitoring condition, as proposed, do not entirely meet the intended objectives. The following comments include recommended alternatives that would satisfy the objectives of the permit while allowing for some of the proposed scheduling changes. The goal is to obtain consistent and high-quality streamflow data.

Section 2.1 – Streamflow Monitoring

- When the permit conditions were developed there were not United States Geological Survey (USGS) gauges operating on Twin and Chippewa Creeks. Permanent USGS gauges have been operating at the same road crossings as SF-9 (Twin Creek) and SF-17 (Chippewa Creek) since December 2018. EGLE recommends the USGS gauge data replace monthly monitoring of streamflow at these locations until, if at some point in the future, these gauges are removed. It should be stated as such in the plan and note that routine monitoring at these locations will be continued by NWNA in the event the gauges are abandoned by USGS.

Section 2.2 – Streamflow Monitoring Methods

- Use of the Marsh McBirney electromagnetic flow meter for verification of flume measurement at SF-8 is at the discretion of NWNA for comparison purposes and may not be accepted by EGLE as the flume is considered to have a better accuracy. It should not be needed for calibration of the flume or to verify the accuracy of the rating curve as stated on page 3 of the workplan. The calibration curves are predetermined, based on head and the maximum flow rate to be measured. The long-term historic data set for SF-8 (which was collected using the Marsh McBirney) should provide the basis for maximum flow rate and sizing of the flume. Proper installation and maintenance of the flume should yield reliable results.

- EGLE did not anticipate the flume being removed and re-installed each year; just the pressure transducer. Year-round data collection would eliminate the need for removing and re-installing the flume. See Section 2.4 comments for further detail.

- Prior to submitting the proposed monitoring plan, NWNA had expressed concerns over the SF-1 continuous gauge location and provided pictures of undercut banks and fallen trees. Trees can be cleared, if needed, but the undercut banks do raise possible issues with data quality. EGLE was anticipating a proposed adjustment to the location in the monitoring plan. If there is a better site nearby, possibly SF-2, that would lend better to gaging and collecting discharge measurements for establishing the rating curve, then NWNA should propose a more suitable location. If not, then NWNA should explain how they will maintain accuracy when collecting discharge measurements along a cross-section with undercut banks.

Section 2.3 – Streamflow Reporting

- NWNA should specify a timeframe for notifying EGLE of action level exceedance or no flow observance. We suggest they notify EGLE within 24 hours.

- We agree with the proposed change to the date of annual reporting from December 31 to February 28.

Section 2.4 – Streamflow Monitoring Variances and Equivalent Monitoring

- The permit requires monthly stream discharge measurements be collected at all existing monitoring locations and that they be scheduled at least 72 hours after a significant rainfall event in order to prevent a potential ARI. NWNA has cited in meetings held prior to submittal of the monitoring plan, that access to locations on Spring Hill camp property makes it difficult to adhere to this requirement. As such, they are proposing a fixed schedule for monthly monitoring established at once for each year and only making an attempt to reschedule to avoid higher flows due to rainfall in the months of August and September.

  NWNA also cites safety concerns as the reason why they propose to exclude the months of January and February from the monthly monitoring plan entirely. We acknowledge there may be months where it is nearly impossible to find a 72-hour window without precipitation. While the lowest flow months of the year are typically August and September, this is not always the case; even winter months can sometimes have low precipitation and moderate temperatures. To address this uncertainty and the safety concerns presented by NWNA, we suggest the continuous monitoring instruments to be installed at SF-1 and SF-8 be operated year-round in lieu of monthly monitoring.

  Extending the monthly monitoring to these locations was not only intended to establish and maintain a rating curve, but also to fill the gap in the continuous monitoring period. Extending the continuous monitoring period for SF-1 and SF-8, in combination with continuous USGS gauges operating at SF-9 and SF-17, will provide an unbiased view of flows nearest to the pumping well and potential downstream impacts, while eliminating many of the challenges and uncertainties presented by monthly discrete monitoring. Discharge measurements would still be needed at stations SF-1 and SF-8, however, they would be in support of establishing/maintaining a rating curve only. Measurements are needed across a range in flows for a rating curve.

  Therefore, EGLE would accept higher flow measurements collected at SF-1 and SF-8 in addition to measurements also collected during periods of moderate and low flow in order to cover the rating curve. Other routine maintenance inspection of the monitoring equipment would also be needed but could be scheduled at the convenience of the camp and NWNA's consultants to coincide with days already onsite for other monitoring purposes.

- If the above recommendation was adopted, monthly monitoring would still be required at remaining locations SF-2, SF-10, SF-11, SF-13, SF-16, SF-18, and SF-19 for the purpose of model verification. We would recommend accepting the proposal to scheduling this in advance according to a set schedule; however, the measurements should be scheduled 12 months of the year. NWNA should be aware and

acknowledge in the monitoring plan that rapidly changing stream stage can affect measurement accuracy. If stream stage is changing significantly on the day of a scheduled measurement, it should be rescheduled. When EGLE staff review the monitoring data each year, they will evaluate stream stage and may not accept discharge data collected immediately following or during a precipitation event if it is evident that measurement accuracy may be compromised.

Most of the stream flow monitoring locations are at road crossings and access/safety are less of a concern; however, we suggest NWNA's consultants invoke stop work authority as a health and safety precaution if conditions are hazardous. In the event a scheduled measurement is canceled due to hazardous conditions, NWNA should notify EGLE within 24 hours. An attempt should be made to reschedule the measurement when conditions improve. This should be stated in the monitoring plan.

- If the recommended changes (above) to the permit conditions are not adopted, we suggest the original permit conditions be enforced for one year after pumping increases to 400 gpm and be re-evaluated after that time. If notice to property owners is the primary concern with scheduling, then we suggest NWNA schedule more frequent (weekly) measurements as a precautionary measure, with the landowner's understanding that once a low-flow measurement is made, further measurements may not be necessary that month.

- We agree with the equivalent locations proposed as replacement for Weirs 1-10. There are numerous existing surface water level and flow monitoring locations and it would be redundant to re-install the weirs.

- Fisheries Division is in MDNR not MDEQ (EGLE).

General Comments

- The monitoring plan does not address obtaining permits for installation of scientific monitoring equipment. This will be required, at a minimum, for the stilling wells and flume.

<u>Streamflow QAPP Comments</u>:

Section 3.3 – Permit-Required Monitoring

- The monitoring plan (as discussed above) and the Quality Assurance Project Plan (QAPP) propose modifying the monitoring schedule from what was required by the permit. It is important to monitor the upstream locations consistently and accurately for the purpose of detecting streamflow reductions . The proposed monitoring schedule could be acceptable for downstream locations meant more for model verification. However, we do not recommend accepting scheduling in advance or eliminating winter months on a routine basis for the upstream SF-1 and SF-8 locations. We suggest either extending the continuous monitoring period (also see monitoring

plan Section 2.4 comments) or maintaining a protocol that reduces the likelihood of impact from recent precipitation on flow measurements.

- Any place MDEQ notification is mentioned, we suggest citing a specific time period of no more than 24 hours. We also suggest updating all MDEQ references to EGLE.

Section 5.4 and 6.1 and Monitoring Plan Summary

- For river/stream stage less than 10 meters, transducer readings should be within 0.01 feet of manual tape down measurements (*Reference: USGS Stage Measurement at Gaging Stations, Saur and Turnipseed, 2010*).

Section 7 – TGI Streamflow Monitoring Protocol

- FlowTracker protocol should address what will be done if QC warnings identify more than 10 percent discharge in a section. We suggest it is written into protocol that 'do not end section' be selected and additional measurements be inserted between interval(s) where discharge is greater than 10 percent.

General Comment

- The specifications of the Level Troll 700 are not stated anywhere in the monitoring plan or QAPP. Will the proper pressure range be selected to achieve the required accuracy? Manufacturer's website states the accuracy is +/- 0.05 percent, but the instrument is available in a variety of pressure ranges and the specifics should be noted for both groundwater and surface water transducers.

<u>Fish and Aquatic Life Monitoring Comments</u>:

Fish and Aquatic Life Monitoring Plan

- We agree with the locations and the methodology for multiple pass depletion. We request that the monitoring plan and analysis for abundance estimates include all species captured and not just trout. The reason for this is that other species also provide an indication of the annual stream conditions and will be important to determination and detection of any changes.

- We would like to also see the discharge levels (graphically) provided for the month in which the fish sampling occurs reported at the same time and with the fish data (from the Arcadis Plan). This will be important context for the observations of the fish community and stream temperature.

- In addition to the summer monitoring of stream temperatures, we would also like to see discharge (from the Arcadis Plan) and at least one stream temperature monitoring device left in year-round in each stream. We are concerned about withdrawal through winter potentially limiting instream habitat and resulting in reduced habitat conditions with decreased volume. This procedure would also be consistent with DNR Status and Trends monitoring.

- While the temp loggers may be calibrated by the company, we would ask for a lab verification procedure to ensure correct measurements. Standardized procedures exist for conducting pre-deployment testing of temp loggers and we would ask that this be included in the QAPP for stream temperature monitoring. See page 5 of the U.S. Forest Service document as an example, available at the following link: https://www.FS.Fed.US/RM/Pubs/rmrs_gtr150.pdf.

- For the mussel survey protocols, please refer to and follow the updated document (Hanshue, et al., 2019) available at the following link: https://www.FWS.gov/Midwest/EastLansing/TE/pdf/MI_Freshwater_Mussel_Survey_Protocol.pdf.

Consideration as a Matter of Endangered Species:

- For the Aquatic Life and Aquatic Habitat monitoring plan: Page 7 – last paragraph: for the sentence that starts "Although not expected for the freshwater mussel survey…" we ask that the text be updated to say "… should a state or federally listed mussel be encountered, a state or federal endangered species permit will be obtained for future mussel surveys and the location of state or federally listed mussels will be reported to the Michigan Department of Natural Resources (MDNR) and/or the U.S. Fish and Wildlife Service (USFWS)."

- For the Wetland Monitoring Plan, we ask that the following additional language be included in the vegetation monitoring section saying something like "if we find a state or federally listed plant we will record the location and notify the Michigan Department of Natural Resources (MDNR) and/or the U.S. Fish and Wildlife Service (USFWS)." We also recommend that a list of state or federally listed plants be included in the annual report or a statement that says no state or federally listed plants were identified.

- For both monitoring plans, we ask that any invasive species be recorded, reported, and entered into the Midwest Invasive Species Information Network (MISIN) at the following link: https://www.MIsin.MSU.edu/ and that the information be recorded in the annual reporting.

Macroinvertebrate Sampling:

- The Monitoring Plan and QAPP state that one hour of sampling for macroinvertebrates will be completed at each site. Procedure 51 claims that 20 minutes of netting is generally sufficient for characterizing macroinvertebrate communities within all habitat types. What is the reason for the disparity in sampling time?

- Procedure 51 states that macroinvertebrate samples will be subsampled, identified, and enumerated in the field. The Monitoring Plan or QAPP does not state how this will be completed in the field, but rather that, "Collected specimens will be stored in 250 milliliter (mL) plastic wide-mouth jars containing 70 percent ethanol and will be

identified using various taxonomic references…" There needs to be more clarity here as it sounds like invertebrates will be live-picked, preserved, then identified at a later date.

If preserved samples will be identified in the lab under a microscope, then direct comparability to State of Michigan samples will be lost and, in my opinion, the method would no longer follow Procedure 51. Given that the goal of these surveys would be track changes over time, then having an archived preserved sample would make sense.

- What mesh size will be used for macroinvertebrate surveys? No mention of the dipnet mesh size is made in the Monitoring Plan or QAPP. Procedure 51 states a mesh size of one millimeter.

Mussel Sampling:

- The Michigan Mussel Protocol has been designed to be utilized at sites where development or disturbance is expected near a stream. The Protocol lays out the semi-quantitative or quantitative sampling methods that should be used to detect changes in mussel communities immediately surrounding or downstream of a disturbance. The Michigan Mussel Protocol is not designed to detect changes in mussel populations at the basin scale. Sample reaches of 100 feet and 400 feet may be insufficient to quantify the mussel population or to detect changes in mussel populations from the threat of groundwater withdrawal. Please justify the use of the specified sample reaches.

- The Work Plan and QAPP call for using a reconnaissance survey to survey for mussels and prepare a species list. A proper semi-quantitative or quantitative survey is preferable and could yield information, including relative abundance or density, age, and sex of mussel species present. Tracking all these variables over time would give a much more complete picture of the effects of aquifer pumping.

- It is unclear if any semi-quantitative or quantitative surveys are planned. Please clarify the type of survey and justify if only semi-quantitative surveys are intended. Have any quantitative mussel surveys been completed by Nestlé or its contractors in the past?

Survey Timing:

- Consider completing biological surveys on different days in an effort to decrease the physical influence that one survey may have on another. For example, electrofishing will disturb macroinvertebrate communities and cause some taxa to dislodge from substrates and drift downstream.

Quality Assurance:

- Please describe how quality assurance will be maintained with taxonomic identification of specimens. The QAPP state only that surveyors will have experience.

Groundwater Monitoring Comments:

Permit Conditions Page 8, Item 1 – Groundwater Monitoring Points:

- All monitor wells listed in Item 1 have been included in the monthly monitoring plan according to Work Plan Section 3.2, Monitoring Activities, except for MW-4i (removed in 2003) and MW-108i (removed in 2016); both monitor the intermediate aquifer.

  With existing nested wells MW-1i, MW-1U, and MW-1d as well as EGLE proposed new nested well location in the vicinity of 43.935603/-85.297511 to monitor Southern Boomerang Springs, the replacement of MW-4i is not needed. Similarly, with the new EGLE nested wells proposed to monitor the Northern Ridge Springs (location near 43.941231/-85.298817) the replacement of well MW-108i is not needed.

- All vents and seeps listed in the permit as monthly monitoring locations are included in the Work Plan in Section 3.2, Monitoring Activities. Seep-1 has been replaced by Seep1r in the same area.

- Drive point and stilling well locations to measure groundwater levels in DP-1, DP-2, DP-3, DP-4, DP-5, SW-1 (replaced by SW-1A), SW-1-DP, SW-2, SW-2-DP, SW-3-DP, SW-6-DP, SW-8 (replaced by SW-8A), SW-8-DP, SW-9, SW-10-DP, SW-11-DP, SW-14, SW-14-DP, SW-3 WCO, SW-5 WCO as identified in the permit have been included in the Work Plan. Permit location DP-14 (wetland A) has apparently been renamed WT-A-2.

- Additional drive point locations DP-11, DP-12, DP-14, D, DP-15, DP-16, DP-17, DP-18, DP-19, and DP-20 not identified as such in the permit have been included in the monitoring Work Plan on page 8 but not in the QAPP Table 1 showing permit monitoring locations and these locations don't appear on Figure 3. It is not clear if these locations will be monitored and have been re-named or missed in the QAPP.

- Permit monitoring locations DP-6, DP-7, and DP-8 have not been included in the Work Plan or QAPP. The three monitoring points, DP-6, DP-7, and DP-8 are located on the west side of Twin Creek and replacing one of them may be valuable for background or reference water level information in this location.

- Stilling wells SW-3, SW-4, SW-5, SW-6, SW-7, SW-10, SW-12, SW-13, and SW-15 listed in the permit are not included in the Work Plan for water level measurements. Some of these points also monitor the southern portion of the Boomerang Springs and the wetlands to the south of that. By removing all these locations from monitoring it may be more difficult to assess if the pumping is having any impact on the springs versus climate-related changes. It is recommended that some of these at least be included for background.

- Figure 3 Permit Monitoring Network in the Work Plan does not show the locations of many of the drive point wells such as DP-11 through DP-20. This figure is congested

due to scale. It may be necessary to show an enlarged section or sections of the spring(s) area(s) to illustrate the locations of these or any new locations.

- Table 1 Permit Monitoring Network in the QAPP lists the locations included in the permit monitoring network. There is no table listing the permit monitoring points in the Work Plan. Table 1 in the Work Plan lists the abandoned locations and Table 2 in the Work Plan lists the current monitoring network, which is not the same as that proposed for the permit.

- Also, the QAPP Table 1 Permit Monitoring Network lists DP-11-sg and DP-12-sg. It is unclear where these are located and if they replace DP-11 and DP-12, are alternate locations, or are just renamed. In Table 2 of the Work Plan showing the current monitoring network locations, location DP-11 is indicated as WT-H and location DP-12 as WT-G. Has the naming convention changed, the location changed, or both? The table showing the permit monitoring network should be included in the Work Plan and any name changes be clearly identified as only name changes, location changes, or both.

- Locations SW-4-DP, SW-5-DP, SW-7-DP, SW-12-DP, SW-15-DP listed in the permit have not been included in the Nestlé monitoring plan. These locations monitor the southern portion of White Pine Springs and the wetland just south of White Pine Springs and Boomerang Springs. The Work Plan indicates that the SW-4-DP, SW-5-DP, SW-7-DP, SW-12-DP locations monitored the shallow aquifer near Twin Creek and were abandoned due to their increased distance from the pumping well and proximity to SW-6-DP and SW-14-DP.

  Again, it may be beneficial to include a drive point location(s) on the south side of White Pine Springs (for example just south of SW-5 or SW-15 and southeast of SW-6-DP. Locations on the south side of the springs can monitor for changes across the springs or potentially provide “background data.” Without background locations, there are no reference points to judge any changes in the northern part of these springs (closer to the pumping well) that may be related to drawdown versus those changes that may be related to climate.

- Surface water levels will also be monitored in SG-17R and SW-13R which are surveyed marks on permanent bridges. In addition, surface water levels will be monitored in wetlands using existing and newly proposed locations. Does SW-17R replace permit location SW-17?

- Staff gauges SG-2, SG-3, SG-5, SG-9, SG-10 (replaced by SG-10R), SG-16, SG-17 (replaced by SG-17R), SG-18, SG-19, SG-201, SG-202, and SG-203 (replaced by SG-203R) listed in the permit have been included in the Work Plan. Staff gauge locations added include DP-G-SG, DP-H-SG, and SG-203R.
  Staff gauges listed in the permit but not included in the Work Plan include SG-7, SG-8, SG-20, and SG-200. Locations SG-200, SG-7, and SG-8 were removed because

Nestlé indicates that the downgradient location SG-9 gives information on the tributary feeding Decker Pond. SG-20 location was removed in part due to objections by property owners. Location SG-200 is still present due to water level decrease associated with a dam, Nestlé indicates this location is no longer in the pond. If water levels rise, this location would again be added to the data collection.

Permit Condition No. 1, Page 9 – Vertically Nested Well Locations – Work Plan Section 3.1 Nested Well Installation

- Southeast side of Northern Ridge Springs between the springs and well PW-101 – existing nested well MW-101 I and d proposed for this location will better monitor wetland R and should be used. A new nested well (shallow, intermediate, and deep, as warranted) closer to the Northern Ridge Springs is needed. The location suggested is near 43.941231/-85.298817 (see attached Figure A). Well MW-108i south of this proposed location has been removed due to damage. Rather than replace MW-108i noted in the permit, this alternate nested well location is suggested.

- It is agreed that new nested well location MW-116 s and d (near 43.93653/ -85.297781 will monitor the northeast side of Northern Boomerang Springs and Wetland R.

- It is agreed that existing nested wells MW-1i and d will monitor north of White Pine Spring as well as northeast of Wetland H.

- The northeast side of Southern Boomerang Springs and Wetland G needs a nested pair of wells (shallow, intermediate, deep) near location 43.935603/-85.297511 to monitor both Wetland G and Southern Boomerang Springs (see attached Figure B).

- For the vertical nested well location northwest of Wetland CC, the Nestlé proposed nested pair of MW-104l and 104i are too far north of the wetland location. The MW-104 nested well pair should continue to be monitored, however, a nested well pair for upper, intermediate, and lower, as warranted, is needed closer to Wetland CC. The location should be close to or near 43.935368/-85.285951 or if this location is not accessible, then near one of the following locations – either 43.936566/-85.286533 or 43.936563/-85.28679 (see attached Figure C).

Permit Condition No. 2, Page 9

- Following the baseline data collection, the permit requires Nestlé to collect groundwater level data from each monitoring well, drive point, vent, and seep on a monthly basis. The results and analyses of data trends are to be submitted by October 1 each year. However, the Work Plan Section 3.5.2 Schedule does not propose monthly monitoring. This is needed for the assessment of the wetlands and the collection for annual water level calculations.

- The permit conditions to submit the report on monitoring results by October 1 has been changed to February 28 of each data collection year. As stated in Work Plan

Section 3.5.3 "…If any Permit threshold is exceeded throughout the monitoring year, the MDEQ will be notified and actions will be taken as prescribed…" Nestlé really needs to state a specific time frame in which to contact EGLE if any ARI level is exceeded. For example, requiring Nestlé to contact EGLE within 24 hours should any measurement limit or permit threshold be exceeded, and provide response actions. Similarly, if a consistent decrease in the vertical gradients near the springs or seeps are observed for three consecutive months, then EGLE should be notified.

Permit Condition No. 3, Page 9

- The reporting deadlines included in the permit have been changed by Nestlé to submittal of the baseline and all following annual monitoring reports by February 28 of the year following the data collection instead of October 1. The requirement of one round of monitoring after the approval of the monitoring plans/QAPP is noted in the Work Plan, Page 12. If the reporting will be delayed until the following year in February, if any permit thresholds are exceeded in the previous year, especially during the low flow months, Nestlé will notify EGLE within 24 hours of such an event and provide response actions (partially addressed in Work Plan Section 3.5.3).

Permit Condition No. 4, Page 9

- Newly collected data will be used to validate the groundwater model.

- The Work Plan does not appear to include the permit requirement that if the drawdown or water level declines observed in the monitoring data exceed what is predicted by the groundwater model or other permit triggers, the pumping levels will be reduced to 250 gpm followed by monthly monitoring until water levels recover.

Permit Condition No. 5, Page 10

- Review of the conceptual model based on new data collection to evaluate the need to update the groundwater model. This requirement is included in the Work Plan as stated in Section 3.4.1 Baseline/Annual Reports, Page 11 and Appendix H.

- Appendix H of the Work Plan Recharge Evaluation, Page 254, indicates that if the base flow measurements in Twin Creek and Chippewa Creek are within 10 percent of the flow calculated with the groundwater model, the recharge rate will be determined to be valid. What difference in impacts will occur with a 10 percent difference in the flow measurements versus a 5 percent difference? This should drive the need to do a further evaluation and possibly update the model.

- If the recharge is deemed to need re-evaluation based on the site Twin Creek and Chippewa Creek flows, then the base flows for all continuous gauges associated with the model domain should be re-evaluated. In this case, what is the difference in the recharge estimates compared to what is used in the model and what meaning does that difference have as far as determining ARI impacts?
- The Recharge Evaluation section in Appendix H needs to be clarified.

Permit Condition No. 6, Page 10

- The Work Plan for the installation of the vertical nested wells shall provide details on specific location, approximate screened intervals and construction details for the nested wells. The current Work Plan uses existing wells for all but one location, north of White Pine Springs. Therefore, details are required for the requested new nested well location as identified in the review.

Work Plan Section 1.1 – Existing Monitoring Program

- There is a change in terminology for the existing monitoring network locations and the permit monitoring locations as proposed by Nestlé between the Work Plan and the QAPP. Section 1.1 identifies the existing monitoring program as a long-term monitoring program (LTM). Table 1 in the Work Plan presents a list of abandoned locations from the existing LTM. Table 2 presents a summary of the current monitoring network and Figure 2 presents the locations of the LTM. Figure 3 in the Work Plan is a map of the Permit Monitoring Network locations. There is no table of locations for the Permit Monitoring Network in the main body of the Work Plan and it is not clear if there is a difference between that and the current monitoring network in the Work Plan and how it compares to the locations required in the permit.

- Table 1 in the QAPP presents the locations of the Permit Monitoring Network but the QAPP Figure 2 lists Long Term Monitoring Network locations, which were the original monitoring locations as presented in the Work Plan. The monitoring networks should be clarified.

Work Plan Section 2.4.2 – Monitoring Schedule

- It is not clear how the water levels in the vertical nested wells, or which wells, will be sampled on a monthly basis as required by the permit.

- Section 3.5.2 Schedule seems to suggest that only wells MW-3i, MW-9i, MW-104d, MW-111d, and MW-114i will be equipped with transducers and will provide the only water level measurements in January and February.

- However, in 2001, 2002, 2003, 2004 (January), 2005 (January), 2007(February), 2008, 2009 (January), 2010 (January), 2011 (January), and 2012 (January), many well locations were sampled in January and a select group in February. Sampling in January and February was cut back starting in 2013 as was the general monitoring.

- Historical data also shows that water levels have been collected in January and February in MW-3i, MW-5d, MW-5i, MW-12i, MW-12s, MW-103i, MW-103d, MW-105s, MW-105d, MW-105L, MW-6d, MW-114i; Seeps 2, 3, 4; DP-1, 2, 3, 4, 5; as well at other surface water sites.

- Additional discussion with Nestlé should be conducted regarding the water level monitoring in January and February. What has changed with the sites sampled in the past that now are no longer accessible according to the Work Plan? If limited vertical

nested wells are available for yearly monitoring, it may be necessary to equip a few of the new locations with transducers as well (i.e., the four new locations at the springs).

- Every attempt should be made to conduct water level monitoring on a monthly basis as detailed in the permit. The site Health and Safety Plan should detail stop-work actions in the event of hazardous work or weather conditions (also, see comments in Section 3.5.2.).

Work Plan Section 3.1 – Nested Well Installation

- The first paragraph indicates that the boring and construction well logs for vertical well clusters in Figure 3 are found in the QAPP in Appendix A. There were no actual boring and construction well logs found in the QAPP.

- Page 8, third bullet, indicates that the survey will provide latitude and longitude in decimal degrees, but it should read “in NAD 83” without the notation for State Plane Coordinates (SPC) Michigan south zone, which is different than the decimal degrees latitude and longitude. All survey information should be checked to make sure it correctly indicates that NAD 83 horizontal datum will be used.

Work Plan Section 3.2 – Monitoring Activities

- Add the proposed EGLE vertical nested locations at Northern Ridge Springs, Southern Boomerang Springs, and Wetland CC to the monitoring plan.

Work Plan Section 3.5.2 Schedule – and QAPP Section 3.3 – Permit Required Monitoring

- Only five (5) wells are proposed to be monitored for water levels in January and February. As climate conditions are variable from year to year with many milder days, even in January and February, all locations noted in the permit must be monitored monthly. Nestlé has the option of installing transducers in wells such as MW-31, MW-9i, MW-104d, MW-111d, and MW-114i to monitor locations continuously to assist in getting the monthly data. Applicable health and safety protocols should be followed if weather presents hazardous working conditions. If this becomes the case; the monitoring event should be rescheduled as soon as possible for that month.

  Water level measurements should be scheduled early in the month, especially when it may be required to wait for data collections due to precipitation events so that data are collected following the appropriate time after a rain event. If there are no days remaining in the month after multiple rain events, then the data should be collected for that month under best conditions possible.

- Water levels need to be collected in August and September and should be rescheduled pending rain events.

QAPP Work Plan Appendix A Section 5.4 Transducers, Tube 300R, and Telemetry System

- It is not clear if all transducers, even in deep wells will be removed in winter or is this reference for stream sites only?

We hope you find the above comments clear and helpful. If, after considering the above comments, you would like to talk or meet, please contact me either via telephone at 517-897-1508 or email at GambleJ1@Michigan.gov. Please let me know if you have any questions or concerns.

Sincerely,

James (Matt) Gamble, Supervisor
Source Water Unit
Environmental Health Section
Drinking Water and Environmental Health Division

cc: Ms. Tammy Newcomb, DNR
Mr. Eric Oswald, EGLE
Ms. Katie Kruse, EGLE
Mr. Jim Milne, EGLE
Ms. Jill Van Dyke, EGLE
Ms. Leah Clark, EGLE