STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

C. HEIDI GRETHER
DIRECTOR

June 21, 2017

VIA E-MAIL

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

Dear Ms. Anderson-Vincent:

SUBJECT: Request for Additional Information
Permit Application, Under Section 17 of the Michigan Safe Drinking Water Act, 1976, PA 399, As Amended
White Pine Springs Well PW-101

Please note that the following is not a permit decision. Michigan Department of Environmental Quality (DEQ) staff have reviewed the information submitted with the July 2016 application and subsequent submittals. Additionally, staff spoke with Nestlé's experts on May 19, 2017, during a field visit. Staff have endeavored to complete their review with the information provided and, in light of input from Nestlé's experts, have concluded that the information, analysis, data, and explanation provided does not yet provide the DEQ with a reasonable basis to make the determination if the requirements in Section 17 will be met. The need for a Part 303 permit application (wetlands) remains undecided as well.

Below is a list of data, analyses, and items staff need to complete reviews in the relevant specialties. Although this request comes through the Drinking Water and Municipal Assistance Division (DWMAD), the list is composed of staff contributions from across the Departments of Environmental Quality, Natural Resources, and Attorney General. Therefore, when responding, please reference the section and number so information can be routed to the appropriate technical review staff. Please provide the following:

1. A revised groundwater model using improved methods to evaluate the interaction between the streams, aquifers, and wetlands. At a minimum, this revised model should include:

    - The use of more current MODFLOW stream packages such as routing packages SRF1/ SFR2 to simulate Twin Creek and Chippewa Creek or any streams/creeks that are in the vicinity of the PW-101 pumping well;

    - Modeling of the wetlands, springs, vents, lakes in the model;

    - Use of the site-specific recharge value calculated at 10.4 inches per year based on the Nestlé base flow data for Twin and Chippewa Creeks as reported in the S.S. Papadopulos & Associates (SSPA) report titled "Evaluation of Groundwater and Surface Water Conditions in the Vicinity of Well PW-101, Osceola County, Michigan" dated July 2016;

- A presentation and discussion of the detailed calculations and data that were used to determine this 10.4 inch per year recharge value;

- Calibrated continuous pumping from PW-101 - transient/steady state model runs (including the city of Evart pumping as in the current model) for:
  - PW-101 no pumping baseline case;
  - 150 gallons per minute (gpm) continuous pumping;
  - 250 gpm continuous pumping; and
  - 400 gpm continuous pumping;

- Drawdown contour maps for:
  - 150 gpm pumping at 10 and 20 years;
  - 250 gpm pumping at 10 and 20 years; and
  - 400 gpm pumping at 10 and 20 years (not the difference between the 150 gpm baseline and the current 250 gpm pump capacity that is represented as the 250 gpm model runs);

- The standard MODFLOW package formats that can be either modeled in Groundwater Vistas or can be imported into Groundwater Vistas using the name file. If any special applications are absolutely needed, justify their use and include a full description of the program steps, data inputs, electronic input file(s), application program operation on the data file(s), the data output and electronic file(s) for each non-standard MODFLOW application used. Enough information should be supplied to clearly understand what changes are being made to the standard inputs for a MODFLOW package and what operations the application is performing on that data;

- For the transient models, a description of the initial conditions that are used in the simulation;

- Model calibration and verification results table and map showing a comparison of the measured and simulated calibration targets and residuals with a description of procedures;

- A table showing the results of sensitivity analyses showing the range of adjusted model parameters and resulting change in the hydraulic heads or groundwater flow rates;

- Iso-contour map showing the measured and simulated hydraulic-head distribution;

- Iso-contour map of the top elevation of the aquifer(s);

- A map showing the model area distribution of the hydraulic conductivity for each layer and the leakance or vertical conductivity used for each layer;

- A table showing the aquifer parameters used for each layer in the model;

- A map showing the model grid with locations of different boundary conditions used in the model;

- Maps clearly illustrating locations, water level predictions, drawdown contours as noted above, and all wetlands, springs, seeps, vents included in the model;

- All figures presented in the report should be drawn to the same scale based on the data illustrated (e.g., all drawdown contour maps at the same scale, all regional water level maps at the same scale, etc.);

- A discussion of the limitations of the model's representation of the actual hydrologic system and the impact those limitations have on the results and conclusions presented in the report;

- Submission of an updated standard Groundwater Modeling Report (including Model Conceptualization, Model Calibration, History-Matching, Sensitivity and Uncertainty Analysis, Parameter Estimation, Predictive Simulations, Recommendations and Conclusions) should be submitted; and

- Electronic data files for all data tables (e.g., Excel, .csv); maps (.pdf and shapefile or .mxd); and all software input and output files. The datasets for the different simulations (model calibration, history matching, and predictive simulations) need to be supplied in digital format.

2. Stratigraphic logs/data for any boring/well installed in the wetland areas and springs located within all predicted drawdown zones (i.e., locations labeled seeps, vents, SW, DP, and SG). We currently only have a stratigraphic log on seep-1.

3. Add to the White Pine Springs Water Level summary table sent June 6, 2017, to also show the locations in latitude and longitude decimal degrees and the screened or monitored interval or depth at the location.

4. The source and data used to determine the higher precipitation rates between Holtschlag's base period of 1951 to 1980 and the period 1981 to 2010 as indicated in the SSPA report dated July 2016 noted above.

5. Present and discuss a detailed water budget analyses (including sources of water and assumptions) during wet, normal and dry years that includes each non-perched wetland and areas of springs (seeps, vents, and flows).

    - Discuss and document the groundwater gradient between the PW-101 well and each non-perched wetland, and the seeps, vents, or flows in the six springs (Northern Ridge, Northern Boomerang, Southern Boomerang, White Pine, Chippewa, and Decker), for each pumping scenario (none, 150 gpm, 250 gpm, and 400 gpm) and discuss any anticipated changes to that gradient and any associated implications;

    - Include cross-sections to illustrate gradients or gradient changes, as appropriate;

    - Discuss what is known (trends, fluctuations, etc.) of the flow rates in the wetlands and springs based on the data already collected as a representation of the baseline conditions at the relative monitoring points;

- In addition, outputs should show monthly water levels in inches throughout each year;

- Provide a map that shows all existing monitoring points in all non-perched wetlands and the six spring areas (as a .pdf and shapefile or .mxd);

- Provide a table showing the water level data collected to date that establishes the flow rates and fluctuations in the non-perched wetlands and six springs. Include a discussion on how each flow rate was determined and how it fits into the water budget and model; and

- Provide a map that shows all nested well/monitoring points that currently exist in each non-perched wetland and the six spring areas.

6. A map of the location of all the wetlands within the drawdown zone (i.e., within the 0.0 drawdown contour), each labeled with an identifying letter/number and a table that includes each wetland (identified by label used on the map) indicating:

    - The distance from the bottom of the wetland (lowest point) to the current top of groundwater and what the groundwater level is based on (modeling, nearby well, etc.);

    - Evaluation of whether wetland is perched (yes or no); and

    - Evaluation of whether the wetland is regulated under Part 303 (yes or no).

Please respond to this request by Friday, July 7, 2017, with a proposed timeline to provide the above listed items. Please contact me if you would like to schedule a conference call or meeting to discuss the request further. I can be reached at 517-897-1508; gamblej1@michigan.gov; or by mail at DEQ, DWMAD, P.O. Box 30241, Lansing, Michigan 48909-7741.

Sincerely,

James (Matt) Gamble, Supervisor
Source Water Unit
Drinking Water and Municipal Assistance Division

cc: Mr. Robert Reichel, Department of Attorney General
Ms. Tammy Newcomb, Department of Natural Resources
Ms. Maggie Pallone, External Relations Deputy Director, DEQ
Mr. Bryce Feighner, DEQ
Mr. Eric Oswald, DEQ
Ms. Diana Klemans, DEQ
Mr. James Goodheart, DEQ