FLOW
FOR LOVE OF WATER

Protecting the Common Waters of the Great Lakes Basin
Through Public Trust Solutions

January 30, 2020

Ms. Liesl Clark, Director Michigan Department of Environment, Great Lakes, and Energy ("EGLE") Constitution Hall 525 West Allegan P.O. Box 30473 Lansing, Michigan 48909 Clarkl20@michigan.gov	Mr. James "Matt" Gamble Supervisor, Drinking Waiter and Environmental Health Division Michigan Department of Environment, Great Lakes, and Energy P.O. Box 30817 Lansing, MI 48909-7741 GambleJ1@michigan.gov
Mr. Michael Alexander Section Manager, Water Resources Division Michigan Department of Environment, Great Lakes, and Energy P.O. Box 30273 Alexanderm2@michigan.gov	

VIA ELECTRONIC SUBMISSION

RE: EGLE to NESTLÉ Permit 1701, PW 101, White Pine Springs, Osceola Township, Proposed Monitoring Plan and USGS/NESTLE/EGLE Joint Agreement for Monitoring Plan

Dear Director Clark, Mr. Gamble, Mr. Alexander,

FLOW submits the following comments on the Nestle April 2019 Monitoring Plan (consisting of 3 documents) regarding the Plan's failure to adequately address hydrological effects, resulting in the perverse outcome that the Monitoring Plan will essentially mask, rather than reveal, the actual effects and adverse impacts of the pumping allowed by the permit at issue. As a result, the current Plan does not comply with General Condition 5 of Permit 1701. FLOW submits these comments, along with the attached comments prepared by Robert Otwell, Ph.D., as part of its continuing scientific and legal review and comments on the above Nestle Application, Permit 1701, and Conditions to Permit 1701.

FLOW has had a long-standing interest in groundwater withdrawals, surface water creeks, lakes, and wetlands, and habitat related to the removal of large volumes of water for sale as bottled water. Specifically, as to Twin and Chippewa Creeks (White Pine Springs), on December 16, 2016, FLOW discovered and advised the then DEQ that the proposed Nestle Permit at that time was not authorized as required by Section 17 of the SDWA and Section 32723, Part 327 (Groundwater Withdrawal Act). As a result, the Department directed Nestle to file a full application for withdrawals more than 200,000 gallons per day ("gpd") as required by Section 17

of the SDWA and Section 32723, Part 327, Groundwater Withdrawal Act. In December 2016 and February 2017, FLOW submitted comments on the legal framework, permits, standards or other requirements applicable under the SDWA and GWA, and requested an extension of public comment period for the benefit of citizens and other organizations to submit comments within the time required by the Act. In April 2017, FLOW submitted substantial scientific comments (based on attached reports of Dr. David Hyndman, MSU, and Dr. Mark Luttenton, GVSU), and legal comments on the need for stringent interpretation and application of the letter and spirit of the SDWA and Part 327, Section 32723.

The former DEQ issued Permit 1701 to Nestle in April 2018. In that permit, DEQ authorized Nestle to withdraw up to 250 gpd, and to withdraw up to 400 gpd subject to several conditions. Permit 1701 includes 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 to address existing conditions and assure the model relied on in issuing the permit qualifies for approval by the department. In addition to compliance with General Condition 5, Section 1017(3) of the SDWA and Section 32723(2) of the GWA require that NWNA's Plan to adequately represent existing conditions to assure the there are no errors in any predictive tool or model. For the reasons stated below and the attached Comments by Dr. Otwell, the NWNA Plan does not comply with General Condition 5, and does not comply with Section 1017(3) and Section 32723(2).

The SDWA and GWA explicitly prohibit the issuance of permits in the absence of sufficient data on existing hydrological, geological, and ecological conditions.[1] Notwithstanding this prohibition, in April 2018 the DEQ issued the permit for 400 gpm, by bootstrapping the permit with General Condition 5, which required Nestle to submit the missing data on existing conditions for Department evaluation and permission to expand withdrawals to 400 gpm after the permit was issued. FLOW and other organizations vehemently objected to the postponement of the required data to an "after the fact" evaluation and assessment, and continue to oppose this loose, unwarranted interpretation. Because the Nestle and Nestle/USGS/EGLE monitoring plan is critical to compliance with Permit 1901, Section 1017 SDWA and Section 32723 GWA, FLOW submits the following comments to address the inadequacies of the proposed monitoring plan and monitoring and to assure that the data represent true and accurate existing conditions now and in the future, and that Nestle is required to incorporate these existing conditions in its predictive model.[2]

1. While FLOW appreciates the Department's posting of the Nestle April 2019 monitoring plan, there is no posting for public review of the EGLE, USGS, and Nestle agreement for additional monitoring locations, sharing information, protocol, and use of data. FLOW submits that it and other citizens or organizations, such as Michigan Citizens for Water Conservation, Grand Traverse Band of Ottawa, or Great Lakes Environmental Clinic, to review the agreement, data, and other information shared between EGLE, USGS, and Nestle to date. FLOW requests that the agreement, memorandum of agreement, data, and other documents and information regarding this joint memorandum agreement be posted continuously on the EGLE webpage for White Pine Springs.

2. While the USGS monitoring locations, SF-9 and SF-17, are located for purposes of assuring sufficient reliable reading to increase the reliability of data, EGLE should require USGS and/or Nestle to install a monitoring SF point at a location further

[1] Section 1017(3), MCL 325.1017(3); Section 32723(2), MCL 324.32723(2).

[2] FLOW would like to thank Robert Otwell, Ph.D., P.E. in hydrological and environmental engineering for his careful review and comments on the technical aspects of our comments. A copy of his comments is attached as **Exhibit 1**.

upstream into one of the unnamed small tributary creeks. Given the reliance on Nestlé's modeling in issuing the permit, it is important to assure the model is working and reliable to address effects. Therefore, EGLE should require the plan to include this additional well to compare against model predictions. Without this data, significant effects from pumping in these upper reaches will not be included. Given the actual observations of many citizens, including those who have become familiar with local conditions in the upper reaches of these creeks over many years, of dried up or changed conditions in the creek flow and levels during this time of relatively higher groundwater levels, it is critical to monitor conditions in these upstream reaches.

3. To assess the impacts of Nestle's withdrawals, it is necessary to establish baseline data against which subsequent monitoring data can be measured. Because the most consequential impacts are likely to be observed during dry, low-flow months, it is essential to establish baseline data for these conditions. There is no baseline data taken for sufficient duration in the dry, low-flow months by which impacts of the increase to 400 gpm or the 2001 PW-101 can be measured. An application was submitted by Nestle in 2006-2007, but the data in that application, similarly, did not represent data or baseline for the base-flow in the drier or lower-flow months. Accordingly, to date, it appears that the index, or base-flow has never been adequately determined in accordance with reliable and standard methodology for pump tests and monitoring and determination of base flow or index flow. As a result, the original 150 gpm PW-101 permit was issued without compliance with pump tests requirements and determination of base or index flow. Without base or index flow, adverse resource impacts cannot be calculated.

4. Shown reductions in Index flow in the April 2019 Monitoring Plan and attachments do not identify the exact streams, reach of streams, and data relied on for the assessment. Moreover, they do not accurately show an actual low or median low flow for the drier months, such as August during the years that Nestlé collected groundwater and stream data (for 6 years as reported by Nestlé) for the proposed project. To accurately determine base flow or exceedance, it is necessary to include, or if not available take, measurements at several points along the streams, from headwaters down to the downstream points. These measurements should be taken by transducer for the entire time period of the driest months, such as July and August, and the median of those measurements should be the basis for determining base flow and index flow and the exceedance limits.

5. There are no baseline measurements data taken before or without pumping during the drier months of the year, June through August, and in some instances during reported low flows in the winter. The data and monitoring plan are based on average recharge and average flows; using averages masks the effects and hence impacts. Information should be required and presented that thoroughly discloses and shows all *actual base line measurements*, if any, and calculated measurements, if any, along with simulated results, before and during pumping.

6. The historical data reported in June 2000 through to date alone does not indicate baseline conditions. This is because most of the historical data was taken at various times, intermittently, and unfortunately at some times during pumping or withdrawals of water. Under General Condition No. 5 of the NWNA 2018 Permit 1901, it is necessary to determine baseline conditions with the data. The baseline data stated for this permit does not accurately represent baseline conditions, however, because Nestle has been pumping at rates from 150 to 250 gpm during the period the data was collected. Therefore, the data reported are not baseline conditions because the data will reflect the impacts of pumping. The baseline conditions must be determined *before* pumping. Only then can data collected during pumping be used to accurately measure and observe the effects of the

pumping. Accordingly, to establish the baseline, the rate of pumping or withdrawal must be added back to historical data used to calculate baseline conditions where ever the data used has been collected during dates of pumping. If this is not done, there is no way to verify the actual existing effect of pumping on flows and levels.

7. It should be noted that the Papadopulos & Associates Inc. report, dated February 2015, determined index or base flow (minimum of the median flows for July, August and September), using SF-13 Twin Creek, SF-19 Chippewa Creek for years 2002 to 2014. The pump test data in 2000-2001 are not included. Since pumping from PW 101 was ongoing throughout this time period, the flows in the streams were actually lower than base flow. As a result, the Index Flows determined by Papadopulos & Associates Inc. is actually lower than natural flows before pumping.

8. For example, the baseline conditions for SF-1 and SF-8 in the monitoring plan are shown at 431 gpm and 72 gpm, respectively. If it is assumed that 80% of the pumping rate at 150 gpm removes 125 gpm from the creeks, then adding back in the 125 gpm would yield a threshold of 534 gpm at SF-1 and 89 gpm at SF-8. The removal of 125 gpm from the creek at SF-1 would reduce flow (125/534) by about 23 percent! The reduction at SF-8 would be about 63 percent! This means, in effect, that an adverse impact would likely occur long before the current Nestle monitoring plan thresholdsare reached. There needs to be threshold values or limits that if violated trigger a shutdown by Nestle or on the direction of the EGLE as part of the plan.

9. The continuous monitoring at SF-1, SF-8, USGS SF-9 and SF-17 is not year round. This means the low flows in winter months, in cold wintry conditions, would not be recorded. This, in turn, means thresholds could be exceeded and impacts could occur without ever recording or responding by reduction in pumping. Pumping and monitoring data should be simultaneously available, so that creek flows and levels can be maintained above thresholds year-round.

10. To wait and not respond until an average of 431 gpm or 72 gpm in SF-1 and 8, respectively, is observed would mean that significant impairment or impacts would occur long before any action is taken. This problem is exacerbated by the fact that, according to the current plan, reduced flows would have to be observed for 14 consecutive days. The current observation period of 14 consecutive days is far too long. Significant impacts to flows, levels, and fish populations or habitat can occur fairly rapidly. The time period should be reduced to between 2 to 4 days.

11. The monitoring plan states that the first monitoring report will describe baseline conditions. For the reasons stated above, this will not account for baseline conditions unless Nestle stops pumping during the low flow months for a sufficient length of time to obtain reliable data without withdrawal of water. To get a better indication of baseline conditions based on the data that does exist, the baseline conditions should be based on the reported data in 2000-2002, before significant pumping began. However, it should be noted that this may not be sufficient in and of itself. The pump test well was staged, but there is not sufficient data in the record to show increments and measurements. The same is true for PW 101. If there is relevant data not in the record, this data should be disclosed. If it is not available, the pump tests should be redone. Moreover, it should be noted that hydrological conditions have been in a state of flux in the past 6 years, so that flows may be higher, while water levels during pumping that have been recorded may be reduced at a substantially greater percentage of stream flows than has been reported or calculated based on data collected from 2002-2015.

12. The plan proposes a set of nested wells (MW-116s and MW-116d) southwest of the purge well. These, together with all surface water and groundwater monitoring points, should be measured year round. Historical data shows that Nestle has taken measurements at many of these points in some years in the winter, but not in the summer. All points, including seeps and drive points should be measured and data collected and reported year-round.

13. It appears that there is insufficient or no information or determination of adverse effect or impact regarding the weirs, wetlands, and streams or creeks above SF 1 (Chippewa Creek) and SF 9 (Twin Creek). This ignores effects and impacts in the upper reaches of the creek. As noted above, a monitoring location in these reaches should be established and the comparative modeling results disclosed and compared.

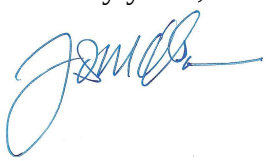
14. What was the flow at seeps and weirs during all pump tests in the early 2000s? It appears that some or all weirs and seeps dried up, so it is necessary that this information be included; moreover, this shows the need to include additional measuring points on Twin Creek above SF 9 and Chippewa Creek above SF 1 and USGS SF- 9 and SF-17. Moreover, all of the data obtained by all pump tests from 2000-2002 should be posted and made part of the record on the EGLE website, as well as included in the data set of evaluation of existing condition required by Section 1017(3) SDWA and Section 32723(2) of the GWA.

15. The proposed monitoring plan does not identify or provide for collection of data from the nearly 80 other wells in the vicinity of White Pine Springs, or an assessment of the effects of these cumulative withdrawals. Section 32723 of the GWA expressly requires cumulative analyses of all existing and foreseeable withdrawals and consumptive uses.

FLOW appreciates the opportunity to review the information that was provided and submit the foregoing comments to improve the monitoring plan. Michigan waters are held by the State as sovereign—meaning for all of its citizens, so by its very nature a monitoring plan must be fully transparent, independent, reliable and accurate to collect data and understand existing hydrologic, geologic, and ecological conditions as required by Section 1017(3) and Section 32723(2). Mere predictions based on Nestlé's model without a vigorous monitoring plan subject to public participation and independent verification will not achieve the purpose of the law or Condition 5 of the permit.

Thank you. Should you have any questions, do not hesitate to contact us.

Sincerely yours,



James M. Olson
President and Legal Advisor
For Love of Water (FLOW)
jim@flowforwater.org
(231) 944-1568

Exhibit 1

To: Jim Olson

From: Bob Otwell, Ph.D.

Re: Nestle Monitoring plan review

Date: January 27, 2020

I have reviewed the monitoring plan submitted by Nestlé Waters North America (Nestle) to the Michigan Department of Environment, Great Lakes, and Energy (EGLE). The plan, *Monitoring Plan Stream Flow and Hydrological Baseline and Groundwater*, dated April 2019, was prepared by Arcadis, a company hired by Nestle.

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. The plan is the one referenced above. I have also reviewed the MDEQ permit dated April 2, 2018 (permit 1701) issued to Nestle and EGLE comments regarding the proposed monitoring plan dated November 27, 2019.

In the comments below, I refer to sections of the April 2019 Arcadis monitoring plan.

1.1 Existing Monitoring Program

The historical data collected starting in June 2000 are important to establish the historic baseline hydrologic conditions at the site. There is confusion in the submitted plan because the plan refers to *Baseline Conditions* that would be determined with the proposed monitoring network. With the purge well PW-101 now running, the hydrology of the site is impacted by the withdrawal of water from the system, and the now steady state conditions are of this impacted state.

2 STREAMFLOW

2.1 Monitoring

The plan proposes two continuous monitoring points (SF-1 and SF-8). In addition, the USGS has installed two stream gages (SF-9 and SF-17). The USGS gages (04121507 - SF-9; and 04121494 - SF-17) were installed in December 2018, and daily flow data are available on-line. In addition, monthly monitoring will be undertaken as proposed in the plan at locations SF-2, SF-10, SF-11, SF-13, SF-16, SF-18, and SF-19.

The most direct way to measure stream impact from the increased pumping at PW-101 is to monitor the daily flows in the four continuous stream gage locations. There needs to be threshold values that trigger action to prevent an adverse resource impact (ARI). In the monitoring plan, thresholds have been set at daily average flow at SF-1 of 431 gallons per minute (gpm) for 14 consecutive days or the daily average flow at SF-8 of 72 gpm for 14 consecutive days. As required in the permit, the plan indicates that the MDEQ will be notified if flows fall below the threshold, and appropriate actions will be undertaken to meet the requirements of the Permit, that is, lowering the pumping rate to 250 gpm. I recommend the 14-day time period be reduced to 48 hours to reduce negative impacts.

A concern is that these threshold values were calculated from the Index Flows determined by S.S. PAPADOPULOS & ASSOCIATES, INC. in a report dated February 2015. The Index Flow is defined as the minimum of the median flows for the months of July, August and September, and the data utilized were from downstream monitoring points (SF-13 Twin Creek and SF-17 and SF-19 Chippewa Creek) for the years 2002 to 2014. Since there was on-going pumping during this time period, the flows in the streams would be reduced, there for the Index Flows would be lower than natural flows before pumping. This would also mean the threshold flow levels would be lower than they should be, and an adverse

resource impact (ARI) could occur before the threshold level is reached. As an example, if we assume that during the period the flow data was observed (2002-2014), the average pumping rate was at 150 gpm, then that is the volume of water removed from the groundwater system. If we assume that 80% of this flow (150 gpm x 0.8 = 120 gpm) was removed from the two monitoring points, then adding it back in proportionally would yield a threshold of 534 gpm at SF-1 and 89 gpm at SF-8.

Threshold values should also be set for the two new USGS gaging locations. These locations are especially important because the public can monitor these published flow records on a daily basis. These threshold values should be set while accounting for the effects of pumping as described above.

The continuous monitoring points, along with the monthly monitoring, should occur year-around. Challenges of wintertime operation can be overcome, and there is a likelihood that minimum stream flows may be in the winter. For the 13 months of data available for SF-17 (USGS 04121494, Chippewa Creek at 90th Avenue), the flow rate on December 22, 2018 was only 4% higher than the lowest daily flow on record on August 15, 2018.

2.2.2 Continuous Streamflow Monitoring at SF-1 and SF-8

Streamflow monitoring at SF-1 and SF-8 should occur year-around. In addition, the two USGS gages (SF-9 and SF-17) should also be monitored year-around.

2.4 Variances and Equivalent Monitoring

2.4.1 Monitoring Schedule

The continuous monitoring points (SF-1, SF-8, SF-9, and SF-17) along with the monthly monitoring (SF-2, SF-10, SF-11, SF-13, SF-16, SF-18, and SF-19) should occur year-around. Challenges of wintertime operation can be overcome, and there is a likelihood that the minimum stream flows may be in the winter.

2.4.3 Reporting

The plan indicates the first monitoring report will describe baseline conditions. The baseline conditions should be those collected in the early 2000's, before significant pumping had taken place. Recognition needs to be made that because of the on-going pumping of PW-101, monitoring data collected based on the proposed plan will have lower stream flows and lower groundwater levels than natural conditions.

If EGLE approves the final monitoring program and allows Nestle to raise the pumping level to 400 gpm, the inception of this higher pumping rate should occur when the streams are at average flow levels or above, not low-flows. This would allow the aquifer to reach new steady state conditions and subsequent low flow monitoring will be more accurate. In addition, I have not observed any daily pumping records from PW-101. These data should be available to the public to aid in monitoring the hydrologic conditions.

3 HYDROLOGICAL BASELINE AND GROUNDWATER

3.1 Nested Well Installation

The plan proposes one additional set of nested wells (MW-116s and MW-116d) to be installed southwest of the purge well.

3.2 Monitoring Activities

Numerous monitoring points are available to measure monthly groundwater levels. These locations include monitor wells, shallow drive points and stilling wells. In addition, surface water levels will be taken at staff gages. Water level measurements should be taken in all of these monitoring points, year-around. Historical data shows that Nestle has taken water levels in the winter from monitor wells, seeps and drive points.

I am not familiar enough with the site to comment on all of the monitoring points intended to monitor the wetlands and springs. The monitor wells designed to monitor the groundwater in the vicinity of purge well PW-101, and to be utilized to validate the groundwater model, appear to be adequate.

3.4 Baseline/Annual Reports

An annual report will be prepared summarizing the previous year's data and will identify any additional monitoring points that would be useful. The groundwater model should be validated with the monitoring data.

Appendix H SSPA Groundwater Model Assessment

The effectiveness of the groundwater model and the validity of recharge assumptions in the model should be reviewed on an annual basis. The additional borings and wells that will be installed with this proposed plan will help improve model assumptions, and additional data will help with validation.

Groundwater Model Effectiveness

The groundwater model will be validated with the monitoring data. In addition, evaluating the recharge rate used in the groundwater model needs to be completed with the updated data. If drawdown or water level decline exceed what the model predicts, the permit requires the pumping rate to be reduced to 250 gpm until levels recover.

Recharge Evaluation

The validity of the recharge rates should be made based on the flows measured in SF-9 and SF-17 as proposed in the plan, but also based on the flows measured in SF-1 and SF-8, which are closer to the pumped well PW-101. The plan indicates that if the calculated actual base flows are within ten percent of the flow calculated with the groundwater model, the recharge rate will be determined to valid. This seems arbitrary. If the model is ten percent off on these flows, where else is the model off, and by how much? Could changing the recharge assumptions improve the model? Could we be missing an adverse resource impact (ARI) if the model is off by ten percent?

Final Thought

If EGLE approves the final monitoring program and allows Nestle to raise the pumping level to 400 gpm, the inception of this higher pumping rate should occur when the streams are at average flow levels or above, not low-flows. This would allow the aquifer to reach new steady state conditions and subsequent low flow monitoring will be more accurate. In addition, I have not observed any pumping records from PW-101. These daily pumping data should be available to the public to aid in monitoring the hydrologic conditions.

Bob Otwell, Consulting Engineer

Bob Otwell has 30 years of consulting engineering experience. Bob is the founder of Otwell Mawby P.C., a Traverse City, Michigan consulting engineering firm serving private and public clients. Services include hydrologic and hydraulic studies; hydrogeologic investigations; design, construction and operation of soil and groundwater remediation systems; and preparation of environmental site assessments. Otwell Mawby is still doing business under the direction of Roger Mawby. Prior to OMPC, Bob worked for consulting firms in Ann arbor, Michigan and Orange, California. He conducted water and wastewater studies, hydrogeologic investigations, municipal groundwater supply development, and hydrologic and hydraulic analyses for the Federal Flood Insurance Program.