

**STATE OF MICHIGAN**  
**49<sup>TH</sup> JUDICIAL CIRCUIT**  
**MECOSTA COUNTY CIRCUIT COURT**

Michigan Citizens for Water Conservation, a  
Michigan nonprofit corporation; R.J. Doyle and  
Barbara Doyle, husband and wife; and  
Jeffrey R. Sapp and Shelly M. Sapp,  
Husband and wife,

Plaintiffs,

Vs.

Case No. 01-14563-CE  
Hon. Lawrence C. Root (P25474),  
Circuit Judge

Nestle Waters North America Inc., a Delaware  
Corporation; and Donald Patrick Bollman and  
Nancy Gale Bollman, a/k/a/ Pat Bollman  
Enterprises,

Defendants

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# **OPINION FOLLOWING BENCH TRIAL (JUDGEMENT/ORDER)**

## **1: INTRODUCTION**

This intensively fought, high-profile (for this circuit) case was filed in June, 2001. Numerous motions, many dispositive, were heard and decided during the case's pendency. Finally, the trial began on May 5, 2003 and continued for a total of nineteen days, over a disjointed schedule, ending on July 3, 2003. Two post-trial views were conducted. One by the court without counsel present, but with their consent, was conducted on July 5, 2003. Another, with counsel present, was conducted on July 9, 2003. Post trial briefing, even more extensive than the trial briefing, was submitted by counsel. The case was finally argued to the court on September 9 and 10, 2003. This case is, undoubtedly, the most extensive and intensive in the history of the 49<sup>th</sup> Judicial Circuit.

As a preliminary matter, much consideration was given to the method of delivery of this opinion: bench or written. A bench opinion was seriously considered as such allow for a more conversational tone, which would be a good format for the delivery of certain of the elements of the analysis and conclusions in this case. On the other hand, the complexity and sheer mass of this case call for a written opinion. Since the reader is...well...reading, it is apparent that the written opinion format was settled on. However, to try to retain a degree of the conversational tone, the opinion will often lapse into the writer "speaking" in the first person, a method often criticized in formal writing, but that has its place when appropriate. It is felt appropriate here.

During the trial, counsel arranged to have "daily copy" made of the record. It was stipulated that such copy would be the "official" record in the case. A private court recording firm was hired by counsel to work with the Court's official court reporter in the generation of the record on a daily basis. In reviewing the record I must note that there are a number of transcription errors. I did not read the entire record, but saw enough that I thought their existence should be noted. Such is, frankly, largely a risk inherent under the pressure of making daily copy. Also, as noted, the firm hired uses electronic recording. I remain convinced that there is an inherent risk for errors made by such process. My official court reporter is one who uses stenographic equipment with computer enhancements. My experience is that this technique, used by a competent and conscientious reporter, assures a higher quality of record than any electronic recording system can. In any event, the errors I saw were not of such a nature as to seriously compromise the record for analysis here or on appeal.

At the close of Plaintiffs' proofs the defense made a MCR 2.515 motion to dismiss Plaintiffs' MEPA claims for failure to present a *prima facie* case under MEPA. At that time, the Plaintiffs made a summary disposition motion regarding the defense based on a claim that *Thompson v Enz*, 379 Mich. 667 invalidates the real estate transactions between Bollmans and Nestle, thus causing a collapse of Nestle's claim of right to remove water from Bollman's land. The reader is referred to the record for the arguments on these motions, which were also the subject of some of the post-trial briefing. For reasons that will be elaborated on in the substantive analysis below, both motions are denied.

## **2: WHAT THE CASE IS *NOT* ABOUT**

As I noted at the conclusion of the trial, this case has been referred to as a "tempest in a tea pot", and I live in, and am elected from, the area in which the tempest rages. As such, despite my efforts to avoid exposure to community sentiment and discussion regarding the case and its subject matter, I have heard enough to know that there are many misconceptions as to what this case is really about and what it is not about.

This case *is* about the Defendants' pumping operation in and from the Sanctuary Springs area in the shallow unconfined aquifer referred to in this case and nothing else. Realization of that is the beginning of understanding this case.

This case is not about preserving the Great Lakes or allowing or prohibiting *any* diversion of water from them, either in the form of an absolute prohibition (which is unlikely) or in the form of restrictions on such. Those issues are deserving of discussion and resolution, but this case is not about those questions.

This case is not a one-person "referendum" on the merits of the beverage bottled-water industry. This is an area of the world blessed with an abundance of good water, but such is not the situation in many other areas. Even in areas with good drinking water readily available from the "tap", it is apparent that many consumers choose to buy bottled water for drinking, at least for some of their hydration needs. The defendants are meeting a market for their product, and it is not the charge of this court to decide the merits of that market.

This case is not about the re-distribution of wealth or the proceeds from the Defendants' activities. Decisions about taxing defendants' activities and products are made in other branches of government, not the courts. There has even been some "chatter" in some circles that Michiganders, or perhaps those residing in the impacted watershed, should be directly paid for the taking of "their water", like Alaskans are paid for the taking of their petroleum resources. Such an analysis does not apply to water, a more transient resource than crude oil, and such policy decisions are not in the province of the courts to make. The Plaintiffs have made a claim for the deposit of a portion of the proceeds from Defendants' challenged activities, which claim will be dealt with below.

There is no claim made in this case that anyone's water wells will be impacted by defendants' activities, so that is not part of this case. Even Plaintiffs' experts make no such claim. Likewise, there is no assertion that there will be any impact on water-bodies outside those in the West Branch of the Little Muskegon River watershed, and then only in its upper reaches. The claims presented are restricted to effects and impacts in that limited area.

This case has nothing to do with Nestle's large bottling plant located in Mecosta county, remote from the well field but connected to it by an eleven-mile long pipeline. The factory is indeed very large, though not so huge as argued by Plaintiffs' attorney. Early in the case I declined to restrain the building of the plant as its existence had, and has, nothing to do with Plaintiffs' claims in this case. Defendant Nestle was cautioned that it was proceeding in building a bottling plant at its own risk should I decide Plaintiffs' claims have merit such that there might be no water to be bottled in the plant. However, the plant is not part of any analysis undertaken in this opinion, so nothing ruled on here has any effect on whether the plant may be used to bottle water and prepare it for shipment anywhere.

Sadly, some of the "chatter" has been personally directed at the Defendants' Bollman. They, and their family, have succeeded financially from real estate holdings and developments in Mecosta County. Frankly, certain of the comments in circulation are founded in some of the more base elements of human nature: resentment and jealousy. Needless to say, this opinion has nothing to do with such sentiments. Those who hold and voice them should pause and reflect on themselves, rather than others, and focus on the real issues presented which are substantial enough on their own. If the Court finds contrary to Bollmans' interests here, such findings will be based on the facts and the law that apply to this controversy.

Issues regarding the financial and other benefits of Defendant Nestle's operations being here in Mecosta County are not directly part of any relevant analysis here. From a "business community" standpoint it is clear that an entity that brings jobs and economic activity to an area has much to stand in its favor. Also, many of the supporters of the Nestle operation are local government officials. Generally, government favors operations that generate revenue for the local economy, and in the process generate tax revenue for the government. As but one example, I have been exposed to commentary by certain local county commissioners favoring Nestle and critical of Plaintiffs. In keeping with my ethical obligations, I would cut such off immediately, but such comments by the leaders of one of this Court's funding units are noted, even if ignored.

This case is not about any opinions I, as an individual aside from my role as judge and fact finder, might have. There's an old saying to the effect that a good lawyer knows the law, but that a great lawyer knows the judge. At first blush that sounds like a cynical commentary on the "ole-boys' network", but really it is properly interpreted to mean that a great lawyer is one who has researched the judge to find out if she/he has any known predilections or philosophical nuances that might run for or against his client. Such research here would reveal me to have history and interests that could be interpreted as "cutting both ways". My family background is in business (manufacturing) and my undergraduate degree is in business administration. On the

other hand, I am a hunter, fisherman and generally an “outdoorsman”, which means I am interested in conservation and the management of renewable resources. In the final analysis I would hope that any such research would also have revealed that I value my integrity as a judge above any such personal predilections.

Neither is this case about whether Defendant Nestle is a “good corporate citizen” in relation to matters outside the issues of this case. Their shipment of water to Detroit after the electricity “blackout” this year, their contributions to various charities and the like certainly are laudable, but they are not part of the Court’s consideration here.

Finally, the case is most certainly not about public opinion or political pressure. There is no doubt that just about everyone around here has some opinion about this case, informed or not, and most are not at all shy about sharing their feelings on the matter. Discussion of this case began even before there was a filed legal case. Once it became obvious that there would be a lawsuit that I, as the only circuit court judge in the 49<sup>th</sup> Judicial Circuit, would be presiding over and serving as fact finder in, I undertook to insulate myself from public commentary as much as possible. This has not been easy. Some of the Plaintiffs, and/or those sympathetic to their cause, put up signs “Go Away Perrier” (there apparently not being any catchy rhyme for Nestle) and generally “talk-up” their point of view. On the other hand, Nestle, and Perrier before it, have waged a campaign of “hearts-and-minds” to generate positive public image and to counter negative opinions. The end result is that I have had to become a virtual social hermit to avoid the, at times, raging debate. I assure the parties, and the public generally, that this case is being decided on the merits and not improper external influences.

### **3: FACTUAL BACKGROUND**

Defendant Nestle’s predecessor in interest, Great Spring Waters of America, Inc., a subsidiary of The Perrier Group of America, Inc. (Perrier) was looking for a source of spring water for its Ice Mountain brand of beverage drinking water and settled on two sites in Michigan, the site in question here in Mecosta County, referred to as the Sanctuary Springs (Sanctuary), and a site in Osceola County (Is it just luck or malice that both sites are in the 49<sup>th</sup> Judicial Circuit?). Upon finding this site in Mecosta County (the Osceola County site not being involved in this litigation) Perrier began a program of testing and monitoring to determine if this site was feasible for commercial development. Among the questions it needed answered were if there was sufficient supply, whether the water was up to its own standards in terms of taste and purity, whether it met controlling governmental purity standards and, the issue of this case, what would be the effects of its desired “draw” from the system on that system.

It must be noted as a critical matter to this entire case that Perrier was specifically looking for a source of “spring water” that would meet the Food and Drug Administration (FDA) definition of such under 21 C.F.R. Sec. 165.110(a)(vi). The import of that will be discussed in more detail later in the opinion.

Apparently on being internally satisfied with the Sanctuary site Perrier undertook to acquire the property rights necessary for its extraction operation from the Bollmans and started the process of getting the governmental permits it felt it needed to have to operate its wells. Other activities regarding the bottling plant and pipeline from the Sanctuary site to the plant were also undertaken, but they are not part of the case that was tried, although the pleadings early on contested those activities as well. As noted above, I denied a preliminary injunction against the building of the plant. The plant was never again raised in the litigation, other than passing references to it during the trial indicating that it was a continuing source of ill-will against defendant Nestle, presumably as a symbol of the magnitude of the challenged operation and of Defendant Nestle itself. The pipeline was never raised as a point of legal contention during the trial.

When the case was filed, Perrier was the primary defendant, Bollmans being in the suit because of the property rights they conveyed to Perrier regarding the Sanctuary site. At the time of the filing of the Second Amended Complaint, the complaint on which the case was tried, Perrier was still in the case. At some time after that complaint was filed, Nestle acquired Perrier's interests in the project and was substituted in as a defendant in lieu of Perrier. From this point forward in the opinion I usually will refer to Nestle, rather than Perrier, as the principal defendant for ease of reference. Thus, the record may reflect Perrier as still being in the case in time frames when I am referring to Nestle, but the distinction is irrelevant for the purposes of this opinion. Nestle stands in the shoes of Perrier at this time.

As part of its assessment of the Sanctuary site, Nestle hired outside contractors to conduct various studies. Malcolm Pirnie, Inc. (MPI) was hired to do hydrological assessments and Mainstream Resources (MR) was hired to conduct environmental assessments. MPI either installed or oversaw installation of a large number of monitoring points throughout the upper reaches of the subject watershed. The purpose of the various monitoring points was to measure groundwater levels, levels of surface water bodies and the movement of groundwater, both before and during pumping. The record has vast amounts of data accumulated from these monitoring points. I won't detail them here, and will make reference to them generally in the analytical portion of this opinion, as well as make specific references as necessary to illustrate a point of analysis. It is noted that Defendants' primary expert witness at trial on hydrology and groundwater modeling, Dr. Charles Andrews, was not involved at this stage of the analysis, but was brought in after the MPI reports had been challenged to, as he put it, "try to repair what had been done" in the MPI analyses and reports.

Based on the MPI and MR reports to it, as well as its own internal analysis, Nestle made the determination to develop the Sanctuary site as a source of spring water and made application for what it determined were the necessary permits from the Michigan Department of Environmental Quality (MDEQ) and the District Health Department. In support of its permit applications, Nestle submitted the reports from MPI and MR. At public hearings on the applications a number of concerned citizens appeared, questioned the reports and opposed the applications.

It was apparently during this permitting process that Plaintiff Michigan Citizens for Water Conservation (MCWC) was organized. MCWC is a Michigan nonprofit corporation with approximately 1,300 members, most from Mecosta County but also with members from other areas of the United States as well as Canada. Of its membership, approximately 265 are property owners who own property riparian to waters in the watershed in question, mainly Blue Lake, Round Lake and Lake Mecosta, known collectively as the Tri-Lakes because they are connected by channels. Named plaintiffs Doyle own land on Dead Stream (a curious, and undeserved, name, but more on that later) and named Plaintiffs Sapp own land on Thompson Lake. Counsel for Plaintiffs, James Olson, appeared at some of the public hearings, if not all, expressing concerns on behalf of his clients at that time.

Ultimately, Nestle acquired the permits it felt it needed and was approved for four wells with a total maximum pumping capacity of 400 gallons per minute (gpm). Commercial production pumping, as contrasted with test pumping, was commenced on May 23, 2002, after this suit was filed. Nestle has continued to monitor and collect data throughout the pendency of the trial, and to date, and has committed to do so indefinitely (but is under no legal compulsion other than this Court's order to that effect). More factual information will be presented as this opinion continues as necessary to the many points of analysis that must be addressed.

#### **4: THE CASE AS TRIED**

As noted above, the Second Amended Complaint is the operative document from the Plaintiffs' standpoint. Through an extensive series of dispositive motions the case was pared down to counts III and VI. Count III is a common law groundwater claim, but the Court advised the parties that it would consider riparian effects and impacts as part of the Count III claims at the start of trial on May 5, 2003 in resolution of "Plaintiffs' Motion for Ruling on Law and Claims Before Trial". That motion wasn't really argued, but rather was wrangled out in chambers with the full participation of all counsel and the Court, with the results made of record. Count VI presents Plaintiffs' claims under the Michigan Environmental Protection Act (MEPA).

As noted above, trial of this case was a major effort for all involved. Over the 19 trial days a total of 27 witnesses testified, ten of them more than once. Nine of the witnesses were qualified as experts in various fields. Approximately 360 exhibits were received, many containing numerous pages. The exhibits have been collected in nine 4 ½ inch thick binders of defense exhibits and three thinner binders of Plaintiffs' exhibits. The trial transcript fills six 4 ½ inch thick binders and consists of around 3700 pages, not counting the two binders of closing arguments. The post-trial briefing consumed 423 pages, plus exhibits. My handwritten notes from the trial consumed nine legal pads.

In terms of personal milestones, from the time the trial started to date my two only children, both daughters, were married (some comments made of record regarding a wedding-dress crisis I

assisted with long-distance to North Carolina), I learned of my wife's closest uncle's death during the canoeing on Osprey Lake portion of the July 9 view (via cell-phone) and my wife and I learned that our youngest daughter, who was married in late May in North Carolina, is expecting our first grandchild this coming March! While this case is important, the events of this period helped me keep "rooted" (pun intended) in the things that are really important in life.

## **5: PRELIMINARY FACTUAL FINDINGS**

Before starting my analysis of the evidence I want to note that the case, including its presentation by counsel and my understanding of it, has evolved over time as it has been handled and dealt with by all involved. The attorneys are perceived as having "honed" their presentations regarding both facts and law and I have clawed my way up the steep slope of the learning curve with them. To the extent that this opinion in any way varies from or conflicts with my prior rulings, this opinion controls as it is based on counsels' improved presentations and my improving understanding of the case and the many questions and challenges it presents. I have been careful in reaching the conclusions I have made to be certain that the evidence, briefing and arguments were fully developed to avoid prejudice in those narrow areas of this opinion that could be considered not fully in accord with any prior ruling.

Since it is expected that many of the readers of this opinion will be non-lawyers, I will take a moment to explain the concept of the "burden of proof". In a civil case such as this one the burden of proving one's position is that such proposition must be proven by a "preponderance of the evidence". What that means is that the evidence in favor of the proposition outweighs contrary evidence. Basically, in layman's terms, if the party with the burden proves that their factual claims are probably correct, then they have met their burden of proof. The courtroom is a rather artificial environment in that cases are decided based on what is proven in the courtroom. Some times what is or is not proven in court correlates well with reality, sometimes it does not. The fact finder, in this case me, decides from the evidence what is probably the present reality or, in predicting the future, what will the future reality probably be. No party in a civil case has the burden of proving, beyond doubt, their proposition. Rather, they must prove that they are probably right. In cases such as this one with much evidence, at times seemingly inconsistent and with conflicting opinions, the fact finder sorts out what position seems best supported to the point that the findings are an assessment of what position is probably the correct one. In the analysis there may be doubt, but the goal is simply to find what is probable, not what is certain.

Regardless of the legal theory of analysis, we must start with an analysis of the factual evidence that came in during the trial. In that regard, the factual evidence analysis starts with a breakdown of that evidence into four broad categories: what was the ecosystem like before activities of the defendant (in speaking of the "defendant", focus will be on Nestle unless attention is focused expressly on Bollmans), pre-activity predictions of what the effects and impacts of defendant's activities would be, explanation of the observed conditions in the ecosystem in terms of whether

and to what extent such conditions are the result of defendant's activities once they were started and, finally, prediction of what will be the effects and impacts of defendant's activities if it fully exercises its permitted (state approved) 400 gpm withdrawal rate on the ecosystem. The questions have been stated in terms of ecosystem effect, a term more consonant with the MEPA claims of Plaintiffs than their common-law claims under Count III. However, the factual analysis in this case is the same for both counts. The focus in the common-law claims is on only those portions of the ecosystem to which the property-law concepts of groundwater versus riparian rights attach, namely Osprey Lake, Thompson Lake, Dead Stream and the Tri-Lakes area. The MEPA claims apply to those bodies as well as various wetlands. For reasons of ease of reference, plaintiffs' rights under the common-law analysis will be collectively referred to as riparian rights, although technically some would be more correctly referred to as littoral rights.

Anyone familiar with the trial, and any appellate court burdened with the review of the extensive record here, is aware that there is a massive amount of factual information in the record and much, often conflicting, opinion regarding what conclusions can be reached from that information. Candidly, there is evidence in this record that, if accepted, could support either side's position in the case. Thus, resolution of these competing claims and bodies of evidence hinges, in large part, on credibility assessments I have made over the course of the trial coupled with my own assessment of the weight and reasonableness of the evidence offered. Each side can easily point to evidence in this record, including opinions, to support their position. The "losing" side will be able to assemble a factual presentation based on the record and argue it should have won based on that evidence. One of the tasks of a trial judge sitting as the fact finder is to sort out conflicting evidence and then measure it against the parties' respective burdens of proof and of going forward. In short, evidence that seems contrary to my factual findings has been discounted or rejected by me in my fact-finding function in the face of evidence that I found more persuasive for one or more reasons. In the analysis that follows I will identify most, and hopefully all, of the credibility and evidentiary-weight decisions I have made.

It must also be noted that counsel for both sides, more often than rarely or occasionally, would, in briefing or oral arguments, misstate (exaggerate, minimize, "spin"...choose a term) the evidence or the opposing side's position. Advocates caught up in the heat of battle do such, but in a case with as extensive and complex a record as this one, such advocacy can lead to patently wrong conclusions, confusing the fact finder and as well as appellate courts reviewing the case. Defense counsel invested much effort, for example, in critiquing Plaintiffs' post trial briefing by, in Appendix A to their Post Trial Reply Brief, challenging Plaintiffs' Post Trial Brief on 174 points. Frankly, many of their challenges were well founded, but many were matters of argument or were just plainly "off the mark". It would be interesting to have seen both sides undertake such a detailed critique of each of the opposite side's briefing (not that I would have liked to read any more briefing). I came to the conclusion that I could not blindly accept counsels' characterizations of the evidence and had to, on many occasions, personally check the record to verify a point being made that didn't seem consistent with my recollection of the proofs or that was obviously in contention between the sides. Both sides called their opponent on points of exaggeration or minimizing of the effects and impacts of pumping. I have concluded that neither side was 100 percent accurate in their rendition of the proofs, either in argument or in

briefing. Also, as Defense counsel correctly pointed that, at times Plaintiffs' counsel was arguing matters outside the record. On the other hand, Defense counsel often claimed that Plaintiffs' experts would agree with or accept the opinions of Defendants' expert witnesses on various points, when actual reference to the record would show that Plaintiffs' experts would, at most, only be agreeing that Defendants' experts' methods or opinions may be something appropriate to consider, but they would not be abandoning their opinions or methods.

As noted, Defense counsel often complained that Plaintiffs' counsel's briefing or argument was not based on the record. Sometimes the criticism was valid, but at other times it was not. It is proper for counsel to argue a point that is based on the evidence, but may be an (arguably) logical extension from it. It is for the Court to decide if the arguments are proper extensions from the proofs or not.

Moving on to the evidence itself, in the fields of hydrology and related computer modeling, Plaintiffs presented as an expert Dr. David Hyndman and Defendants presented Dr. Charles Andrews. Both gentlemen were qualified by the court as experts in these fields, and both seem well qualified. In listening to their analyses and opinions I came to the generalized opinion that Dr. Hyndman's testimony and opinions are more credible and supportable than those of Dr. Andrews. That seems a harsh judgment, but it is my decision after seeing and listening to them in court, hearing the factual evidence relied on by them and considering their respective methodologies and approaches to the questions presented.

Dr. Hyndman's approach seems more consistent with the evidence, as I will discuss below, and strikes me as a more reasonable approach to the complex issues presented by this particular hydrogeologic environment. His method is more open to variables and he was more receptive to critique. His approach to computer modeling seems sounder in situations such as the one here where there is much collected data to gauge a model against in that he uses models to analyze a given "problem" in an analysis rather than trying to force the model to answer all questions presented in a complex system such as this one. Also, I find that this particular hydrological environment to contains so many variables and unknowns that computer modeling, while a valuable tool, is not one that can be relied alone on to analyze and answer the relevant hydrological questions presented in this case. Dr. Hyndman's approach to modeling recognized this, and his analysis is accepted as being the better for such. On the other hand, Dr. Andrew's presentation seemed to be "Hydrology for Lawyers" in an attempt to cope with the often "concrete" thinking of minds trained in the Law. His attempt to model this extremely complex hydrogeologic environment to explain the entire database is not considered reasonable in light of the many variables and unknowns it presents. While admitting that we have a relatively rich amount of observed data here, he held to his view that modeling is the best, and perhaps only, way to analyze the questions presented. Also, Dr. Andrews' outburst regarding the importance of his work in this case to his client, Nestle, and his view of Nestle's interest in understanding the subject of his analysis here (June 6<sup>th</sup> transcript of his testimony at pages 182-183) throws a glimmer of light on him in the role of being a "company man".

That said, Dr. Hyndman isn't always correct and Dr. Andrews isn't always wrong. My credibility assessment is that Dr. Hyndman is more correct than Dr. Andrews is in their field in this case on this record. The printed page of the record doesn't well convey the nuances seen and heard from the position of being in the courtroom, so I must note that part of this assessment of these two experts is based on my observation of them testifying. Dr. Hyndman generally seemed more at ease and able to "roll" with the variables inherent in this system, while Dr. Andrews seemed more "wooden" and rigid in his demeanor as well as in his opinions. I noted such several times in my trial notes.

Also, the factual evidence presented during the trial is found to better support Dr. Hyndman's approach and opinions than it does Dr. Andrews', as will be elaborated on below.

## **6: SPECIFIC HYDROLOGICAL EFFECTS FINDINGS**

As the reader may have noted, I am drawing a distinction between "effects" and "impacts". Effects, the subject of this portion of the opinion, are the physical consequences of a particular force. I use it essentially as a term of physics. On the other hand, impacts are the consequences of such effects, generally being in terms of a response in the ecosystem to the physical effects. For example, the effect of a lowering of groundwater may have the impact of causing a drop in a wetland area with further impacts on the plant life in that wetland. I will try to consistently maintain that distinction in terminology throughout the opinion.

Before delving into a detailed analysis of the contested proofs regarding what the effects and impacts on the ecosystem in question here may be, the nature of the system needs to be discussed. The aquifer which Nestle is drawing spring water from is a shallow unconfined aquifer, which means that this aquifer is near the surface and is open to it in that it is actually exposed in places of open surface water. Thus, the streams and lakes, as well as certain of the wetlands and surface springs and seeps, in question here are actually features of the subject aquifer in areas that it touches or intersects the surface. This case is really about effects and impacts on the surface features of this particular aquifer. Michigan has, according to the proofs, both shallow and deep aquifers. The deep ones tend to be localized and are generally not connected to surface waters such that removal of water from them is unlikely to affect any identifiable surface water bodies because they are separated from them by confining levels of soils that have low conductivity characteristics. Nestle agrees that its removal of water from this shallow aquifer will remove, on a 1:1 ratio, water from the subject watershed. The dispute relates to the extent of effects, and impacts, on the surface water bodies in that watershed: the streams, lakes, surface springs/seeps and wetlands that were the subjects of this trial.

It should be noted that this case is not about preserving some "natural" condition. The trial amply demonstrated that this area has been the subject of so much human development that it is not now in a natural state. "Natural" implies an absence of human effect. Here there has been much human impact on the relevant watershed. Lake levels have been artificially set, often by

court orders. Waterfront properties have been developed, often involving shoreline “stabilization”. Channels have been cut to connect lakes. Dams have been built to create impoundments or to artificially increase lake size and/or depth. Land has been cleared, roads constructed, cottages and homes built, all having effects on the watershed.

What this case is about, from the Plaintiffs’ standpoint, is to preserve a certain status quo from degradation, or at least identifying an acceptable increment from that status. Thus, the first task is to identify the baseline environment from which the effects of the Nestles’ operations can be measured. That is more easily stated than found from the trial proofs.

The first task, fortunately not really contested, is to identify the area in question. It was uncontested that the water in this shallow aquifer generally flows from north to south. Thus, we are looking at the upper reaches of the West Branch of the Little Muskegon River watershed, more specifically, that part of that watershed that is above the dam that controls the Tri-Lakes level and is the identified starting point of the West Branch of the Little Muskegon River. Since even Plaintiffs don’t really claim actionable harm to the Little Muskegon River or the levels of the Tri-Lakes, we are really looking at Dead Stream, Osprey Lake, Thompson Lake and four identified wetlands, those adjacent to Dead Stream and those numbered 115, 112 and 301. Other wetlands were the subject of proofs at trial, as well as other streams and creeks, but they are not part of Plaintiffs’ claims of damage or harm.

For analytical reasons that will be discussed in the legal analysis part of this opinion, Defendants are stipulating, or are not contesting, that Nestlé’s operation has the effect of removing and exporting water from the Little Muskegon River and Muskegon River watersheds as well as the Great Lakes Basin, with the extent of such diversion depending on Nestle’s marketing of the Spring Mountain brand.

The mechanisms of harm under study here involve the direct diversion of water that would otherwise have appeared at the surface via the Sanctuary Springs as well as a lowering of the groundwater table in the area with adverse effects on the listed surface water bodies.

A major problem in analyzing these effects of Nestlé’s pumping operation is that they, and the natural features that affect them, are largely underground and thus hidden from view. As such, they must be determined largely by observing changes in surface waters over time in an environment that is already subject to seasonal, cyclical and climatic variations, along with other variabilities, all of which we have little direct evidence of. Such variabilities can mask or can exacerbate the effects of Nestlé’s pumping. As such, this case is factually different from reported cases in which the challenged effects are more obvious and quantifiable.

Complicating the analysis is the fact that Nestle started commercial pumping at a rate much lower than it has permits for at a time in the annual cycle of these water bodies when they are expected to be naturally dropping in flow and/or level. The effect is to mask behind those natural changes, to a degree, the effects of Nestlé’s operation. Fortunately, the delays in going to trial allowed for the gathering of data for more than one annual cycle. Had the trial gone forward

in October, 2002 as it was originally set, we wouldn't have had more than a partial annual cycle. The question naturally comes up as to whether the timing of the start of commercial pumping was coincidental to have the effects "follow" the annual cycle or whether such was a calculated move by Nestle to mask the effects of its operation in such a way as to make it difficult to identify them from the annual cycle. That question will remain unanswered.

The findings regarding the effects of Nestlé's operations will be broken down into two areas: hydrological effects and ecological impacts. This portion of the opinion will focus on the hydrological findings. In the legal analysis portion of the opinion the factual findings made will be utilized in applying the two legal regimes raised in Counts III and IV of Plaintiffs' Second Amended Complaint.

Obviously, the effects of pumping on groundwater and connected surface water bodies are controlled by the volume of groundwater available in the aquifer. That, in turn, is affected by the flow of water in the aquifer, referred to as base flow, and the amount of precipitation that finds its way to groundwater, which is called recharge. Neither of these factors can be measured directly, so they must be estimated, one of the tasks of the hydrologists who testified.

Both Dr. Hyndman and Dr. Andrews described the effect of pumping on groundwater in terms of a "cone of depression", the area within which there is a draw-down effect from the pumping on the level of the groundwater. The more groundwater that is available, the smaller and shallower the cone is. Less available groundwater results in a larger and deeper cone. As such, if the amount of groundwater is overstated, the effects of pumping are understated and if the amount of groundwater is understated, the effects of pumping are overstated. Thus, key to accurately understanding the effects of pumping to date and of predicting the effects at higher pump rates is to accurately quantify base flow and recharge. As can be expected, the hydrological experts did not agree on base flow in and recharge to this system.

Before I dive into the competing positions in this area I want to discuss the concept of the cone of depression. The term causes one to envision a neat and tidy symmetrical shape. The truth is anything but. In reality, I do not feel either expert's computer-generated representation of the cone of depression does service to the effects of Nestlé's pumping in this complex and interconnected system.

With the exception of the contested wetlands, all parties agree that Nestlé's pumping has affected surface waters as well as groundwater. Thus, there is no dispute but that Osprey Lake, Thompson Lake, Dead Stream and the seeps feeding the Dead Stream wetlands will suffer a reduction in flow/stage. As such it strikes me that, if the cone of depression is defined by the area impacted by pumping, the area affected here is anything but a neat cone. I will coin the phrase "zone of influence" (zone) to discuss my concept of the affected area to avoid any conflict with a term of science used by hydrologists that may be more limited than the area I am examining.

A zone of influence includes all areas in which pumping will have effects. In a rich and diverse system such as this one, the shape of this zone will be dictated by a number of factors. The first, and one of serious contention in the trial, is the nature of the soils in the area. As the hydrologists explained, different soils have differing abilities to allow water to move through them, a concept referred to as conductivity. The dispersion of soils of differing conductivity means, as we have here, that groundwater will be drawn down differently in varying areas of the subject system.

Another factor is junctions between the cone and surface water bodies. Imagine a child's inflatable swimming pool filled with water. If one presses down on the side of the pool, water will drain out until the surface level is even with the depressed side. The same seems true in a hydrogeological environment. If the cone reaches to a surface water body, the water level in that water body will be drained down to the bottom edge of the intersection of the groundwater depression and the sidewalls of the water body. Once the draw-down has reached steady state, the surface water bodies will stabilize at the new, lower, level. The zone of influence gets complicated when the surface water bodies include moving waters, such as Dead Stream. Even in such situations, once steady state is reached, even moving water bodies will find their new levels.

A further complication in this case is that Osprey Lake is an impoundment of Dead Stream, first created by members of the Sapp family when they owned virtually all of the area in question here. The first dam was built in the 1950s. The existing dam was built by defendants Bollman after they acquired the property in the 1970s. When the present Osprey Lake dam was built it had the effect of raising the groundwater level around it for some distance, the most visible effect being the rise in the level of Thompson Lake, a natural lake, by one to one and one half feet. Thus, there is an obvious hydrological connection between the two lakes, a reality that indicates that the Osprey Lake impoundment has effects on the groundwater levels to the west of it, into an area Defendants vigorously denied pumping would have any effect in. There are wetlands north and west of Osprey Lake that Plaintiffs contend are impacted by pumping, but Defendants deny are subject to effect. A question not much discussed is whether they are in an area subject to Osprey Lake's groundwater effect.

As such, in my analysis of the question of what area is impacted by Nestlé's operations, I look at all areas in this zone of influence, with much of my task being to define that zone. I find that it extends to include all water bodies claimed by Plaintiffs to be affected. In short, I agree with Plaintiffs on the hydrological evidence, rejecting Defendant's evidence to the contrary.

Actually, Dr. Andrews agrees, in effect, that the zone reaches to Thompson Lake as he was the first to identify a drop in its level that coincided with a drop in the level of Osprey Lake as the result of pumping. Defendants' data also supports the fact that wetland (WL)111 is in the zone as its level is also documented as dropping with Osprey Lake. Thus, the defense actually acknowledges that Nestlé's pumping is dropping the level of groundwater and surface water bodies west of Osprey Lake to some extent.

A further, and substantial, wrinkle in the system is Dead Stream and its adjacent wetlands. Defendants acknowledge that pumping will have an effect in those areas, again disputing the extent of the effect.

Thus, the zone of influence here is anything but a tidy cone, but is rather a wildly irregular shape that follows not only the soils by type and distribution, but also the surface features of the land, the effects of the level of Osprey Lake and the dynamics of the Dead Stream system. It should be noted that Defendants argued the effect of Osprey Lake only to the extent that it artificially impacts the level of Thompson Lake. They did not argue that it has any artificial impact on the groundwater levels beyond the connection between those two lakes. Whether this is because they are of the opinion that there is no such effect, they overlooked such or chose not to raise the question as a strategic matter I cannot answer.

In light of the above analysis of the area of the zone, as defined by relatively uncontested realities, I will turn to the area of real contest, the lands including wetlands 115, 112 and 301. Defendants argue that those wetlands are outside the area affected or to be affected by pumping, with Plaintiffs taking the opposite position. The Defendants position is based on the argument that the soil types between the well field and those wetlands are such that they are of such a low conductivity that the cone (and zone) cannot reach there. In support of this position they presented detailed studies based on soil borings. Dr. Hyndman disagrees with Defendants' on this argument, countering with evidence that the three wetlands have already suffered adverse effects at the pumping rates to date, which have been running at half the rate Nestle has permits for or less. Dr. Hyndman hypothesizes that such is possible under a number of theories, the principle one being that there is a channel of high-conductivity soils between the well field and the area under these three wetlands such that they are in the cone.

After considering all the evidence I am convinced that wetlands 115, 112 and 301 are indeed being impacted by Nestlé's pumping to date, thus bringing them into the zone of influence. This conclusion is supported by observations and data collected from those areas. Frankly, the mechanism for the effects to reach to these areas is not as important as the reality of it. Put another way, I am agreeing with Dr. Hyndman that data and observations should carry more weight than modeling where there is sufficient evidence regarding such. I find that there is sufficient evidence to support the conclusion reached. It makes no difference whether the physics behind the observed effects flow from Dr. Hyndman's theory of a high-conductivity channel in the soils or some other mechanism. For example, I noted during the July 9 view that Osprey Lake has "fingers" at its northwest end pointing to the wetland area in question and that this area of the lake was observed by me during the July 9 view as having extensive wetland characteristics, indicating that Osprey Lake may well be having groundwater effects under these wetlands.

Having determined the area of the cone/zone to be as alleged by Plaintiffs, or at least includes the areas they claim to be affected by Nestle's pumping, we now turn to the more serious question of the extent of the effects in those areas as the result of that pumping. Again we find fundamental differences in the approaches taken by the "dueling hydrologists". Dr. Hyndman posits that there

is sufficient data to use to measure effects to date and to project effects at a pumping rate of 400 gpm. Dr. Andrews disagrees, arguing that there is insufficient data in that we'd need five to ten years of data to be reliable, and that his approach via computer modeling is the best, if not only, way to predict effects. Dr. Andrews acknowledges that pumping has had some effects, but modeling is still needed to quantify them.

Stepping back for a moment, modeling is a computer tool that takes what is known, or believed to be known (a substantial difference), and from that attempts to predict the unknown. Obviously, the information that is put in as the "knowns" greatly affects the computer's predictions. The old truism regarding computers applies here: "garbage in equals garbage out". Also important is the approach being taken toward the model. I have already ruled that, on this record, I accept as the better approach to modeling in this case to be that taken by Dr. Hyndman: use a model here to try to understand what the objective evidence is showing. As such, Dr. Hyndman's approach was not to try to model the entire system to get it to balance, but rather to take a more "microanalysis" approach to examining components of the system to understand them. If there is sufficient "hard" evidence, even Dr. Andrews agrees that is the best approach. Thus, one of the principal differences between these two experts is on the sufficiency of the available data and evidence.

If there is one area on which more evidence would have been welcome, it involves the conditions in this watershed before pumping was started. We do have the data collected from the various monitoring points from the time such effort was undertaken. We also have some evidence from witnesses who testified regarding their memory of the area historically. Unfortunately, while such evidence is very valuable, it is limited here. Few people observe their environment with the idea of having to testify regarding those observations years (or decades) later in a lawsuit about something they would have had no concept of ever occurring.

As for evidence of conditions in the area in question once pumping was started, we again have the collected data. We also have witnesses who testified regarding their observations at a time they well knew the nature of the questions involved.

A major issue I wrestled with as this opinion was being written was how much evidentiary detail to go into in the opinion. As noted, there is a vast amount of many different kinds of evidence. The approach I have chosen is to state the conclusions reached and refer generally to the evidence that led me to such conclusions, with greater detail being set out where such is felt to emphasize or explain a point. That decided, we will now go into specific hydrological findings. I have already stated my findings regarding the spread of what I have termed the zone of influence. I will now announce and explain my findings regarding the extent of the hydrological impact of Nestlé's operations in the various components in controversy within the zone.

## **DEAD STREAM**

Dead Stream was the focus of the most intensive analysis of all the component parts of the affected ecosystem. In my opinion the reasons for this are that, first of all, it is an extremely

complex system itself. It is a body of moving water that many seem to have attached a greater value to than non-moving waters. Also, its proximity to the Tri-Lakes, and it being one of the sources for them, makes it a logical focus of attention to get the greatest amount of support for Plaintiffs' cause here. Finally, as the most "downstream" element of the ecosystem in question here, it is viewed by many as the logically most impacted area. While that last point may or may not be accurate, "perception is reality".

As noted, Dead Stream is an extremely complex system. This is a reality acknowledged by virtually everyone who has analyzed it. Nestlé's lead trial counsel, John DeVries, referred to it as "a puzzler". Mr. Greg Foote, a hydrologist formerly of MPI, but now in the employ of Nestle, testified that they haven't been able to correlate Dead Stream's stage and flow, indicating the stream system's complexity complicated that analysis. David Cozad, one of the authors of the MR report, described Dead Stream as an unusual system that's hard to predict. Dr. Hyndman noted that Dead Stream has many variables that make it hard to predict changes in. They are all correct.

I noted above that Dead Stream is curiously named, and unfairly so. I grew up in this area and remember crossing the stream on highway M20 too many times to count. The name of the stream was the cause of much dark humor to the uninformed, a group that included me back then. Its appearance, especially as one passes over it at highway speeds, is that it is flat and unmoving, more swamp than stream. It shows none of the riffles or other visual indicators of moving water. It's not until you get down and personal with the stream that its nature becomes apparent. This I had the opportunity to do during the two views mentioned above.

The first of these views was on July 5, 2003 when I canoed, with my wife and our dog Chuck (I just had to get his name in here for posterity, an honor my wife insisted I deny her), from the public landing at the south end of Lake Mecosta to the channel between Lake Mecosta and Blue Lake (dodging boaters and "personal watercraft" on that Independence Day weekend) to the opening that represents the end of Dead Stream where it joins the channel between Blue Lake and Lake Mecosta. There was sufficient opening to make the dead stream channel apparent. From there up into what was referred to at trial as the braided-channel section of Dead Stream (which also includes volume and flow from Gilbert Creek) there was an apparent current in the stream. Actually, this braided-channel section is part of a large marsh between the two lakes on the east and the west, with its northerly boundary apparently being what I came to call the Gilbert Creek delta and high ground south of M20. We had one dead-end exploration before we found the main channel up to the area referred to at trial as Doyles', being the Mecosta County residence of Plaintiffs R.J. and Barbara Doyle located just south of M20 on the east side of Dead Stream. This area is where the infamous mud flats so often referred to at trial are located. We tried to paddle into and around the flats, but could not because of the mud that falls into the category of "too thick to drink, too thin to plow". The nature of the mud as rotting organic matter becomes immediately apparent as its surface is disturbed, as with a canoe paddle. Stench is not too strong a word. We continued to paddle up Dead Stream to M20, a short distance upstream from Doyles', where we stopped, shared a celebratory Pepsi and reversed our course as we were running out of daylight to safely make it back to the now-distant landing on Lake

Mecosta. I noted a definite current in the channel of Dead Stream its entire distance as far as we made it that day.

The second view of Dead Stream was with counsel and Greg Foote on July 9, 2003 as part of our extensive view of the area in question. We walked in the area of the wetlands in controversy and walked the well field area and along part of the north shore of Osprey Lake. We then paddled the length and breadth of Osprey Lake. Finally, we paddled the length of Dead Stream from M20 to the Osprey Lake dam, then back to Doyles'. My observation of Dead Stream was that it had a definite current throughout its entire length. Actually, the upper stretch of the stream I would characterize as a channel winding through a large wetland. At times the distinction between wetland and stream would be clearly apparent, but at other times the transition would be less sharp.

Based on the trial evidence, and reinforced by the views, Dead Stream is not dead, but rather is the moving-water component of a complex and beautiful ecosystem that has many variabilities affecting its stage and flow. As foundation, the following are noted.

Starting at its headwaters, Dead Stream historically originated in a wetland fed primarily by the underground streams, now tapped into by Nestle as the source of its spring water, surfacing in an area now under the surface of Osprey Lake. Testimony at trial described the beauty of the area where the streams surfaced, a view now lost because of the creation of Osprey Lake. Aerial photographs from the period before the Sapp family dammed the upper reaches of Dead Stream show this area as the source of the stream. The water from the historical headwaters of the stream now flow through a culvert in the Osprey Lake dam, which serves as a lake-level control device, as well as seepage through and under the earthen dam. During the July 9<sup>th</sup> view seeps through and beside the dam were apparent. I remember being struck on how little the volume of water is flowing through the dam culvert.

Moving downstream, one encounters the Dead Stream wetlands referred to above. At points one could see where there was water flowing toward the stream's channel from the wetlands, apparently from the seeps testified to as feeding Dead Stream in that area. I must note that some of these "seep channels" were not flowing or were down to mud during the view.

Gilbert Creek joins Dead Stream at Doyles' in the area of the mud flats and through a number of other channels through the marsh referenced above. It is in this area of Dead Stream that testimony was received regarding a long history of beaver damming activity. The remnants of the beaver dam that someone removed during the trial resulting in the exhibit 85 excitement could be seen during the July 5 view.

In light of all the evidence it is obvious that there are so many influences affecting Dead Stream stage and flow that it is virtually impossible to get a reliable reading on the effects of Nestlé's operations on Dead Stream on any given day. The following nine paragraphs cover the most notable of these influences.

Evaporation from Osprey Lake is a factor. Depending on varying factors, such as the time of year, humidity, cloud cover and the like, Dr. Andrews testified that Osprey Lake evaporates in the range of 150 to 200 gpm. That is water that would have made its way down Dead Stream without the dam. It is a variable on the flow of Dead Stream in that the amount of evaporation itself is variable seasonally, daily and by other influences.

The culvert in the Osprey Lake dam is a variable in that the defense argued that it had correlated fluctuations in the Dead Stream flow and the level of Osprey Lake to blockages in the culvert. I have no doubt that this may be a factor, but not only are the presence or absence of blockages in the culvert a variable, but the amount of flow through the culvert is also. That flow is variable depending on many factors including the above-mentioned evaporation from Osprey Lake, precipitation, seasonal fluctuations in the flow from the lake and many others that affect most if not all water bodies in this watershed.

The amount of flow contributed from the seeps along the Dead Stream wetlands were never quantified, but any variability in that volume affects the flow of the stream.

The vegetation in the Dead Stream wetlands and along the channel is a variable in that, during periods the plant life is not dormant, the plants take up water and evaporate it at a rate greater than surface water evaporation occurs, especially during the growing season, a process called evapotranspiration. Also, that plant life creates drag on the moving water, causing a form of natural pooling or ponding. These are seasonal effects on the flow and stage of the stream.

There also are the natural seasonal influences on the amount of precipitation that makes its way into the stream. In the winter little precipitation makes its way to the stream, but in the spring the snowmelt dumps a large amount. Likewise, year-to-year variability affects the stream system. For example, evidence was received at trial regarding a low-precipitation period of some duration before pumping was started. How much that affected the stream was not quantified, but it is an example of another variable impact.

One of the effects that is most unpredictable, but also of great impact, especially in the area below M20, is beaver damming activity. Such dams hold back flow until the beavers are satisfied with the water depth, with a corresponding rise in the stream's stage (stage is the elevation of a water body's surface, usually measured in feet above mean sea level). When a dam is breached, partially or totally, the flow increases above and below the dam and the stream's stage above the dam drops while it temporarily may rise below the breached dam. These dams are transients in that beavers build them in various areas and they last for varying amounts of time. Exhibit 85, a photo of the mud flats at Doyles', shows the sudden effect of the breach of such dams. While the amount of the effect shown in that photo and those that followed it that can be attributed to the breach of the dam, as compared to the amount of effect caused by Nestlé's operations, is a matter of contention between the parties, beaver dams are definitely a variability on the flow and stage of Dead Stream.

As became apparent at trial, it is quite difficult to accurately measure slow-moving flows in a stream. The difficulties in that area may not be a variable, but they certainly are a factor making measurement of the flow of Dead Stream problematic. Likewise, the evidence showed the difficulty of correlating low flows and stage generally, aside from the variabilities in Dead Stream.

Testimony was received indicating that there are times that the flow from Gilbert Creek can cause problems in measuring flow and stage in Dead Stream. Apparently Gilbert Creek has a substantially greater flow and volume than Dead Stream. As such there are times when the confluence of the two streams causes a backing-up of water in Dead Stream upstream from the confluence such that flow and stage are affected.

As noted above, the Tri-Lakes' level is set by court order and controlled by a dam. Originally, MPI opined that Dead Stream was primarily an embayment of the Tri-Lakes with their level being the most prevalent effect on its stage and flow. Defendants now agree that such is not the case, but there may be times of particularly low water levels in the stream that the level of the Tri-Lakes does become a factor in the stream's flow and stage, at least in the lower regions of the stream.

This may not be an exhaustive list of impacts on Dead Stream's flow and stage, but it is certainly a long list. The point is that in Dead Stream it is very difficult, if not impossible, to analyze the effects of Nestlé's pumping operations, not only to date but also at higher pump rates. Certainly there is some rate of pumping at which an effect could be obvious. Dead Stream was a challenge for both hydrologists, but both did offer opinions regarding effects to present and at a pumping rate of 400 gpm.

As noted above, in determining the effects of Nestlé's pumping, the volume of available groundwater is a crucial factor. This is true regarding all surface waters in contention, including Dead Stream. Therefore I will at this point discuss the components of groundwater: base flow and recharge.

Base flow in a stream, like Dead Stream, is the groundwater component of the stream's flow. As noted in the above discussion of the variables affecting Dead Stream, it was difficult for the hydrologists to calculate Dead Stream's base flow. Again, the importance of an accurate measurement or prediction of base flow is that overstating it results in an overstatement of available groundwater, thus understating the effects of any given pumping rate. Conversely, understatement of base flow results in an understatement of available groundwater, thus overstating the effects of any given pumping rate.

It is my opinion that Dr. Hyndman's calculation of Dead Stream's base flow is more accurate than Dr. Andrews'. Both experts recognized the difficulties in identifying base flow in Dead Stream, but both tackled the issue. Dr. Andrews estimated base flow here to be around 1440 gpm while Dr. Hyndman estimated the base flow here to be approximately 1200 gpm. Both were faced with the difficulties of measuring Dead Stream's flow, but each came up with flows

they used to calculate base flow. A report from the U.S.G.S. entitled “A Generalized Estimate of Ground-Water Recharge Rates in The Lower Peninsula of Michigan” by David J. Holtschlag, which I will simply refer hereafter to as Holtschlag, was used by both expert hydrologists to generate their opinions on base flow and recharge. It seems that both Hyndman and Andrews accepted Holtschlag’s estimator for base flow as 74 percent of low flow. Thus, the difference boils down to the experts differing views of low flow in Dead Stream. I won’t even try to explain here the minutia of the differing methods of calculating flow, but will simply state that Dr. Hyndman’s seems the better approach in that it seems better reflective of the flow data that was available at the time of trial. Dr. Andrews even admitted that his base flow exceeds observed flow, explaining in terms that were not persuasive to me. Dr. Andrews criticized Dr. Hyndman’s base flow as being too low as it fails to take into account groundwater discharge to the stream. I reject that criticism in that base flow is supposed to *be* the groundwater component of the flow. Also, there was never any evidence that groundwater along Dead Stream was at a higher level than the stream such that the stream would normally be below the groundwater levels. Even if such is the case, base flow is the stream’s stable low flow, subject to some minor annual variation, so even if groundwater is discharging to the stream at base flow in some way, that is part of the very definition of base flow: base flow *is* the groundwater component of the flow.

The importance of Dr. Andrews’ overstatement of base flow is the axiom that flow and recharge should balance, thus requiring Andrews to overstate recharge to get his model-based analysis to reflect that balance. Indeed, Dr. Andrews opines here that recharge in the area immediately upstream, in groundwater flow terms, from the well field to be very high. He estimates, using the Holtschlag report, that recharge in that area is over 18 inches per year, though he uses a variable recharge for the entire watershed of nearer 9 inches. Dr. Hyndman, using the same report, comes up with a recharge over the entire watershed of 7-7 ½ inches. It is noted that Holtschlag uses a recharge figure in this watershed of approximately 10-11 inches.

One must read the Holtschlag report to appreciate how rough the estimates of recharge are. I have read the entire report and am struck by the number of times its author cautions how inexact the “science” of recharge estimation really is. One gets the impression that the tools in the report are only for very approximate recharge estimation over large areas and that they are poor estimators for localized recharge. In fact, the report cautions that recharge is not really well understood, but it sets out its analysis of the variables relating to recharge to show its variability and assist the furtherance of the science of recharge study, an area of science Dr. Hyndman refers to as being in its infancy and still a subject of open research. While a lot of numbers carried out to several decimal points gives the impression of exactitude, such is certainly not the case with recharge. Dr. Andrews’ use of a variable recharge rate, concentrating very high recharge in the area of the watershed that would most immediately feed the well field here, is suspect. Such an exaggerated recharge lets his model balance with his too-high estimates of base flow in Dead Stream, overstate the water available for extraction and, thus, allow the model to greatly understate the effects of any given rate of water withdrawal. Remember: the more groundwater available, the smaller the cone/zone.

After listening and seeing all the evidence, I am convinced that Dr. Hyndman's assessment of the hydrological impacts to Dead Stream's stage and flow is correct, or at least is more accurate than Dr. Andrews'. This includes his approach to computer modeling, the utility of the data to date, and his opinions regarding recharge and base flow as just addressed. Other considerations also support the stated conclusion, such as Dr. Hyndman's criticism of Dr. Andrew's use of the "closed-basin model" Andrews created, Dr. Andrews' rigid adherence to his model and discounting of the data that conflicts with it along with other credibility considerations I have already referred to.

The bottom line on this hydrological analysis of Dead Stream is that the Court accepts Dr. Hyndman's calculation that Dead Stream's stage, or surface level, will drop by approximately two inches as the result of Nestle pumping at 400 gpm above and beyond the effects on Dead Stream resulting from the many variables noted above. This is substantially greater than Dr. Andrews' calculation that Dead Stream's stage loss at 400 gpm would be around one half of one inch, but I have stated my reasoning for accepting the higher figure.

Also, Dead Stream will lose flow of 345 gpm at a pump rate of 400 gpm, a figure first calculated by Dr. Andrews and then accepted by Dr. Hyndman. The defense made much over the fact that this figure is different from, and greater than, any loss calculated by Dr. Hyndman's models, a point effectively replied to by Dr. Hyndman as he repeated that his models were not designed to balance all elements of this extremely complex ecosystem. His models were designed to analyze components of the system with as few variables as possible, which he satisfactorily explained as the best use of models in situations such as this one, particularly when much data is available. Dr. Hyndman accepted Dr. Andrews' model's calculated loss of 345 gpm as such seemed reasonable, a conclusion I agree with.

As such, Dead stream will lose from its base flow 28.75 percent of that flow to Nestle's 400 gpm pump rate (345 divided by 1200= 28.75).

These hydrologic effects on Dead Stream can be used to estimate effects at different pump rates by simple arithmetic calculations. For example, with the pump rate at the time of trial being at or near 200 gpm, Dead Stream's stage was down by about one inch and its flow loss was near 15 percent.

## **WETLANDS**

Before going into an analysis of the hydrological effects on any of the wetlands I feel I need to address the "stump survey" that clearly indicates that in various, if not all, of the wetlands under study here, historically trees were growing. We don't know the species of the trees, and therefore don't know how tolerant they were of moisture. For example, cedar trees generally handle wet environments much better than more upland species, such as oak. Also, certain tree species rot much slower than others. That's why cedar is a preferred wood for fence posts and other outdoor applications. If these tree stumps in the survey are, for example, cedar, the areas

where the stumps are would likely have been wet areas and the stumps could be very old. Where I'm going with this is that we really can't say with any degree of certainty how long ago those trees were growing nor can we say what kind of environment they grew in, at least not from this record. In any event, our analysis is not to find and "save" a particular "natural" condition, a point I made earlier in this opinion. If that were our charge we'd have to determine what natural condition we were seeking. We know from this record that a very long time ago this area was under around two miles of ice. Anyone who wants to restore that condition raise their right hand. What, no takers! OK, how about going back to pre-Columbian conditions? Again, no takers. I could go on, but the point is obvious: we are not restoring any historical condition, but are trying to determine a present condition to preserve and then determine if Nestle's pumping will harm that state to a degree the law will prohibit. It could be, for example, that the trees growing in the Dead Stream wetlands, especially below Doyles', were there before the dam was installed to control the Tri-Lakes level and were drowned out by rising waters. Also, trees once growing in wetland 301 only mean that the long-term natural cycle was once such that conditions were favorable to tree growth. Our task is to determine what the effect, if any, Nestle's pumping will have on conditions that *now* exist. Thus, the fact that trees grew in any of these wetlands in the past is irrelevant.

Having just dealt extensively with the hydrologic effects on the Dead Stream, the first wetland I will analyze hydrologically will be those adjacent to the Dead Stream. From the Osprey Lake dam downstream to M20 there are extensive wetlands on both sides of Dead Stream. From M20 to Doyles' there are wetlands primarily on the west side of the stream. Immediately below Doyles' are the mud flats so often discussed at trial, and from those flats downstream to the Lake Mecosta-Blue Lake channel is the braided-stream area through the large marsh. Dr. Madsen estimated the area of the Dead Stream wetlands at 20-30 acres total. Wetland effects subject to study at the trial are concentrated, for the most part, in the areas north of M20.

Frankly, little hydrologic evidence was received at trial regarding specific measurements regarding then existing or predicted drops in the water levels in the Dead Stream wetlands. Apparently everyone was relying on their predictions regarding Dead Stream to carry over to the immediately adjacent wetlands. This is a reasonable assumption that I accept. Defendant argued that the absence of proofs directly relating to the Dead Stream wetlands means there are no proofs of such. To the contrary, Christopher Grobbel, one of Plaintiffs' experts in hydrology testified that a drop in the stream will result in a corresponding drop in the adjacent wetlands. Further, Mark Luttenton testified to his observation that the Dead Stream wetlands' water level dropped around three inches in the time between his visit on 1/6/2003 and 4/23/2003, a time frame he'd expect to see an increase instead. Also, Dr. Madsen testified that she observed a drop in water level in these wetlands in the neighborhood of 4-6 inches from 10/02 and 5/03. Therefore, I find that the Dead Stream wetlands will lose at least two inches of water level, and maybe more, at a pump rate of 400 gpm, with lesser losses at lower pump rates on a straight-lime calculation.

Defendants did make mention of the seeps, particularly along the east side of the wetlands on the east side of Dead Stream, but they never were able to quantify the volume or explain how those

seeps would mitigate the losses to either Dead Stream itself or the adjacent wetlands. Similarly, Defendants raised the capillary fringe effect in wetland soils to retain water, but such does not add water depth above the soils and will be considered only in the part of this opinion that analyzes the impacts of the found hydrological losses.

I will treat the mud flats area at Doyles' as part of the Dead Stream wetlands, analytically. This record has much evidence regarding those flats, how much water was lost to expose them and how much water is needed to cover them. They are a good example of the dramatic effects that can result from beaver dams, especially their breach. Frankly, too much time was spent on them in regards to their significance in this case. That was probably because the dramatic change occurred during the trial, so each side had to scramble to try to explain the event (and lay blame, or try to avoid it).

Before moving on to the wetlands in the northwestern area of the watershed in question, I want to note that both sides seem to agree that modeling does not do a good job of predicting water levels in the wetlands, but rather serves to predict the groundwater levels near and under them. Frankly, such seems to be the case with any open water bodies, since the models used here seem developed to best evaluate groundwater. In any event, I will approach wetlands 115, 112 and 301 on the basis of the modeling of the groundwater under them as well as on the data and testimony regarding observed conditions. My observations from the July 9, 2003 view will also be considered.

The most hotly contested wetland regarding pumping effects is 115, which is west and a little north of the west end of Osprey Lake. The defendants claim that pumping effects will not reach 115 because of the impermeable soils between the well field and the wetland such that the ground water under 115 will not be affected and, thus, neither will the wetland itself. Plaintiffs disagree and use the opinions of Dr. Hyndman that the well field is hydrologically connected to the groundwater under 115 such that the wetland is adversely affected. It should be noted that Dr. Hyndman testified that his primary opinion is that the connection to the 115 area is a high-conductivity soils channel, but that is not the only explanation. He points to data that correlates the water levels in 115 to pumping as empirical evidence of some connection. He notes that 115's level drops are steeper in correlation to pumping than any other wetland.

Dr. Andrews' testimony on the existence of connection to 115 varied at trial. He began opining that there was no connection and that the changes documented in 115 are all from natural cyclical causes. He also said that, because of the many variables in the system one can't use the data to try to correlate 115 to pumping, but one must use a model to analyze the question. His model shows no connection. He also suggested that freezing caused inaccurate data from DP115r in 1/03, but Dr. Madsen countered that peat, which DP115r is apparently in, does not freeze at the depth measured there.

Significantly, and somewhat surprisingly, Dr. Andrews testified that WL115, 112 and 301 would be affected by pumping at 400 gpm, although he denied that any of them had been impacted at the time of trial. This is a substantial statement by Dr. Andrews. I verified my trial notes against

the transcript, and it is there. Thus, Dr. Andrews effectively admitted that there is some connection between, not only wetland 115, but also 112 and 310, such that at least at high pumping rates, such as 400 gpm, those wetlands are affected, thus bringing them into the cone/zone at that rate. The exact mechanics of this conclusion are not spelled out, but the conclusion is. Also, he did testify generally that all three wetlands in question, 115, 112 and 301, are losing water through the soils underlying them, with the losses being greater as the gradient to the groundwater increases, meaning that as the groundwater drops in response to pumping they lose water at a faster rate. He did not quantify that observation, however.

Even with the startling admission noted in the preceding paragraph, the analysis must continue because impacts at lower pump rates need to be evaluated to assess the claims of impact in the data at trial and to assess the testimony regarding impacts being visible as of the time of trial. These are important in their own right, but also to try to determine what the nature of any connection between the wetlands and the well field might be as that could be important in other analyses, particularly if the connection is through only Osprey Lake and its effect on the nearby groundwater levels.

Continuing with the analysis of wetland 115, independent of Dr. Andrews' admission, Dr. Andrews also testified that the monitoring wells in area 115 are reflective of the level of Osprey Lake, implying that effects on the lake also affect the groundwater in area 115. Later in his testimony, Dr. Andrews notes a small effect on wetland 115, in the area of 1/10 foot, thus acknowledging that it is affected to pumping at the rates being pumped then, less than half the permitted 400 gpm, thus bringing 115 into *his* version of the cone.

Regarding Osprey Lake, I have noted area 115's proximity to the lake. Exhibit 51, an aerial photo of the area from 1938, shows that, before the Osprey Lake impoundments, it appears that the wetland area that appears to be the headwater for Dead Stream may extend to the area of wetland 115. Also, after Osprey Lake was expanded by Bollmans it appears that it arches toward area 115. During the July 9 view we paddled around Osprey Lake and the "fingers" pointing toward area 115 were noted as being "marshy" in appearance. Those observations, together with the correlation of wetland 111 and Thompson Lake to level changes in Osprey Lake, tend to support a connection between wetland 115 and Osprey Lake by some mechanism.

Dr. Hyndman testified to noted effects in the groundwater under wetlands 115 112 and 301, a point Defendants argued makes his opinion of little value because he didn't connect the drops to the wetlands themselves. However, he did connect groundwater effects to these wetlands by testifying to the soils under them and explaining the connection between wetland water levels and the underlying groundwater. Defendants' arguments on this point are rejected.

As to wetland 115, Dr. Hyndman noted a one foot drop he attributed to pumping at 100-160 gpm. At other times he explained drops of slightly different amounts at the same pump rates, clarifying that such are beyond natural cyclical changes. He also pointed out that 115 does follow the natural cycle the same as true background wells, but at a greater rate, indicating the effects of pumping, again at fairly low pump rates. When challenged regarding the difference in

the data between DP115 and DP115r Dr. Hyndman explained that they are only 2/10 foot different and do correlate to each other. He does admit that his model only gets a small drop at 115 if it is calibrated to heads (groundwater level) and flows, but again explains his approach to modeling such that his model is not intended to predict wetland levels.

Without going into the same level of detail here, Dr. Madsen testified to her visual observations regarding notable drops in 115 as of the time of trial. Also, as contrasted to the testimony and exhibits at trial regarding the culvert under a dirt road on the west edge of wetland 115 that indicated water in the culvert, even to the point that the culvert was a control on 115's surface water, during the July 9, 2003 view of 115 I could see no water anywhere near the culvert for many yards. That indicated to me that the level then was below any natural level the culvert had been connected to at trial.

Dr. Hyndman's opinion is that wetland 115 will suffer, hydrologically, a drop in water level of one and one half feet beyond natural cyclical effects at a pump rate of 400 gpm, and has already suffered losses at lower pump rates. I accept his opinion and adopt it.

Moving on to wetland 112, it has often been dealt with as though it is part of a larger wetland referred to as 301/112, but as Defendants have repeatedly pointed out, it is a separate wetland, though it is connected at the surface to wetland 301 by a narrow channel or neck. The two wetlands, however, are hydrologically individuals, though they are geographically very close to one another. Dr. Madsen estimates its size as 15-20 acres.

I begin with the above-referenced comment by Dr. Andrews that 112, as well as 115 and 301, will lose water via a hydrological connection to the groundwater underlying it at a pumping rate of 400 gpm, and even opined that 112 will drop from 1/3-1/2 foot at 400 gpm, leaving losses at lower pump rates still a matter of contention. As noted above, he also acknowledged that these wetlands lose water as the underlying groundwater levels drop. That leaves the question of quantification open for determination from other evidence.

Dr. Hyndman testified that 112 has some sand under it, although not as much as 115. Sand being a highly permeable soil type, it seems fairly obvious that 112 will drop if and as the groundwater under it drops. He notes that there are only two feet separating 112 from the groundwater beneath it, so there is a close connection there. Dr. Hyndman opined that pumping at 25 gpm will cause 112 to drop one inch per day until it is dry. He also testified that it is showing effects at 160 gpm and will drop a total of three inches to one foot at 400 gpm.

Greg Foote even testified that 112 is in contact with the groundwater through its connection to wetland 301, lending credence to Dr. Hyndman's opinion that it is close to the groundwater. Dr. Madsen observed that 112 was dropping during the winter/spring of 2002-2003 at the time it should be rising at a rate she referred to as shocking and remarkable and that certainly must be the result of an artificial cause as no ecological explanation for it exists in her opinion. While Glen VandeWater testified that 112 has a natural fluctuation of 2 1/2-3 feet, any pumping effects

are in addition to the natural cycles, although they may be compensated for in the spring snow melt.

If it hasn't been noted before, water bodies and groundwater levels in this system follow a normal cycle or rises and falls, with the greatest increases generally being in the spring with the snow melt and the normal drop starting in the late spring-early summer and continuing to the normal lows in the fall. Precipitation events can alter this slightly. Surface water bodies respond more quickly to this cycle than groundwater levels do because recharge to groundwater must soak through the soils above it. Any pumping effects will generally follow the cycle down, creating greater reductions in level/stage than the natural cycle would by itself, although precipitation events may spike levels up and the spring snow melt probably completely overwhelms the pump effect until the melt has flown from the system as surface runoff, evaporated, been taken up by plant life or soaked into the groundwater as recharge.

Returning to wetland 112, Dr. Hyndman's opinions have varied as noted above. I have stated I give his opinions on hydrologic matters more weight than Dr. Andrews'. Based on that, and the other corroborating evidence referred to, I find that wetland 112 will drop from three inches to one foot at a pump rate of 400 gpm and that any pumping above 25 gpm will cause a notable reduction in 112's level.

Moving on to wetland 301, the same observations noted above regarding Dr. Andrews' acknowledgements apply to 301 and won't be repeated again here. Dr. Andrews also testified that wetland 301 is the only wetland to have predictable and measurable effects at 400 gpm (seemingly a contradiction regarding his comment noted above in which he included 115 and 112). He predicted a drop in 301 of 1/10 foot in the summer and 3/10 foot by October, with negligible losses in early summer.

Dr. Hyndman's opinion regarding 301 is that it is in contact with the groundwater and will fall as it falls. He noted that 301 does have some sand underlying it, as well as some clay, making it susceptible to draw-down. He said a drop of 1/10 foot would be conservative, with greater drops likely. Dr. Madsen testified regarding her observation of 301 and estimated that it was down at the time of trial some three to six inches from last fall, a time frame in which she'd expect to see a rise in level, not a drop. She opined that two inches of drop had occurred within approximately two weeks of her observation from the nature of the exposed soils.

It is noted that Defense exhibit Cf, Dr. Andrews' report of March 18, 2003, in figure 8 shows two contour lines in his model's graphic representation of the cone of depression running through wetland 301, indicating that his model predicts a drop in 301 in the range of 1/2 foot through one foot, or six to 12 inches, at a pumping rate of 400 gpm.

Wetland 301 is, thus, certain to have a drop at 400 gpm and appears to be having such at lower rates. Quantification of the drop on 301 is difficult. Dr. Madsen's observations noting a drop at pumping rates in the area of 160-200 gpm seem high, but do verify a drop at rates much below 400 gpm. Regarding the Defendants' motion to strike Dr. Madsen's opinions based on draw-

downs in wetland 301 in the range of three to six inches (made during her testimony of June 6), that motion is denied as there is record evidence, including Dr. Madsen's observations, that, if accepted, would indicate it may experience losses in that range. The issue is left to be one of credibility and weight.

Based on the above information I find that wetland 301 was experiencing drops in water level at the time of trial in the range of two to four inches and that it will suffer a drop of twice that at the state permitted pump rate of 400 gpm. In finding thus I note that these estimations of drop are at times as much art as science such that ranges of drop must be used to account for a margin of error, an observation that applies to all water-level drops testified to, and those accepted by the court, with the margin of error varying from area to area.

Wetland 111 is one that was not "in contention" at trial, but was testified regarding in that drops in it came to be accepted by all as the product of the drops in Osprey Lake. Dr. Andrews and Greg Foote acknowledged that at trial. I have already drawn some conclusions regarding such and won't comment further, other than to note the reality of its connection to Osprey Lake and, thus, its inclusion in the cone/zone.

Regarding the wetlands generally, it should be noted that the effects of pumping will reach the wetlands at differing times depending on how quickly the groundwater under them reacts to pumping. The experts use the concept of lag to explain this. For example, one wetland may show the effects of increased pumping in a few days while others may not show the effects until much longer. This is a function of how the increases in pump rate affect the groundwater, increasing the area and deepening the slope of the cone/zone. The further the area in question is from the well field, and depending on the nature of the hydraulics between it and the wells, the longer it takes for the effects to show. That is why the experts would use graphs with different lag times and overlay them after adjustment for lag to show, or disprove, correlation to pumping. Of course, lag disappears if and when the system reaches "steady state", meaning that the full effects of pumping have been felt throughout the cone/zone.

Also, regarding all water under study in this case, above or below the surface, it should be repeated that the spring snowmelt may release so much water to the system that it temporarily overwhelms the effects of pumping to the point that those effects may be entirely hidden behind the spike in level resulting from the melt. In reality, this is probably a function of a lack of historical data with the pump effect still being there, but we don't have enough data to show that the spring "spike" is lower after the start of pumping than in years past with no pumping. In any event, Defendant cannot hide behind the spring "spike". It may have relevance in looking at ecological impacts, as will be discussed below.

## **LAKES**

As noted above, Osprey Lake and Thompson Lake had dropped at the pump rates existing at the time of trial and will drop even more as the pump rates go up. The drops to date were testified to

directly by lay witnesses and the experts. Further, the experts opined regarding the drops at the time of trial and projected to 400 gpm pump rates.

From the evidence I find that the two lakes will react similarly in level of drop. Dr. Hyndman estimated that drop to be in the area of three to six inches. Dr. Andrews opined that the drop will be more in the range of 2 ½-3 ½ inches. Shelly Sapp, a riparian on Thompson Lake and one of the named Plaintiffs, testified that “her” lake had dropped notably since pumping started, while it hadn’t done so since her family moved there in 1995.

Based on all the evidence I find that Osprey Lake and Thompson Lake will drop up to six inches as the result of pumping at 400 gpm.

It must be noted that Thompson Lake is a natural lake, but its level was raised by 1 to 1 ½ foot when the Bollmans built the current dam on Osprey Lake. That means that Thompson Lake is artificial above its historical level, a fact that will be important in the legal-analysis part of the opinion.

It should also be noted that there is agreement among all experts who were asked (Andrews, Hyndman and Foote) that the levels of Osprey Lake and Thompson Lake could be maintained at pre-pumping levels by installation and use of a level-control device in the Osprey Lake dam.

As noted above, the Tri-Lakes were the subjects of little evidence at trial, apparently because no one is really claiming, or able to prove, that their levels will be notably affected by Nestle’s pumping operations. Those lakes have sources aside from those under analysis in this case and there is apparently not any claim that those sources will be measurably affected by Nestle’s activities. In reviewing the record the only mention I found of the Tri-Lakes had to do with reductions of flow over their control dam in the range of two to five percent. No proofs were presented of any effect on the level of those lakes. Also, no proofs were presented that the percentage of flow loss over the control dam had any measurable effect on the Little Muskegon River in its watershed below that dam.

The Defense argued that not all of the effects claimed by Plaintiffs can exist in that “there is only one reality”, in essence arguing that Plaintiffs’ claimed effects are in some way mutually exclusive. I disagree. First of all, this claim seems to be based on a rigid and incorrect interpretation of Dr. Hyndman’s modeling. Unlike Dr. Andrews, Dr. Hyndman never undertook to model the entire ecosystem hydrologically, but only used modeling to analyze components of the system to try to understand the objective data regarding it. Thus, his model was not designed or used to “balance”. In contrast, Dr. Andrews apparently did try to model this environment to “balance”, an effort that caused him to draw unreasonable conclusions regarding the three main variables in the system: soils, base flow and recharge, as I have already ruled above. The problem with Defendants’ argument regarding only “one reality” is that it is based on Dr. Andrews’ modeling concept and not the approach I have embraced, Dr. Hyndman’s, which does not model for balance, but sees balance and tries to understand and explain it. As such, I find that the rulings made above are in relation to a system in balance that reflects present realities

and predicts future realities. Such an approach realizes that imbalance may seem to exist while the system is in flux, but will balance when at a steady state. That is reality.

Having determined, as best as can be done, the physical effects of Nestle's pumping, the task now shifts to an analysis of the impact of those effects on the ecosystem under study.

## **7: SPECIFIC ECOLOGICAL IMPACTS FINDINGS**

While I refer to "ecological" impacts in this portion of the opinion, the findings apply equally to the Count III and VI analyses that will follow the factual analyses portions of the opinion.

The task undertaken in this portion of the opinion is to identify what, if any, ecological impacts result from the effects found in the previous portion.

### **DEAD STREAM**

During the Summary Disposition portion in this case's history I declined to equate specific reductions in Dead Stream's flow and/or stage based on figures and percentages alone as *per se* sufficient to have Plaintiffs prevail on their common-law claims in Count III as a matter of law. Contrary to the Defendants' arguments, orally and in briefing, I reserved judgment until trial on whether the bare effects of certain losses of flow or stage would be sufficient to warrant relief to the riparian Plaintiffs. The reader is referred to the record from the October 4, 2002 Summary Disposition motion in this regard.

I above found that Dead Stream will, at a pumping rate of 400 gpm, lose nearly 29 percent of its base flow and two inches of stage beyond natural variables. At lower pump rates the effects will be less on a straight-line calculation. The problem here is to assess how those changes will impact the various areas of the stream.

Defendants argued, and presented expert opinion, that the temperature of Dead Stream will drop slightly as the result of pumping, making it a better fisheries habitat. The evidence they presented was that a drop in flow from Osprey Lake, a shallow warm-water lake, through the culvert in the Osprey Lake Dam will mean that the cooler groundwater going into Dead Stream from seeps will become a greater percentage of its volume, thus reducing the stream's temperature.

Plaintiffs argued, and presented expert opinion to the effect, that the loss in Dead Stream flow will result in greater "residence time" for the water in the stream. The effect of such, they argue, is that the water will warm up while in the stream, resulting in a warming of the water to the detriment of it as a fishery, especially in light of the fact that it is a marginal one now in terms of temperature.

On the issue of the temperature, I believe the Plaintiffs' position is the more rational one and is better supported in the record. The extent that the seeps add to the flow of Dead Stream has never been quantified in this record. Also, while the water in the seeps may be at cool groundwater temperatures, it is highly likely that, as the water from the seeps flow through the wetlands that are adjacent to the Dead Stream, its temperature will increase, reducing the effect the Defendants claim regarding temperature. On the other hand, Plaintiffs' position regarding retention or residence time for water in the Dead Stream, a shallow stream, and the effect of such on water temperature there is logical and hereby is accepted.

I find that Nestle's pumping operation, to the extent that it reduces the flow in Dead Stream, will adversely impact the stream's temperature, which is already marginal for most fishery purposes.

Another adverse impact claimed by the Plaintiffs is that the reduction in flow will result in excess nutrient-loading of the water to the effect that the stream will become choked with plant life. This position is based, in part, on the increased retention time for water in Osprey Lake as well as its longer residence time in the Dead Stream. Plaintiffs point out that Osprey Lake is in a commercial whitetail deer operation owned and operated by Defendants Bollman. The high concentration of deer in this area means that there is a large amount of deer feces on the land over which surface water runoff occurs, with the result that nutrients are added to Osprey Lake in abnormal quantities. Also, the deer herd has eaten most of the understory plant life which makes the area subject to surface water runoff and eliminates a source of nutrient uptake before it reaches the lake. The result, Plaintiffs argue, is that an already heavily nutrient-laden lake will retain the nutrients longer at lower flows out of the lake such that the contribution of volume to Dead Stream from the lake will be even more nutrient laden than in the past. Also, the nutrients will remain in Dead Stream longer at the lower flows, meaning that it will be available for uptake by plant life, including algae, such that there will be an increase in such, to the detriment of the stream. Plaintiffs further argue that the natural cycle of plant life will result in the retention of released nutrients from decaying plant matter because it will not be flushed out as the result of lower flows.

The defendants countered that, while the abstract concepts may have validity, the Plaintiffs have not proven what the condition of Dead Stream was before pumping was started and, thus, cannot quantify the impact, if any. They also offer contrary evidence to the effect that there will be no adverse increase in nutrient loading.

I am satisfied that the impacts posited by Plaintiffs on nutrient loading are logical and the evidence and arguments supporting their position is more persuasive than Defendants'. The lack of much history on the algae growths in Dead Stream, other than to note it does exist, doesn't mean that an increase cannot be predicted. While there is insufficient history to note much nutrient increase since pumping started, the theory is sound and I find it will increase at greater pump rates. While this is not Plaintiffs' strongest argument, I find the Plaintiffs' argument regarding nutrient-loading persuasive and adopt it, particularly at high pump rates.

Narrowing of the channel of the Dead Stream is one impact both parties agree will occur with a reduction in flow and stage, although they disagree on the degree to it will occur and the length of time over which such will occur.

We begin with the general proposition that lower flows reduce a stream's ability to flush out and transport sediments. If such a reduction occurs, the sediments are added primarily to the stream's channel's sides allowing aquatic plants to grow there. Such additional plant life serves to trap additional sediments, accelerating the cycle of decreasing the channel. An incidental impact of increasing the plant life adjacent to the channel may be additional increases in the temperature of the water due to the fact that the plants cause "ponding" of the water, effectively retaining it in the stream longer where it will warm up, adding to the adverse effects on water temperature noted above, especially in a system like this with wetlands adjacent to the stream.

Defendants' expert, David Cozad, opined that the channel of Dead Stream will narrow one to two feet on each side of the channel (2'-4' total) over approximately ten years, if Dr. Andrews' opinions regarding decreases in Dead Stream flow and stage are accurate. I have found that Dr. Andrews' opinions on such are substantially below what has and will occur, so Cozad's opinion must be that even more channel-narrowing will occur. Plaintiffs' relevant expert, Mark Luttenton, opined that the channel narrowing will be to a greater degree than Cozad predicted and would occur over a longer period of time. He was not able to quantify how much more would occur than Cozad predicts, but is certain it will happen.

I find that Nestle's pumping operation will result in a narrowing of the channel of the Dead Stream over time in an amount greater than four feet. In perspective, Dead Stream has greatly varying widths. By my observation at the views, 40 feet would be a generous average, with the real average being less. At times it is not clear where the channel ends and the adjacent wetlands begin. Those areas are probably the most susceptible to narrowing. This narrowing is an actual physical loss of a part of the Dead Stream. Aside from that physical loss, there is a probability that the corresponding increase, effectively, in the adjacent wetlands will cause an increase in the temperature of the water in the stream, increasing the above-noted harm to the fishery there. These are all negative impacts on Dead Stream.

As for the loss of Dead Stream stage, two inches may not seem like a lot, but remember the nature of the stream. It is already a low-flow stream with many shallows that is subject to many natural variables. Loss of two inches depth beyond the natural forces acting on it is a substantial loss. The mud flats at Doyles' is an isolated, if obvious, example of the effect of even less than a two inch drop in this system. The stream's already limited navigability would be compromised, as would its marginal fishery. Regarding navigability, my own experience in canoeing the entire length of the Dead Stream indicated that there are areas of the stream that are so shallow that very little decrease in water depth would result in even canoes not being able to traverse areas they now and, in the past, could, beaver dams notwithstanding.

There were disputes at the trial regarding whether average flows or low flows are the times at which to assess impacts. I find that it is low flow periods in which most of the harms to the

system will occur. Hydrologists may use other standards, but in assessing impacts in the ecosystem, low flows are the ones that need to be looked at. Whether a change is or is not substantial to a hydrologist does not control whether the impact is or is not substantial in the ecosystem, the sciences being different. At times high flows do become important to the ecosystem, but it must be remembered that the changes here are beyond the natural cycles, except for times when a large precipitation event or the spring melt causes the effects to be overwhelmed temporarily.

Thus, the principal harmful impacts on Dead Stream will be in the effects of reduced flow on stream temperature and nutrients, the narrowing of the physical channel and the physical lowering of the stage of the stream resulting in the exposure of areas that are naturally under water. These all affect the stream's nature as a fishery as well as impair recreational navigation and the aesthetics of the area.

### **DEAD STREAM WETLANDS**

Before addressing any particular wetlands I want to discuss the importance of wetlands generally. First of all, this area, geographically, is one of great diversity. Dr. Madsen counted over 40 wetlands in the Sanctuary property and noted that there are many different kinds of wetlands here. Her testimony was that the wetlands serve as sort of a "kidney" for the waters in the ecosystem, filtering and purifying it as it wends its way to the groundwater or elsewhere as well as serving as a form of erosion control and flood control where such are concerns. They also serve as important habitats for various species of wildlife. According to Dr. Madsen, Michigan has lost 50-75 percent of its wetlands since the arrival of European settlers to human activities such as draining, filling or other forms of development. Those substantial losses make the remaining wetlands all that more precious, thus anything that serves to impair wetlands must be scrutinized carefully to avoid harm beyond the subject wetlands themselves.

It is hard to analyze Dead Stream without also analyzing the adjacent wetlands, and it is hard to analyze those wetlands independent of the stream. The stream and adjacent wetlands are in direct contact, and in a way are components of a single system. The stream is in effect part of a larger wetland in which water moving through that wetland is channeled to the south. These wetlands draw their waters, in large part, from those that feed the stream. In fact, along the eastern edge of the wetlands north of M20 the seeps discussed above as a source for Dead Stream are in effect a source for the adjacent wetlands which, in turn, serves as one of the stream's sources. In fact, Defendants' witness Glen VandeWater testified that those seeps provide more water to the wetlands there than the Dead Stream does. Frankly, a logical observation is that the wetlands feed water to the stream.

Dr. Madsen noted that the Dead Stream wetlands are fed by the Dead Stream, the seeps and other streams and present a sedge fen system that has been in place and stable for thousands of years as evidenced by cores made of the organic soils under the wetland. She described the wetland as one of natural zonation, not successional zonation, that is in natural balance. She opined that a drop in it of one to two inches of water depth there would be significant ecological

harm there, including drying out the predominant plant characteristic there, sedge tussocks which make up fully half of the plant species in this wetland. She noted that her visits to the wetland indicate that drops in the level of water there are already in excess of that range during times such systems should be rising. Such drops, she predicts, will result in a start of successional growth of invasive species to the effect that the nature of the wetland will be gradually altered to one of more upland characteristics. She countered Defendants' expert's opinion that successional transitioning is a natural process here and that successional transition is a largely outdated concept that has been largely discredited as an inevitable process for wetlands. Succession can occur, but it normally is the result of artificial effects on the wetland or substantial natural events.

As for the drop in the Dead Stream wetlands as of trial, Mr. Luttenton testified for Plaintiffs that he observed more water depth there in January than at the time of trial, the opposite of what should naturally be the case. Quantitatively, he saw water depth of 2 1/2 inches in the sedge area in January, but noted that the water had dropped three inches by late April resulting in exposed mud in the sedges, an unnatural change for that time of year. He also observed evidence of exposed bottom land south of M20 in the wetland areas of six feet and more as the result of the drop in water level there. He opined that if there was an additional drop of stage in the range of one to two inches in that area there would be an additional 13 to 31 inches of exposed bottom because the area there is a shallow shelf. The exposed bottomland will be susceptible to invasive plant growth.

Dr. Madsen testified to her observation of level drops in the Dead Stream wetlands similar to Mr. Luttenton's. In her visit there in October, 2002 there were two to three inches of water in the sedge tussocks and there appeared to be no obvious signs of stress on the wetlands. However, when she visited the wetlands there during the trial she could see that the water levels in the wetlands had dropped to the point that there was no standing water there, but rather adjacent waters were two to four inches below the mud surfaces in the wetland. She could see similar water levels in deep deer tracks in the soft bottomlands in that area. This, she explained, is not a natural time to see such drops in the wetlands there.

Regarding the seeps feeding the Dead Stream wetlands, no one could quantify their contribution to either the wetlands or the amount they were dropping themselves. It was noted that some of them were drying up. Dr. Madsen opined that the open channels from the seeps running through the wetlands feeding them and the stream were susceptible to dropping in level and flow with the predictable result being that they would become choked with vegetation, thus losing their stream thread. During the view of July 9 I tried to paddle into what appeared to be such a channel, but could not as the water had dropped to the point that the "water" there was really mud. In fact, during the view I could note generally that the water levels seemed to be below the surface of the soils of much of the wetlands adjacent to the Dead Stream in which we were canoeing.

The Defense made much of the seeps keeping the soils in the Dead Stream wetlands wet or moist and of the capillary fringe of the soils also keeping the soil wet. Wet soil does not a wetland make. To keep functioning as they have, the Dead Stream wetlands need water depth in them, not just wet mud. Nor can the Defendants rely on the seed bank in those soils to "green-up" the

wetlands that become exposed to the air since there will be times when the area becomes inundated with water, drowning out plant life in much of the areas newly exposed as the result of pumping.

The weakest area of Plaintiffs' claims regarding the Dead Stream wetlands is their argument regarding alleged loss of spawning habitat for northern pike. While the sedge areas of these wetlands would be excellent pike spawning habitat if there is enough water depth (at least four inches), the evidence here was to the effect that there hadn't been sufficient water depth there for several years. I cannot say from this record that level drops resulting from Nestle's operations will affect pike spawning there as there was insufficient evidence of such historically.

### **WETLANDS 115, 112 AND 301**

I have lumped these wetlands together for discussion regarding impacts as they will be impacted similarly, with differences being a matter of degree in proportion to the actual effects I found them to suffer above.

First of all, to address principles and findings relevant to all three wetlands, I have already ruled regarding the "stump survey" and the presence of tree stumps in the wetlands, so I will not repeat that point here.

Regarding Plaintiffs' experts' opinions on ecological effects, Defendants offered the criticism that they often didn't quantify the claimed harms but rather made "guesstimates" regarding such. I agree that the opinions at times seemed to go to the reality of harm more than quantifying it, but generalized estimates were offered and do qualify as appropriate expert opinions. I have mentioned many times the complexity of this ecosystem and the difficulties in making predictions regarding it, a point even the Defense acknowledges. While, as lawyers, we may like to see more concrete analysis, sometimes, as here, the reality of a harm with an estimate of its extent is all we can reasonably expect.

It is noted that Dr. Madsen based some of her opinion regarding impacts to wetland 112 on Dr. Hyndman's predictions that it would suffer a loss as a result of pumping in the area of one to two feet. I have found the effect there to be less, in the range of three inches to one foot. While this certainly would affect the degree of harm predicted by Dr. Madsen, it is a matter of degree. She testified that if the effects of pumping end up to be less than what she based her predictions on, the impacts would still be there, but at a proportionally reduced level.

I do find that Dr. Madsen's opinions regarding release of carbon dioxide, loss of peat, nutrient release in wetlands other than the Dead Stream wetlands and airborne pollutant releases at the wetlands to be insufficient to warrant findings that such will occur in these three wetlands or, if they do, they are insufficient to be adverse impacts.

It is true that these three wetlands all undergo seasonal changes. However, it is also true that the impacts of pumping are additive to the seasonal effects, although major precipitation events and

the spring snow melt may overwhelm temporarily evidence of the impacts. In terms of the annual cycle, I accept the evidence that there is no natural explanation for a reduction in level over the winter and that the greatest impact is during the growing season. When levels unnaturally drop, there is an area at the fringe of the wetlands that is newly exposed soil/peat in which invasive plant species will tend to become established in. While seasonal rises may flood such areas, drowning out the invasives, since the impacts are a permanent reduction, the seasonal rises will be below the historical highs to the effect that plants will become permanently established in the area between the historical high levels and the lower high levels resulting from pumping. Generally, this will result in a permanent loss of open water area in the wetlands.

Claims were made by the Defense to the effect that certain plant species can tolerate wider fluctuations in cycle, but, as Dr. Madsen pointed out, you cannot extrapolate one species' tolerance to a system made up of multiple species. Rather we must consider the tolerances of all species. I am satisfied that the ecosystems of these wetlands include a great variety of plant species, not all of which have the same tolerance to cyclical variance or the exacerbation of such caused and to be caused by Nestlé's pumping.

Dr. Madsen also explained that dropping the levels in the wetlands will also result in the freezing of the soils to levels that have not been exposed to freezing in the past, to the detriment of organisms living in those soils currently.

The Defense relied again here on the concept of the capillary fringe in the soils in these wetlands being sufficient to buffer the effects of pumping during the times the wetlands are supposedly most susceptible to harm. While such may be true in the areas of the wetlands where the only concern is to have moist soil, such is irrelevant to areas where open water will be lost. Also, the degree of moisture that can be maintained by the capillary fringe of the soil will not be the same throughout each wetland. Some areas will certainly be dryer than they were in the past, with adverse impacts from the relative loss of moisture. For example, in areas with vigorous plant growth, the root uptake by the growing plants may well outstrip the ability of the soils to transport, via capillary effect, sufficient water. In those areas, there is a harm to the system. Frankly, the areas of these wetlands in which capillary fringe effect is sufficient strike me as being quite limited. Even the Defense witnesses could not provide any quantification of the buffering effect of the capillary fringe in the soils.

As Dr. Madsen explained, the impacts of the reduction of water level in these wetlands will be to decrease their areas, the areas of open water in them and losses of and changes in plant species. Defendants' experts really don't dispute that such would be the impacts if there are losses in water level, but rather dispute whether such water losses will occur, or, if they do, the extent of the impacts.

I noted during the trial that witnesses Cozad and VandeWater seemed to be having trouble accepting the reality I have found that pumping is having effects and will have effects to a greater extent in the future as the pumping rate increases. That may be affecting their

perceptions and testimony. It is also noted that they are the authors of the MR report utilized by Nestle in the assessment and permitting processes.

In order to do an appropriate analysis of the impacts in these wetlands Dr. Madsen testified a five to ten year study period would be preferable. Coincidentally, this is consistent with Dr. Andrews' opinion of how much data would be needed to use data to predict and assess the hydrological effects presented in this complex system without having to rely on models to attempt such.

Regarding findings specific to wetland 115, Dr. Madsen testified to the fact that she observed evidence of a precipitous drop in its water level at the time of trial as compared to her visit there last fall. She estimated there was 20 percent less open water and opined that if there is a drop in level of one foot when pumping reaches 400gpm, as I have found likely to occur, there would be a loss of most standing water there. Again, this is over a time frame for which there is no natural explanation for a level drop. Evidence was received regarding the culvert in the dirt road on the west side of 115 and the water going through it. However, during the July 9 view there was no water anywhere near the culvert.

Both Dr. Madsen and Mr. VandeWater testified that they would expect 115 to have a two foot annual cycle, but Dr. Madsen testified she saw a four foot difference between March, 2002 and March, 2003, with March being normally a high-water period. If accurate, these observations are even beyond what I have found to be likely to happen at a pump rate of 400 gpm. She also observed a twenty percent loss of open water over that time frame and a band of exposed soil three to eight inches wide with the invasives not yet established.

Drops as reportedly observed by Dr. Madsen and as found by the court to exist at 400 gpm pumping in wetland 115 were, appropriately, found by Dr. Madsen to be significant impacts, indicating that the effects at the pumping rates prior and during trial are enough to have such impacts. The impacts are not just to the wetland, but to the plant and animal life forms that depend on wetland environments. Even Mr. VandeWater acknowledged that losses of that magnitude would be a negative impact, although he denies such will occur. Even at the levels of loss I have found likely to occur in 115, Mr. VandeWater says 115 will still be a wetland, but shrubby plant life will likely move in and wetland plants will move into areas that had been open water. In other words, he seems to argue, "so what".

Moving on to wetland 112, I have found a likely drop of three inches to one foot at pumping of 400 gpm. Dr. Madsen testified that 112 would at that rate lose 50-75 percent of its open water and the wetland area would decrease by 20-40 percent. Mr. VandeWater predicts that, at the six inch loss he'd expect, 112 would lose an unstated amount of open water, herbacious plants would move into the soils exposed by the drop in water level and shrub carr growth would occur. Given that the impacts testified to by Dr. Madsen fit into the range of water loss I have found to be likely and further given that Mr. VandeWater's opinions seem consistent with such if extrapolated to losses greater than he expects, I accept Dr. Madsen's impacts testimony regarding 112.

Finally turning to wetland 301, it is a distinct wetland from 112 to which it is connected, but will experience similar harms. I have found that 301 will likely suffer a loss of four to eight inches at a pump rate of 400 gpm. Given that, I accept Dr. Madsen's prediction of a loss of open water there in the range of ten percent. Mr. Vandewater never testified to impacts if the level drops, as I have accepted will occur, although he predicted no impact on wildlife if Dr. Hyndman is correct regarding losses in 301.

### **OSPREY LAKE AND THOMPSON LAKE**

In this impacts analysis I will examine these two lakes together as the effects found above are similar and they are connected hydrologically as explained earlier in this opinion. As noted above, these lakes have suffered losses at the time of trial and are likely to drop around six inches at a pump rate of 400 gpm.

Virtually all of the testimony regarding impacts to lakes was focused on Thompson Lake, so it will be the one I will analyze regarding impacts. Osprey Lake will have impacts relating to the drop in level alone for a lack of proofs regarding other more specific impacts. That Defendants Bollman are the only riparians to Osprey Lake probably explains the lack of Plaintiffs' interest in it beyond a drop in level.

Turning to Thompson Lake, the claimed harms are to fish spawning habitat and Plaintiffs' Sapp loss of swimming area at their dock area. As to fish spawning habitat, the testimony was that fishing was good before the Bollmans' dam raised the lake level in both lakes. Given that, complaints regarding fish spawning habitat at the artificial level are problematic. I have no doubt that the habitat presently being used for spawning will be degraded, but how much, if any, impact that will have on the fish population in the lake was never explained in light of the lake's historically good fishing.

As for Sapp's swimming-area loss, it appears that such will occur to a degree. What can be done about it will be discussed in the legal analysis portion of the opinion.

It must be again noted that, apart from a controlling legal principle set out below, the levels of both Osprey Lake and Thompson Lake can be maintained at their pre-pumping levels via a level-control structure that can be installed in the Osprey Lake dam. Experts from both sides agree on this.

In regard to all the water bodies discussed in this case, comment should be made regarding Blanding's turtles. There is no dispute that they exist in this area. They are a species "of special concern", apparently a status in the legal hierarchy of endangered species one level below "threatened" and two levels below "endangered". The testimony was that none of the impacts on

water bodies involved in this case will have any particular impact on these turtles. They certainly are not the “spotted owl” of this case. I find Plaintiffs have not presented any meaningful evidence of negative impact on this turtle species in the subject watershed.

### **UNRELATED WATER USES AND LOSSES**

During the trial the defense introduced evidence regarding evaporation from various areas in the Little Muskegon River watershed, and others, and information regarding water uses and sources for selected municipal, commercial, agricultural and industrial purposes. This information, however interesting, in the final analysis was not particularly important and, frankly, is adverse to the parties introducing it. I will not go into great detail in this area, but note a few relevant observations.

Mr. Robert Paine was brought in by the defense to testify regarding evaporation. One of the points he was asked about is the percentage of water evaporated in the Muskegon River watershed that returned to that watershed as precipitation. He testified that 90 percent of the water evaporated in that watershed is not returned to it as direct precipitation. While quantification would have been problematic, I could have taken judicial notice of the concepts underlying such testimony. While planet Earth is a closed system, water-wise, no watershed in it is. The precipitation that falls in this area could have been last evaporated from almost anywhere on Earth. Given the prevailing westerly winds we get, it can be fairly assumed that most of the precipitation we get is from the west. It is likely much of the precipitation we get comes from outside the Great Lakes basin. Where moisture evaporated from this area falls is of no relevance.

Defendants apparently want to take the evaporation evidence to demonstrate that the amount of water they want to pump out of the watershed and transport out of the Great Lakes Basin is miniscule compared to what evaporates out. That may be true, but is meaningless. Evaporation from lakes, and even artificial impoundments, is a natural phenomenon. Further, as it relates to the Count III claims, it is a riparian one in relationship to the water bodies that the evaporation is from. Riparian uses of water attach to bodies which the property is riparian to. In other words, since the very existence of a body of water is the beginning of riparian rights, evaporation from such bodies is inherent in their existence. Even if an owner of riparian property makes no direct use of the water body, such as by boating, fishing, domestic use, etc., having the riparian property is a benefit connected to the water body. Even if the only use made of the water body is to view it or to enjoy the usually increased value it adds to the property, the water body's existence is of benefit to the land adjacent to it. Since evaporation is inevitable and occurs on site, it is different in nature from the defendants' use here.

If one wants to look at a comparison of Defendants' uses here to relevant evaporation, the testimony was that evaporation from the Osprey Lake impoundment runs from 150 to 300 gpm, that being the range testified to by Dr. Andrews at various times at trial. Using that figure alone,

defendants want to pump out of the watershed more than the artificial lake under the control of defendants Bollman loses per day via evaporation, and that lake is virtually entirely an artificial water body under their control. Going on, Defendants' proofs were to the effect that the artificial impoundments in Little Muskegon River watershed evaporate around 775,000 gallons per day while defendants' operation would, at 400 gpm, remove 576,000 gallons per day from the watershed. If the point is to show that Nestle will remove less than evaporates from artificial impoundments in this watershed, that point misses the point. Again, evaporation is natural and on-tract while Defendants' is artificial for use off tract and out of watershed. Spun in another direction, if this watershed is stressed by the evaporation from these artificial impoundments, why burden it further with this artificial removal of water?

The defense also introduced evidence via Marc Groenleer regarding a number of "select industrial water uses in Michigan – exclusive of beverage bottlers" (Def. ex. Db), "select Michigan beverage bottlers water usage" (Def. ex. Dc) and voluminous data on municipal water usage in Michigan (Def. Ex. Df series). Again, while interesting, the information does not have the effect on the analysis that Defendants apparently desired. Exhibit Db on industrial water uses notes the sources of such sources. The category "wells" does not distinguish between those in shallow open aquifers and those in other aquifers. Also, it notes that many of the uses come from municipal water-supply sources. Exhibit Dc shows select Michigan beverage bottlers water usage, but lists only one that is from "spring water", while other sources include "wells", unspecified as to type, "groundwater", again unspecified as to type and a number of municipal sources and their sources. There are other exhibits in these areas, but these are sufficient for my analysis. While it is obvious that there are many accepted consumptive water uses in Michigan, including beverage uses, the core question in this case is not resolved by this information.

The precise question in this case is whether this particular use of water from this precise aquifer is permitted under the legal analyses presented. Here we have a very precise analysis that the above-referred to evidence doesn't answer. The aquifer these Defendants have tapped into and are removing water from is, as noted, a shallow unconfined aquifer. We don't know the nature of the aquifers referred to in the exhibits the Defense admitted. We don't know if any have been the subject of litigation such as this. Apparently there has been none as both sides have indicated that this is a case of first impression and neither has found any reported Michigan cases directly on point.

I clearly recognize that water is included in many lawful products made in Michigan and exported out of the watershed the water comes from. I confronted Plaintiffs with that idea early in the case. As I have clawed my way up the learning curve presented by this case I came to discern the potential differences presented by other commercial and municipal water usages and that presented for analysis in this case. The next portion of the opinion will apply the remaining legal analyses to the facts found above.

## **8: LEGAL ANALYSES**

As noted in the early portions of this opinion, the case is presented for two distinct legal analyses: Count III regarding a groundwater use claimed to be impacting riparian interests and Count VI regarding a claim under MEPA. The factual analyses undertaken above apply essentially the same under both theories.

### **COUNT III: GROUNDWATER/RIPARIAN HYBRED**

Now that we find ourselves in the legal-analysis part of the case I should begin by addressing Plaintiffs' motion for summary disposition made at the end of Plaintiffs' proofs during the trial. As noted above, that motion is denied. The legal analysis is, frankly, not deep. Plaintiffs made the motion based entirely on the case of *Thompson v Enz*, 379 Mich 667 arguing that the conveyances made by Defendants' Bollman here are invalid under the ruling of that case. The *Thompson* case prohibits the conveyance of riparian rights to non-riparians. In making their arguments here I am afraid Plaintiffs have confused a conveyance of riparian rights with a conveyance of the right to extract groundwater that is hydrologically connected to surface water bodies to which riparian rights have attached. The documents executed between Bollmans and Nestle's predecessor in interest do not convey the right to use any surface water. That is the touchstone of riparian rights: the right of use to the surface of a surface water body. In the *Thompson* case the defendants were trying to extend riparian rights to lands that were not naturally fronting a surface water body via canals. The intent was to give the purchasers of those back lots something the lots did not have in nature: riparian standing. Here, the conveyance has nothing to do directly with any transfer of riparian rights. Rather, the effect of the conveyance on riparian rights is a consequence of the conveyance. I realize that the *Thompson* case has much language in it that is to Plaintiffs' liking, the ruling of the case is what is controlling, and that ruling is not relevant to the issues in this case. For that reason the motion is denied.

Turning to Plaintiffs' common-law claim, as noted above I allowed the case to proceed on a claim of Nestlé's groundwater withdrawal having effects claimed to be harmful on certain Plaintiffs' riparian rights. Thus this is not a case presenting a dispute between water users who are *in pari materia* in the sense that the law recognizes them as having equal standing regarding the resource in question, but instead presents a situation in which the court must resolve a dispute in which Plaintiffs' riparian interests are legally recognized as superior to defendants' groundwater interests, as will be more fully explained below.

There are two natural resources that are so transient in nature as to not lend themselves to traditional concepts of ownership: air and water. We all have use rights regarding them, especially air. Water is more confined than air, so rights regarding its use may turn on a number of legal and factual issues. In the exercise of these use rights both air and water can be "captured" and incorporated into commerce in various ways, but the rights to do so are not unlimited since such capture is only a form of temporary use that must be measured against the rights of others to use the same resources. The rules regarding competing uses are those "in

play” here. Unfortunately, as both sides agree that this is a case of first impression, meaning that the rules here will be established in this opinion and appellate review of it. Thus, not only am I presented with no firm direction in existing Michigan law, but the parties have been in the same position as they have made decisions regarding which course of action to take here.

First of all we need to identify which surface water bodies addressed in this case are subject to this groundwater/riparian analysis. The wetlands are not, so essentially we are looking at the lakes and Dead Stream. Narrowing the analysis further, I must hold under existing law that Thompson Lake and Osprey Lake must be removed from the common-law analysis.

As noted above, Osprey Lake is an artificial lake created by a dam on the Dead Stream and maintained as to level by a culvert in that dam. On the other hand, Thompson Lake is a natural lake that currently is at an artificial level resulting from the raising of the surrounding groundwater when the level of Osprey Lake was raised by Defendants Bollman putting in the current dam. The testimony was that Thompson Lake’s level was raised one to one and one half foot by the second Osprey Lake dam.

The law in Michigan regarding artificial water levels is set out in *Goodrich v McMillan*, 217 Mich 630 (1922), *Drainage Board v Village of Homer*, 351 Mich 73 (1957) and, more recently, in *Stidham v Algonquin Lake Community Assn.*, 133 Mich App 94 (1984). The essence of those cases, as relevant here, is that, absent establishment of rights founded in estoppel or by prescription (neither of which were plead in the present case), the owner of a structure, such as a dam, that maintains an artificial level is under no duty to others to maintain that artificial level. This case is a bit differently factually in that the dam here is not on Thompson Lake, but rather is on Osprey Lake. This is a relevant observation in that the cases in this area seem bottomed largely on the notice of the risk of a loss of water level based on the existence of a dam on the water body in question. Here, the dam is on Osprey Lake, not Thompson Lake, so the notice argument is not present, or at least much diminished. However, there appears to be no dispute of the fact of actual knowledge that Thompson Lake is being maintained at an artificial level as the result of the Osprey Lake dam installed by Bollmans in that the Sapp family historically put in the original Osprey Lake dam and are aware of the Bollmans’ dam, so there is no need to resort to an analysis of constructive notice on the particular facts of this case. Given actual knowledge and the fact that there is no dispute but that the two lakes are connected hydrologically such that the dam on Osprey Lake is what is controlling the upper foot to foot and a half of Thompson Lake, these cases is found to fully apply.

Plaintiffs have argued that those cases, especially *Stidham, supra*, apply only in situations where the owners of the dam have the appropriate governmental permits. Defendants counter that the absence of permits was never plead by Plaintiffs, so Defendants were never on notice that their absence was an issue, the implication being that the permits were obtained by Bollmans for the second dam. The matter of permits, under these arguments, becomes a matter of pleading. I find that the absence of permits is a matter of a plaintiff’s claim in that a plaintiff making a claim that a dam owner shouldn’t be allowed to drop a water level must allege and prove the absence of any necessary permits. Permits are not a matter of affirmative defense. Further, the issue of permits

was raised only in the *Stidham* case, while the seminal controlling case in Michigan is the *Goodrich* case, a Michigan Supreme court case, which contains no discussion of permits. It does seem logical, however, that if permits are required to build a dam and, thus, artificially create or increase a water body, that their absence would be held against the owner and operator of the dam. Unfortunately, Plaintiffs here did not plead the absence of permits and the record is void of any evidence in that regard.

Also, as noted, Plaintiffs did not plead any equitable theories such as estoppel or prescriptive rights, so the riparians on Thompson Lake have no redress here on those theories. The bottom line, and harsh reality, is that Plaintiffs have no viable claim regarding the Defendants having a duty to maintain the level of Thompson Lake, at least above its natural level. Since there was no evidence that Thompson Lake is in danger of being drawn-down below its historically natural level, any claims of Plaintiffs regarding it under their common law theories must be rejected. (See, however, the MEPA analysis below).

Osprey Lake is not the subject of these common law claims as none of the Plaintiffs are riparian to it. This doesn't mean that Thompson Lake and Osprey Lake are out of the case, as such are relevant to the MEPA claims discussed below.

As an aside, if there was some duty imposed on Defendants to maintain the level of Thompson Lake, all experts agreed that such could be done via a control device installed in the Osprey Lake dam, so Thompson Lake's level could be maintained independent of any pumping activities of Nestle.

We are, thus, left essentially with the Dead Stream and the Tri-Lakes in this portion of the case. The Tri-Lakes were discussed above in the factual analysis where I noted that they were the subject of little evidence. Plaintiffs do not seem to be arguing that Nestlé's operations are having any impacts on the Tri-Lakes or that any impacts there may be are such as to warrant relief. On this record I find no evidence to support any claims there may be regarding the Tri-Lakes in this common-law analysis. That narrows the focus here to the Dead Stream.

While some may scoff at there being any concern existing with this relatively small stream when measured against the magnitude of Defendants' operation and investment, with particular note no doubt being made of its name, they miss the point. The law recognizes property rights to this stream, most directly in named Plaintiffs Doyle, but also in those Plaintiffs riparian to bodies of water of which Dead Stream is sufficiently connected that they have access to the Dead Stream via their property. This grouping of Plaintiffs would be those riparian to the Tri-Lakes. In this case the Dead Stream has been testified regarding, been the subject of photographic evidence and been the subject of two views by me. It and its adjoining wetlands are beautiful and valuable resources not to be lightly disregarded just because someone wants to remove water from its watershed for a commercial product. The impacts of Nestlé's operations on the Dead Stream deserve full analysis under this area of Michigan's property law.

I incorporate here by reference the findings made above in regard to the physical effects and ecological impacts of Defendants' operations on the Dead Stream. The question now becomes whether those impacts, in particular, are of such degree as to warrant a finding that the relevant Plaintiffs' riparian interests are being negatively impacted by Defendants' groundwater-extraction activities to warrant judicial relief. This analysis must be done at pumping rates as permitted, 400 gpm, and at rates being utilized up to the time of trial.

Before undertaking such analysis, we need to identify what Plaintiffs' riparian rights are that are sought to be protected. I begin by noting that the Defense seems to have abandoned the argument it proffered during the motion stage of the case that aesthetics are not a protected value. If they have not, I hereby identify aesthetics to be a recognized and protected riparian right. One's view of water bodies to which his/her property is riparian to is certainly one of the highest values of riparian ownership. Others include boating, fishing, swimming and domestic water use. This list is not all-inclusive, but covers the main riparian uses mentioned in this case.

Also, in discussing riparian and other rights, such as groundwater uses, we need to recognize that the law's recognition and protection of such are a reflection of the value our society and culture places on the issue under analysis. Rights are a human concept. They belong to and are created by humans. The property does not have legal rights, but rather the law attributes rights to the ownership and uses of whatever things those who create the law determine deserve the protection of the law. In doing so, the law develops to correlate competing "rights" to reflect the rationale underlying the rights. It is in the comparison of competing water-use rights that the law here needs to develop to reflect current social values. Thus, while I will write regarding competing property rights, what I am really discussing is human values.

Human values change over time, as society changes. In particular, water rights have, and need to, change as our values of it evolve. As has been discussed in this case during the motion phase, the law regarding the Public Trust doctrine, to the extent that it is based on the concept of navigation, was created at a time that the floating of large commercial logs was a high social and economic value. I dare to state that tourism has far outstripped logging as an economic force in Michigan for very many years, but the log-floatation test is still the test in that one area of the law. Fortunately, we have no such "baggage" as we determine the relationship of the Plaintiffs' riparian rights and Defendants' right to utilize groundwater.

While there is no controlling Michigan law directly on point to this case, some examination of related water law is instructive. A great many cases have been cited by both sides, but there are four cases that provide the core of the near-relevant case law in Michigan.

The first is *John B. Dumont v John G. Kellogg*, 29 Mich 420 (1874). The *Dumont* case is a dispute between two commercial riparians to a stream regarding one's interference with the flow of the stream to the detriment of the other. In such a situation the Michigan Supreme Court ruled that, since the parties were of equal legal standing in regard to the use of the stream, the analysis would be "Whether under all the circumstances of the case the use of water by one is reasonable and consistent with a correspondent enjoyment or right by the other". *Dumont* at 424. Thus, if

one riparian makes reasonable use of the stream, lower riparians have no claim unless and until the upper use unreasonably interferes with their corresponding reasonable use of the stream. Naturally, such a rule is more easily stated than applied. Nevertheless, the rule relevant to our analysis here is that the case involved parties who were *in pari materia* regarding the resource. Interesting dicta appears at page 422 of *Dumont*:

“And in considering the case it may be remarked at the outset that its (sic) differs essentially from a case in which a stream has been diverted from its natural course and turned away from the proprietor below. No person has a right to cause such a diversion, and it is wholly a wrongful act, for which an action will lie without proof of special damage. It differs, also, from the case of an interference by a stranger, who, by any means, or for any cause, diminishes the flow of the waters: for this is wholly wrongful, and no question of the reasonableness of his actions in causing the diminution can possibly arise.”

From this dicta the Michigan Supreme Court as early as 1874 is commenting on diversions of streams from their course to the detriment of lower riparians and any diversion by “strangers” being *per se* wrongful. The question here is whether those sentiments should be elevated from dicta to law and, if so, do they have any application here?

*Dumont* is distinguishable from our facts here in that this dispute is not between two riparians, but between the Plaintiffs, who are riparians, and Defendants’, who as relevant to the question of groundwater extraction, are not riparians. As such, the two sides do not stand on an equal footing, legally, in that riparian values are hereby held to be of a higher legal value than groundwater uses when there is conflict. Therefore, we are not looking simply whether Defendants’ commercial extraction of water from springs is or is not reasonable. The comparative-use reasonableness analysis is used in *Dumont* only as between competing riparians. This is a situation closer in fact and analysis to that part of the *dicta* quoted above where the stream is being diverted away from the lower riparian given that even the Defendants agree that the water being removed from the Sanctuary wells remove water up to 85 percent of 400 gpm (345 gpm) from the Dead Stream, about as clear a diversion as can be found. That the diversion occurs below ground level doesn’t alter the reality of the diversion given the direct correlation found, and agreed to, here.

Another of the primary cases is *Schenk v City of Ann Arbor*, 196 Mich 75 (1916) in which the Michigan Supreme Court was faced with Ann Arbor pumping over 3 million gallons a day from a well field it operated to provide municipal water service to its citizens. In that case the city and the plaintiffs were both groundwater users, with the plaintiffs complaining about the effects of the city’s groundwater withdrawals adversely affecting their groundwater wells. Thus, we again have a case of two parties who are *in pari materia* regarding the water use in question. *Schenk* is often cited as establishing the “reasonable use” doctrine or groundwater use, and indeed it did... as between competing groundwater users. Again, here we have the Defendants, groundwater

users, against plaintiffs, who occupy the higher legal status of riparians. Again we find important *dicta*:

“This does not prevent the proper user by any landowner of the percolating waters subjacent to his soil in agriculture, manufacturing, irrigation, or otherwise, nor does it prevent any reasonable development of his land by mining or the like, although the underground water of neighboring proprietors may thus be interfered with or diverted: *but it does prevent the withdrawal of underground waters for distribution or sale for uses not connected with any beneficial ownership or enjoyment of the land whence it was taken, if it results therefrom that the owner of adjacent or neighboring land is interfered with in his right to the reasonable user of subsurface water upon his land, or if his wells, springs, or streams are thereby materially diminished in flow,...*” *Schenk* at 84. (Emphasis added)

Thus, *Shenk*, while again not directly controlling, provides us with important insight into the thinking of the Supreme Court as it analyzes water-law questions involving competing users. Here the *dicta* specifically address Plaintiffs’ argument regarding materially diminished flows resulting from Defendants’ activities, albeit without defining “material diminishment”.

The next principal case is *Hoover v Crane*, 362 Mich 36 (1960). That case involved a dispute among a group of riparians regarding the use of the water from a lake for irrigation purposes by one of the riparians in his fruit orchard on lands apparently riparian to the lake. *Hoover* relied on *Dumont* stating Michigan law establishing a reasonable-use rule between competing riparians. The *Hoover* court established a measure by which to determine the competing rights of the riparians there to the use of the lake’s water, but it must be kept in mind that the Court there was again dealing with parties who were *in pari materia* in regard to the water: all riparians. The facts here are quite different, as noted above.

Again, the Michigan Supreme Court in *Hoover* gives us a tantalizing little piece of *dicta* when it observes, at page 42:

“Both the resort use and agricultural use of the lake are entirely legitimate purposes. *Neither serves to remove water from the watershed.*” (Emphasis added).

As noted above, the Defendants here admit that Nestlé’s operation serves to remove the subject water from, not only the Little Muskegon River Watershed, but, at least in large part, also from the Great Lakes Basin in very large quantities.

The last of the four main cases in this area I am referring to is *Donald Maerz and Frieda Maerz v United State Steel Corporation*, 116 Mich App 710 (1982) where the Michigan Court of Appeals

was presented with a case involving defendant quarry operator making use of groundwater in its quarrying operation with resulting adverse effects on plaintiffs' groundwater wells. Thus, the court was again handling a contest between water users who were *in pari materia* in relationship to the water: both groundwater users. The court there uses what it called the "correlative rights" rule, relying on the Restatement of torts, 2<sup>nd</sup> sec. 858. That tort concept applies to competing users of groundwater, a situation not relevant here. The *Maerz* holding dealt primarily with whether or not groundwater uses "on-tract" are *per se* reasonable and held that such is not the case, a question not before this court now.

There are certainly many other Michigan cases that have been cited to this court in these proceedings (and which have been read), but none specifically address the precise issue here.

Plaintiffs here have argued for a variety of standards on their common law claims. I have, and do, reject their argument that any diversion of groundwater "off tract" is *per se* unlawful. Such a holding would run counter to much of the commercial and economic activity of not only Michigan, but of the United States. I referred during the motion phase of the case to a visit to any supermarket in which the visitor would note that virtually all of the "non-dry" goods have some water in them. There must be a valid source of water to incorporate into products in commerce. To think otherwise is parochialism in the extreme.

I begin this common-law ruling fully aware that I am stating a rule of law that has not been announced by any reported Michigan case to date, but I also note it is not in conflict with any either. I believe the rule(s) about to be set out consistent with the "thread" of Michigan common law regarding water uses.

Without repeating everything decided above regarding the "effects", hydrologically speaking, and "impacts" ecologically speaking, I hereby find that the Defendants' pumping has to date adversely impacted, and will do so to a greater extent at 400 gpm, the Dead Stream in a way as to negatively impact also the relevant Plaintiffs' riparian interests. As examples I refer first to the effects on the stream's stage and flow. Those are part of riparian interests as they are the foundation for them. More specifically, the fishery will be harmed, primarily as the result of increasing water temperature. The physical parameters of the stream itself will be lessened in depth and width. The adjacent wetlands, virtually part of the Dead Stream, will be harmed as noted above. Some of these are aesthetic considerations, others are more concrete. The question is how are these harms to be fit into a coherent rule of law.

Michigan is not a "natural flow" state, but only as between competing riparians. I hereby hold that riparian interests are superior to conflicting groundwater interests, and that the latter must yield to the former in cases of conflict. The problem in many cases may be in determining when there is conflict, but that is not the case here where effects are admitted by the Defendants, although the extent of impact (versus "effect") is disputed.

In Michigan, the rule for competing groundwater users is that of "reasonable use", but here we have a groundwater user impacting, by effect and impact, riparian rights.

Michigan has looked to many jurisdictions in developing our law of water use. For example, mention is made in the reported cases to the English rules of groundwater and surface water. In the groundwater realm, the traditional English rule was essentially “first come, first served”, essentially the prior appropriation rule. However, the English rule regarding surface waters is the natural-flow rule, indicating that England places a higher value on surface (riparian) waters than groundwater. In states that seem to follow the English rule (Connecticut and New York cases were referred to at trial) have applied the natural-flow rule to cases like this one in which a groundwater user is impacting surface waters.

A recurring issue is what, if any, consideration should be given to the question of whether the challenged groundwater use is off-tract and/or out-of-watershed. The argument is that the more remote the use of the water is to its source, the more harmful that use should be considered.

Distilling (I gave up long ago trying to avoid aquatic analogies and metaphors) all of this discussion to a rational, and enforceable, rule of law, I have reached the following conclusion. In cases where there is a groundwater use that is from a water source underground that is shown to have a hydrological connection to a surface water body to which riparian rights attach, the groundwater use is of inferior legal standing than the riparian rights. In such cases, as here, if the groundwater use is off-tract and/or out of the relevant watershed, that use cannot reduce the natural flow to the riparian body. This is not a pure *per se* rule in that it does require a showing that the flow to/in the surface water body has been affected to a degree that there is a level of confidence that the effect(s) are not part of the natural forces at work on the surface water(s). I accept Plaintiffs’ counsel’s suggestion that, in this case, a showing of effects in the range of three to five percent would be sufficient to exclude the natural “background” in the system such that effects in excess of that range satisfies the requisite showing. The next step in the rule is in cases where, again as here, the groundwater use is shown to have measurable and proven negative impacts on the riparian body/bodies, with the analysis not having any component regarding whether the use is off-tract/out of watershed. The reader will note that the phrase “material diminishment” has not been used. I have perceived that the phrase “material diminishment” has been a source of confusion in that there has never been a good definition, or even analysis, of what is or is not “material”. For those intent on using the phrase I suggest that it be used in the second scenario above, using the phrase “measurable diminishment” for the first. Both are harms for which a remedy will lie. This is not inconsistent with my rulings before trial in that I reserved ruling on the question of whether what then was being referred to as material diminishment, but really a request that I find as a matter of law that a certain measurable level of loss of flow and/or stage, was enough to warrant relief to the Plaintiffs.

Groundwater withdrawals that run afoul of either of the above standards are unlawful, not in the criminal sense, but as a matter of civil property law. It may also be a separate tort, such as under the Restatement of Torts reference in *Maerz*, but I agree with Plaintiffs’ counsel that tort law should not be the only or primary recourse in such a serious traditionally property-law area. Thus, there may be both an equitable property-law remedy as well as a tort recovery at law. As

such, there may be injunctive relief as well as damages on appropriate cases, both as to pleadings and proofs.

In this case the Defendants' water-extraction activities from the Sanctuary Springs wells run afoul of both of the standards just stated above by a comfortable margin. As such, they are hereby enjoined. In stating they are enjoined I am holding that Nestlé's pumping operations at the Sanctuary Springs *must stop entirely*. I realize this is a dramatic and drastic result, but from the evidence I accept I have made the findings spelled out above. Further, I am unable to find that a specific pumping rate lower than 400 gpm, or any rate to date, will reduce the effects and impacts to a level that is not harmful under the Count III analysis.

This case has been so difficult for the parties and the court for a number of reasons. Aside from the dearth of controlling authority in Michigan, the aquatic environment from which the Defendants are removing water is a very complex one in which to assess the impacts of the withdrawals both in terms of determining effects and impacts as they are occurring and in terms of trying to predict the effects and impacts at higher pumping rates than have been experienced to date. Both parties have struggled heroically to prove their respective positions. As I mentioned above, in this civil case which is tried under the standard of the preponderance of the evidence, my factual findings are as stated based on the findings that Plaintiffs' version of effects and impacts to date and into the future are those that will probably have already occurred and will be borne out in the future if Defendants' pumping is allowed to proceed. I have found harmful effects and impacts to exist at low pumping rates that will get worse if the rates increase to the permitted rate of 400 gpm.

In cases, such as this one, if there is insufficient data and/or observations to establish a base-line environment to measure the effects and impacts of activities such as the defendants' here and/or the environment under analysis is of sufficient complexity as to make predictive tools such as computer modeling unreliable indicators of future effects and impacts, the law will, and here does, require those who want to utilize the resources establish, once the above are shown, that their activities will not cross the thresholds established in this opinion. In other words, where, in a common-law property-law case like this part of this case, if the party claiming that the other's actions will have a deleterious effect on their property rights shows that the nature of the environment under analysis is of the nature spelled out above in this paragraph, the burden of going forward shifts to the party in the position of the defendants' here to prove that their activities will *not* have effects and/or impacts (depending on whether their use is on-tract/in watershed or not). This approach will help avoid situations like that here where a large entity comes into an area, gets permits based on reports given to the relevant governmental agencies that are later acknowledged to have been flawed because of the very issues discussed in this paragraph, and proceeds with its operations, forcing those concerned for their property interests into extensive and expensive litigation such as this one. If the burden just outlined had been the law at the time of the events in this case the Plaintiffs would have been in a much stronger position at the temporary injunction stage of the case and would have shifted the burden of going forward with the evidence to the Defense much earlier.

My final conclusion in regard to the Count III groundwater/riparian claims is that, to protect the riparian Plaintiffs' rights, the Defendants must cease all pumping operations from the Sanctuary Springs site. From this record I cannot identify a pumping rate that, in this complex system, will not have actionable adverse effects on these Plaintiffs. Also, in light of the alternatives I find Nestle to have, as more fully explained in the following statutory analysis, this holding, on this record, is not as disastrous for Nestle as it seems to imply. The defense argues alternatives to injunctive relief, here and in the Count VI portion of the case, however I am not satisfied that such are complete relief for Plaintiffs. Also, to adopt the Defendants' suggestion for continuing proceedings on alternatives for other than injunctive relief would be to invite substantial proceedings that I find these Plaintiffs should not be required to go through, thus I will not entertain such.

I have considered even Plaintiffs' suggestions that I set a stage or flow for Dead Stream as one form of relief. However, I do not believe that I could set any such "benchmarks" given the many variables operating on that stream. Given what this record has shown it is impossible to pick a flow or stage below which I could isolate the effects and impacts as being only the result of Nestlé's operations.

I do understand the argument of the Defendants that equitable relief is not the only relief a court can grant in cases in which relief is sought or found warranted. Even if not plead, damages or other forms of relief short of complete injunctive relief can be considered by the court. However, on this record I find that forms of relief other than total shutdown of the Sanctuary Springs operation are inadequate to remedy the effects and impacts I have found to exist here. Offers to plant fish, install artificial fish habitat, artificially maintain lake levels, manage wetland plant species, pay damages and the like are not adequate in light of the negative impacts I have detailed above. Again, Nestlé's alternatives to capturing this particular spring water to bottle and sell further undercut its arguments regarding the equitable relief granted in this opinion regarding this particular water source.

## **COUNT VI: MICHIGAN ENVIRONMENTAL PROTECTION ACT**

The final area of this case presented for legal analysis, and related factual contention, is that presented by Plaintiffs' claims under the Michigan Environmental Protection Act (MEPA), MCL 324.1701 *et seq.*, being Part 17 of Michigan's Natural Resources and Environmental Protection Act, MCL 324.101 *et seq.*

MEPA is one of those (unfortunately) altogether too-rare instances in which the Legislature in Michigan has specifically set only broad objectives and left the specifics of meeting those objectives to the courts. The genius of that approach is that it recognizes the many issues and

variables that may exist and doesn't try to anticipate and resolve them legislatively. The end effect is that the law of environmental protection in Michigan is constantly evolving through the common law as developed by the judiciary in the crucible of the adjudication of actual cases and controversies. This case is obviously one such vehicle.

In "broad-brush" terms, MEPA lets the Attorney General, or anyone else for that matter, bring an action in the appropriate circuit court "...for the protection of the air, water, and other natural resources and the public trust in these resources from pollution, impairment, or destruction". MCL 324.1701(1). That section continues to instruct that if there is any existing standard designed to serve those ends in force under the authority of virtually any state agency or instrumentality, the court can either use that standard or direct another standard that is not a lesser protection of the environment. Once a plaintiff has made out a *prima facie* showing under the Act, the defendant may rebut that showing and/or may, as an affirmative defense, show that there is no "feasible and prudent alternative and that his or her conduct" is essentially consistent with the purposes of the Act.

MEPA grants the courts authority to "grant temporary or permanent equitable relief" or "impose conditions on the defendant" to preserve the environment. MCL 324.1704. This section recognizes that different cases will call for different remedies, not all of which are equitable in nature. That section further recognizes that there are administrative procedures required or available in many circumstances that may involve actions being challenged under MEPA and states that "...the court *may* direct the parties to seek relief in such proceedings" (emphasis added) and covers the various paths that may be taken if the administrative avenue is taken. One of the issues here is that, through the permitting process, review of Nestlé's pumping has occurred and permits were issued based on reports generated on behalf of Nestlé, that even the defense now admits were inaccurate, incomplete or otherwise flawed, but more on that later.

As can be expected, MEPA has seen much use and there is a body of appellate law interpreting and applying it. Unfortunately, some of that law at the Court of Appeals level has revolved around an analytical construct of factors that the Michigan Supreme Court has, correctly, criticized and limited in application.

The cases that set out the fundamental common law of Michigan regarding the protection of the environment as developed under MEPA are *Ray v Mason County Drain Commissioner*, 393 Mich 294 (1975) and *Nemeth v Abonmarche Development Company*, 457 Mich 16 (1998). *Ray* was decided relatively soon after MEPA was enacted and was the Michigan Supreme Court's first opportunity to address the new and revolutionary statute. As pointed out by the Court in *Ray*, Michigan's MEPA was the first state statute of environmental protection that gave broad standing to individuals to bring environmental lawsuits and to provide a broad scope for court adjudication. *Ray* at 298 n.1. The first point addressed by the Court was the importance and necessity of detailed factual findings by the trial courts under MEPA, and generally for that matter. I would certainly hope any review of this opinion would not be critical of a lack of factual findings, regardless of agreement or lack of such with those made herein.

*Ray* begins its analysis of MEPA by noting that it was passed as the result of the following provision of the Michigan Constitution:

“The conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction”. Const 1963, art 4, sec. 52.

The *Ray* Court, after lauding the Legislature’s approach in fulfilling this mandate, analyzed the approach to be taken by the trial courts in cases under MEPA. Again emphasizing the importance of the trial court’s factual findings, the court then ruled:

“To satisfy the requirements for findings of fact under the EPA, the trial judge should consider, and where appropriate make, findings of fact with regard to each of the following:

- 1) How the plaintiff has established a *prima facie* case that the defendant’s conduct ‘has, or is likely to pollute, impair or destroy the air, water or other natural resources’ or how he has failed to
- 2) How defendant has rebutted plaintiffs’ *prima facie* case with evidence to the contrary, or how he has failed to.
- 3) How defendant has established as an affirmative defense that ‘there is no feasible and prudent alternative... and that such conduct is consistent with the promotion of the public health, safety and welfare in light of the state’s paramount concern for the protection of its natural resources from pollution, impairment or destruction’ or how he has failed to”. *Ray* at 308- 309.

The Court then continued to instruct that the harms to be reckoned with are not only those that have occurred, but also those that are likely to occur, since the MEPA is intended to protect against future harm as much as halt and correct that which has occurred, recognizing that the prospective view is actually the more important of the two. The Court noted, as the Legislature obviously did in referring development of the state’s environmental law to the courts, that what will constitute a *prima facie* showing by plaintiffs will vary from case to case depending on the nature of the resource and of the alleged degradation of it. Finally, as relevant to the present case, the Court explained how a plaintiff’s showing of a *prima facie* case shifts the burden of going forward to the defense to rebut such a showing. The Court again emphasized the importance of the trial court’s factual findings on the presence or absence of a *prima facie* case and whether or not such was rebutted. The Court’s discussion of the affirmative defense of “no

reasonable and prudent alternative” is not applicable in this case as no such affirmative defense was plead, nor was such the subject of proofs or argued here.

Following the *Ray* case there were numerous Court of Appeals opinions in MEPA cases, the most cited being *City of Portage v Kalamazoo County Road Commission*, 136 Mich App 276 (1984), the source of the often relied-on “Portage factors”. I will not list those factors here as I do not feel they are particularly relevant to the appropriate analysis in this case, but the curious can find them at page 282 of that opinion. The Michigan Supreme Court, in the *Nemeth* opinion, politely took issue with the mechanical and rote application of the Portage factors to virtually all MEPA cases that seemed to be coming out of the Court of Appeals, noting that they may have application in appropriate cases, but that blindly using them alone had inhibited the development of the common law of environmental protection.

The Most recent decision from the Michigan Supreme Court is *Nemeth*, decided in 1998. The Court reaffirmed *Ray* and went on to spell out the many ways a standard of environmental protection can be developed by the courts, either on their own or via standards adopted by the Legislature itself or under administrative rules and regulations in the area. The Court emphasized that legislative or administrative standards are not binding on the courts, but also that MEPA did not preclude the Legislature or appropriate administrative agencies from developing relevant standards. The Courts can adopt a standard that is more stringent, and thus more protective of the environment, than those coming from the legislative or executive branches, but cannot, under MEPA, adopt a standard providing less protection than them.

The *Nemeth* court importantly noted that legislatively-adopted standards in statutes that do not provide a private cause of action can nonetheless be considered by the courts under a MEPA private action.

*Nemeth* repeated the oft-cited quote from *West Michigan Environmental Action Council v Natural Resources Commission*, 405 Mich 741 (1979) that:

“virtually all human activities can be found to adversely impact natural resources in some way or another. The real question before us is when does such impact rise to the level of impairment or destruction? *Id* at 760.

As is often said “therein lies the rub”.

Also important here is the proposition, stated in *West Michigan Environmental Action Council* and *Nemeth*, that the normal deference the courts give to the determinations of administrative agencies regarding the statutes they are to enforce and the rules and regulations they administer does *NOT* apply in MEPA analyses in that the courts are to conduct *de novo* assessments of environmental standards that may come from such statutes, rules or regulations.

The first question in MEPA cases is not in contention here, that being whether this case involves a natural resource. The Defendants here do not dispute the proposition that the waters, lakes, wetlands and streams involved in the case are natural resources under MEPA. The battleground here, thus, centers on the issue of whether or not the facts presented involve actions by the Defendants that constitute an impairment of these resources to the level that court-ordered action is appropriate.

The interested reader (or the near-terminally bored) is referred to my discussions regarding my assessment of these Plaintiffs' claims and the evidence above, as well as my assessment of the Defendants' responses. Based on the analysis I went through above I find here that Plaintiffs have set forth a *prima facie* MEPA case in their case in chief regarding Osprey Lake, Thompson Lake, Dead Stream, the Dead Stream wetlands as well as wetlands 115, 112 and 301 under multiple MEPA theories. The legal analyses behind this conclusion are set forth below, as is my discussion of whether the Defendants have rebutted Plaintiffs' *prima facie* case. I mention this here as I hereby deny the MCR 2.515 motion to dismiss brought by Defendants at the close of Plaintiffs' case in chief.

As noted above in general terms, the Plaintiffs' burden here is that of a preponderance of the evidence that the harms they claim under MEPA are likely to have already occurred or will yet occur. As Plaintiffs' counsel argued, the threshold of impairment sufficient to trigger court intervention should not be set so high as to frustrate the constitutional imperative behind MEPA, but neither can it be set so low as to prohibit reasonable non-impairing development of Michigan's valuable natural resources. The constitutional provision refers to both "...the conservation *and development* of the natural resources of the state...". That balance is "the rub".

I want to be clear before I go any further with the MEPA analysis that the rulings made above finding Defendants in violation of the riparian Plaintiffs' property rights are *NOT* standards under my MEPA analysis here, at least not standing alone. The common-law analysis there is not one of environmental protection, even though I based that analysis on the same effects and impacts findings I will use in the Count VI MEPA analysis. While it is possible, in the abstract, that a common-law analysis may also be a serviceable standard under MEPA, the property-rights analysis in this case is not such a standard.

The task then becomes one of finding or establishing a standard or standards to measure Defendants' water-extraction activities against to determine if such actions result in the impairment of the natural resources involved in this case (destruction or pollution are not argued as being involved in Plaintiffs' MEPA claim, only impairment).

Since statutory standards can serve as appropriate MEPA standards, Plaintiffs have referred me to a series of statutes that indeed are or provide the bases for standards for the protection of elements of the environment. These are the Inland Lakes and Streams Act, MCL 324.30101 *et seq* (ISLA), aka Part 301, the Wetland Protection Act, MCL 324.30113 *et seq* (WPA), aka Part 303, and the Great Lakes Preservation Act, MCL 324.32701 *et seq* (GLPA), aka Part 327. As noted above, if found applicable, I can adopt any of these, alone or in combination with others,

as the standard(s) to be applied under MEPA here, but I cannot adopt a standard of lesser environmental protection than standards found in these statutes that are applicable. Thus, my first inquiry is to whether any of these statutes provide a relevant standard. If so, should I adopt it/them as standards under MEPA? If I do, is Nestle in violation of any such standards at any particular rate of pumping from the Sanctuary Springs well field?

Before delving into the above outlined analysis (which I do note is not the only standard-setting analysis open to consideration) it must be noted that Nestle (actually, its predecessor Perrier) underwent Department of Environmental Quality (DEQ) analysis and was not found in violation of these statutes or DEQ rules and regulations under them regarding what was at the time a proposed commercial well operation. Defense Exhibit Dn is the DEQ response to public comments and includes the agency's analysis of these statutory issues. As noted above, that analysis was based fundamentally on the reports that have been discredited to a large extent in these proceedings, a point even admitted by the Defense. One question I may need to answer is whether I should "remand" the question of agency review back to the DEQ for consideration in light of the trial record...or not. Arguing for such is that such a procedure would allow the DEQ to assess this much-expanded record in its decision-making process. Arguing against doing so is the fact that certain of the controlling DEQ rules are, as I will discuss below, contrary to my interpretation of the statutes such that, absent a change in the relevant DEQ rules, little change in much of their analyses could be expected. A practical consideration arguing against such a course of action is the simple reality that we have here, as in many and perhaps most MEPA cases, parties of extreme differences in available resources coupled with that part of the *Nemeth* opinion that denies attorney fees to private plaintiffs in MEPA actions.

I also want to note that to constitute an "impairment" under MEPA, a particular activity under analysis need not necessarily cause a dramatic "all-at-once" disaster to a resource. Many resources have value as a component of a larger ecosystem, but little apparent value standing alone. Loss or impairment of enough components of a larger ecosystem creates a risk of systemic "death by a thousand cuts" sufficient to stop what may appear to be a minor impairment. The cumulative effect of a series of minor impacts may in many cases (including this one) be of sufficient concern to warrant court action against each of those impacts that appear minor and inconsequential by themselves. This is part of the case-by-case analysis the Legislature requires of the courts under MEPA.

### **INLAND LAKES AND STREAMS ACT**

Defendants admitted that they had not actually applied for or received any permits under ISLA or WPA. Nevertheless, the DEQ opined in its August 8, 2001 "Response to Public Comments Document", Defense exhibit Dn (most directly at page 13), that neither ISLA (Part 301) nor WPA (Part 303) have any application to (then) Perrier's proposed activities at the production site and, thus, those activities are not subject to DEQ regulation. With all due respect, that conclusion is simply wrong.

ISLA (Part 301) at section 30102 provides:

“Except as provided in this part, a person without a permit from the department shall not do any of the following:

- (d) Create, enlarge, *or diminish* an inland lake or stream”.  
(Emphasis added).

In the definitions section of the act, section 30101, “inland lake or stream” is very broadly defined (in relevant part) as:

“(f) “Inland lake or stream” means a natural *or artificial* lake, pond, or impoundment; a river, stream, or creek... or any other body of water that has definite banks, a bed, and visible evidence of a continued flow or continued occurrence of water... , or a lake or pond that has a surface area of less than 5 acres.” (Emphasis added)

There is an exceptions section in the act, section 30103, but careful reading of it shows no exception that could even arguably apply to Defendants’ production-well operation here.

Section 30104 sets forth the permit procedures, which were not undertaken here as Defendants admit.

The section which sets out ISLA’s “standards” is section 30106 which sets out when the “department” (DEQ) shall issue permits:

“The department shall issue a permit if it finds that the structure or project will not adversely affect the public trust or riparian rights. In passing upon an application, the department shall consider the *possible* effects of the proposed action upon the inland lake or stream *and upon the waters from which* or into which *its waters flow* and the uses of all such waters, including uses for recreation, fish, and wildlife, aesthetics, local government, agriculture, commerce, and industry. The department shall not grant a permit if the proposed project or structure will unlawfully impair or destroy any of the waters or natural resources of the state. This part does not modify the rights and responsibilities of any riparian owner to the use of his or her riparian water. A permit shall not cause unlawful pollution as defined by part 31.” (Emphasis added).

The act defines the term “project” in section 30101 (j) as “...an activity that requires a permit pursuant to section 30102”.

In reading ISLA, particularly the portions quoted above, it seems difficult, if not impossible, given the effects and impacts I have factually found in this opinion, to conclude other than that the Defendants' water-extraction operations do, in fact and at law, violate the standards of the Act. Based on my detailed factual findings set out in earlier in this opinion, I find that all the wetlands, lakes and streams in contention in this case fall under the broad definition of "inland lake or stream" in section 30101(f); that Defendants' water-extraction activities do in fact diminish said lakes and streams (and wetlands) as defined in section 30102(d), thus making such activities fall under the definition of "project" under section 30101(j) since the Defendants' activities fall under the category of operations which require a permit under section 30102(d). Thompson Lake and Osprey Lake do come under ISLA control because section 30101(f) includes artificial lakes in the definition of "inland lakes and streams".

In light of that analysis, we turn to section 30106 of ISLA to see what standard the DEQ is supposed to apply in making its determination of whether or not to grant the required permit here. That section, quoted in full above, requires the DEQ ("...shall consider...") to evaluate the "*possible* effects" of Nestles' proposed actions on the resources in contention in this case and "...upon waters *from which*..." their waters flow. As applied to the facts of this case, and given the nature of defendants' spring water extraction operations, I find that Nestles' production well operations do affect and impact, not only the surface water bodies in contention here, but the very source of some of them, the Sanctuary Springs themselves. Further, as found in detail above, the impacts to those resources are measurable and harmful such as to be "unlawful" as that term is used in section 30106 in instructing the DEQ not to issue permits in such cases as this one.

I am fully aware that the DEQ relied on its own administrative rule, R 281.811(e), in deciding that the Defendants' then-proposed spring-water extraction operation was not subject to ISLA. That rule reads:

"'Enlarge or diminish an inland lake or stream' means the dredging or filling of bottomlands, or the dredging of adjacent shore lands, to increase or decrease a body of water's surface area or storage capacity or the placement of fill or structures, or the manipulation, operation, or removal of fill or structures, to increase or decrease water levels in a lake, stream, or impoundment."

I hereby find that this rule does not reach all the activities statutorily included in and regulated by ISLA. The DEQ may choose to enforce ISLA under the standard in their own rule, but my finding is that such is contrary to its statutory mandate as established by ISLA's section 30106 command that it not issue permits in situations I have found to be presented by Defendants' operations. Inherent in such a legislative command is that acts that come under the statute require a permit and must be halted if none exists. I don't know if the department's decision to so narrowly interpret its statutory duty arises from a misreading of it, or arises from uncertainty regarding the physics of the process of groundwater withdrawals affecting surface water bodies,

or is simply a product of the reality of limited financial resources to conduct the kind of studies necessary to evaluate projects such as this.

After careful consideration of the issue, I believe ISLA presents an excellent standard for environmental protection, which neither the parties, the DEQ nor I can authorize activities contrary to. I adopt it as one of the MEPA standards applicable to this case.

Inherent in the above discussion of ISLA, I find that the Defendants were/are required to apply for a permit under ISLA, a step they did not take. However, if they had, it is probable that the DEQ would have, improperly, issued one given their adherence to the R 281.811(e). As such, it would be a meaningless act to order the Defendants to apply to the DEQ for an ISLA permit. Such finding sets out a *prima facie* case under MEPA that the Defendants have not rebutted, as spelled out in great detail in the factual-analysis portions of this opinion above. Also, even though the Defendants have not plead, proven or argued that there are no “feasible and prudent” alternatives, as I will discuss below there are such here. Thus, the Defendants are in violation of the standard adopted herein, thus making them subject to appropriate remedies being ordered by this court in this case.

### **WETLAND PROTECTION ACT**

Moving on to the Wetland Protection Act (WPA), aka part 303, I again begin by noting that Defendants admit that they did not apply for a permit under that act and that the DEQ, in its August 8, 2001 “Response to Public Comment Document”, defense exhibit Dn, most directly at page 13, states that Part 303, the WPA, is found by it to have no application to Defendants’ then-proposed project. Again, that conclusion was based on the now-discredited reports given to the DEQ by the Defendants. Regardless of any deficiencies in those reports, the DEQ’s stated interpretation of the WPA to the effect that “Part 303 does not regulate the removal of ground water via a well before the ground water reaches a wetland” (Exhibit Dn at page 13) indicates that it would not require the Defendants to have a WPA permit even based on this record. Again, I respectfully disagree with the DEQ.

The legislature spelled out, in detail, the importance of wetlands and the legislative priority they occupy as the driving force behind the WPA in section 30302. The section is long and will not be repeated here, but the reader is encouraged to read it to put in context the legislature’s intent in giving meaning to the constitutional mandate to protect Michigan’s natural resources, specifically in the context of wetlands, a resource many do not appreciate in terms of ecosystem function and wildlife habitat.

There can be no issue that the wetlands in contention in this case fit the WPA definition of “wetland” in section 30301(d), so I won’t waste the readers’ or my time quoting it here.

Section 30304 states as among the act’s “prohibited activities”:

“Except as otherwise provided by this part or by a permit obtained from the department under sections 30306 to 30314, a person shall not do any of the following:

(d) Drain surface water from a wetland”

In reading the entire WPA, and considering the evidence in this case, it is clear that the Act covers situations in which surface waters can be, and here have been, drained from wetlands, along with other surface-water bodies, by the mechanism of lowering the ground water under a wetland as the result of the mechanical extraction of water, as well as diverting water that is feeding that groundwater. To hold otherwise would be to ignore a technology that can have such effect that has been in existence for far longer than the WPA has been in existence. The Legislature’s intent in the WPA is obviously to protect wetlands, an objective that would be seriously undercut by the narrow reading of the act urged by the Defendants’ and adopted by the DEQ. The reality of removing surface water from wetlands by reducing the level of the groundwater near them is recognized in the act itself in that the legislature recognized that farmers have, and still do, gain and maintain tillable acreage by draining wetlands via drains, a process specifically exempted from WPA prohibitions and permitting in section 30305(2). The existence of such an exception is an express recognition that the excepted conduct would be subject to WPA regulation and permitting absent the exception.

It is my finding that the DEQ’s position, and that of the defense here, to the effect that the WPA can only apply to surface withdrawals from wetlands at the surface is conceptually and factually wrong. Again, there may be reasons why the DEQ is interpreting its statutory mandate this way, but, regardless of its reasoning, such is an improper interpretation of the WPA. The Act does not limit the mechanism of the withdrawal of wetland surface water; it just plainly brings such under the scope of the act, making withdrawals without permits or exemption unlawful.

A reading of section 30305 indicates that defendants’ activities here are not exempted from the permit requirements of the WPA.

It is interesting to note that section 30306 requires, in subsection (1)(f), an “environmental assessment” if requested by the DEQ as part of a permitting process.

The “standards” section of the WPA is found in 30311 which spells out a detailed balancing approach to determine whether or not a permit should be granted. Since the DEQ is of the opinion that the WPA does not apply to groundwater withdrawals, regardless of their provable negative effect on wetlands as I have found to have occurred to date here, and will occur at higher pumping rates than reached to date, the DEQ has never applied the analysis required under this section. Section 30311 is lengthy, so it will not be reproduced here, but again the reader is encouraged to read the required analysis. It tracks remarkably closely MEPA’s shifting burdens of proof and of going forward, and even the MEPA affirmative defense concept of looking into whether there is “a feasible and prudent alternative” to impairment of a wetland.

In going through the analysis set out in section 30311, which I find to be an appropriate standard for the protection of the environment under MEPA, I also hereby find that the balancing of this particular use of groundwater in the form of spring water from this particular ecosystem, with the resulting effects and impacts set out in the factual analysis portion of this opinion, results in the conclusion that Nestles' beverage bottled-water operation falls on the losing side of the balancing of the public interest in it, as compared to the price the wetlands here in contention are paying and will pay, considering all interests, including the public's, in these wetlands. As such, Plaintiffs are hereby found to have presented a *prima facie* case under MEPA using this WPA standard. It is also found that the Defendants have not rebutted this *prima facie* case as discussed in detail in the factual-analysis portions of this opinion above. Again, it is noted as observed above, that the defendants have not plead, proven or argued the absence of a "feasible and prudent alternative" to their actions that are and will harm these wetlands, but as I will explain below, I find that there are such based on evidence in this record. The existence of such alternatives is a factor under the WPA and MEPA itself.

### **THE GREAT LAKES PRESERVATION ACT**

The Plaintiffs, it must be noted, did not claim that the GLPA directly establishes a standard for protection of the environment under MEPA relevant to this case. Such is a proper analysis of the Act. This conclusion can be reached because the language of the Act does not specifically prohibit the precise conduct of Nestle here. The value of the GLPA is in its statements of public policy, its identification of the risks to Michigan's and the Great Lakes' Basin's water resources arising from the transport of large quantities of water from Michigan that are included in the waters of the Great Lakes' Basin. Those broad public policy concerns are well stated in section 32702 of the act, a lengthy provision that will not be reproduced here, but which the reader is encouraged to read. Section 32703 of the act states that, with an exception that does not apply here, "...the waters of the Great Lakes within the boundaries of this state shall not be diverted out of the drainage basin of the Great Lakes". The problem in using the act as a standard that has direct application here is that the definitions section of the act, section 32701, defines terms in a way that the phrase "waters of the Great Lakes" as used in section 32703 is not defined for purposes of the act, but the phrase "waters of the Great Lakes Basin" is defined. That latter definition nicely includes the water bodies in contention in this case, but the prohibition against diversion is against waters covered in the first definition which the Act does not define. Therefore, however wrongful it may seem to some that "Michigan's water" (not a statutory term here) can be extracted, packaged and trucked over publicly paid-for and maintained highways, such conduct does not run afoul of the GLPA or any other existing statute in Michigan that might serve as a standard of environmental protection.

There is one definition in the GLPA that I think sets out a concept that is worthy of further study. That is the definition of "consumptive use" as stated in section 32701(b):

"'Consumptive use' means that portion of water withdrawn or withheld from the Great Lakes basin and assumed to be lost or

otherwise not returned to the Great Lakes basin due to evaporation, incorporation into products, or other processes.”

This concept is felt worthy of note in that it addresses an issue I “floated” early in the case: that water is incorporated into many products in interstate commerce. I was concerned that if I was being asked to prohibit any water from Michigan being incorporated into commercial products for export from the state, that such would be contrary to established economic practices, to the detriment of many in Michigan. The definition I just quoted from the GLPA recognizes the value of water being incorporated into products from Michigan and sold wherever a market can be found. The key to this is that water is *incorporated into a product* to be recognized as being under the social value protected. However, if water *is the product*, the rationale loses its logical force in the face of the higher social value of preserving water as water. To argue that Defendants’ bottled water is a product in which water is incorporated ignores that water, by its nature, must be containerized to be handled. Packaging it only makes it easier to transport and to market. Given that water is a natural resource on its own, I believe the state has a rational basis on which to limit its removal *as water* from the state and/or the Great Lakes’ basin in a much more compelling way than situations in which water is but a component of a product, the manufacture of which has presumably been of some economic benefit to a citizen and taxpayer of the state, and thus the state also.

Of course, as noted in *Nemeth*, the courts do not need to find an existing standard in statutes as written to adopt under MEPA. The courts can establish their own standards to serve the stated goals of MEPA. I could easily develop a MEPA standard using the concepts and some of the wording in the GLPA, but the result would or could be a complete shutting-down of the bottled water industry in Michigan. Such a final result would indeed protect the waters of Michigan and of the Great Lakes, but goes far beyond what is necessary to resolve this case. There are many who see the trucking of water in containers out of the state and out of the Great Lakes basin to be no different than moving water via pipeline, the specter of which was a “hot topic” some years ago. To them, the fact that there is a pipeline here extending from the well field and ending at the bottling plant is surely a distinction only in degree in that, as noted, once bottled the water, as water, is trucked from the state and the Great Lakes’ Basin over the asphalt and concrete “pipeline” of the public highway system.

However, I decline the tempting prospect of re-writing the GLPA prohibition in such a way as to prohibit Defendants’ conduct here in trucking water out of Michigan and out of the Great Lakes Basin as I believe rulings of such a magnitude are better reserved for cases in which they are necessary to resolving the issues before the court. That is not the situation here in that I have found at least two statutory standards that serve to give the Plaintiffs relief in regard to the precise conduct of the Defendants they claim harms the ecosystem under study in this case. If the Defendants decide to identify and access an aquifer that will not present a situation subject to analysis, and adverse rulings, under the above-conducted analyses, then application of a GLPA-based standard under MEPA may be presented. Frankly, the best forum for decisions of GLPA magnitude is in the Legislature, at least for the time being.

## NON-STATUTORY MEPA STANDARDS/ CONCEPTS

MEPA does not limit the sources the courts can look to in establishing an appropriate standard for the protection of Michigan's natural resources in the development of the common law of environmental protection. One of the principles I set out in the common-law property rights (groundwater versus riparian rights) I believe presents a very pertinent guideline for application to the actions of resource users.

I begin by noting that many of the water resource-rich areas of Michigan are in complex ecosystems, particularly those that are rich in surface waters. Here I have noted that we are dealing with a shallow unconfined aquifer with open water features (lakes, streams and wetlands). The geology of the area was referred to at trial as a "kettle and kames" area, meaning that the great glaciers that once covered the area dropped huge chunks of ice as they melted and retreated, with the melting waters from the retreating glaciers and the chunks left behind creating a complex subsurface stratum with undulating surface characteristics. Over time these features stabilized, collected water in low areas and vegetated, becoming the ancestors of what we see in the ecosystem under study here.

This is a complex system that I have found does not lend itself well to the computer-modeling approach taken by the Defendants' experts, but is best looked at in its various sub-components, as Plaintiffs' experts did. Even after all the analysis conducted for this case, the realities of what effects Defendants' pumping have caused and will cause have been difficult to evaluate. I have accepted Plaintiffs' assessments as I think they do a better job of analysis than the Defendants' such that I accept Plaintiffs' assessments and predictions to satisfy their burden of proof. There is still uncertainty.

While what I am about to write is not really a standard for direct MEPA application in and of itself, this analysis is a good guide for analyzing the issue of a plaintiff's initial burden of proof to establish a *prima facie* case under MEPA as well as a defendant's rebuttal of such a showing.

Where, as here, someone comes into a complex system to remove a natural resource, if there is insufficient data or other evidence of the system as it exists or existed before the defendant's activities, that complexity and dearth of evidence should be a factor in requiring a lesser degree of proof required of a plaintiff to set out a *prima facie* case, and should be a factor in requiring a clearer showing by a defendant in rebutting a plaintiff's *prima facie* case. If there are difficulties inherent in the system from which a defendant wants to remove resources that make analytical and predictive tools such as computer modeling difficult to use, that difficulty should be a factor that weighs against the activity that a plaintiff asserts will be harmful to the subject natural resources.

In MEPA terms, on appropriate findings regarding the existence of an analytically complex ecosystem, the threshold for a plaintiffs' showing of its *prima facie* case is lowered in proportion to the complexities found to exist, and a defendant's burden to rebut a plaintiff's *prima facie* case is correspondingly raised. In situations in which a defendant's activities are hard to discern

because of the complexity, and operations have already been started but their effects and impacts are difficult to sort out from the natural forces operating on the system, a plaintiff may meet its initial burden by proving that such is the situation, thus shifting the burden of going forward to the defendant to establish the contrary.

As applied to the facts of this case, Nestle, which wants to take for its own private profit purpose, spring water, a natural resource, from a complex system in which there is little pre-activity evidence and in which computer modeling is of little use in assessing and predicting the effects and impacts of Nestlé's operations, would have found itself faced with a *prima facie* case much earlier in these proceedings than it did here, since this case was tried under the existing traditional concepts of burden. The case, under MEPA, would have been tried primarily on Nestlé's burden of rebutting Plaintiffs' *prima facie* case. In the final analysis, this case has been decided in Plaintiffs' favor under MEPA even though Plaintiffs had to make the traditional showing, unassisted by the concept just discussed. I felt this concept was worth mentioning, however, given the virtual certainty of appellate review.

Another analytical approach not taken here, but that could have been and is mentioned in the spirit of furthering the common law of environmental protection under MEPA, as well as for appellate consideration, is that in conducting the balancing analysis under MEPA, the relative public interest in the proposed use or abuse of a natural resource should weigh heavily in striking a balance between such use/abuse and the importance of the public's interest in, and the extent of adverse impact on, said resource. I realize that such may be implicit, or even explicit, in MEPA, but I have read little in the reported cases of these considerations to indicate that this balancing analysis is much used. For example, in this case Nestle wants to extract drinking water to which it can attach a label lawfully indicating it is "spring water" for a private for-profit purpose. To be able to do so, Nestle here has tapped a shallow unconfined aquifer with the resulting harms pointed out above. Under the analysis put forth for consideration here, Nestle would have to prove that there is a public benefit in its ability to extract and market "spring water" sufficient to outweigh the harms being done and to be done to the natural resources involved here. On this record Nestle is not considered as having made such a showing. In fact, Nestle opposed any effort to explore its marketing and business operations in regard to spring water.

A related analysis would be one that would bar the withdrawal of water from a complex and difficult to analyze or predict ecosystem on a *per se* basis, striking the balance in favor of the environment in cases where the courts can, from the evidence, conclude that such should be having adverse effects and impacts, but cannot quantify them due to the system's complexities. This approach did not have to be taken here as the proofs established the requisite impairment of the resources involved here, even though the analysis was very difficult.

### **NESTLE'S ALTERNATIVES**

As noted early in the statutory analysis, Nestle could have plead and proven, as a MEPA affirmative defense, that "...there is no feasible and prudent alternative to defendant's

conduct...” MCL 324.1703(1). Nestle did not plead or prove such, but the record here indicates that there are alternatives available to Nestle such that it could continue to operate its water bottling operations without using water from the Sanctuary Springs. Also, in the common-law analysis above I made reference to alternatives Nestle has to removal of spring water from this watershed.

In discussing the concept of alternatives available to the Nestle, we must refine the question to define what conduct we are analyzing alternatives to. As noted early in this opinion, this case is about the Defendants removing water from this specific shallow unconfined aquifer via the Sanctuary Springs. Thus, that is what alternatives must be compared to. The record here is silent on whether there are other sources of spring water Nestle can tap into without having problems similar to those found in this opinion to warrant shutting down this particular operation. Also, at the insistence of Nestle this record does not address the importance in the marketplace of spring water as compared to non-spring water. Therefore, any water source, spring or not, will be considered in the alternatives analysis. In fact, these Plaintiffs noted a number of alternative water sources they argued Nestle could use, some even in the subject watershed!

Mr. Brendan O’Rourke, Nestlé’s plant manager for the Mecosta County bottling plant, testified that Nestle is bottling and selling as drinking water, water pumped from a well source at the site of the bottling plant which is far from the site of the springs it is drawing spring water from. Nestle cannot label that water as “spring water”, but apparently has a market for it under the “Ice Mountain” brand. He testified that this well has a state-permitted pumping rate of 175 gpm, or nearly half of what the four Sanctuary Springs wells are permitted for in total. Therefore Nestlé’s own experience is that it can bottle and sell water from other than the springs in question in this case, or any others for that matter. It is Nestlé’s desire to capture “spring water” that has resulted in the problems giving rise to this substantial litigation. Also noted is that Nestle has not claimed or proven that the Sanctuary Springs site is the only spring water site available to it. If there are others, Nestle should carefully consider the experience of this case in deciding whether and/or how to develop them.

There was no evidence that Nestle couldn’t put wells into deeper aquifers to get ample supply of water to sell, albeit not spring water, a practice its own exhibits show many other beverage bottlers in Michigan already do, including beverage water bottlers. Another water source for bottled beverage water could be various municipal sources. Again, defense exhibits show that many beverage bottlers use municipal sources.

I do understand that Nestlé’s failure to argue that there are no feasible and prudent alternatives was a strategic decision. Why admit that there are alternatives when they believed they will prevail on the merits in the lawsuit? Also, they are apparently aware that there are indeed alternatives, but for reasons not gone into at trial want to develop this “spring water” source. Unfortunately, that unspecified desire loses under the analysis I have gone through above, both under MEPA as well as under the Count III common-law analysis.

## COUNT VI MEPA CONCLUSION

Having determined that Nestlé's pumping operations at the Sanctuary Springs violates a number of standards of environmental protection I have adopted in this opinion at any pumping rate experienced to date and up to the maximum permitted rate of 400 gpm, it is my decision that injunctive relief against all pumping operations at that site is appropriate, and such an order is hereby issued. I again note that I understand that injunctive relief is not the only form of relief a court can grant in MEPA cases and that I have inherent discretion to fashion any appropriate remedies tailored to the facts of this case. However, I am convinced on this record that the Defendants' proposal that I consider alternatives, such as conditions, and/or convene further proceedings to consider such questions would lead to no conclusions that I have not already made and, therefore, I will not entertain such.

This conclusion is particularly appropriate given the alternatives open to Nestle that I have noted. The prediction (threat?) that Nestle employees will lose their jobs and the community lose a valuable corporate citizen and taxpayer is entirely in the control of the decision makers at Nestle. They can develop alternative water sources that do not present the kind of risks that this one does and, after an initial capital outlay, continue bottling and selling water. They came into this situation aware of the risks and must now regroup to deal with the consequences of losing.

## PLAINTIFFS' REQUESTS FOR OTHER RELIEF

The Plaintiffs have requested various forms of relief, most of which I have addressed above. Remaining for consideration are their requests for attorney fees, costs and damages.

As to costs, Plaintiffs are entitled to those recoverable under the law as the prevailing parties. They shall submit a proposed bill of costs to the Defense. If there is no agreement on allowable costs to the prevailing party a hearing must be set to resolve that matter

Regarding the Plaintiffs' request for attorney fees, Michigan follows the so-called "American rule" regarding awards of attorney fees. That rule is that, generally, attorney fees are awarded only where specified by statute or court rule. Other than a claim under MEPA section 1703(3), Plaintiffs have not presented any authority for an award of attorney fees. Regarding Plaintiffs' MEPA-based attorney fee claim, the Michigan Supreme Court in *Nemeth*, in part IV of the opinion at pages 37-44, analyzed such MEPA claims and determined that attorney fees are not recoverable under MEPA. The Court did so noting at page 43 the injustice of such when private citizens enforce Michigan's law of the environment by way of a private action with them essentially acting as private attorneys general, but ruled that the legislature did not allow for

awards of attorney fees in MEPA. While I am bound by that ruling, I am not happy with it and urge the legislature to at least give the courts discretion to award attorney fees in cases in which the courts find such to be appropriate based on the facts and claims in such cases.

Plaintiffs have requested in their final brief that the riparian Plaintiffs be awarded damages. On this record there are no proofs of monetary damages to base such an award on, so the request is denied.

Plaintiffs also requested in their final brief that I reconsider my earlier rulings on Count II, but such effectively occurred when the court advised, on the record, that I would consider effects and impacts to the riparian Plaintiffs under Count III. I have done so in this opinion, with the Plaintiffs prevailing.

Finally, Plaintiffs in their Trial Brief requested at page 39, if I rule favorably to them on questions relating to the public trust or wrongful expropriation of a sovereign or public trust interest in the water, that I trace the monies received by the Defendants for the sale of the water and order an accounting regarding the same. This request is denied as it is not within any reasonable reading of the Second Amended Complaint, was not the subject of proofs at trial and I did not make any of the foundational findings stated as predicates by the Plaintiffs for such a holding.

### **COURT'S FINAL COMMENTS, SUMMARY AND ORDER**

As observed in the opening of this opinion, this case has been extensive and intensive. The efforts on both sides have been substantial, as has been mine. The exercise has been an interesting one, but it is one I am not anxious to revisit. In the words of The Grateful Dead, "what a long strange trip it's been".

This controversy has generated much heat, but little light for other than those of us directly involved in it. I am fully aware, as noted early in the opinion, that there has been, and likely still is, much passionate emotion on both sides of the issues, some of it the result of being informed on the issues but much of it not informed. The emotive side seems to arise largely from the perception that the Defendants are taking for a purely private-profit motive a measurably large amount of a natural resource that is part of that which substantially defines the nature of our state: WATER. While both sides in this case agree that water is not subject to the commonly-held concept of ownership, popular sentiment is not in accord with that notion. Michigan is a state in which tourism is a major part of the economy and many people who choose to live here do so because of the recreational opportunities in and natural beauty of the state, much of which has to do with our aquatic resources, of which many here feel very possessive. After all, Michigan is the "Great Lakes State" with a state motto or slogan of "Winter Water Wonderland".

Those on the other “side” of the issue are champions of the economy, jobs, community growth (and tax base). Their concerns are real and not without merit, in the abstract. This case, and particularly my decision, is not about anyone being anti-business or being “Green”. It is a case about finding balance.

It is expected that appeals are a virtual certainty, so the matter is likely not over yet. The appellate courts will have the final “say” in this case, but I am confident that everyone involved in this process to date has made sure that the appellate courts have a good record from which to reach their conclusions.

In closing, I have ordered the termination of all water withdrawals by the Defendants from the well field at the Sanctuary Springs. Such must occur within 21 days from the date of the filing of this opinion. The only question not yet answered is that of costs, but that issue can be handled as a post-judgment matter. I am making this opinion into the judgement and operative order by adding such language above my signature, thus saving counsel the effort of having to prepare and submit a separate order. This is not always possible or advisable, but given that the final conclusions reached are relatively straightforward such is felt appropriate in this case. If counsel prefer a different form of judgement and/or order, they can stipulate to such or motion the matter up for hearing. I am making any order under this opinion effective the date the opinion is filed so as to “start the clock” for the actions I have ordered in the time-frame I have set.

## **IT IS SO ORDERED:**

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Lawrence C. Root (P25474)  
Chief Judge  
Mecosta County Circuit Court  
49<sup>th</sup> Judicial Circuit of the State of Michigan

