STATE OF MICHIGAN

IN THE COURT OF APPEALS

ATTORNEY GENERAL FOR THE STATE OF MICHIGAN *ex rel.* MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY,

Plaintiffs-Appellees,

and

THE CITY OF ANN ARBOR; WASHTENAW COUNTY; THE WASHTENAW COUNTY HEALTH DEPARTMENT; WASHTENAW COUNTY HEALTH OFFICER JIMENA LOVELUCK; THE HURON RIVER WATERSHED COUNCIL; and SCIO TOWNSHIP,

Intervenors-Appellees,

vs.

GELMAN SCIENCES, INC., a Michigan corporation,

Defendant-Appellant.

Court of Appeals Docket No. 357599

Washtenaw County Circuit Court Case No. 88-034734-CE

INTERVENOR-APPELLEES' BRIEF ON APPEAL

ORAL ARGUMENT REQUESTED

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COUNTER-STATEMENT OF JURISDICTION

By order dated July 26, 2021, the Court granted the application for leave to appeal filed by Defendant-Appellant Gelman Sciences, Inc. of the Order to Conduct Response Activities to Implement and Comply with Revised Cleanup Criteria, entered on June 1, 2021 ("Response Activity Order") by Hon. Timothy P. Connors in Washtenaw County Circuit Court. Previously, by order dated June 29, 2021, the Court had dismissed Gelman's claim of appeal of the Response Activity Order for lack of jurisdiction. In particular, the Court concluded that the Response Activity Order was not a final order as defined in MCR 7.202(6). Instead, the October 26, 1992 is the final order in this matter and "[t]he postjudgment addition of intervening parties into the case does not change this outcome."

Although Gelman correctly identifies the Response Activity Order as the sole order appealed, it erroneously states that one of the questions involved in this appeal is whether the trial court had authority to grant intervention nearly five years ago. The trial court's orders granting intervention are not the subject of this appeal. In fact, Gelman previously applied for leave to appeal those orders at the time they were entered, and the Court denied the application. Gelman subsequently sought leave from the Supreme Court, which was denied as well.

COUNTER-STATEMENT OF QUESTIONS INVOLVED

This matter concerns widespread environmental contamination caused by Gelman's former industrial operations. The pollutant of concern is 1,4-dioxane, a probable human carcinogen. In 2016, the State determined that Gelman's releases of 1,4-dioxane posed a threat to public health and the environment and the existing cleanup criteria were not protective. To address that situation, the State issued emergency rules, dramatically lowering the cleanup criteria by more than an order of magnitude. With the change in cleanup criteria, the existing orders and judgments governing the cleanup became outdated and needed to be changed as well. After negotiations over those changes proved unsuccessful, the trial court gave the parties the opportunity to present their proposals to address the new cleanup criteria. The trial court received three significantly different proposals and ultimately adopted the one submitted by the State, which was the middle ground of the three. Where the Consent Judgment provides the trial court the authority to resolve disputes concerning implementation of changes in cleanup criteria, did the trial court abuse its discretion in entering the Response Activity Order to resolve such a dispute?

Intervenors answer: No.

Gelman answers: Yes.

The trial court answered: No.

This Court should answer: No.

INTRODUCTION

This is an environmental cleanup case of significant public concern. It is not a two-party marital property dispute like the divorce cases on which Gelman's brief relies. Decades ago, Gelman voluntarily signed a consent judgment requiring it to remediate toxic pollution that it had caused, and which would eventually foul billions of gallons of the public's groundwater. In that consent judgment, Gelman expressly agreed that the trial court had continuing jurisdiction over the cleanup, the power to resolve disputes, and the power to order additional cleanup activities in response to changed cleanup standards for the carcinogenic pollutant of concern, 1,4-dioxane.

Gelman's cleanup obligations have not been static over the life of the consent judgment. Those obligations have been modified over time in reaction to changes in the law, changes in the science, and changes in the nature and knowledge of the plume of contamination. At times those obligations have been modified by consent and at other times by order of the trial court in the event of a dispute.

In 2016, the State dramatically reduced the cleanup standards by more than an order of magnitude, finding that the existing standards were outdated and not protective. All parties to this appeal agree that the changes in the standards required changes to Gelman's cleanup obligations. Although the parties endeavored to reach agreement on how the cleanup activities should be changed, ultimately they were unsuccessful and notified the trial court. Thereafter, the trial court exercised its authority to resolve disputes and asked the parties to submit proposals to address the changed standards. Each of Gelman, the State, and the Intervenors submitted a different proposal, set forth in legal briefs and technical reports. Gelman and the State did not submit an agreed proposal, nor had they done so previously. After holding a hearing, the trial court selected the State's proposal as an initial step to address the changed cleanup criteria.

Gelman does not challenge the substance of the trial court's decision, let alone meet the high bar of demonstrating that the trial court abused its discretion. Gelman instead attacks the procedures the trial court followed and suggests that the trial court is powerless to enforce its own directives unless Gelman consents. But the trial court afforded Gelman notice and an opportunity to be heard, and Gelman took full advantage of that opportunity. Gelman also agreed long ago that the trial court has the very dispute resolution powers that it exercised here.

This Court wisely denied Gelman's request to stay pending appeal the trial court's directive that Gelman immediately implement the response activities identified in the Response Activity Order. It now should deny Gelman's meritless appeal so that those response activities can continue, resulting in a much-improved cleanup that will better protect the public health and environment.

COUNTER-STATEMENT OF FACTS AND PROCEDURAL HISTORY

I. The original action and resulting consent judgment and initial amendments (1988 – 1999).

The State of Michigan brought this action in 1988 to address 1,4-dioxane that Gelman dumped or sprayed into the environment between 1966 and 1986, resulting in widespread contamination of the surrounding soil and groundwater. The contamination has continued to spread from the "Gelman Property" on Wagner Road in Scio Township, and multiple groundwater contaminant plumes now stretch more than four miles under Scio Township and the City of Ann Arbor. Int Exp Rept p. 5 (Interv. Appx. 6). 1,4-dioxane is a probable human carcinogen and does not readily degrade in the environment. *Id*., p. 5, 39 (Interv. Appx. 6, 40).

In 1992, the trial court entered the original consent judgment which required Gelman to remove and treat all of the contaminated groundwater ("Consent Judgment"). (Def. Appx. 30-92). The Consent Judgment provides that the trial court "shall retain jurisdiction over the Parties and the subject matter of this action to enforce this Judgment and to resolve disputes arising under the Judgment." *Id*., p. 3 (Def. Appx. 32). The Consent Judgment further provides that Gelman "shall undertake all activities pursuant to this Consent Judgment in accordance with the requirements of all applicable laws, regulations, and permits." *Id*., p. 33 (Def. Appx. 62).

Subsequently, the Consent Judgment was amended several times. Sometimes, that occurred when all parties and the trial court concurred in the outcome. For example, in 1996, the trial court entered an agreed First Amendment to Consent Judgment, which revised the cleanup criteria in the Consent Judgment so that they were consistent with the cleanup criteria developed under Part 201 of Michigan's Natural Resources and Environmental Protection Act (MCL 324.20101 et seq.) ("Part 201"), a statute that had recently been enacted to regulate contaminated

sites in Michigan.[1] (Def. Appx. 93-105). Similarly, in 1999, the trial court entered the Second Amendment to Consent Judgment, which provided for agreed alternate disposal methods for certain purged groundwater. (Def. Appx. 106-111).

However, the trial court has not acted as a mere rubber stamp, approving outcomes sought by the parties. As described in the next sections, on other occasions, amendment or changes to the Consent Judgment and cleanup regime occurred when the trial court fashioned relief to resolve disputes between the parties.

II. The REO – the trial court resolves a dispute and enters a supplemental order to require additional response activities (2000).

In 2000, the trial court entered its Opinion and Remediation Enforcement Order ("REO") to resolve a dispute between the parties. (Interv. Appx. 45-50). The trial court ruled:

> It is also clear, however, that the purging of dioxane has not occurred fast enough to provide the public, or the Court, with assurance that the plume of dioxane was contained as early as it should have been or that there is an ongoing approved plan that will lead to the removal of unlawful levels of this pollutant from the area's water supplies.
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> Based upon the evidence submitted, this Court is going to grant equitable relief in the sense that the Court will use its equitable powers to enforce the consent judgment to insure that dioxane levels in these water supplies is brought within acceptable standards as soon as possible. Both sides in this dispute appear to need the intervention of the Court to keep them moving toward this goal.

Id., pp. 2, 3. (Interv. Appx. 46, 47).

[1] Michigan's Department of Environment, Great Lakes, and Energy ("EGLE"), formerly known as the Department of Environmental Quality ("MDEQ") establishes cleanup criteria under Part 201, which are the numerical criteria for hazardous substances that, in EGLE's judgment, are required for response activities to be protective of public health, safety, welfare, and the environment. MCL 324.20120a; Mich Admin R 299.3.

The trial court required Gelman to (1) submit a detailed plan to reduce 1,4-dioxane in all affected water supplies below legally acceptable levels within a maximum period of five years; (2) install additional monitoring and extraction wells; (3) install an additional ultraviolet treatment unit; and (4) increase the pumping rate in existing extraction wells. *Id*., pp. 4-5. (Interv. Appx. 48-49). Although Gelman had disputed these significant, new requirements, it did not appeal the REO.

III. The Unit E and Prohibition Zone Orders – the trial court resolves a dispute and establishes the Prohibition Zone after Gelman discovers the plume had migrated in an unanticipated way (2001 – 2005).

In 2001, Gelman discovered that 1,4-dioxane had migrated to a deeper groundwater aquifer which the parties called "Unit E." EGLE and Gelman disagreed over how to address the contamination and the parties presented the issue to the trial court for decision. The fundamental disagreement was whether Gelman would be required to comply with the aquifer protection rules and, if not, what conditions Gelman would need to satisfy. The aquifer protection rules impose stringent requirements concerning contamination of groundwater in aquifers. Mich Admin R 299.3(5), (6). Simply stated, the aquifer protection rules require "…removal of hazardous substances from the aquifer … through active remediation…" and prohibit expansion of such hazardous substances exceeding residential cleanup criteria after the initiation of cleanup. *Id*. EGLE can waive compliance with the rules in very limited situations. MCL 324.20118.

EGLE concluded that capture of the leading edge of the plume was required by Part 201 unless Gelman satisfied certain conditions. Unit E Aquifer Groundwater Contamination Decision Document, p. 2. (Interv. Appx. 52). Gelman's preferred alternative to address Unit E relied on an institutional control to prevent consumption of contaminated groundwater. Supp. Filing in

Support of Remedial Alternative, p. 5-6. (Interv. Appx. 74-75).[2] Gelman argued that the trial court had the power to issue such a control based on the court's inherent authority to enforce its judgments and issue any order to fully execute its judgments. *Id.*, citing MCL 600.611, *Cohen v Cohen*, 125 Mich App 206 (1983), and *Spurling v Battista*, 76 Mich App 350 (1977).

In 2004, the trial court entered its Opinion and Order Regarding Remediation of the Contamination of the "Unit E" Aquifer ("Unit E Order") to resolve the dispute between the parties. (Interv. Appx. 97-110). The trial court first addressed the questions the parties had raised "about the applicability of the Consent Judgment to Unit E, the responsibility of the Court to review EGLE actions, and the scope of the Court's role in this process." *Id.*, p. 3. (Interv. Appx. 99). The court found that the Unit E plume was subject to the Consent Judgment and that the court "has the inherent and equitable powers to enforce its judgment with all appropriate measures and sanctions as to Unit E contamination." *Id.*, p. 4. (Interv. Appx. 100). The court further determined that it had broad authority to review EGLE actions and broad powers to assure that the cleanup of the 1,4-dioxane was achieved "as soon as possible." *Id.* p. 4-5. (Interv. Appx. 100-101).

The trial court ordered Gelman to perform an investigation and submit a work plan to EGLE which would, "to the maximum extent feasible, prevent further migration of groundwater contamination above 85 ppb[3] of 1,4-dioxane [the drinking water standard at the time] eastward into the Unit E aquifer." *Id.*, p. 9. (Interv. Appx. 105). The court then addressed the contamination that had already spread eastward into the Unit E aquifer. It first observed that

[2] In this and other documents, the defendant is described as Pall Life Sciences, which owned Gelman for a period of time.

[3] "Ppb" stands for "parts per billion," a measurement of the concentration of a contaminant in environmental media, such as groundwater.

although it would not be possible to extract all 1,4-dioxane from the aquifer, "the goal must be to remove as much of the contaminant as possible, as quickly as possible, so that the ultimate dilution will take place with minimal impact on the water resource." *Id*. The court then addressed the dispute between the parties over the conditions that EGLE required to grant a waiver from the aquifer protection rules. One of those conditions was use of an institutional control to restrict groundwater use. The court directed the parties to submit an order establishing an area where use of groundwater would be prohibited. The court later entered such an order in 2005, titled Order Prohibiting Groundwater Use ("Prohibition Zone Order"). (Interv. Appx. 111-115). It was that order that first established the "Prohibition Zone."

IV. The Consent Judgment is amended a third time to address new cleanup criteria and increased knowledge of the contamination (2011).

In 2011 the trial court entered the Third Amendment to Consent Judgment. (Def. Appx. 152-188). The Third Amendment implemented a number of changes to the cleanup regime, including revisions to the cleanup criteria and expansion of the Prohibition Zone. The Third Amendment also divided the cleanup program into two main systems, Western Area and Eastern Area, based on the location of the remedial activities in relation to Wagner Road, where Gelman's former industrial operations were located. The Third Amendment expressly provides that EGLE may seek to require Gelman to perform additional response activities if new cleanup criteria are adopted and the change in criteria "indicate that the Remedial Action is not protective of the public health, safety, welfare, and the environment." P. 29-30. (Def. Appx. 180-181).

V. The state significantly lowers cleanup criteria and negotiations begin over a fourth amendment to the Consent Judgment (2016).

In October 2016, EGLE released the results of a shallow groundwater investigation, revealing the presence of 1,4-dioxane in two test wells in a residential area just west of downtown Ann Arbor. Almost immediately after this discovery, EGLE issued a "finding of emergency":

> [R]eleases of 1,4-dioxane have occurred throughout Michigan that **pose a threat to public health, safety or welfare of its citizens and the environment.** Recent shallow groundwater investigations in the Ann Arbor area have detected 1,4-dioxane in the groundwater in close proximity to residential homes…. The extent of 1,4-dioxane groundwater contamination … is unknown; and 1,4-dioxane contamination is expected to be present beneath many square miles of the City of Ann Arbor occupied by residential dwellings. **The current cleanup criteria … are outdated and are not protective of public health….** Emergency Rules and Finding of Emergency, p. 1. (Interv. Appx. 116); emphases added.

As part of its emergency order, EGLE imposed stricter cleanup criteria. *Id.* Prior to the emergency order, the 1,4-dioxane cleanup criterion for drinking water was 85 ppb. EGLE concluded that standard to be "outdated and not protective of public health," and tightened the criterion, on an emergency basis, to 7.2 ppb. *Id.* EGLE later published rules making the change to 7.2 ppb permanent, and lowering the groundwater-surface water interface ("GSI") criterion from 2,800 ppb to 280 ppb.

In light of these events, EGLE and Gelman began negotiating a further amendment to the Consent Judgment but never signed such an amendment nor presented it to the trial court for entry. Because of the public interest in the Gelman remediation and the significant change in cleanup criteria, the trial court granted Intervenors' petitions to intervene. Gelman applied for leave to appeal the orders granting intervention, which this Court denied on July 14, 2017.

Gelman then filed an application for leave to appeal to the Supreme Court, which was denied on January 12, 2018.

VI. After negotiations cease, the trial court asks the parties to submit proposals to address the cleanup criteria; the trial court selects EGLE's proposal.

After the intervention orders, the parties engaged in lengthy settlement negotiations, culminating in a proposed Fourth Amended and Restated Consent Judgment ("Proposed 4th CJ") that the trial court made public in an August 31, 2020 order. Some of the most significant changes to the cleanup regime included in the Proposed 4th CJ include: (1) expansion of the Prohibition Zone boundary to account for the reduction in the drinking water standard from 85 ppb to 7.2 ppb; (2) installation of new monitoring wells to further investigate the migration of 1,4-dioxane; (3) establishment of trigger levels to serve as an early warning system and require action to prevent the migration of contamination beyond the Prohibition Zone boundary before it occurs; (4) installation of multiple new extraction wells; and (5) implementation of new remediation techniques on the Gelman property (phytoremediation and heated soil vapor extraction).[4]

After an extensive public comment period, the governing bodies of the Intervenors voted not to approve the Proposed 4th CJ. There were numerous reasons for the rejection, but primarily the Intervenors wanted more extraction of 1,4-dioxane from the aquifers; believed that extraction and treatment of groundwater from the proposed Parklake extraction well was appropriate but did not believe the treated water should be discharged to First Sister Lake; wanted delineation of

[4] As applied to the Gelman site, phytoremediation is the planting of trees to withdraw shallow groundwater and capture precipitation near the ground surface before it infiltrates beyond the tree root systems. Interv. Exp. Rep., p. 30-31. (Interv. Appx. 31-32). The trees also will remove 1,4-dioxane from the environment via transpiration and biodegradation. *Id*. Heated soil vapor extraction is the process of heating the soil to volatilize 1,4-dioxane into a vapor that can be collected using vacuum extraction wells. *Id*., p. 32. (Interv. Appx. 33).

the plume to the drinking water standard of 7.2 ppb; and wanted more monitoring wells to detect further migration of the plumes. After the votes of the public bodies, the trial court scheduled a hearing and established briefing deadlines to give each party an opportunity to explain to the court how the cleanup regime should be changed in response to the change in cleanup criteria and to provide the legal and technical support for the party's position. Gelman moved for reconsideration and later applied for leave to appeal the trial court's scheduling order. The trial court denied the motion and this Court denied the application.

On April 30, 2021, the trial court received three different proposals from the parties. EGLE urged adoption of the response activities contained in the Proposed 4th CJ. Gelman proposed a revised judgment that would have required fewer response activities than the Proposed 4th CJ, though more than Gelman had been willing to commit to prior to the involvement of the Intervenors. The Intervenors urged adoption of the response activities contained in the Proposed 4th CJ with some modifications and enhancements. For example, the Intervenors argued for a smaller expansion to the Prohibition Zone and wanted Gelman to install additional monitoring wells. Interv. Joint Brief, p. 5-7. (Def. Appx. 1013-1015). Each of the parties submitted a legal brief and a technical report to support its position. These briefs and reports were filed prior to the hearing for the trial court's review.

After holding a hearing on May 3, 2021, the trial court adopted as an initial process EGLE's proposal—the middle ground among the parties—and entered the Response Activity Order on June 1, 2021. The Response Activity Order requires Gelman to "immediately implement and conduct all requirements and activities stated in the Proposed 'Fourth Amended

and Restated Consent Judgment' which is attached to this Order and incorporated by reference."[5] (Def. Appx. 1325). It further provides that the trial court "retains continuing jurisdiction and will hold further hearings on a quarterly basis to review the progress of Response Activities and other actions required by this order related to releases of 1,4 dioxane at and emanating from the Gelman site and consider the implementation of additional or modified Response Activities and other actions." *Id*. The order set the first quarterly hearing for September 1, 2021.

Gelman then filed in the trial court a motion to partially stay the Response Activity Order. Although it sought to stay certain response activities contained in the Proposed Fourth CJ, it did not seek to stay certain significant response activities it argued against in its prior proposal to the trial court (e.g., installation of a new extraction well). Gelman later filed a motion for leave to file a supplemental brief in support of the motion for partial stay, the primary purpose of which was to add to the record a document that had never been presented to the trial court: a consent judgment proposal that Gelman claimed it had negotiated with EGLE years previously. The trial court denied both of Gelman's motions.

[5] Previously, one needed to consult the original Consent Judgment and each of its amendments in order to determine Gelman's obligations because the amendments only modified certain provisions, without restating the unmodified provisions. For clarity's sake, the parties decided that the new document should be an amended and restated consent judgment, so that only one document need be consulted. Because the Proposed Fourth CJ is a restatement, it has the appearance of completely replacing the Consent Judgment and its amendments when in reality it does not. Much of the words and substance in the Consent Judgment through the Third Amendment was retained in the Proposed 4th CJ.

VII. This Court dismisses Gelman's claim of appeal for lack of jurisdiction and grants Gelman's application for leave to appeal the Response Activity Order.

On June 22, 2021, Gelman filed both a claim of appeal and an application for leave to appeal the Response Activity Order. Gelman argued that it had an appeal of right because the Response Activity Order was a final order. The Court disagreed and on June 29 issued an order dismissing Gelman's claim of appeal for lack of jurisdiction. The Court held that the Response Activity Order was not a final order under MCR 7.202(6) because it was not the first judgment that disposed of all the claims and adjudicated all of the rights and liabilities of the parties. The final order in this case, the Court held, was the 1992 Consent Judgment and the "postjudgment addition of intervening parties into the case does not change this outcome." Gelman moved for reconsideration of the dismissal order, which this Court denied on August 23. On October 4, after this Court granted Gelman's application for leave to appeal, Gelman applied for leave to appeal this Court's June 29 dismissal order to the Supreme Court, which remains pending.

On July 26, the Court granted Gelman's application for leave to appeal but only granted in part its motion for stay. The Court stayed only those provisions of the Response Activity Order dealing with the trial court's quarterly hearings to consider additional or modified response activities. The Court kept in place the requirement that Gelman "immediately implement and conduct all requirements" contained in the Proposed 4th CJ.

ARGUMENT

I. Standard of review.

Gelman spends pages of its brief agonizing over the proper standard of review, but the answer is simple: This Court reviews the Response Activity Order for an abuse of discretion and any findings that the trial court made in support for clear error. As Gelman's own case law makes clear, where parties to a consent judgment leave particular issues to be decided by the trial court, the resolution of such an issue is within the trial court's discretion. *Greaves v Greaves*, 148 Mich App 643, 646-648; 384 NW2d 830 (1986); *Andrusz v Andrusz*, 320 Mich App 445, 452; 904 NW2d 636 (2017). That same case law holds that the underlying factual findings supporting the trial court's decision are reviewed for clear error. *Andrusz*, 320 Mich App at 452. As explained at length below, the parties to the Consent Judgment authorized the trial court to resolve disputes and order additional response activities in light of changed cleanup criteria. The Response Activity Order resolved such a dispute and ordered additional response activities after the significant reduction in cleanup criteria.

"'An abuse of discretion occurs when a trial court's decision falls outside the range of reasonable and principled outcomes.' *People v Franklin*, 500 Mich 92, 100; 894 NW2d 561 (2017) (quotation marks and citation omitted). A mere difference in judicial opinion does not establish an abuse of discretion. *Alken-Ziegler, Inc v Waterbury Headers Corp*, 461 Mich 219, 228; 600 NW2d 638 (1999)." *People v Johnson*, 502 Mich 541, 564; 918 NW2d 676 (2018).

II. The trial court properly resolved a dispute between the parties, which it was expressly authorized to do by the Consent Judgment that Gelman signed.

There is a glaring omission in Gelman's brief on appeal: When the trial court entered the Response Activity Order, the parties to the Consent Judgment were at loggerheads over the changes that were necessary to implement the new cleanup criteria. Given the lengths to which Gelman attacks every trifling detail of the process that the trial court followed, one would think that Gelman would not ignore this crucial fact. As will be explained, the parties' disagreement over how to address the changed cleanup criteria is fatal to Gelman's appeal.

A. The Consent Judgment makes the trial court the arbiter of disputes concerning the site cleanup.

In 1992 Gelman agreed to and signed the original Consent Judgment to resolve litigation that the State had brought concerning Gelman's pollution of the environment with 1,4-dioxane. The Consent Judgment provides that the trial court "shall retain jurisdiction over the Parties and the subject matter of this action to enforce this Judgment and to resolve disputes arising under the Judgment." Pg. 3. (Def. Appx. 32). That language has never been altered in any of the subsequent amendments to the Consent Judgment. The inclusion of this language is unsurprising because the Consent Judgment is not simply a two-party contract, it is the judgment of the trial court. It is well-established that "[c]ircuit courts have jurisdiction and power to make any order proper to fully effectuate the circuit courts' jurisdiction and judgments" (MCL 600.611) and courts have inherent authority to enforce their own directives. See, e.g., *Cohen v Cohen*, 125 Mich App 206, 211; 335 NW2d 661 (1983). Gelman has not hesitated to invoke this authority of the trial court when it has suited Gelman's purposes throughout this case.

The Consent Judgment also provides that Gelman "shall undertake all activities pursuant to this Consent Judgment in accordance with the requirements of all applicable laws, regulations, and permits." Pg. 33. (Def. Appx. 62). The "applicable regulations" include the cleanup criteria for 1,4-dioxane. The Third Amendment to the Consent Judgment provides that EGLE may seek to require Gelman to perform additional response activities if there is a change in cleanup criteria and the change results in the existing cleanup regime no longer being protective of public health and the environment. P. 29-30. (Def. Appx. 180-181).

B. The Response Activity Order resolved a dispute among the parties regarding how the reduction in cleanup criteria should be implemented.

The cleanup criteria significantly changed in 2016 after EGLE determined on an emergency basis that "[t]he current cleanup criteria for 1,4-dioxane, initially established in 2002, are outdated and are not protective of public health." P. 1. (Interv. Appx. 116). It is undisputed that the response activities required by the Consent Judgment (as amended) and related orders must be changed in light of the State's reduction in the cleanup criteria. Among other things, groundwater with concentrations greater than 7.2 ppb of 1,4-dioxane (the new drinking water criterion) had already moved past the Prohibition Zone boundary established by the most recent amendment to the Consent Judgment. When the criteria were changed, the question was not whether the response activities needed to be changed, but in what way.

The trial court put that question directly to the parties. Judge Connors provided Gelman, EGLE, and the Intervenors the opportunity to recommend changes to the existing response activities and provide him the legal and scientific basis for the proposal. Each party took full advantage by submitting detailed legal briefs and technical reports. Gelman, for example, filed a 318-page brief (with exhibits) and a 67-page technical report from its longtime consultant. It attached to its brief its own set of proposed changes to the cleanup regime in a document entitled,

"Proposed Fourth Amended Consent Judgment." Gelman's brief and report sought to justify in painstaking detail its proposed changes while attempting to discredit the additional response activities it believed EGLE or Intervenors would seek in their briefs. Gelman proposed fewer response activities than what was included in the Proposed 4th CJ, despite previously agreeing to those activities.

EGLE did not concur in Gelman's proposal. Instead, in its own detailed brief and technical report, EGLE argued for adoption of the response activities contained in the Proposed 4th CJ which had been made public at the end of negotiations. EGLE's brief stated in relevant part:

> As explained below, EGLE supports implementation of a remedy at the Gelman Site of 1,4-dioxane contamination in Scio Township and the City of Ann Arbor (Gelman Site) that requires additional investigation and response activities. The additional response activities are needed to establish compliance with the updated, lowered cleanup criteria for 1,4-dioxane under Part 201, Environmental Response, of the Michigan Natural Resources and Environmental Protection Act, MCL 324.20101 et seq. (Part 201).
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> EGLE continues to support the revisions contained in the proposed 4th CJ.

EGLE Brief Addressing Response Activities for the Gelman Site, p. 1, 6.

In their filings, Intervenors asserted that more stringent response activities were necessary than were in the Proposed 4th CJ. For example, the Intervenors argued that Gelman must be required to prevent its contamination from migrating beyond the boundaries of a less-expanded Prohibition Zone (because a larger expansion was not technically justified) and Intervenors proposed additional monitoring wells to better delineate the plume of contamination.

Although the parties offered three distinct proposals, there were significant areas of common ground. All parties agreed on the objectives for the cleanup regime, including

Prohibition Zone containment (i.e., preventing 1,4-dioxane from migrating past a new Prohibition Zone boundary in concentrations exceeding 7.2 ppb) and no expansion of 1,4-dioxane contamination in the Western Area of the site. All parties agreed on some expansion of the Prohibition Zone boundary to account for the change in cleanup criteria. All parties agreed on additional delineation of the contaminant plume, including agreement on 14 new monitoring well locations. EGLE and the Intervenors agreed on additional changes to the cleanup regime (e.g., additional on-site remediation). What the Intervenors proposed beyond the parties' agreements were generally matters of degree, not kind.

After receipt of the briefs and technical reports and following a hearing, the trial court adopted the proposal submitted by EGLE as an initial step. It ordered Gelman to implement the response activities contained in the Proposed 4th CJ, as well as a periodic review process to track the progress of the cleanup and to make adjustments as needed with input from the parties. The trial court adopted the middle ground among the proposals and the framework defended by the state regulatory authority with jurisdiction over Michigan's environmental laws, the authority to set cleanup criteria, and the express right already contained in the Consent Judgment to seek the imposition of additional response activities. The trial court's decision was consistent with the existing Consent Judgment objectives and Michigan cleanup law, which requires a party like Gelman to "determine the nature and extent of the release at the facility," "[i]mmediately stop or prevent an ongoing release at the source," and "diligently pursue response activities necessary to achieve the cleanup criteria established under [Part 201]." MCL 324.20114(1)(a), (c), (g). The framework adopted by the trial court also most reflected the common ground among the parties' proposals. Because of the complexity of the site and response activities, and the iterative nature of the remedial process, the trial court sensibly established quarterly reviews.

Gelman complains that the hearing held prior to entry of the Response Activity Order did not strictly comply with the dispute resolution procedure in the Consent Judgment. Gelman's attempt to elevate form over substance ignores the broad powers of a trial court to effectuate its judgments. This principle is recognized in the Consent Judgment itself, which provides that the court has discretion to consider additional evidence in the course of resolving disputes; it is not, as Gelman suggests, limited to considering the materials submitted by EGLE and Gelman. (Def. Appx. 76). The basic elements of the dispute resolution procedure were embodied in the trial court's orders and the May 3, 2021 hearing. EGLE and Gelman each submitted briefs and evidence in support of their respective positions and the court also considered additional evidence submitted by the Intervenors. After considering the submissions, the court upheld the position of EGLE with respect to additional response activities. There was no substantive difference between the May 3, 2021 hearing and the dispute resolution mechanism in the Consent Judgment, and any procedural deviation was immaterial and had no effect on the court's resolution of the dispute.

Gelman hardly attacks the substance of the trial court's ruling and for good reason. The trial court's decision was eminently reasonable, grounded in the legal and technical arguments presented in the briefs and reports, will vastly improve the cleanup of the site, and will reduce the likelihood that the plume of contamination will further expand. Gelman does not argue that any of the response activities the trial court imposed are technically impractical, again for good reason. These are the same response activities that Gelman supported and was prepared to implement at the conclusion of the parties' negotiations. Gelman comes nowhere close to demonstrating that the trial court's decision "falls outside the range of reasonable and principled outcomes." *Johnson*, 502 Mich at 564.

C. Gelman's reliance on an alleged "bilateral amendment" with EGLE is improper and unavailing.

Rather than acknowledge—let alone confront—the present dispute resolved by the Response Activity Order, Gelman seeks refuge in an old, abandoned draft document. Gelman asserts that, years ago, it and EGLE were prepared to submit an amended consent judgment to the trial court for entry. Setting aside the fact that Gelman is improperly seeking to use settlement discussions barred by MRE 408 and the trial court's confidentiality order (see Def. Appx. 195-199), Gelman's argument fails on a more basic level. This alleged "bilateral amendment" was never signed, was never presented to the trial court for entry, and was never made part of the record. The unsigned document was not even filed until *after* the trial court entered the Response Activity Order and only then as an attachment to Gelman's motion for leave to file a supplemental brief in support of its motion for partial stay. The trial court denied Gelman's motion, expressly rejecting its attempt to add the document to the record post-hoc. Gelman has not appealed that decision, the document is not part of the record, and Gelman's inclusion of the document in its appendix to its brief on appeal is underhanded and inappropriate.

Most important, at the time that the trial court entered the Response Activity Order, it provided Gelman and EGLE the opportunity to present whatever proposal they wanted to address the change in cleanup criteria. Either could have presented such a "bilateral amendment" but did not. They could have presented some other joint proposal but did not. When it mattered, Gelman and EGLE diverged. Not even Gelman proffered the "bilateral amendment" when given the opportunity to do so. The "bilateral amendment" is a nullity and is no basis for challenging the Response Activity Order.

III. The Response Activity Order and the trial court's process were consistent with a long line of prior orders in this case.

Gelman's suggestion that its cleanup obligations have never been altered without the parties' consent is false. The history of the case proves otherwise. In 2000, while the case was assigned to Hon. Donald E. Shelton, the trial court entered the REO after briefing and a hearing to address disputes between the parties concerning Gelman's compliance with the Consent Judgment. The REO imposed significant additional obligations on Gelman with tight timeframes, including submission of a detailed plan to reduce 1,4-dioxane in all affected water supplies below legally acceptable levels within five years. Even though Gelman did not consent to entry of the REO, notably it did not challenge the substance of the order or the procedure the trial court followed.

Shortly after entry of the REO, the trial court again had to resolve a significant dispute between the parties, this time over how to handle Gelman's discovery that contamination had migrated into a deeper aquifer designated "Unit E." EGLE and Gelman disagreed over numerous issues, including whether the Unit E contamination was subject to the Consent Judgment and the scope of the Court's review of EGLE's determinations. At that time, Gelman argued that the trial court had the power to enter an order preventing consumption of groundwater based on the court's inherent authority to enforce its judgments and issue any order to fully effectuate its directives, whether or not EGLE and Gelman consented to such an order. (Interv. Appx. 75-76).

After briefing and hearing, the trial court entered the "Unit E Order." The trial court first rejected Gelman's argument that the Unit E plume was not subject to the Consent Judgment and concluded that the court "has the inherent and equitable powers to enforce its judgment with all appropriate measures and sanctions as to Unit E contamination." *Id.*, p. 4. (Interv. Appx. 100). Over EGLE's objection, the trial court then determined that it had broad authority to review

EGLE's actions and broad powers to assure the cleanup of 1,4-dioxane was achieved "as soon as possible." *Id*., p. 4-5. (Interv. Appx. 100-101). Finally, the trial court adopted Gelman's argument (and cited Gelman's case law) that the court had the inherent, statutory, and equitable powers to issue an order establishing an area where use of groundwater would be prohibited. *Id*., p. 5, 11. (Interv. Appx. 101, 107). Neither EGLE nor Gelman appealed the trial court's ruling or challenged the procedure.

Put in this context, the current Response Activity Order is not an anomaly; it is the next logical step in the progression of this long-running environmental cleanup matter, which the trial court has effectively supervised for decades. As the nature of the plume and the science change, it is reasonable to expect the cleanup requirements to change, whether by consent of the parties or by order of the trial court in the event of a dispute.

Gelman ignores the history of this case, preferring instead to lambast virtually every aspect of the procedure that the trial court followed[6] and to scour the transcripts of various hearings to pull out every word or phrase Gelman believes supports its complaints. But Gelman cannot dispute that the trial court afforded it notice of potential changes to the response activities, the opportunity to file a detailed legal brief and technical report, and numerous opportunities to be heard. These procedures easily surpass what due process requires. See, e.g., *In re AG for Investigative Subpoenas*, 274 Mich App 696, 705-06; 736 NW2d 594 (2007) ("The principle of fundamental fairness is the essence of due process, and this is embodied in the rights to notice and an opportunity to be heard.") (internal quotation and citation omitted). Gelman's suggestion that trial-like proceedings were required before the Response Activity Order was entered is not supported by constitutional requirements or the dispute resolution procedures of the Consent

[6] In its pending application for leave to the Supreme Court, Gelman even goes so far as to call the procedure Judge Connors followed a "kangaroo court proceeding." P. 35, fn. 36.

Judgment. See, *English v Blue Cross Blue Shield*, 263 Mich App 449, 460; 688 NW2d 523 (2004) ("the judicial model of an evidentiary hearing is neither a required, nor even the most effective, method of decision-making in all circumstances."), quoting *Mathews v Eldridge*, 424 US 319, 348 (1976); Consent Judgment, p. 47 (Def. Appx. 76) ("Additional evidence may be taken by the Court on its own motion or at the request of either party **if the Court finds that the record is incomplete or inadequate.**") (emphasis added).

Although Gelman may wish that the trial court would have followed different procedures or conducted additional hearings, it was up to the trial court to decide when it had a sufficient basis to rule. Gelman agreed long ago that the trial court was empowered to resolve disputes over the Consent Judgment and determine what evidence it needed.[7] Gelman's disappointment in the order entered in this particular instance is not a valid basis for appeal. Nor is Gelman's complaint that it is unfair to be required to implement the response activities it was previously willing to accept only in exchange for other consideration from the Intervenors. Gelman knew that any consent judgment proposal would need to be voted upon by the public bodies and knew that the public bodies could vote the proposal down. This Court need not save Gelman from the consequences of its own strategic choices.

When it has suited its purposes, Gelman has repeatedly invoked the broad authority of the trial court to conduct additional proceedings and enter additional orders necessary to effectuate the Consent Judgment. Having previously obtained relief from the trial court by invoking the court's authority to act even in the absence of party consent, Gelman should be judicially

[7] See Gelman's own authority, *Greaves*, 148 Mich App at 646 ("The obvious intent of that provision was to allow the court to make a determination as to whether the property division should be adjusted to take into account the law degree and the circumstances surrounding its acquisition. Thus, the trial court's decision in this case was simply one which carried out the terms of the consent judgment and was not one that modified it.").

estopped from arguing to the contrary now. See, *Spohn v Van Dyke Pub Sch*, 296 Mich App 470, 479-80; 822 NW2d 239 (2012) ("Judicial estoppel is an equitable doctrine, which generally prevents a party from prevailing in one phase of a case on an argument and then relying on a contradictory argument to prevail in another phase."); *Paschke v Retool Indus*, 445 Mich 502, 509; 519 NW2d 441 (1994) ("judicial estoppel is widely viewed as a tool to be used by the courts in impeding those litigants who would otherwise play 'fast and loose' with the judicial system.").[8] One of the central (and most controversial) features of the Consent Judgment, the Prohibition Zone, was implemented after Gelman urged the trial court to use its inherent authority to enter any order necessary to effectuate the Consent Judgment. This and other key events in the history of this case undermine Gelman's attack on the Response Activity Order.

IV. The Response Activity Order did not grant the Intervenors relief.

The trial court adopted EGLE's proposal for addressing the change in cleanup criteria, not the Intervenors' proposal. Yet Gelman inexplicably complains that the Response Activity Order is defective because it awarded the Intervenors relief without Gelman having had the opportunity to defend against the Intervenors' claims.

The Response Activity Order did not grant any relief to the Intervenors or otherwise rule on the merits of their potential claims (in complaints that have not been filed). The Intervenors would seek, for example, reimbursement for the response activity costs they have incurred under MCL 324.20126a. The Response Activity Order says nothing regarding those costs. The Response Activity Order is based on the Consent Judgment, which resolved claims that the State

[8] Gelman also has previously recognized that a consent judgment is not simply a contract; it is an order with the power and prestige of the court behind it and can be modified "when enforcement of the decree without modification would be detrimental to the public interest." See, Gelman's Brief in Support of Motion to Amend Consent Judgment, p. 8 (Interv. Appx. 125), quoting *Vanguards of Cleveland v City of Cleveland*, 23 F3d 1013, 1018 (CA6 1994).

asserted against Gelman, and a change in cleanup criteria that all parties agree necessitated changes in the provisions of the Consent Judgment and the trial court's related orders (e.g., the REO and Unit E Order). Gelman gave up its right to challenge the State's claims long ago when it subjected itself to the provisions of the Consent Judgment and the trial court's continuing jurisdiction over those provisions. The trial court was authorized to require implementation of additional response activities regardless of the participation of the Intervenors in this case, let alone any claims they may assert. For the same reason, it was not necessary for the trial court to order the Intervenors to file their complaints before the order was entered.

This Court at least implicitly recognized the foregoing when it dismissed Gelman's claim of appeal of the Response Activity Order for lack of jurisdiction. The Court held that the Response Activity Order was not a final order because the Consent Judgment was "'*the first*' judgment that disposed of the claims and adjudicated the rights and liabilities of all the parties to the case." The Court further held that "[t]he postjudgment addition of intervening parties into the case does not change this outcome." The Court's reasoning reflects the fact that the source of the Response Activity Order was the Consent Judgment, not any claims that the Intervenors may assert.[9]

Although the trial court did not grant Intervenors relief, it appropriately considered their input. In its own words, the trial court allowed the Intervenors to participate in the proceedings because "those who have a statutory duty or legal responsibility or the entrustment of the public need to be at that table because the collective wisdom and viewpoints in solving a problem is always preferable to individual views." 12.15.16 Transcript, p. 48. (Interv. Appx. 177). Unlike

[9] Consistent with its litigation tactics throughout this case, Gelman filed an application for leave to appeal this order to the Supreme Court, despite having convinced this Court to grant leave to appeal.

the cases on which Gelman relies, this is not a two-party divorce case. The pollution that Gelman caused is a matter of great public concern and interest. The plume of 1,4-dioxane contamination now runs more than four miles under multiple municipalities. As a result, billions of gallons of the public's groundwater can no longer be used. Of course the trial court would want input from the public's representatives in deciding how to chart the course of this site in response to a major change in cleanup criteria. Of course it is reasonable to consider input from more than just Gelman and EGLE. Even in its failed attempt to challenge the intervention orders, Gelman acknowledged that it was appropriate for the trial court to consider input from the public in modifying the site's cleanup regime:

> Gelman's proposed solution to the court appropriately struck this balance. At the hearing on the original motions to intervene, Gelman informed the court that MDEQ[10] and Gelman were nearing completion of the consent judgment amendment and that, once it was completed, the parties would submit the revised document to the court without asking for immediate approval. At that time, MDEQ would publish the proposed modifications for public comment **so the entire community—not just the Intervenors—could offer comments, suggestions, and proposed revisions.** MDEQ would respond to those comments, and address any valid community concerns not already dealt with in the proposed consent judgment amendment, **either cooperatively with Gelman or by motion to the Court**. This process would give voice to the community while still adhering to the Legislature's intent that MDEQ serve as the gatekeeper for collecting and addressing such community concerns. *See* **Exhibit E**, at 34:23-35:17.
>
> Following this notice-and-comment period, MDEQ and Gelman planned to provide the comments that were submitted, MDEQ's responses to the comments, and the final negotiated document to the trial court. The court could then review all of the comments and responses **and make a determination whether the incorporated modifications are appropriate.** *Id.*

[10] Gelman's filing referred to EGLE by its name at the time, the Michigan Department of Environmental Quality, or "MDEQ."

Gelman's 4.6.17 Application for Leave to Appeal, p. 30 (Interv. Appx. 234) (emphases added).

The wisdom of the trial court's decision to permit the intervention is evident. The Intervenors' involvement in the negotiations allowed concerns of the public to be fully explored by the State and Gelman before either reached any conclusions, and before either of them presented their respective proposed resolutions to the court. The Intervenors' public concerns were presented to the trial court, along with the position advocated by the State and the differing position advanced by Gelman. The trial court considered those proposals and ultimately entered the Response Activity Order, adopting the State's proposal. The Response Activity Order requires significantly more site response actions to fully implement the new cleanup criteria and more removal of 1,4-dioxane from the environment than had been reflected in the then-existing draft document that was never finalized between Gelman/EGLE and was never submitted to the court by any party. The effect of the Response Activity Order is a vastly improved cleanup regime supported by EGLE, the agency tasked with enforcing Michigan's cleanup laws. This Court recognized this when it refused to stay the central provision of the Response Activity Order requiring Gelman to "immediately" implement the requirements of the Proposed 4th CJ.

RELIEF REQUESTED

All of the parties to this case agreed that the change in cleanup criteria for 1,4-dioxane required changes to the cleanup program. The parties could not agree on what all of those changes should be, and the trial court resolved that dispute using the authority to which Gelman expressly consented by signing the Consent Judgment. The trial court's decision adopted the middle ground in the parties' proposals, the proposal submitted by the state regulatory agency with jurisdiction over the cleanup. The trial court's decision was based on detailed legal briefs, technical reports, and a hearing. This Court should affirm the Response Activity Order so that

the vitally important and significantly improved cleanup activities required by that order can continue.

Respectfully submitted,

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STATE OF MICHIGAN

IN THE COURT OF APPEALS

ATTORNEY GENERAL FOR THE STATE OF MICHIGAN *ex rel.* MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY,

Plaintiffs-Appellees,

and

THE CITY OF ANN ARBOR; WASHTENAW COUNTY; THE WASHTENAW COUNTY HEALTH DEPARTMENT; WASHTENAW COUNTY HEALTH OFFICER JIMENA LOVELUCK; THE HURON RIVER WATERSHED COUNCIL; and SCIO TOWNSHIP,

Intervenors-Appellees,

vs.

GELMAN SCIENCES, INC., a Michigan corporation,

Defendant-Appellant.

Court of Appeals Docket No. 357599

Washtenaw County Circuit Court Case No. 88-034734-CE

INTERVENOR-APPELLEES' APPENDIX

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STATE OF MICHIGAN

IN THE WASHTNAW COUNTY CIRCUIT COURT

ATTORNEY GENERAL FOR THE STATE OF MICHIGAN, *ex rel.* MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT,

Plaintiff,

and

CITY OF ANN ARBOR, WASHTENAW COUNTY, WASHTENAW COUNTY HEALTH DEPARTMENT, WASHTENAW COUNTY HEALTH OFFICER ELLEN RABINOWITZ, in her official capacity, the HURON RIVER WATERSHED COUNCIL, and SCIO TOWNSHIP,

Intervening Plaintiffs,

-v-

GELMAN SCIENCES, INC., d/b/a PALL LIFE SCIENCES, a Michigan Corporation,

Defendant.

Case No. 88-34734-CE
Hon. Timothy P. Connors

INTERVENORS' EXPERT REPORT

Scientific/Technical Expert Report

Prepared for the Intervenors by:

Lawrence D. Lemke, Ph.D.

Keith Gadway, P.E.

Apr 30, 2021

The following expert report on the scientific and technical issues in this lawsuit was prepared to aid the court in understanding the matters in controversy.

The primary expert offering the scientific evaluations, interpretations and expert opinions for each subject area is identified in the following "Summary Table of Intervenor Concerns and Solutions", which also is incorporated in the Introduction to the Intervenors' Brief. The interpretations and opinions expressed in the scientific/technical expert report were formulated, supported by, and are stated with a reasonable degree of scientific certainty, based on available evidence. These interpretations and opinions are based upon the experience and professional expertise of the technical consultants to the Intervenors, which are summarized in the Appendix to the Report below. The interpretations and opinions are based on information available at the time of the report's preparation and may be amended in response to future data and information collected as part of ongoing monitoring and remediation operations at the Gelman Site and its surrounding environs in Washtenaw County, Michigan.

Summary Table of Intervenor Concerns and Solutions

Intervenor Concern	Proposed New Requirement for 2021 Order	What this would Achieve	Technical/Scientific Justification	Primary Expert
Incomplete delineation of groundwater contamination	**1A.** Semiannual maps showing extent of 1,4-dioxane concentrations at 1, 7.2, and 280 ppb	Provide a basis for assessing efficacy of remedial actions and assessing risk of future impacts to drinking water wells	Up-to-date maps depicting the extent of 1,4-dioxane contamination are essential for assessing attainment of remedial objectives.	Lemke
Perimeter monitoring well gaps	**1B.** Two additional Sentinel wells along northern PZ boundary (AA, BB); replacement well for MW-63 (CC)	Reduce spacing between monitoring wells in key areas of concern	Dioxane is known to migrate along narrower pathways in this complex aquifer system; these wells will reduce the likelihood that such plumes are not detected.	Lemke
Size of prohibition zone expansion	**1C.** More limited PZ expansion to the south	Appropriate buffer to account for uncertainty commensurate with the magnitude of reduction from 85 to 7.2 ppb	Expansion proportional to concentration gradient along southern edge of plume; expansion aligned with expected migration path	Lemke
Northward migration toward Barton Pond	**1D.** Three additional monitoring wells north of PZ boundary (DD, EE, FF)	Determine aquifer quality, hydraulic gradient, and presence/absence of dioxane in this area	Reliable information is needed to assess the potential for northward migration and put community concerns to rest	Lemke
Discharge to Allen Creek at concentrations exceeding the GSI criterion	**2A.** Two high-resolution transects (T_1-T_1' and T_2-T_2')	Identify zones of high dioxane concentrations migrating at all depths above bedrock that will guide additional remedial actions	High-resolution transects are commonly used to quantify mass flux and design remedial strategies	Lemke
	2B. Two additional downgradient investigation monitoring wells (GG, HH)	Delineation of 280 ppb extent in the downgradient Eastern Area	Determine if dioxane is venting to Allen Creek from north or south; detect dioxane migration further downgradient in artesian area	Lemke
	2C. Shallow groundwater profiling and monitoring along Allen Creek Drain	Delineate contamination at or above GSI on north and south flanks of Allen Creek Drain	Ensure "Groundwater-Surface Water Interface Objective" is met	Gadway / Lemke

Intervenor Concern	Proposed New Requirement for 2021 Order	What this would Achieve	Technical/Scientific Justification	Primary Expert
500 ppb extraction well termination criterion is too high	**3A.** Terminate extraction after pumping no longer contributes to beneficial reduction in 1,4-dioxane mass	Extend benefits of additional mass removal	Extraction well concentrations may not reflect maximum concentrations in the surrounding aquifer.	Lemke
Public opposition to Parklake Well discharge into First Sister Lake / NPDES permit risk	**3B.** Pipe treated water to the Gelman Property and discharge under existing NPDES permit	Avoids NDPES permit risk while providing flexibility and avoids potential adverse environmental impacts.	200 GPM exchanges the volume of First Sister Lake approximately once each month, giving rise to potential adverse environmental impacts.	Lemke
Limited reach of Source Area extraction wells pumping at low rates in low conductivity zones	**3C.** Concurrent pump-and-treat from 6 or more purge well locations on the Gelman property	Accelerating pumping from the shallow aquifer underlying the Source Area maximizes mass removal in the shortest time frame	Given demonstrated aquifer heterogeneity, wells distributed throughout the Source Area make sense, and there is no compelling reason to wait.	Gadway
Performance monitoring criteria have not been specified for the phytoremediation systems – How will we know if they're working?	**3D.** Gelman to develop phytoremediation effectiveness verification plans including monitoring groundwater dioxane concentrations, water table elevations, and dioxane in plant tissue	Ensure that the phytoremediation systems are achieving groundwater table control and mass removal objectives	This is relatively new technology. Performance monitoring is needed to demonstrate effectiveness of phytoremediation systems and verify that the Western Area GSI Objective is attained.	Gadway
Potential enhancements can be incorporated into the HSVE system design	**3E.** Install permanent cap prior to HSVE operation and cycle HSVE system before termination.	More efficient HSVE system operation and avoidance of premature termination	The HSVE system will operate more effectively with a cap in place. System cycling if exhaust air concentrations become asymptotic will demonstrate HSVE has reached its effective limit.	Gadway
Documented presence of 1,4-dioxane in Allen Creek, Third Sister Lake, unnamed tributary to Honey Creek	**4A.** Annual sampling of surface water bodies and drainage systems	Detection will trigger investigation to determine risk of exceeding the GSI criterion	Changes indicating venting of groundwater with 1,4-dioxane at new locations or rising concentrations will not be detected without regular surface water body testing.	Lemke

Intervenor Concern	Proposed New Requirement for 2021 Order	What this would Achieve	Technical/Scientific Justification	Primary Expert
Western Area Non-Expansion Cleanup Objective verification threshold is too high	**4B.** Reduce exceedance threshold from 7.2 to 3.5 ppb	Expansion of Western Area groundwater contamination will be detected before it has migrated to the compliance well locations	An increase in concentrations to 7.2 ppb at a compliance well is evidence that expansion of the horizontal extent of contamination has already taken place.	Lemke
Inconsistent requirements to initiate and subsequently scale back response activities based on threshold exceedances	**4C.** Adopt a consistent three-month-in-a-row requirement to initiate or cease responses at Sentinel, Boundary, and Compliance Wells	A three-in-a-row requirement to both initiate and interrupt remedial activities is more consistent and more protective	Statistical variation is just as likely to result in low concentration measurements as high concentration measurements.	Lemke
1,4-dioxane detections in residential drinking water wells	**4D.** Municipal Water Connection Contingency Plan (MWCCP) for Breezewood Ct; three-in-a-row requirement to stop bottled water supply	Proactive planning for Breezewood Ct residents (same as Elizabeth Rd); More consistent and protective bottled water requirements	1,4-dioxane has been detected in a residential well on Breezewood Ct (just like Elizabeth Rd). The same protections should be afforded there. Three-in-a-row is consistent with response activity threshold frequencies in 4C.	Lemke
	4E. Use of EPA Method 522 to analyze water from residential wells within 1,000 feet of the mapped limit of dioxane contamination	Lower analytical method detection limits for residential water well samples near the plume will give a greater sense of confidence to homeowners	Use of EPA Method 522 for the analysis of drinking water from wells in close proximity to the plume is consistent with the requirements imposed on operators of public drinking water supplies.	Gadway
Gaps, inconsistencies, and delays accessing Gelman analytical data	**4F.** Provide universal access to the Gelman database via a cloud-based system for all monitoring well, extraction well, and NPDES treatment and discharge activity information; Release copies of source area environmental and engineering studies.	A single database containing all relevant analytical information associated with monitoring, extraction, and permitted discharges will ensure that all parties are viewing and making decisions based on the same information	Accurate and timely access to site data are needed by all stakeholders including Gelman, EGLE, and the general public. Prior environmental and pilot engineering studies are essential for understanding the basis for selected source area remedies.	Lemke

Expert Report of Technical Justifications for Intervenor-Proposed Remedial Actions

By: Lawrence D. Lemke, Ph.D. and Keith Gadway P.E.

Introduction

Efforts to remediate 1,4-dioxane emanating from the Gelman Site in Washtenaw County, Michigan, have been underway for 35 years. Although substantial quantities of dioxane have been removed from the aquifer system through pump-and-treat operations that continue to this day, numerous factors make complete aquifer restoration technically infeasible at the Gelman Site. The glacial aquifer system affected by the Gelman dioxane contamination is highly heterogeneous, consisting of a complicated mixture of very permeable sand and gravel units interspersed with less permeable silts and clays making it difficult to determine connected groundwater flow pathways. As a consequence, contaminated plumes of groundwater have moved in a variety of directions and at different depths, making it difficult to predict contaminant movement. Other limiting factors include the large amount of 1,4-dioxane originally released (although that amount remains undetermined, more than 75 tons of dioxane have been recovered), the extended period of elapsed time since the original release (five decades or more), the enormous extent of the area impacted by dioxane (approximately 2 miles by 4 miles and growing), and the recalcitrant nature of 1,4-dioxane itself (dioxane is resistant to biodegradation and sorption).

In October 2016, the Michigan Department of Environmental Quality (MDEQ), now EGLE (Department of Environment, Great Lakes, and Energy), issued an emergency order lowering the 1,4-dioxane cleanup criterion for drinking water from 85 parts per billion (ppb) to 7.2 ppb. MDEQ subsequently reduced the Groundwater Surface Water Interface (GSI) criterion from 2,800 ppb to 280 ppb. These changes, representing reductions of an order of magnitude or more, are 'game changers' – necessitating profound changes in the remedial actions protecting human and environmental health at the Gelman Site. Hence, the proposed Fourth Amended Consent Judgment (Proposed 4th CJ) included new monitoring wells for dioxane detection and delineation, new groundwater extraction wells to remove mass from areas with remaining high dioxane concentrations, additional mass removal using advanced treatment methods in the source area on the Gelman Property, and expansion of the groundwater use Prohibition Zone (PZ). Following the public release of the Proposed 4th CJ, Larry Lemke described the nature and necessity of its components in a series of informational video presentations posted on the Gelman Proposed Settlement Documents website. Dr. Lemke's summary video presentation can be viewed here.

To reiterate, the response actions included in the Proposed 4th CJ are necessary, but insufficient to address all of the technical concerns triggered by the substantial reductions in groundwater cleanup standards. Consequently, the Intervenors propose modifications and additions to the actions described in the Proposed 4th CJ including: 1) delineating the extent of contamination at concentrations consistent with the revised standards, 2) preventing the discharge of dioxane to surface waters, 3) accelerating mass removal to limit the future spread of dioxane, and 4) strengthening monitoring and surveillance to ensure rapid and consistent response activities. These modifications and additions, which are summarized along with their technical justification below, represent initial actions needed to respond to the reduced groundwater cleanup standards. Additional remedial activities are likely to be necessary in response to information gained from the initial actions described herein.

1. Delineation of the lateral and vertical extent of contamination

At the present point in time, the extent of groundwater contamination (i.e., 1,4-dioxane concentrations at 7.2 ppb (parts per billion) or more) emanating from the Gelman Site has not been fully defined. When promulgating emergency rules setting the 7.2 ppb 1,4-dioxane residential drinking water cleanup criterion in 2016, EGLE (then MDEQ) stated: "The extent of 1,4-dioxane groundwater contamination … greater than 7.2 parts per billion is unknown (MDEQ, 2016)."

Since that time, neither Gelman's technical experts nor EGLE's technical experts have publicly presented a map showing 7.2 ppb or 1.0 ppb (the analytical detection limit) concentration lines based on currently available data. Consequently, we have relied upon maps generated by our own technical consultants and the Washtenaw County Health Department. Uncertainty in the present-day distribution of 1,4-dioxane and the location of 1,4-dioxane migration pathways gives rise to four primary Intervenor concerns regarding the proposed Fourth Amended Consent Judgment (Proposed 4th CJ):

1A. Contaminant delineation maps
1B. Perimeter monitoring well gaps
1C. Unwarranted Prohibition Zone expansion
1D. Northward migration toward Barton Pond

1A. Contaminant delineation maps

As stated above, today, more than four years after the MDEQ lowered Michigan's drinking water standard from 85 ppb to 7.2 ppb, Gelman has not provided a map showing the extent of 1,4-dioxane contamination exceeding 7.2 ppb to EGLE or the public. Although new monitoring wells are needed to define concentrations below the previous standard in many locations, the existing monitoring well network provides an adequate basis to construct such a map, with the provision that areas of uncertainty where additional wells are necessary would be identified.

The Intervenors assert that Gelman should produce and publish concentration maps for every segment of the impacted aquifer system showing the extent of 1,4-dioxane contamination at concentrations of 7.2 ppb. In addition, and on the same maps, concentration lines corresponding to the 1 ppb detection limit for the USEPA analytical Method 1624 (specified in Attachment B of the Proposed 4th CJ) and the current 280 ppb GSI standard also should be included.

Scientific Rationale. Up-to-date maps depicting the extent of 1,4-dioxane contamination are essential tools needed by all stakeholders including Gelman, EGLE, and the general public. Such maps provide a basis for assessing attainment of remedial objectives, assuring compliance with regulatory standards, evaluating the efficacy of remedial activities, documenting changes in contaminant distributions over time, and evaluating risks of future impacts on drinking water supply wells in the surrounding communities.

Given the frequency with which monitoring wells are sampled across the Gelman Site, semi-annual updates such as those currently provided in Quarterly Reports are appropriate and should be required as part of any court order providing comprehensive requirements that are necessary to address the Gelman dioxane.

1B. Perimeter monitoring well gaps

The Proposed 4th CJ that was publicly disclosed and voted upon by the Intervenors' respective governing bodies provided significant and necessary improvements to the effort to delineate the horizontal and vertical extent of the Gelman dioxane plumes and to aid in defining future movements of those plumes. However, those improvements are still insufficient to adequately delineate the dioxane plumes.

Both the Eastern Area Prohibition Zone Containment Objective and the Western Area Non-Expansion Cleanup Objective stated in the Proposed 4th CJ share the goal of preventing 1,4-dioxane from migrating beyond the (expanded) Prohibition Zone area of institutional control (Eastern Area) or present known extent of groundwater contamination (Western Area). Thus, the Proposed 4th CJ includes perimeter monitoring wells intended to serve as sentinel wells, boundary wells, delineation wells, and compliance wells. Those additional monitoring wells are all necessary to help delineate the extent of groundwater contamination, but are insufficient because gaps in the monitoring well network remain along the northern perimeter of the Eastern Area Prohibition Zone and the southern boundary of the Western Area dioxane plume. Gaps in the Eastern Area are significant because Scio Township residences, which rely on well water, and Barton Pond, which supplies the majority of Ann Arbor's municipal drinking water, are located north of the Prohibition Zone. The Western Area gap arises from the abandonment of MW-63, the southwestern most point in the compliance well network, in 2019.

In his *Professional Opinion Regarding Plume Migration to the North from the Evergreen Area*, (HydroGeoLogic, 2014), Doug Sutton offered recommendations in the event that the 1,4-dioxane cleanup criterion were "lowered to a value close to 6.7 micrograms per liter (µg/L)[1] or if stakeholders are interested in maintaining the standard level of protectiveness from groundwater contamination adopted elsewhere in Michigan." Among those recommendations was:

> Space monitoring wells at and near the Prohibition Zone boundary no more than 500 ft apart perpendicular to the direction of expected contaminant migration. This spacing would help detect relatively narrow contaminant flow paths that might be controlled by groundwater flow through localized variations in hydraulic conductivity as observed elsewhere at the site.

Additional monitoring well clusters in strategically important areas are needed to ensure early detection of contaminant migration to the north and potential expansion of the Western Plume to the southwest. Monitoring well clusters include nests of wells with screened intervals at different elevations designed to detect dioxane migrating through different layers of the glacial aquifer system. Multiple screens are necessary because it is difficult to know with certainty at what level contaminated water will migrate until it arrives at a monitoring well. Locations where additional monitoring well clusters are needed now include:

- A Sentinel Well (AA) closing the gap between MW-133 and MW-121
- A Sentinel Well (BB) near the northeast Prohibition Zone boundary between MW-135 and MW-97
- A replacement well (CC) in the vicinity of the former MW-63 well cluster

The first well (AA) reduces the spacing between MW-133 and MW-121 from 2,000 feet to 1,100 and 900 feet (**Table 1**, **Figure 1**). The second well (BB) reduces the spacing between MW-135 and MW-97 from 5,100 to 3,000 and 2,700 feet (**Table 1**, **Figure 1**). The third well (CC) replaces MW-63 (**Figure 2**).

[1] Concentrations expressed as µg/L (micrograms per liter) are equivalent to ppb (parts per billion) in dilute aqueous solutions.

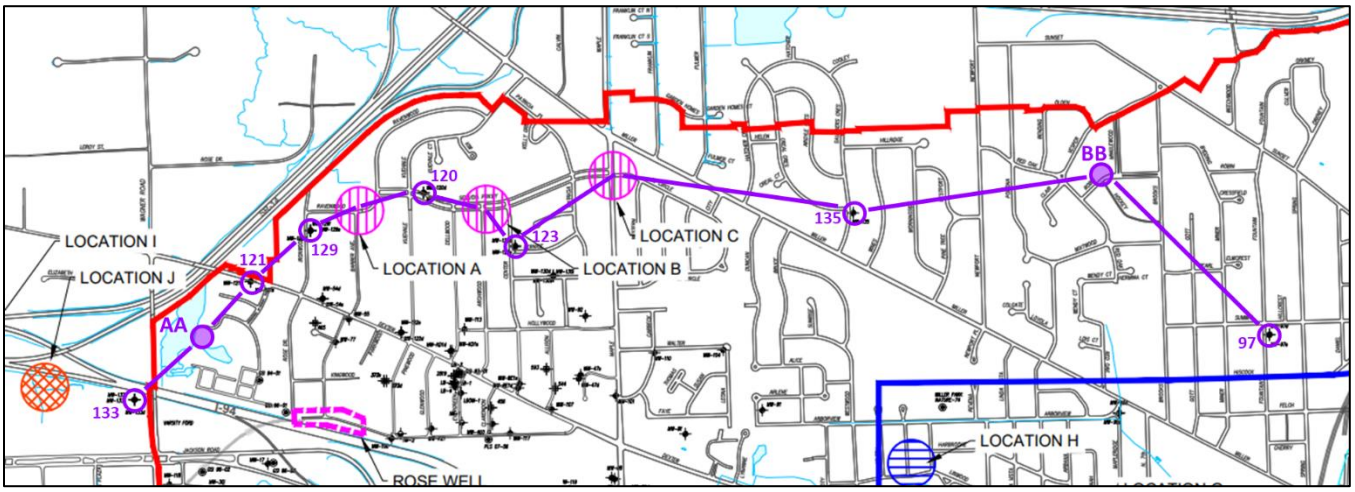


Figure 1. Proposed monitoring well spacing along northern perimeter of the Eastern Area Prohibition Zone.

Table 1. Approximate spacing between northern perimeter monitoring wells in the Eastern Area.

Proposed 4th CJ		Intervenor Proposal	
Well	**Spacing to next well (ft)**	**Well**	**Spacing to next well (ft)**
MW-133	2,000	MW-133	1,100
MW-121	950	[Proposed AA]	900
MW-129	600	MW-121	950
[Location A]	800	MW-129	600
MW-120	700	[Location A]	800
[Location B]	600	MW-120	700
MW-123	1,400	[Location B]	600
[Location C]	2,800	MW-123	1,400
MW-135	5,100	[Location C]	2,800
MW-97		MW-135	3,000
		[Proposed BB]	2,700
		MW-97	

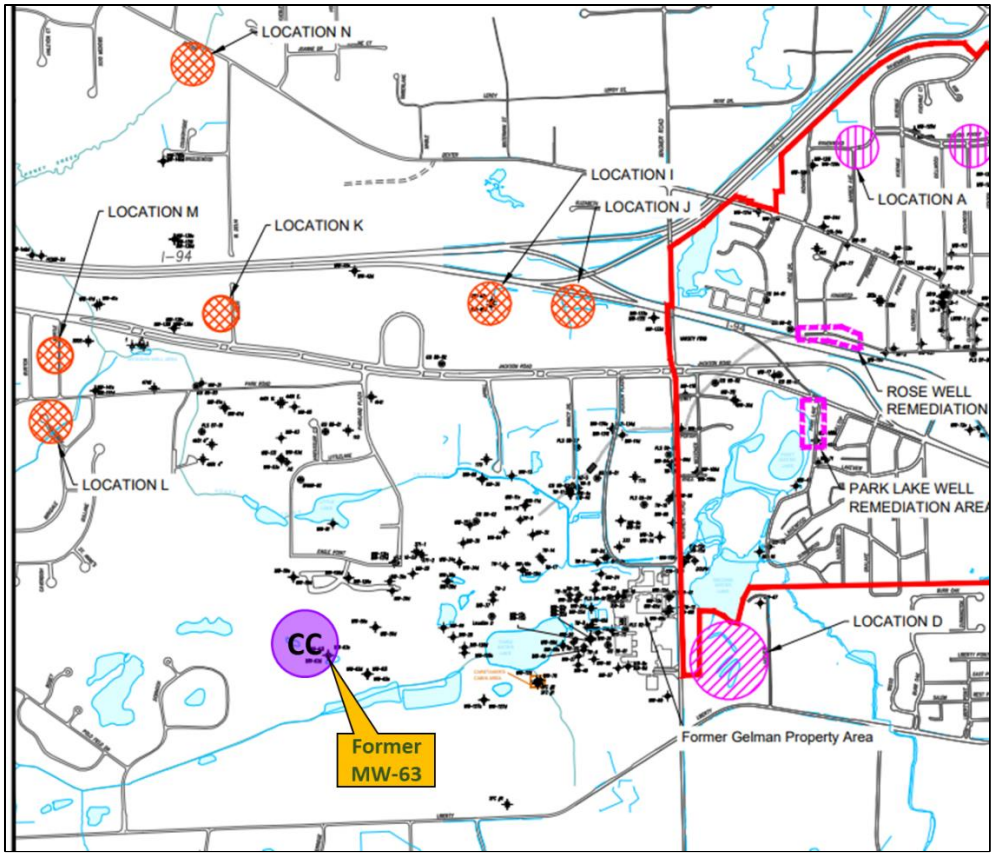


Figure 2. Proposed location of additional monitoring well to replace the MW-63 cluster.

Scientific Rationale. The rationale for including additional, more closely-spaced monitoring wells to detect potential migration along the perimeter of the known contamination extent relies on observations of 1,4-dioxane concentrations and migration in areas of densely-spaced monitoring wells. For example, in the area east of Wagner Road, wells MW-71 and MW-108s/d are spaced less than 200 feet from each other, yet display remarkably different concentration histories, despite being screened at the same elevation. Further downgradient, east of Maple Road, dioxane concentrations in MW-86 have been consistently non-detect, despite the fact that MW-86 is located approximately midway between MW-82s and MW-83s, which have seen dioxane concentrations as high as 370 and 645 ppb, respectively. These observations indicate that contaminant transport pathways are narrower and more complex than shown on most site maps, and that bypassing of monitoring wells, either laterally or vertically, is possible. Large gaps between monitoring wells along the plume perimeter should therefore be avoided, particularly in sensitive areas proximal to residences relying on private drinking water wells.

Proposed sentinel well AA will fill a perimeter gap in a sensitive area southeast of Elizabeth Road, where 1,4-dioxane has been detected in residential drinking water wells. Proposed sentinel well BB will fill the largest gap along the northern perimeter of the Prohibition Zone. Proposed monitoring CC will replace MW-63, formerly the farthest southwest point in the Western Area monitoring well network. The need to install additional perimeter monitoring wells in strategic positions may become apparent after the results of the new wells proposed here and in the Proposed 4th CJ are analyzed.

1C. Unwarranted Prohibition Zone expansion

A limited expansion of the groundwater use Prohibition Zone is necessary in response to the reduction of the 1,4-dioxane groundwater standard from 85 to 7.2 ppb because groundwater containing dioxane at concentrations above 7.2 ppb has already moved past the current Prohibition Zone boundary and retracting the plume back inside the current Prohibition Zone would involve significant additional extraction wells and pipelines disrupting City neighborhoods. Unfortunately, however, the size of the expansion in the proposed CJ revision is not supported by the available data at the site, particularly on the south side of the Prohibition Zone.

The large Prohibition Zone expansion contained in the Proposed 4th CJ is not justified by arguments such as: a) the more than 10-fold decrease in the dioxane criterion, or b) the need to prevent future exposure associated with eastward movement along the expected migration pathway. Such assertions are technically incorrect.

First, on its surface, a 10-fold decrease sounds large, seemingly making a commensurately large increase in the Prohibition Zone necessary. However, the extent to which the impacted area is enlarged as one moves from 85 ppb to 7.2 ppb depends on the concentration gradient[2] along the periphery of the zone of contamination (informally referred to as the 'edge of the plume'). Unfortunately, Gelman's technical experts have yet to produce publicly a map with a 7.2 ppb concentration line that would illustrate the spatial separation between the 85 ppb and 7.2 ppb contours. Such a map would facilitate an analysis of the concentration gradient and the extent to which the buffer zone that is already included in the PROHIBITION ZONE established for 85 ppb would plausibly need to be extended to accommodate 7.2 ppb. A map of this type produced by Intervenor technical consultant Larry Lemke (**Figure 3**) shows that separation between the 280 ppb and 7.2 ppb concentration contours is relatively narrow along the southern boundary of the plume – spanning less than 400 feet. The separation between 85 ppb and 7.2 ppb contours must be narrower still because the 85 ppb concentration line sits between 280 and 7.2 ppb. Therefore, expansion of the Prohibition Zone by as much as 2,500 feet (~1/2 mile) to the south across an east-west lateral extent of 12,000 feet (more than 2 miles) is not supported.

Second, the expectation that dioxane will continue to migrate due east is an oversimplification. Gelman has not offered credible modeling to support an expected eastward migration pathway. Even though technical consultants for the Intervenors agree with some aspects of the Gelman conceptual site model for the Eastern Area, they disagree on specific and important details concerning the identification of 1,4-dioxane migration pathways (see Section 2 below). After more than 30 years, a comprehensive model capable of explaining the observed dioxane migration and predicting future downgradient migration has yet to be produced by the Gelman consultants. Uncertainty in the ability to predict 1,4-dioxane migration pathways should not, therefore, be accepted as justification for an oversized prohibition zone meant to alleviate potential problems arising from incomplete delineation of the present day extent of groundwater contamination.

[2] The gradient is expressed by the spacing of concentration lines – closely spaced lines reflect a steep gradient indicating that the concentration falls off quickly as one moves toward the 'edge of the plume'.

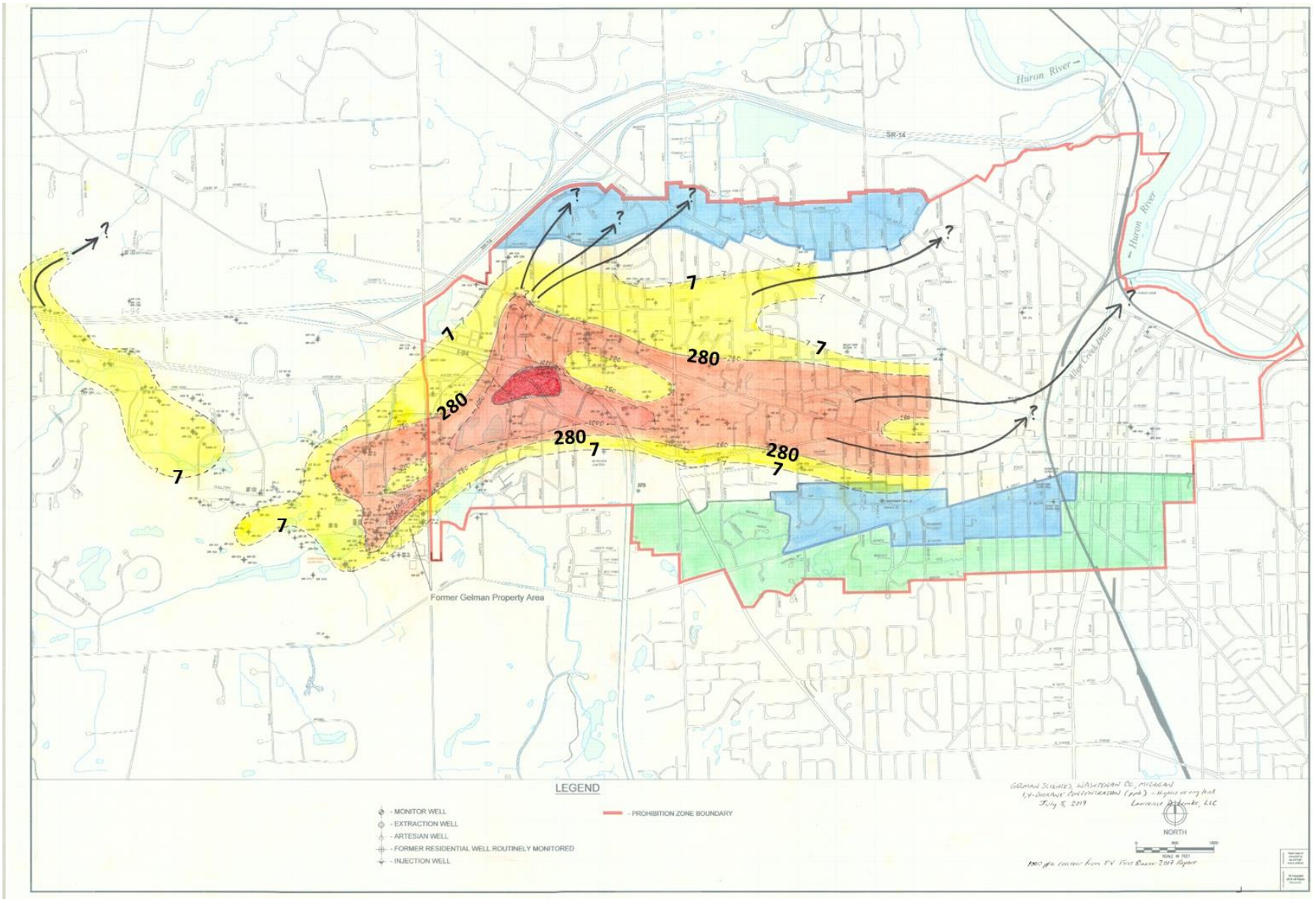


Figure 3. Distribution of 1.4-dioxane at concentrations exceeding 7.2 ppb in 2017.

As an alternative to the Prohibition Zone expansion included in the Proposed 4th CJ, the Intervenors' propose a more limited increase in the Prohibition Zone as shown on **Figure 4**. This modification accepts the entirety of the proposed expansion to the north, but limits Prohibition Zone expansion to the south to the area downgradient of monitoring well MW -112, which is situated on the current southern Prohibition Zone boundary, because MW-112i has seen 1,4-dioxane concentrations in the 9 to 11 ppb range since 2014 (**Figure 5**). Repositioning the proposed Boundary Well at location E to a more advantageous location, as shown on **Figure 4**, is also recommended by the Intervenors.

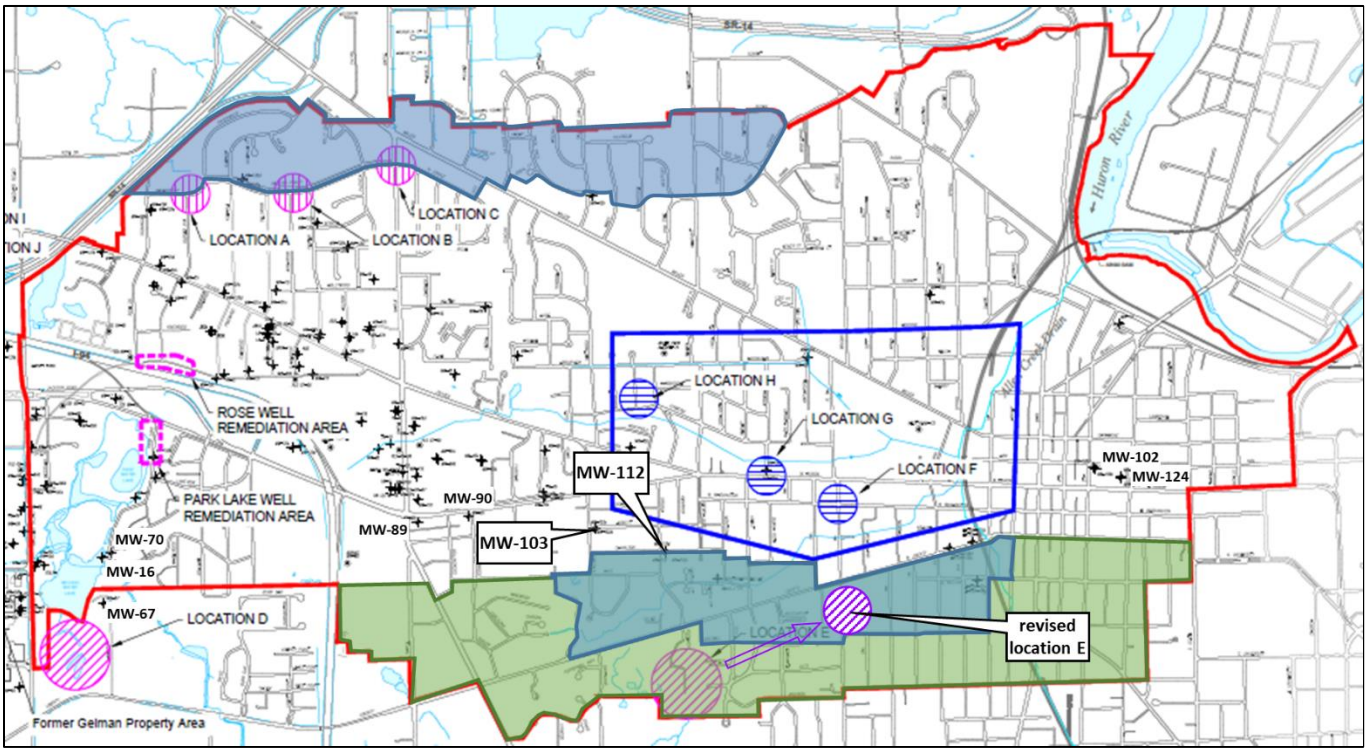


Figure 4. Proposed alternative Prohibition Zone expansion. Blue shaded areas represent Intervenor proposed expansion. Green shaded areas show the larger extent of the expanded Prohibition Zone in the Proposed 4th CJ.

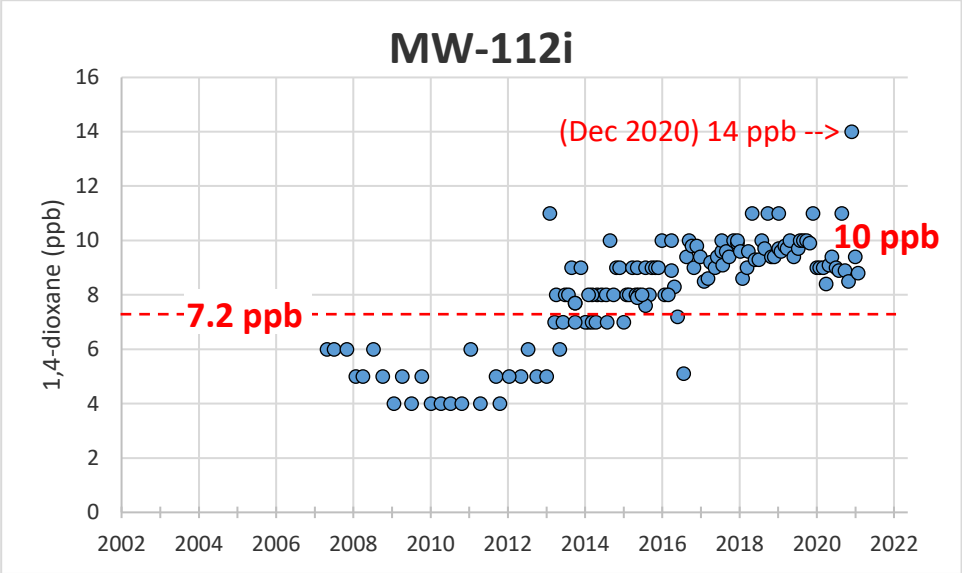


Figure 5. MW-112i concentration versus time at the southern boundary of the 85 ppb Prohibition Zone.

Scientific Rationale. A smaller, more limited Prohibition Zone expansion to the south is justified by the relatively steep concentration gradient along the southern edge of the plume. Less than 400 feet of separation between the 85 and 7.2 ppb concentration lines suggests that 400 feet or less of additional buffer are needed to accommodate the drinking water standard reduction to 7.2 ppb. With the exception of MW-103 and MW-112, monitoring wells near the current southern Prohibition Zone boundary (MW-16, MW-67, MW-70, MW-89, MW-90, MW-102, and MW-124) have concentrations below 7.2 ppb. Concentrations above 7.2 ppb observed in MW-103 and MW-112i justify additional expansion south and east of these wells, as shown in **Figure 4**.

Note that the scientific rationale for a smaller Prohibition Zone expansion is not based on reasoning that it is more or less protective of human and environmental health. Imposition of an institutional control represents a taking of water use rights away from affected property owners and should therefore be limited to the smallest extent possible based on available technical information. Arguments that larger institutional controls provide greater protection of the public could be extended *ad infintum* to justify a prohibition zone of limitless extent. Without delineation of the current extent of groundwater contamination at concentrations exceeding 7.2 ppb, a more extensive expansion is not technically defensible.

1D. Northward migration toward Barton Pond

The possibility of 1,4-dioxane migration north of the Prohibition Zone to Barton Pond, which supplies the majority of Ann Arbor's drinking water, is a persistent public concern. It arises from Barton Pond's location on the north side of a topographic ridge that roughly parallels M-14, north of the current and proposed expanded Prohibition Zone boundary (**Figure 6**). North of M-14, surface water drainage runs from approximately 925 feet in elevation downhill to Barton Pond at approximately 800 feet. South of M-14, surface water generally flows south, toward Allen Creek before reaching the Huron River downstream of Barton Pond. Hydrologically, this type of separation is called a drainage divide. We don't know whether a similar groundwater divide exists in the subsurface beneath M-14 because there are no monitoring wells in this area. Every technical expert who has examined this question has agreed that the likelihood of northward 1,4-dioxane migration to Barton Pond is small, but it cannot be ruled out.

Because the potential consequences of 1,4-dioxane in the groundwater plume reaching Barton Pond are enormous, the Intervenors seek three additional monitoring wells north of the prohibition zone in the vicinity of M-14 and Skyline High School (wells DD, EE, and FF on **Figure 6**). The purpose of these wells is to:

a. determine the presence or absence of aquifer material between the Prohibition Zone and Barton Pond;
b. measure static water level elevations to determine if a groundwater divide is present and ascertain the direction of groundwater flow in this area; and
c. although it is not expected, determine whether 1,4-dioxane is present north of the Prohibition Zone.

The Intervenors acknowledge that iterative investigations in areas of subsurface uncertainty, such as the region between the northern Prohibition Zone boundary and Barton Pond, are reasonable and customary. On such a basis, one might argue that investigating groundwater conditions north of the Prohibition Zone is unnecessary unless and until rising concentrations are observed in perimeter monitoring wells. Unfortunately, even with the addition of new Sentinel Wells at locations A, B, and C (**Figure 1**), the spacing between these wells would range from 600 to 1,400 feet (**Table 1**), providing space for 1,4-dioxane to move undetected between wells. The importance of safeguarding the source of Ann Arbor's municipal water at Barton Pond therefore justifies a proactive approach. In the event that 1,4-dioxane is detected in well DD, EE, or FF, additional investigations may be required to fully understand the hydraulic gradient and contaminant transport pathways in this area.

Scientific Rationale. In a recent study prepared for the City of Ann Arbor, environmental consultants at Tetra Tech evaluated potential sentinel monitoring well locations to provide advance warning to protect the City's drinking water supply in the event that the Gelman 1,4-dioxane plume were to migrate towards Barton Pond (Tetra Tech, 2020). Tetra Tech identified four potential sentinel well locations (**Figure 7**) based on their relation to topographic elevations and position opposite the surface water drainage divide. The additional wells proposed by the Intervenors are consistent with Tetra Tech's recommendations.

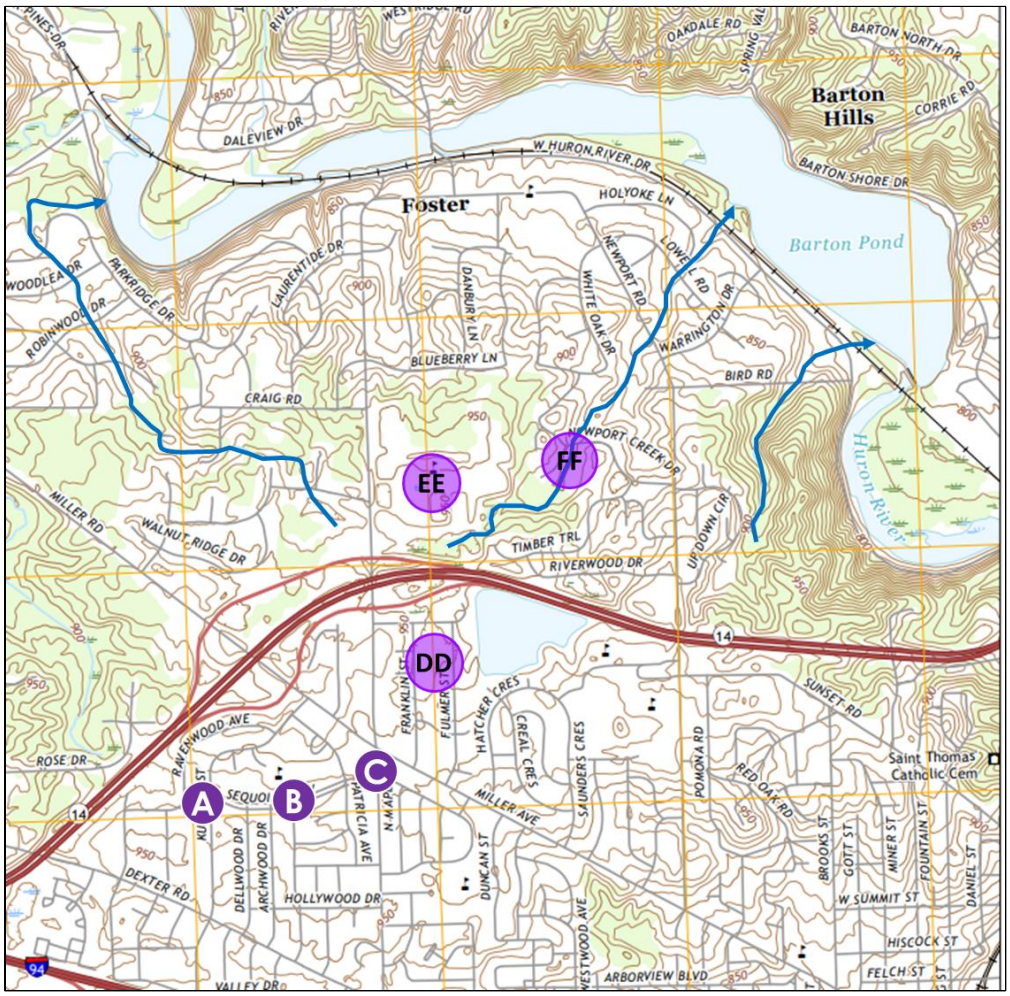


Figure 6. Surface water drainage patterns on 2019 USGS 7.5 minute Ann Arbor West topographic map (blue arrows represent intermittent streams). Contour interval 10 feet. Locations A, B, and C are included in the Proposed 4th CJ. Additional locations DD, EE, and FF are proposed by the Intervenors.

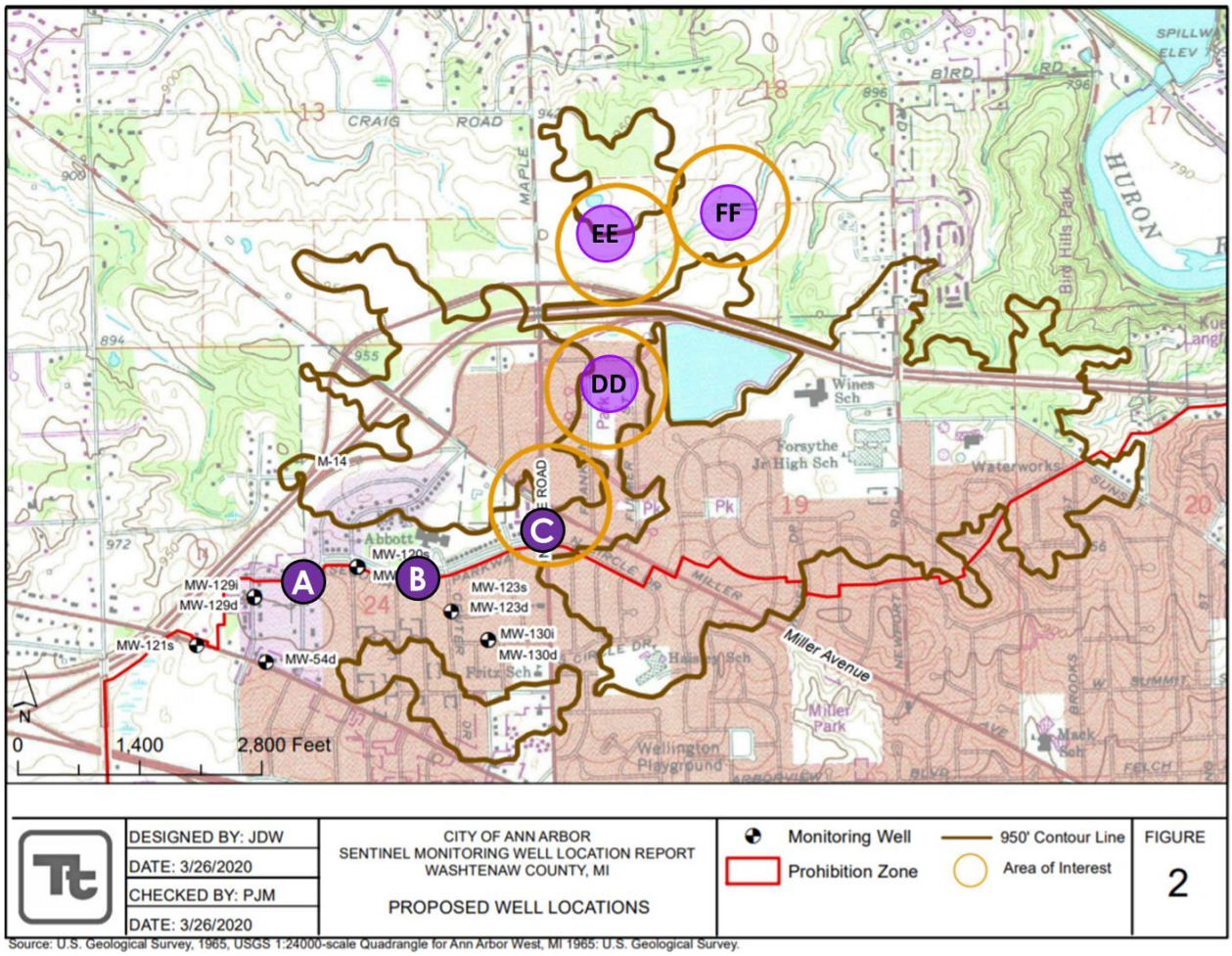


Figure 7. Correspondence between proposed Intervenor locations DD, EE, and FF and monitoring well locations identified by Tetra Tech (orange circles). Locations A, B, and C from the proposed CJ are also shown. Note that location C is positioned within the first Tetra Tech recommended location. Modified from Tetra Tech (2020) Figure 2.

2. Discharge to Allen Creek at concentrations exceeding GSI

The purpose of the "Groundwater Surface Water Interface Objective" in the Proposed 4th CJ is to prevent 1,4-dioxane from venting into surface waters at concentrations above the Generic GSI Cleanup Criterion, except in compliance with Part 201. In the Eastern Area, this stands in contrast to the current set of requirements, which compel Gelman to prevent contaminant migration above 2,800 ppb (the prior GSI value) from migrating east of Maple Road. Gelman agreed to this requirement as one of six conditions stipulated by the MDEQ before the MDEQ would consent to a revised CJ that did not require capture of the leading edge of contamination in the Eastern Area as required by Michigan statute.

In October 2017, the relevant GSI criterion for dioxane was reduced from 2,800 ppb to 280 ppb. A direct, scaled reduction of the requirement to prevent dioxane movement east of Maple Road at concentrations above 280 ppb is not possible because concentrations exceeding 280 ppb are already present in monitoring wells located as far as 3,200 feet east of Maple Road (e.g., MW-76s, MW-79s, MW-82s, MW-83s, MW-84s, MW-115, and MW-116). Similarly, establishing a 280 ppb containment line somewhere east of Maple Road is impractical because monitoring wells downgradient of MW-82s (the easternmost well with known concentrations exceeding 280 ppb) are too widely-spaced or screened at inappropriate depths to identify the current eastward limit of dioxane concentration greater than 280 ppb in the Eastern Area.

Nevertheless, the presence of 1,4-dioxane in the Allen Creek Drain system, initially detected in December, 2017 and followed by rapid concentration increases (**Figure 8**), has elevated concerns that groundwater is already venting to the surface water system at concentrations exceeding the GSI criterion somewhere east of Maple Road. Reported concentrations are diluted by water ordinarily flowing in the drain system at the time samples were taken. Thus, they already incorporate mixing zone effects caused by flow through the drain system; therefore, groundwater concentrations venting into the drain must be higher than those recorded by the samples. The concrete drain segments were installed with high quality gaskets designed to limit leakage from and infiltration into the pipes. If contaminated groundwater venting into the drain constituted as much as 10% of the flow (an improbably large proportion), then concentrations of 490 ppb would be required to register 49 ppb (the highest sample concentration observed to date in October 2020). Smaller groundwater infiltration proportions yield larger infiltrating concentration estimates.

The West Park SW sampling location is situated along the South Branch of Allen Creek, which runs roughly parallel to Linwood Avenue (**Figure 9**). We infer that 1,4-dioxane enters the drain somewhere between West Park SW and the Maryfield-Wildwood Park sampling site because Maryfield-Wildwood Park has been consistently non-detect for dioxane. However, it is not clear whether 1,4-dioxane is entering the South Branch of Allen Creek from the north, or the south, or both directions.

To address concerns over discharge to Allen Creek at concentrations exceeding the GSI criterion, the Intervenors propose the following additions to activities included in the Proposed 4th CJ:

- 2A. High-resolution characterization to identify downgradient migration pathways
- 2B. Additional delineation of 280 ppb extent in the downgradient Eastern Area
- 2C. Shallow groundwater profiling and monitoring along the Allen Creek Drain

These activities are sequential, with each informing and optimizing the next. Information generated by any of these activities could lead to the need for additional investigations.

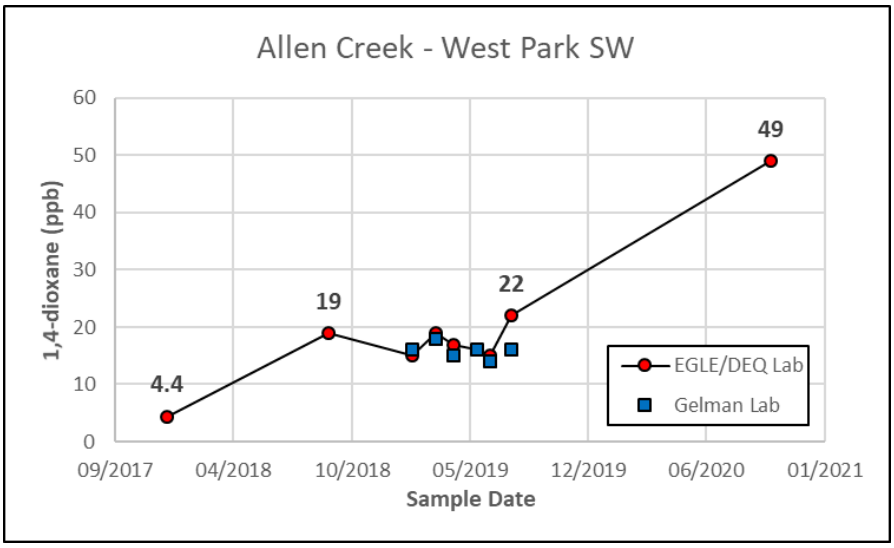


Figure 8. 1,4-Dioxane concentrations in the Allen Creek Drain beneath West Park. Split samples analyzed in EGLE/DEQ and Gelman laboratories are shown separately.

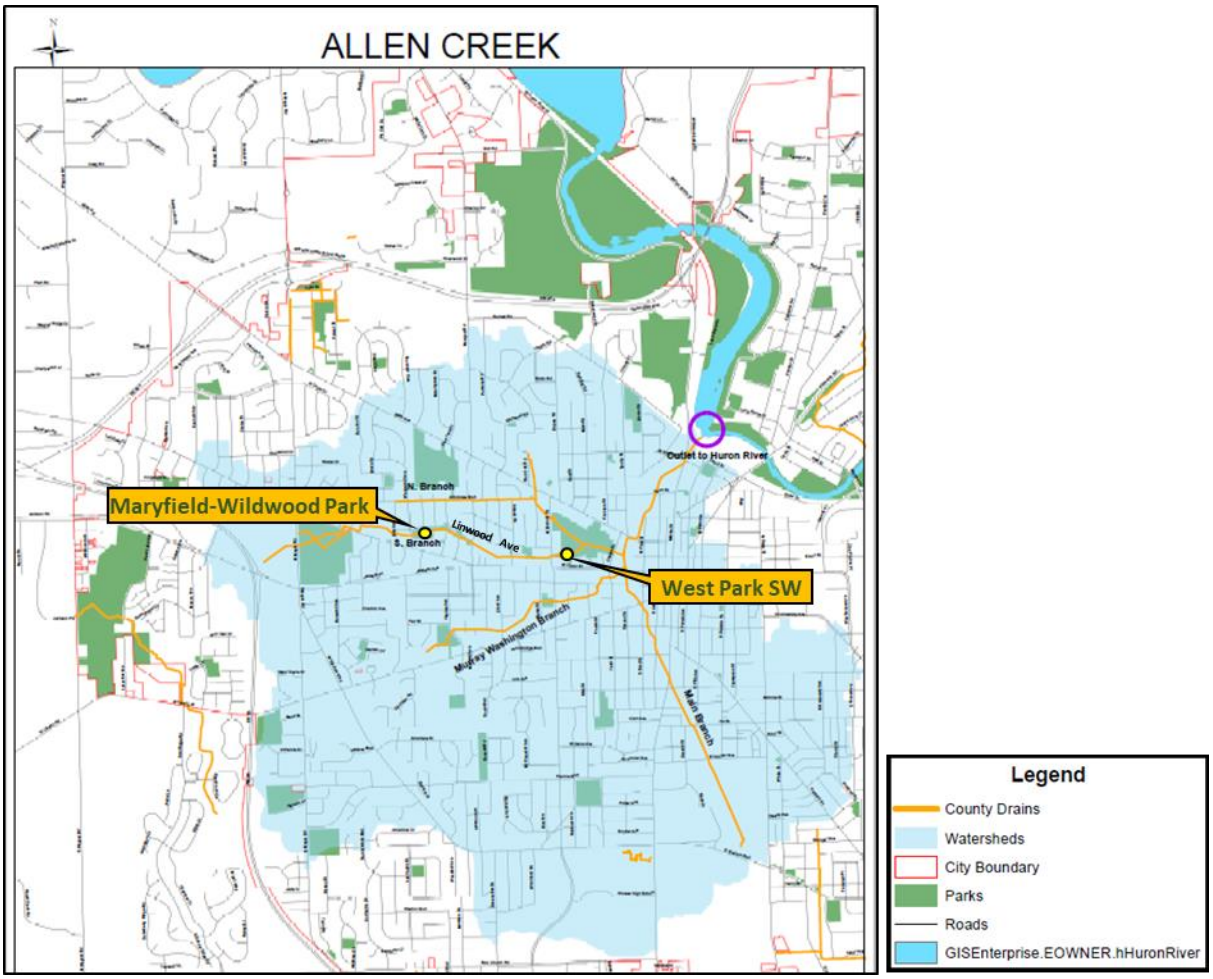


Figure 9. Allen Creek watershed, drain system, and two of the recent water sampling locations.

2A. High-resolution characterization to identify downgradient migration pathways

The most direct way to determine the distribution of aquifer segments conveying 1,4-dioxane at concentrations greater than 280 ppb is to complete high-resolution profiles of aquifer quality and dioxane concentrations. High-resolution site characterization (HRSC) is an EPA focus area that reflects the state-of-the-science for environmental site characterization (USEPA, 2016b). The USEPA has identified HRSC as the preferred method for evaluating sites and developing a conceptual site model of hydrogeology (USEPA, 2016b). The HRSC approach is considered a best practice to: 1) define groundwater flow paths and preferential contaminant pathways; 2) map and predict contaminant mass transport and storage zones; 3) identify data gaps; 4) determine appropriate locations for monitoring and potential remediation wells; 5) determine appropriate well construction design details; and 6) improve the efficiency of groundwater remediation (Shultz et al., 2017). High-resolution transects have been utilized to identify preferential flow pathways and quantify contaminant mass flux at many sites. The USEPA Contaminated Site Cleanup Information (CLU-IN) database lists more than 30 major sites, both commercial/industrial and government-led, where HRSC was used to develop a conceptual site model and guide remediation efforts (USEPA, 2016a).

The purpose of high-resolution profiles or 'transects' in the Eastern Area of the Gelman Site is to characterize the presence or absence of dioxane at concentrations above GSI migrating at all depths above bedrock at the present time. Temporary boreholes in each transect should be placed at a 200-foot minimum lateral spacing and water samples should be taken at 10-foot vertical increments to establish a concentration profile at each borehole location. Results can be used to position permanent monitoring wells in zones of highest observed concentrations, quantify contaminant mass flux across each transect, and to guide additional downgradient investigation (Sections 2B and 2C). Two north-south profiles (perpendicular to the primary direction of groundwater flow) are needed (**Figure 10**):

i. A transect along Maple Road between Dexter and Miller Roads (T_1-T_1').

ii. A transect along Glendale-Grandview-Westwood streets in the vicinity of MW-82s (T_2-T_2').

The Maple Road profile (T_1-T_1') will identify preferential flow pathways and maximum 1,4-dioxane concentrations crossing Maple Road downgradient of monitoring well MW-107. Concentrations in MW-107 rose to 700 ppb or more beginning in 2014 and have remained at similar levels since then (**Figure 11**). Unfortunately, the network of monitoring wells downgradient from MW-107 (**Figure 10**) are screened at elevations 20 to 75 feet *deeper* than MW-107 (**Table 2**), making it unlikely that they will detect dioxane as it migrates upward through the aquifer system east of Maple Road. Identification of preferential flow pathways conveying groundwater with elevated dioxane concentrations along transect T_1-T_1' will inform the process of installing monitoring wells to better delineate the extent of 280 ppb in the downgradient area north of the South Branch of the Allen Creek Drain (Section 2B).

The Glendale-Grandview-Westwood profile (T_2-T_2') will identify preferential flow pathways and maximum 1,4-dioxane concentrations immediately upgradient of the Allen Creek Drain segment that is receiving dioxane from venting groundwater (**Figures 9 and 10**). Information from this transect will therefore also help determine effective locations for monitoring wells needed to further delineate the extent of 280 ppb in the downgradient area (Section 2B) and, in addition, guide the design of shallow groundwater profiling on the north and south sides of the Allen Creek Drain (Section 2C).

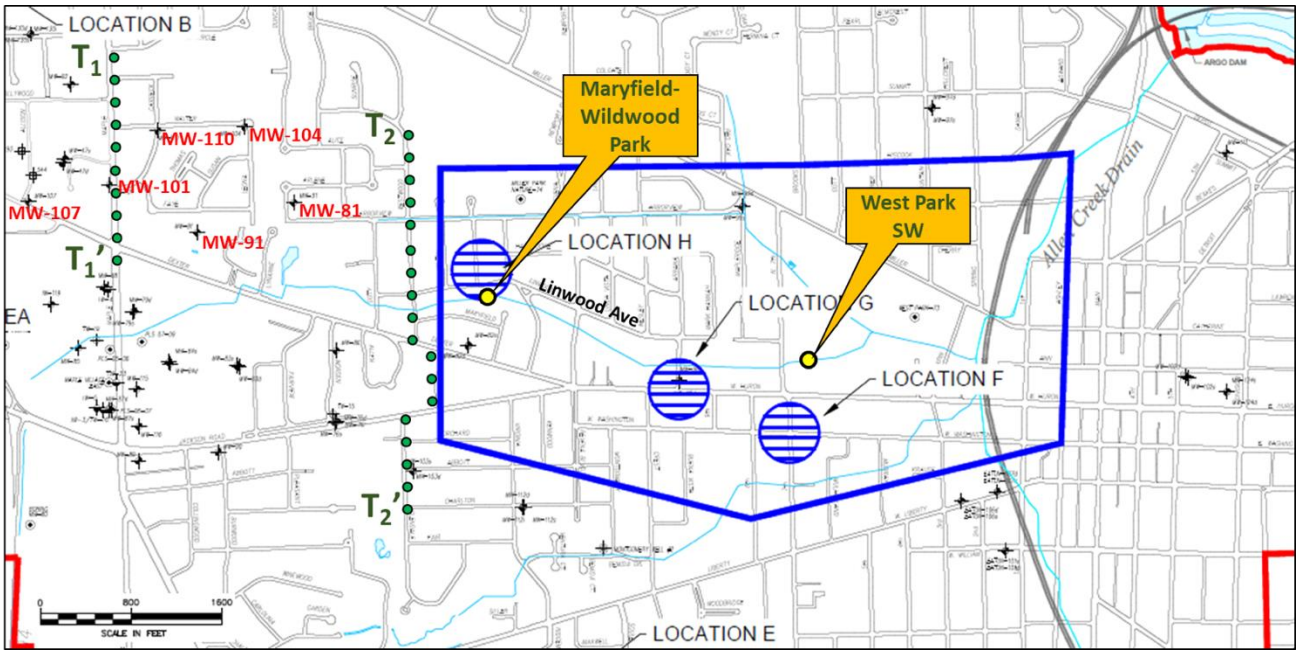


Figure 10. Locations of Allen Creek South Branch sampling points and proposed high-resolution transects.

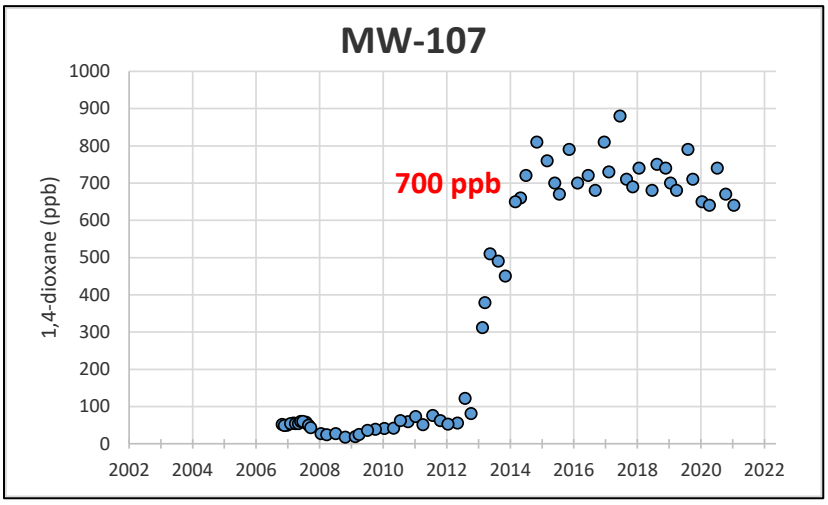


Figure 11. MW-107 concentration versus time west of Maple Road.

Table 2. Monitoring well screen depths and elevations downgradient of MW-107.

Well	Surface (TOC) elevation (ft)	Depth to screen top (ft)	Depth to screen bottom (ft)	Top screen elevation (ft)	Comparison to MW-107 (ft)	
MW-107	943.66	110	115	**833.66**	-	
MW-81	920.15	153	158	767.15	**-66.5**	**deeper**
MW-91	913.37	155	160	758.37	**-75.3**	**deeper**
MW-101	932.98	155	160	777.98	**-55.7**	**deeper**
MW-104	938.69	145	150	793.69	**-40.0**	**deeper**
MW-110	940.57	130	135	810.57	**-23.1**	**deeper**

These high-resolution transects represent definitive delineation at the time the boreholes are drilled (closely spaced borings minimize the chance of missing a significant pathway) that will test the Gelman conceptual site model used to predict downgradient migration paths and, if zones of high concentration are identified in either transect, can be used to select permanent monitoring well locations at optimized depths within each transect.

Scientific Rationale. Regionally, groundwater flows from areas of higher elevation to discharge points at lower elevations (**Figure 12**). The Gelman Property sits upon a glacial moraine that forms a prominent topographic ridge and a regional drainage divide. Groundwater containing 1,4-dioxane flowing beneath the Eastern Area originated as surface water that infiltrated the ground at the Gelman Property where it picked up 1,4-dioxane along the way.

Water infiltrating the ground to begin its journey as groundwater is like water entering a hose or pipe. It enters one end of the hose and exits at the opposite end. Because water is not compressible like air, one cannot add more water to the pipe entrance (like pumping air into a bicycle tire) without allowing water to flow out at the other end. In layman's terms, "what goes down must come up" and every groundwater flow path must have an entry and an exit point. At the Gelman site, groundwater flowing eastward from the Gelman Property has a downward directional component until somewhere in the vicinity of Maple Road. East of Maple Road, groundwater flow through the glacial aquifer system includes an upward component as it approaches discharge points along Allen Creek and the Huron River.

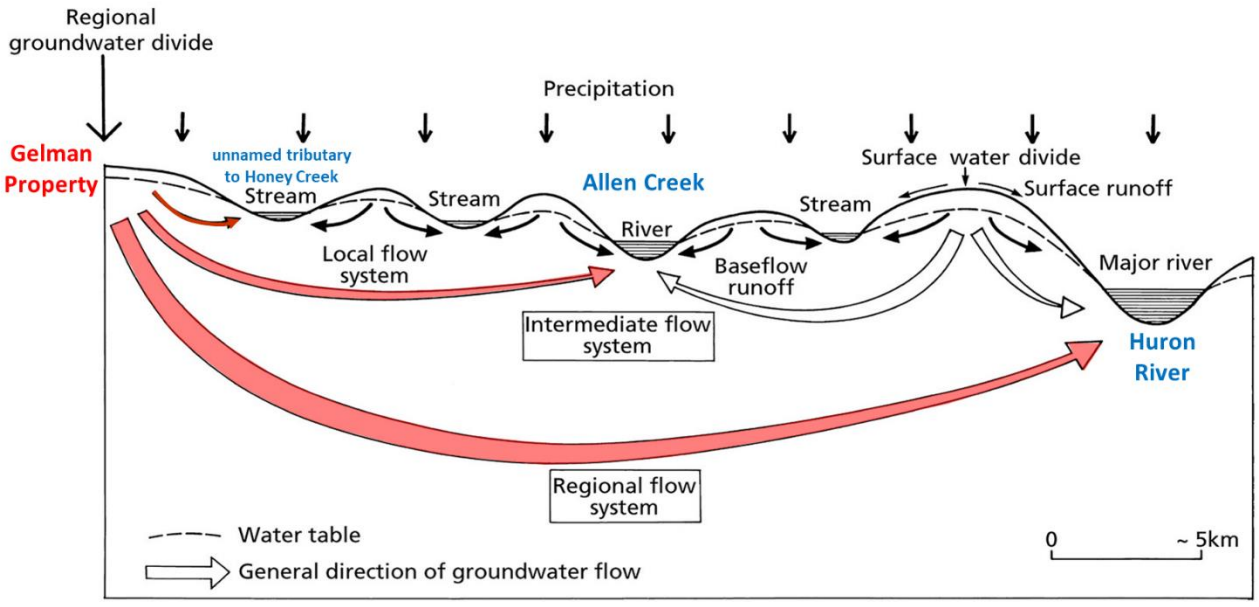


Figure 12. Groundwater flow patterns (modified from Hiscock and Bense, 2014, figure 2.45)

Until recently, it had been hoped or assumed that groundwater containing 1,4-dioxane in the Eastern Area would discharge exclusively at the Huron River. However, convincing evidence now exists that groundwater is venting to the Allen Creek system before it reaches the Huron River. Moreover, elevated dioxane concentrations observed in MW-107 (**Figure 11**) show that it sits along a groundwater flow path moving contaminated water eastward (downgradient). The question is: where is that water with more than twice the GSI limit for dioxane going from there? Transect T_1-T_1' is positioned to answer this question.

In the vicinity of MW-82s, it is unclear whether to expect higher concentrations north or south of MW-82s (Section 2B). Transect T_2-T_2' will therefore help optimize positioning of the monitoring well at location H on the north or south side of the Allen Creek Drain **(Figure 10)**.

2B. Delineation of 280 ppb extent in the downgradient Eastern Area

Rising concentrations of 1,4-dioxane observed in the Allen Creek drain in West Park, coupled with concentrations exceeding the 280 GSI criterion in monitoring well MW-82s, located 400 feet from the Allen Creek drain, underscore the growing need to delineate concentrations at or above 280 ppb in the downgradient Eastern Area.

The technical experts for Gelman and the Intervenors disagree over how to interpret the MW-82s concentration history (**Figure 13**). Gelman considers MW-82 to lie along the "center-line" of the main Eastern Area dioxane plume. Thus, it should reveal the maximum dioxane concentration (~ 350 ppb) as the leading edge of the plume of contaminated water moves eastward past the well. Although it's not impossible, it seems unlikely that Gelman could have fortuitously placed a monitoring well directly in the path of the plume when it installed MW-82 in 2002, long before elevated concentrations arrived there. North and south of MW-82, Gelman invokes lateral dispersion (mixing/spreading along the sides of the plume) to explain wells with similar concentration histories (MW-76s and MW-91, **Figure 14**) because observed dioxane concentrations plateau at lower concentrations in these wells (275 and 200 ppb, respectively).

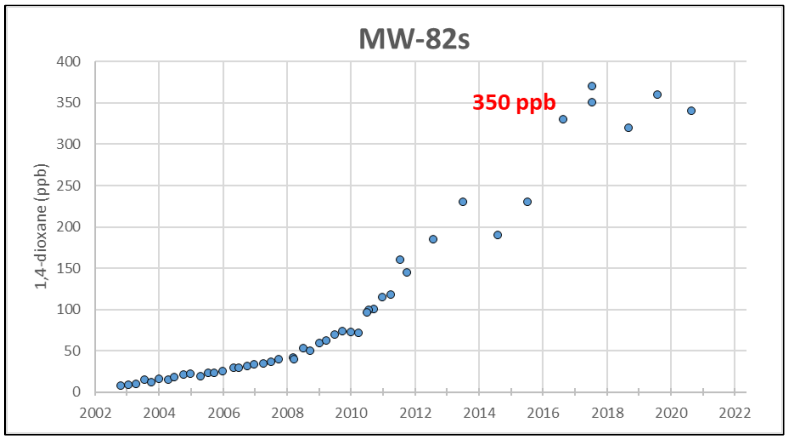


Figure 13. Concentration versus time in MW-82s near the South Branch of the Allen Creek Drain.

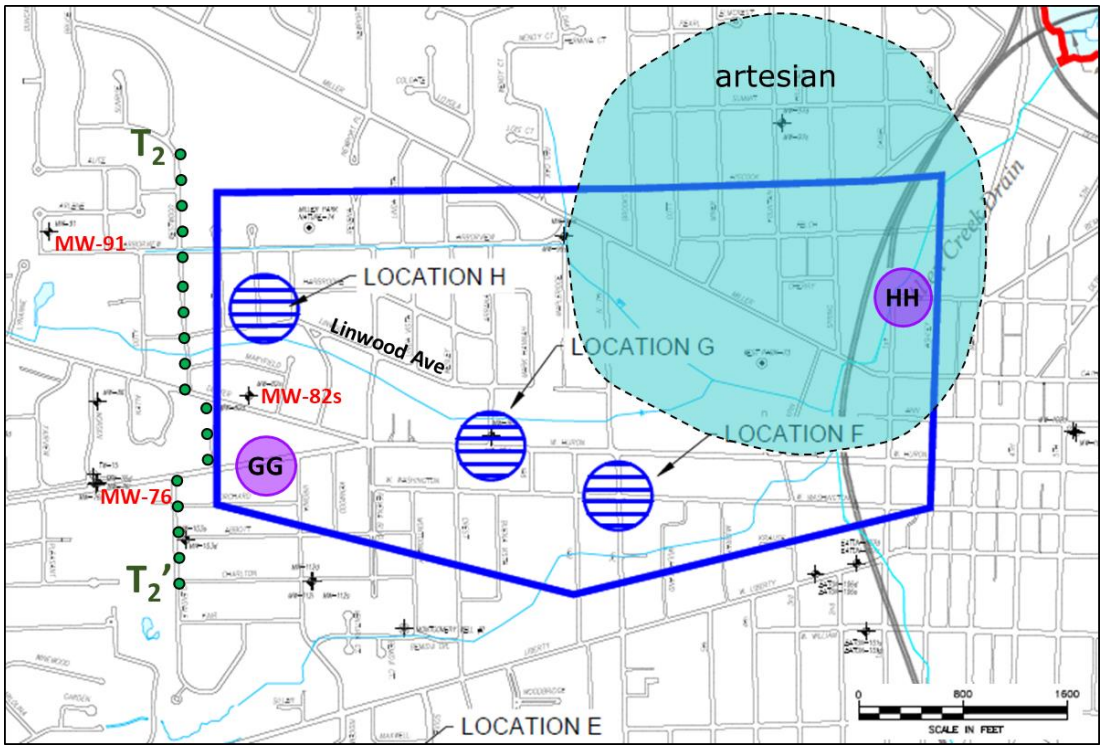


Figure 14. Proposed locations of downgradient monitoring wells GG and HH and approximate area of artesian groundwater conditions.

Instead of the leading edge of the center-line of a broad, diffuse plume, the Intervenors maintain that MW-82s represents lateral dispersion (like MW-76s or MW-91) from one or more unrecognized higher concentration fingers of dioxane migrating north or south of MW-82. This alternate interpretation cannot be ruled out by the current, widely-spaced monitoring well network and would only be partially evaluated by well locations F, G, and H (**Figure 14**) in the Proposed 4th CJ. Moreover, the Intervenors' alternate interpretation is supported by the high concentrations of dioxane observed at Allen Creek – West Park SW. Consequently, two additional monitoring wells are needed in the downgradient investigation at locations GG and HH as shown on **Figure 14**.

Scientific Rationale. The proposed monitoring well at location GG on the south side of MW-82s will complement the proposed well at location H on the north side of MW-82s (**Figure 14**). Both of these locations can be optimized based on the results of transect T_2-T_2'. Monitoring wells at locations GG and H will determine if higher concentrations of 1,4-dioxane are flanking MW-82s. An additional proposed monitoring well at location HH in the Allen Creek surface drainage way will investigate the potential for 1,4-dioxane at concentrations above GSI along the expected migration pathway through a loosely defined area of artesian groundwater conditions conducive to additional venting to the Allen Creek Drain or the creation of shallow groundwater conditions at elevations close to residential basements in this area. Together, monitoring wells at proposed locations GG and HH will help to ensure that the Eastern Area "Groundwater Surface Water Interface Objective" in the Proposed 4th CJ is met.

2C. Shallow groundwater profiling and monitoring along the Allen Creek Drain

In addition to the delineation work (transects and monitoring wells) described above, it is necessary to identify the extent of groundwater contamination greater than 280 ppb entering the Allen Creek Drain upgradient of West Park so that appropriate response activities can be undertaken.

The Intervenors propose a high-resolution profiling survey along the edges of the South Branch of the Allen Creek Drain, parallel to Linwood Avenue (**Figure 15**). Samples of groundwater should be collected from both sides of and closely adjacent to the Drain using direct push or percussive methods. Profiling should take place at a lateral spacing of 100 feet or less between points and discreet samples should be collected beginning at first groundwater and every five feet thereafter until a minimum depth of 10 feet below the drain level is reached. Profiles should be completed on the north and south sides of the Drain unless the high-resolution transects (Section 2A) and downgradient delineation wells (Section 2B) demonstrate to EGLE's satisfaction that contaminated groundwater at concentrations greater than the GSI is not present north or south of this portion of the Allen Creek Drain.

Results of the shallow groundwater profiling should be used to install a minimum of three shallow groundwater monitoring well nests along each side of the Allen Creek Drain where the presence of groundwater at or above GSI concentrations has been delineated. Each monitoring well nest location should include at least two monitoring wells screened at the equivalent depth of the drain and 5 feet deeper so that a vertical hydraulic gradient can be determined.

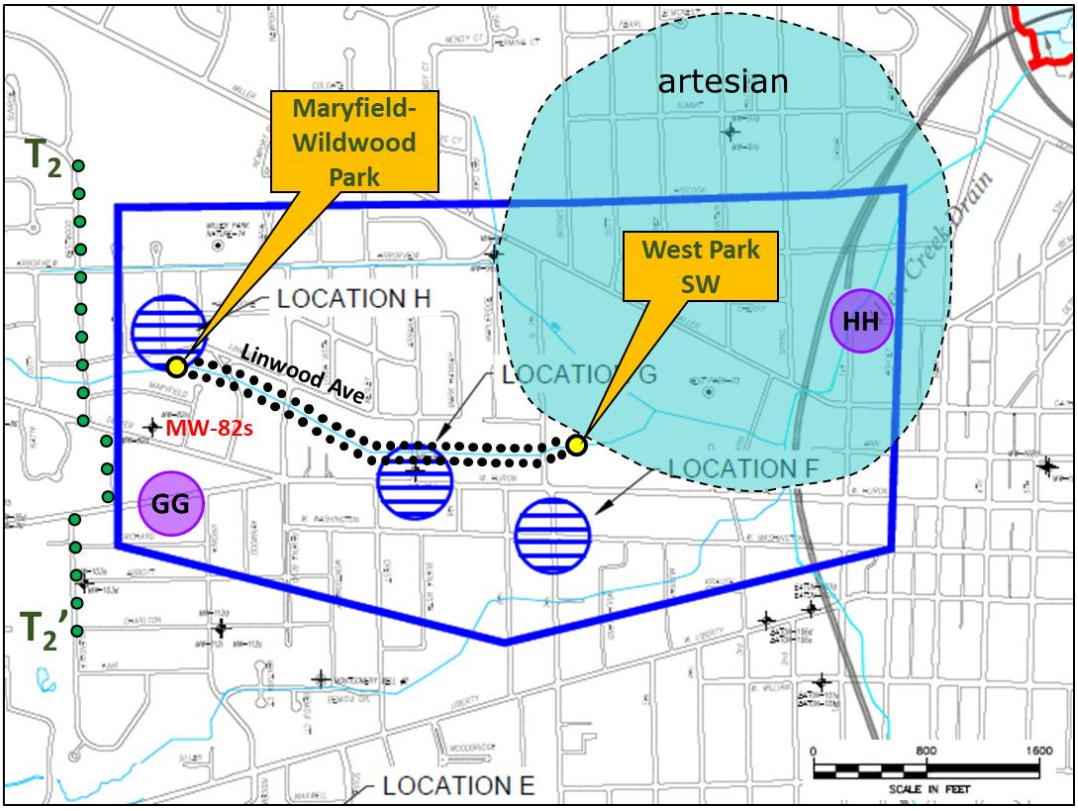


Figure 15. Proposed location of monitoring points (solid black dots) between the Maryfield-Wildwood Park and West Park SW sampling locations along the South Branch of the Allen Creek Drain.

Scientific Rationale. High-resolution profiles of groundwater concentrations will provide information about the distribution of 1,4-dioxane in excess of 280 ppb adjacent to the Allen Creek Drain. Establishing maximum concentrations is part of the requirement for use of the mixing zone criterion for GSI compliance under Part 201, as is estimating the cross-sectional area of the plume perpendicular to the groundwater flow that encompasses the entire portion of the plume exceeding GSI. Both of these requirements will be facilitated by the Drain profiles and the permanent, shallow groundwater monitoring well nests installed after the profiles are completed. Moreover, the wells can serve as alternative monitoring points (in the parlance of the GSI regulations) that will provide continuing information about the distribution of 1,4-dioxane in excess of 280 ppb near the Allen Creek Drain.

The Washtenaw County Water Resources Commissioner has determined that water containing 1,4-dioxane infiltrating into the Allen Creek Drain is an illicit discharge under Washtenaw County's Municipal Separate Storm Sewer System (MS4) permit. The actions requested by the Intervenors will assist in the detection and elimination of 1,4-dioxane entering the Allen Creek Drain, but should not in any way restrict the Washtenaw County Water Resources Commissioner's Office from requiring more stringent response actions under its separate regulatory authority.

3. 1,4-Dioxane mass removal

In almost every circumstance, removal of 1,4-dioxane from the Gelman system is beneficial. All of the remedial objectives (Eastern Area Prohibition Zone Containment, Western Area Non-Expansion, and Groundwater-Surface Water Interface) and the Gelman Property Response Activities specified in the Proposed 4th CJ are facilitated by removal of 1,4-dioxane from areas of high remaining concentration.

Targeted removal of 1,4-dioxane from the source area on the Gelman Property and high concentration zones ("hot spots") in the Eastern Area will enhance GSI compliance at Allen Creek and the Huron River and minimize potential for 7.2 ppb exceedances at the Prohibition Zone boundaries. Reduced upgradient concentrations will eventually lead to lower concentrations in downgradient regions, bolstering the probability of non-expansion in the Western Area and potentially decreasing time to site closure.

Planned mass removal at the Gelman site consists of three primary components: 1) additional groundwater extraction wells; 2) planting of trees to enable phytoremediation on the Site and to the north in the Marshy Area; and 3) installation of a heated soil vapor extraction system with associated impervious cap. Gelman has conducted sampling and analytical investigations as well as feasibility studies to help design these treatment elements. However, the intervenors have not been able to review all of the data and technical recommendations generated by these investigations and studies.

Although the Intervenors endorse the mass removal activities in the Proposed 4th CJ, concerns over restrictions or omissions that could limit the long-term benefits of the response actions remain. We therefore propose the following revisions to address these concerns:

- 3A. Revised termination criteria for extraction wells
- 3B. Revised disposal plan for Parklake Well treated water
- 3C. Accelerated source area groundwater extraction
- 3D. Phytoremediation performance monitoring and termination criteria
- 3E. HSVE system optimization

3A. Revised termination criteria for extraction wells

The Proposed 4th CJ includes several new extraction wells to purge dioxane from areas of known or suspected high concentrations. Extraction at two locations, the Parklake Well in the Eastern Area and three "Phase I" extraction wells on the Gelman Property, include provisions for terminating extraction after concentrations are reduced below 500 μg/L (500 ppb). This arbitrary threshold is too high because it precludes the additional benefits of mass removal at lower concentrations.

Many of the current Gelman extraction wells operate with concentrations below 500 ppb (**Figure 16**). Reasons for continuing to pump water at lower concentrations include hydraulic capture or prevention of dioxane migration, in addition to mass removal. Because extraction well concentrations may not be representative of the highest concentrations surrounding them (see Scientific Rationale below), it does not make sense to impose a high termination threshold, particularly one that exceeds the 280 ppb GSI criterion.

As an alternative to termination at 500 ppb, the Intervenors propose adopting language similar to that employed in the Proposed 4th CJ for the HVSE system: "Defendant shall operate [extraction well] until effluent 1,4-dioxane concentrations indicate continued extraction will no longer contribute to beneficial reduction in 1,4-dioxane mass." We endorse the concept of cycling wells on and off to demonstrate concentration rebound has not occurred before extraction is terminated included in the Proposed 4th CJ.

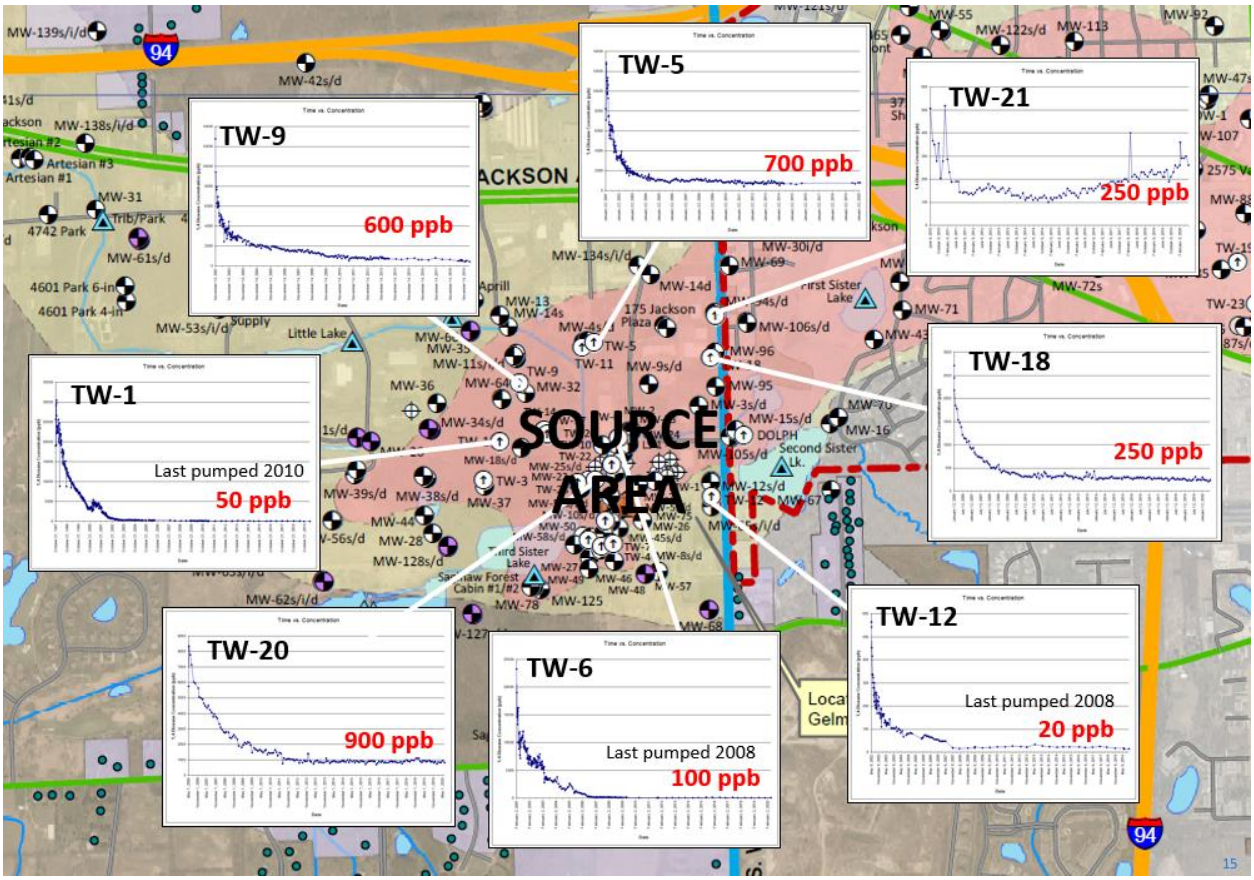


Figure 16. Concentration vs. time in Gelman extraction wells.

Scientific Rationale. Unlike monitoring wells, which are designed to passively sample concentrations in the groundwater that surrounds them, extraction wells draw water in from the surrounding water in all directions (**Figure 17**). Consequently, concentrations measured in extraction well effluent represent an average concentration from water reaching the well from every direction. Actual concentrations in parts of the aquifer within the well's radius of influence could be much greater than the average concentration in water coming out of the extraction well. Access restrictions and contaminant distribution uncertainty make it impossible to perfectly position each of the proposed extraction wells in the optimal location to capture the targeted hot spots; therefore, it is necessary to adopt more flexible termination criteria.

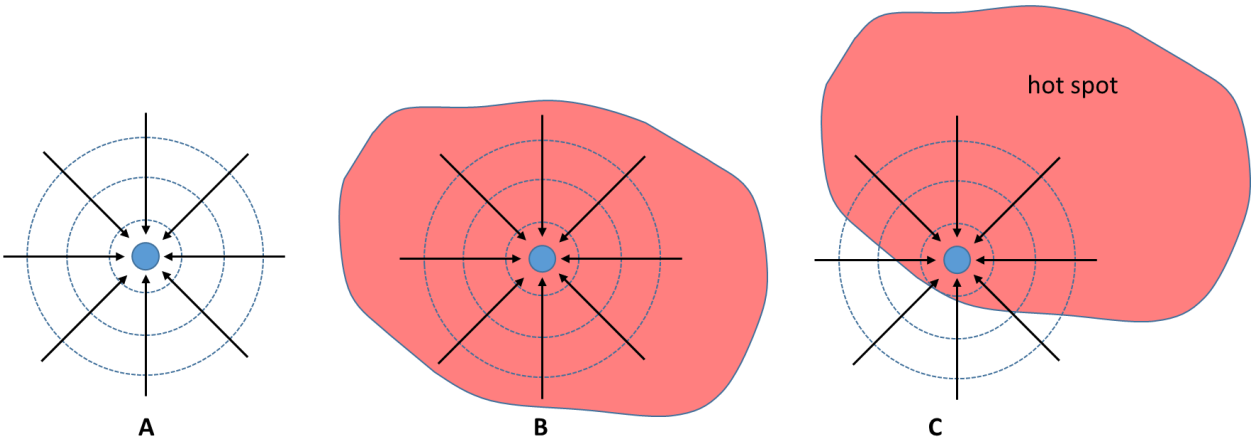


Figure 17. A) Map view of a pumping well showing groundwater flow lines (arrows) converging toward a the well from all directions; B) pumping well centered in a hotspot draws high concentration groundwater from all directions; C) pumping well near the edge of a hot spot draws high and low concentrations, diluting the concentrations in the effluent stream.

3B. Revised disposal plan for Parklake Well purge water

The proposed plan to extract contaminated water from an inferred hot spot east of Wagner Road at the location designated as the Parklake Well has the potential to significantly increase the rate of 1,4-dioxane mass removal across the entire site. Installation and operation of the Parklake Well depends upon Gelman's capacity to treat up to 200 gallons per minute (gpm) of purged water and the ability to dispose of an equivalent volume of water after it is treated to reduce dioxane concentrations to acceptable levels.

The Proposed 4th CJ plan to discharge treated water from the Parklake Well into the adjacent First Sister Lake, subject to issuance of an appropriately restricted National Pollutant Discharge Elimination System (NPDES) permit by EGLE, has elicited extensive public opposition. Although the Proposed 4th CJ conditioned the discharge into First Sister Lake upon Gelman obtaining an NPDES permit for that discharge, subsequent review of the proposed discharge and its impacts on the environment by an environmental consulting firm concluded that discharge into First Sister Lake "may not be permittable because the volume added could be significant and will likely cause an irreparable change to the ecosystem (Tetra Tech, 2021)." This leads the Intervenors to conclude that an NPDES permit for that discharge likely would be denied. Anticipated environmental impacts supporting this conclusion include:

- The discharge would raise the water level of First Sister Lake by about 6 to 12 inches, adversely affecting a raingarden recently installed by the City if Ann Arbor adjacent to the eastern edge of First Sister Lake and potentially impeding pedestrian access and walkability along the lake perimeter.
- Because groundwater maintains a constant temperature of approximately 55° F year round, we can anticipate that the temperature of the groundwater will be colder than the water of First Sister Lake during the summer and warmer than the lake water during the winter. This could warm the water temperature and prevent freezing in winter, thereby disturbing the habitat for plants and animals that depend on the water temperature dropping in winter and potentially impeding recreational activities such as ice fishing and ice-skating during winter months.
- When compared to the volume of the lake itself, 200 gpm generates enough water to completely displace the entire lake volume every 35 to 40 days, which does not occur now, and could have an adverse impact on fish and other amphibious creatures, as well as the flora in and around First Sister Lake, by changing the temperature or water chemistry of the lake.

The Proposed 4th CJ does not provide for an alternate discharge location to be considered if the NPDES permit for discharge to First Sister Lake is denied. Because application for an NPDES permit for discharge into First Sister Lake appears to be a futile pursuit, the Intervenors propose that a court order mandate piping treated groundwater extracted from the Parklake well to the Gelman Property with subsequent discharge joining the existing flow of treated groundwater from the Gelman Property to the NPDES-permitted discharge point along the unnamed tributary to Honey Creek. The advantage of this approach is that piping from the Parklake parcel to the Gelman Property can be installed almost entirely within road rights-of-way under the jurisdiction of Intervenor City of Ann or Intervenor Scio Township, although Gelman would need to follow relevant requirements of the City or Township for permits to install facilities in those rights-of-way. Several options could be considered within this framework:

- Piping the treated water directly to the NPDES-permitted discharge point along the unnamed tributary to Honey Creek;
- Piping the treated water to discharge into the pipe from the treatment building on the Gelman Property that leads to and discharges treated groundwater into the unnamed tributary to Honey Creek; or
- Piping the treated water to discharge at a different location on the Gelman Property.

If piping the treated groundwater to the Gelman Property is determined not to be a viable option, Gelman should undertake a feasibility study to identify and propose a different option for discharge of the treated water to another location under a new NDPES permit.

Scientific Rationale. Although 200 gpm may not sound like a large amount of water, over the course of a week or a month or a year it adds up to a considerable volume, and if the treated water from the Parklake Extraction Well were discharged into First Sister Lake, the impacts on First Sister Lake and the surrounding areas likely would preclude issuance of an NPDES permit. To avoid a likely unsuccessful application for an NPDES permit, other options need to be considered and the effects of those options need to be fully assessed.

Alternatives to direct discharge into First Sister Lake involve questions of engineering and access. Therefore, flexibility is warranted to enable Gelman and the affected communities to devise an acceptable solution while navigating the NPDES permitting process.

3C. Accelerated source area groundwater extraction

In the Proposed 4th CJ, Gelman would be required to install two new extraction wells and rehabilitate an existing extraction well to capture groundwater in the source areas of the site. These three proposed wells were to collect groundwater at a combined rate of approximately 75 gallons per minute (gpm) and the recovered water directed to existing treatment facilities to remove 1,4-dioxane. After the concentration of 1,4-dioxane in the groundwater extracted from these wells fell below 500 µg/L, Gelman was to cycle[3] the wells until consistent concentrations stayed below the target level and no rebound effect was observed. After an evaluation of the performance achieved by installation of the first three extraction wells, Gelman would install three additional wells if EGLE determined that these wells "would accelerate mass removal to a degree that meaningfully benefits the remediation."

The benefit of mass removal in the source area has been repeatedly demonstrated. Data collected from extraction wells located in and near the source area indicate that significant removal takes place over a two-to-four-year period following installation before diminishing returns in the form of asymptotically lower concentrations follow. The three initial recovery wells in the Proposed 4th CJ are positioned in the northwestern, central, and southwestern portion of the source area, whereas the three contingent additional wells are positioned in the northern, eastern, and southeastern portion of the source area (**Figure 18**).

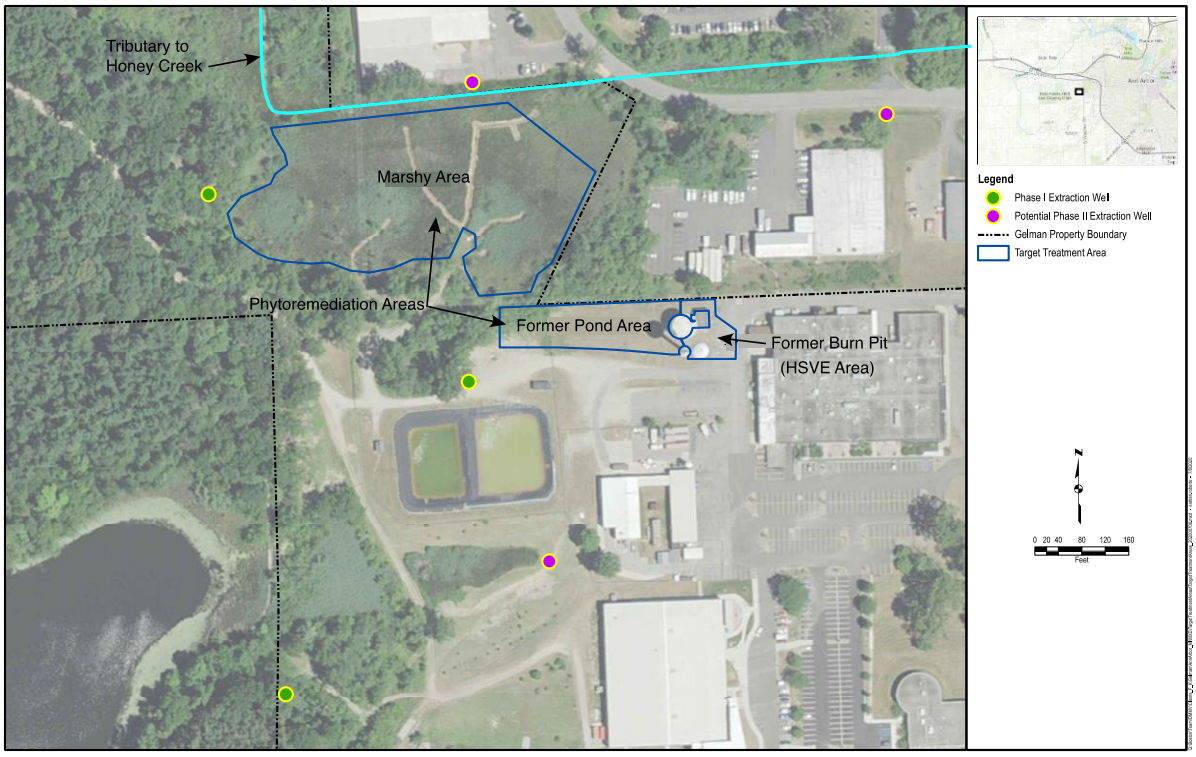


Figure 18. Source treatment areas and proposed extraction wells on the Gelman Property. Adapted from Attachment I of the Proposed 4th CJ.

[3] Cycling involves turning the pumping well off and waiting for a period of time before turning it back on to see if concentrations increase (rebound) in response to additional dioxane release from low permeability zones.

Given the demonstrated complex aquifer heterogeneity at the site, it is likely that the proposed wells will leave a large portion of the source area without effective hydraulic control if they are operated individually or in small subsets. Conversely, operation of six or more wells distributed across the area of concern will decrease the probability of continued groundwater migration toward deeper aquifers, including those that transport water to the Eastern Area, and lateral migration of contaminated groundwater to vent in an uncontrolled manner into nearby surface water, including Third Sister Lake, Honey Creek, and its tributaries. In short, installation of all proposed wells within a narrow time frame, with a contingency to add additional wells as individual well performance is assessed, will accelerate mass removal and enhance compliance with Western Area GSI objectives.

A 500 ppb termination criterion for the source area extraction wells fails to ensure that groundwater concentrations of 1,4-dioxane will not vent to nearby surface waters in excess of the 280 ppb GSI criterion. As explained earlier (see scientific rationale for Section 3A), extraction well concentrations are not likely to be representative of the highest concentrations. Therefore, a termination criterion is not the most effective means of ensuring broader remedial objectives. As an alternative to termination at 500 ppb, the Intervenors propose adopting language similar to that employed in the Proposed 4th CJ for the HVSE system: "Defendant shall operate [extraction well] until effluent 1,4-dioxane concentrations indicate continued extraction will no longer contribute to beneficial reduction in 1,4-dioxane mass." We endorse the concept of cycling wells on and off to demonstrate concentration rebound has not occurred before extraction is terminated.

Scientific Rationale. The intervenors propose that all six proposed wells be installed and operated in the source area as quickly as possible, with a collective extraction rate of 150 gpm or more. In the Marshy Area in particular, aquifer heterogeneity is compounded by the presence of organic rich peat layers that impede groundwater flow in response to pumping (PGSI, 2000). Therefore, the spacing of the original three extraction wells is likely insufficient to affect groundwater flows over the entire targeted region, regardless of their initial performance removing contaminant mass.

There is no compelling reason to wait for data from the initial extraction wells before installing the additional three wells. Recognizing that it is not possible to position each of the proposed extraction wells in the optimal position to capture targeted hot spots, the greatest benefit would be achieved by operating six or more wells from the start of the proposed groundwater extraction to provide the maximum possible mass removal within the shortest time frame.

3D. Phytoremediation performance monitoring

The Proposed 4th CJ requires that Gelman perform phytoremediation for Former Ponds 1 and 2 as well as the Marshy Area of the site (**Figure 18**). The Intervenors have not seen or reviewed the investigation reports and feasibility studies that led to the selection of phytoremediation as a viable method to both reduce 1,4-dioxane mass in groundwater and to lower the groundwater table to reduce infiltration and mobilization of contaminants. Review of the existing Gelman reports pertaining to phytoremediation is essential to understanding and monitoring cleanup objectives.

Proposed phytoremediation in the Former Pond 1 and 2 Areas will consist of poplar and hardwood trees planted primarily to withdraw shallow groundwater and capture precipitation near the ground surface

before it infiltrates beyond the tree root systems. This hydraulic capture will reduce available water moving through contaminated soil, where 1,4-dioxane can partition from the soil to the underlying groundwater with the potential to migrate offsite. Trees will also remove contaminant mass via transpiration and biodegradation.

Likewise, willow trees planted in the Marshy Area will capture contaminated groundwater and infiltration water moving through contaminated soil before it can move vertically and migrate offsite into deeper groundwater and laterally into the nearby tributary to Honey Creek. In the Marshy Area 1,4-dioxane will also be eliminated by both the tree root systems and transpired through leaves.

An important shortcoming of the phytoremediation responses included in the Proposed 4th CJ is the absence of specified performance criteria. Without clearly defined performance metrics, it will not be possible to determine if phytoremediation is achieving its intended benefits. The Intervenors therefore propose adopting the following requirements to ensure the effectiveness of the phytoremediation systems within the larger context of all site cleanup measures and controls can be demonstrated:

> Within 180 days of entry of a new court order, Gelman shall submit to EGLE for its review and approval a plan to verify the effectiveness of the phytoremediation installations. The plan should include: (i) estimated rates of biodegradation and transpiration for 1,4-dioxane in both the Former Pond and Marshy Areas; (ii) measurement of 1,4-dioxane concentrations in groundwater beneath the Former Pond and Marshy Areas; (iii) groundwater logging throughout the tree plots to verify expected dewatering; (iv) verification of the extent to which trees planted in caissons have root systems that penetrate lower aquifers containing high concentrations of 1,4-dioxane; (v) a modeled estimate of the impact of the tree plots on the availability and migration of 1,4 dioxane from the phytoremediation areas; (vi) an evaluation of the 1,4-dioxane content of the trees for categorization purposes once disposal becomes necessary, (vii) monitoring points along the Honey Creek Tributary to determine compliance with the GSI criterion, and (vii) any additional monitoring criteria Gelman deems appropriate.

Scientific Rationale. Trees planted as part of the phytoremediation will likely not significantly affect site hydrogeology and contaminant concentrations until maturity, 2 to 3 years or more after planting. After root systems have been well-established, groundwater removal and 1,4-dioxane removal via biological processes should continue at optimal rates for many years. Because the tree plots are connected both to deep groundwater and adjacent surface water in the nearby tributary to Honey Creek, monitoring beneath and adjacent to the tree plantings is necessary to evaluate their effectiveness. Shallow groundwater monitoring points along the tributary to Honey Creek will ultimately serve as GSI compliance points, which will verify that the Western Area GSI Groundwater-Surface Water Interface Objective is attained.

The primary line of evidence demonstrating overall effectiveness of the phytoremediation systems is reduced 1,4-dioxane concentrations in groundwater beneath and downgradient from the tree plots. Additional lines of evidence are required to evaluate the rate at which 1,4-dioxane is taken up into trees and degraded or transpired. Monitoring should include the direct observation of changes in the groundwater table due to the presence of trees in the phytoremediation area along with the rate of transpiration as a function of tree sap transport (ITRC, 2009). This information should be combined with

data from monitoring wells situated within the tree plots to show that phytoremediation is making a meaningful impact on overall 1,4-dioxane concentrations in source area and Marshy Area groundwater. Within the Marshy Area, use of tree tissue or leaf analysis to determine the location of highest dioxane concentrations in the northernmost trees will also help to identify appropriate locations for groundwater monitoring points adjacent to the tributary to Honey Creek. These points can then be used to verify that 1,4-dioxane concentration limits are not being exceeded at the groundwater-surface water interface.

3E. HSVE system optimization

Heated soil vapor extraction (HSVE) is a viable method for reducing the mass of 1,4-dioxane in unsaturated source area soil. The process includes blowing heated air into subsurface soil via injection wells to volatilize 1,4-dioxane into a vapor that can be collected using vacuum extraction wells. A map view of HSVE configurations and an associated representative cross-section are provided in **Figures 19 and 20**, respectively.

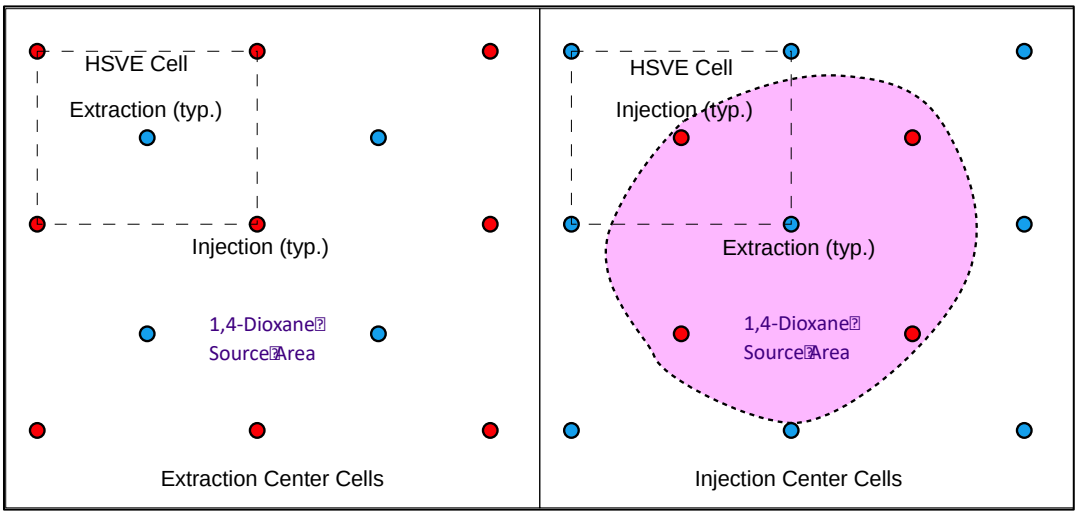


Figure 19. Map view of typical HSVE extraction (blue) and injection (red) well configurations. Adapted from DOD (2017).

The Proposed 4th CJ requires Gelman to install, operate, and maintain an HSVE system in the former Burn Pit area of the Gelman Property (**Figure 18**). At the completion of HSVE operation, the treated areas will be covered by an impervious cap to limit the infiltration of moisture into deeper soil, thereby limiting the availability of residual 1,4-dioxane, if any, to move into groundwater or surface water.

Depending on the starting soil concentration, site conditions, and desired endpoint, hundreds to thousands of pore-volume exchanges may be required through each given horizontal and vertical cross-section of the HSVE treatment area to uniformly achieve soil cleanup goals. The mass transfer process is influenced by several properties of the contaminant and subsurface conditions, as well as the magnitude of the applied vacuum. Gelman has conducted investigative and pilot studies in the Former Burn Pit Area to evaluate the feasibility of HSVE for the site. The Intervenors have not been given the opportunity to review the reports generated by Gelman and its contractors related to soil vapor remediation.

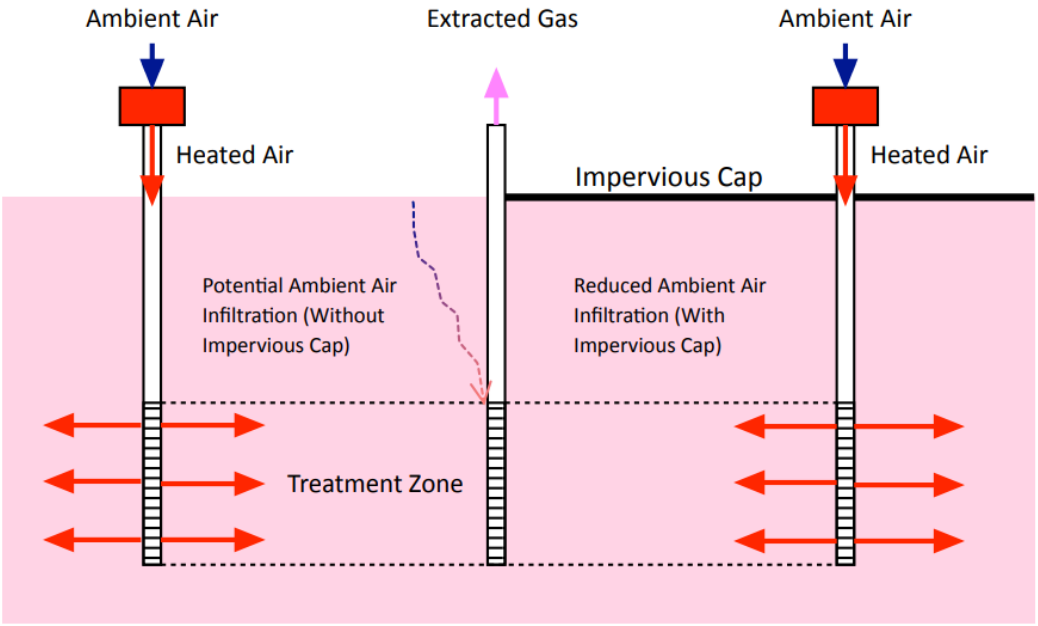


Figure 20. Simplified conceptualization of the HSVE treatment process in cross-section using extraction center configuration, with and without an impervious cap. Adapted from DOD (2017).

Nevertheless, based on the information presented to date, we believe that adequate air throughput/pore volume exchanges have been used as design criteria for determining extraction and injection well air flow rates and spacings. Based on USEPA review of sites where HSVE has been used as a remedy, many vacuum system designs underestimate the likelihood that ambient air will preferentially be drawn into a subsurface vacuum extraction well. Short-circuiting ambient air drawn vertically into an extraction well results in a lower percentage of the total extraction well airflow rate originating at target depths, which means that fewer air pore volume exchanges occur with increasing distance through cross-sections (USEPA, 2018). Because we have not seen design data, and Gelman has already committed to installing a cap over the HSVE treatment area, the Intervenors propose that the impervious cap be installed prior to operation of the HSVE system. This will limit infiltration of water and ambient air, and potentially help to retain heat in subsurface soil, resulting in more effective treatment. Design of the cap also may need to be modified to ensure that permeable materials placed under the finished cap will not contribute to short-circuiting of air from the surface, thus diminishing the horizontal recovery of soil vapors in the Burn Pit Area.

Because virtually all HSVE systems will eventually exhibit a diminished rate of contaminant extraction over time, we expect asymptotic conditions, where 1,4-dioxane mass removal rates decline to a minimum value, within several years. The current Proposed 4th CJ calls for operating the HSVE system until levels of 1,4-dioxane in the exhaust discharge air have been reduced to levels such that continued operation of the system will no longer contribute to meaningful mass reduction. At that point, Gelman is to submit to EGLE a request to significantly reduce or terminate operation of the system. The Intervenors also propose that the SVE system operation should be cycled after an asymptotic removal rate has been achieved to ensure that a diminished extraction rate of 1,4-dioxane is not a temporary phenomenon. This cycling will ensure that maximum mass removal of the HSVE is achieved.

Scientific Rationale. The HSVE system will operate more effectively if the proposed remedy incorporates two modifications: 1) the addition of the impervious cap prior to vapor extraction; and 2) the cycling of the HSVE system after levels of 1,4-dioxane in the exhaust air become asymptotic. Prior implementation of the cap specified within the Proposed 4th CJ will ensure that surface air is not drawn from the immediate vicinity of each extraction well. This will make the system more effective at depth in the soil column, limit water infiltration, and enhance contaminant removal. The cycling modification, like that proposed for groundwater extraction, will ensure that the vacuum system operation is not terminated prematurely.

4. Other response activities

The remaining Intervenor concerns involve matters of monitoring and response. Because the Proposed 4th CJ includes a number of mechanisms to ensure early detection of potential violations of its objectives, it is essential that these mechanisms are complete and as rigorous as is reasonably possible to ensure public and environmental health and safety. To that end, the Intervenors propose the following revisions to address their concerns:

4A. Annual surface water testing
4B. Lower Western Area Compliance Well triggers
4C. Consistent application of response activity threshold frequencies
4D. More stringent residential well sampling/response requirements
4E. Lower analytical method detection limits for residential water well samples near the plume
4F. Data reporting and access

4A. Annual surface water testing

The documented presence of 1,4-dioxane in Allen Creek, Third Sister Lake, and at multiple locations along the unnamed tributary to Honey Creek clearly indicates a need for routine and regular surface water sampling. The purpose of this type of sampling is to detect changes in concentrations that could indicate the venting of groundwater containing 1,4-dioxane at new locations or rising concentrations so that appropriate responses are taken in a timely manner.

To this end, the Intervenors propose requiring sampling of surface water bodies and drainage systems following protocols developed by EGLE as implemented in 2019 and 2020 sampling (EGLE 2019). Sampling should be conducted annually under low flow conditions during the months of August, September, or October. Sampling should include Allen Creek, the Allen Creek Drain, and each of its tributaries including the Main, North, South, and Murray Washington branches as well as the outflow into the Huron River below Argo Dam. Sampling should also include surface water bodies including First Sister Lake, Second Sister Lake, Third Sister Lake, West Park Pond, Arbor Landing Pond, Smith Ponds, and Little Lake, and Honey Creek and its tributaries. The following response actions should also be incorporated into a court order providing a comprehensive set of requirements that are necessary to address the Gelman dioxane:

With the exception of Third Sister Lake and the South Branch of the Allen Creek Drain downgradient of Maryfield-Wildwood Park, if sampling of any of these surface water bodies or drainage systems detects the presence of 1,4-dioxane at a concentration greater than 7 ug/L, then, within 60 days of receiving such a sampling result, Defendant shall investigate and submit a report to EGLE containing at least the following information: (1) a determination of where and how 1,4-dioxane is likely entering the affected water body, (2) an assessment of the risk that the GSI Cleanup Criterion will be exceeded in the affected water body, (3) proposed Response Activities for preventing 1,4-dioxane from entering the affected water body in a concentration greater than the GSI Cleanup Criterion, and (4) an assessment of the risk that 1,4-dioxane from the affected water body could migrate to groundwater. After receipt and review of Defendant's report, EGLE may require Defendant to undertake additional Response Activities to address the sampling result, including, but not limited to, the installation of additional monitoring wells.

Scientific Rationale. The technical basis for supporting annual surface water testing rests upon common sense and proactive surveillance to ensure GSI compliance. Unless and until there are monitoring wells located along all of the potential groundwater-surface water discharge points, surface water monitoring is a sensible way to detect discharge of contaminated groundwater and trigger additional subsequent actions required to address whether that discharge represents an exceedance of the GSI criterion.

4B. Lower Western Area Compliance Well triggers

The Proposed 4th CJ relies upon a Compliance Well Network and Compliance Monitoring Well Plan to ensure that the Western Area Non-Expansion Cleanup Objective is met. After conducting the Western Area Delineation Investigation (i.e., installation of monitoring wells at locations I, J, K, L, M, and N), Gelman and EGLE will determine wells to be included in the Compliance Well Network. Thereafter, groundwater in these wells will be sampled quarterly and concentrations will be used to test for exceedances based on a Verification Process outlined in the Proposed 4th CJ. The Intervenors believe that the specified 7.2 ug/L (ppb) concentration triggering response actions is too lenient. Consequently, we propose using a concentration of 3.5 ppb, which is approximately ½ the drinking water standard.

Scientific Rationale. It doesn't take an increase of compliance well concentrations all the way up to 7.2 ppb to provide evidence of contamination migration in the Western Area. Rising concentrations of any degree in a compliance well are an indication that the 7.2 ppb concentration line defining the horizontal extent of contamination is moving outward toward the compliance well. This concept is illustrated in **Figure 21**. For this reason, the Verification Process (and subsequent response activities) need to be applied at a lower threshold to provide earlier warning of contaminant migration and protect public health and private drinking water wells.

3.5 ppb represents the USEPA Drinking Water Concentration for a cancer risk level of 1 in 100,000. 3.5 ppb is sufficiently higher than the 1 ppb detection limit for the USEPA analytical Method 1624 (specified in Attachment B of the Proposed 4th CJ) to avoid concerns over statistical variability. Therefore, 3.5 ppb is a reasonable and workable threshold to trigger response actions investigating potential noncompliance with the Western Area Non-Expansion Cleanup Objective.

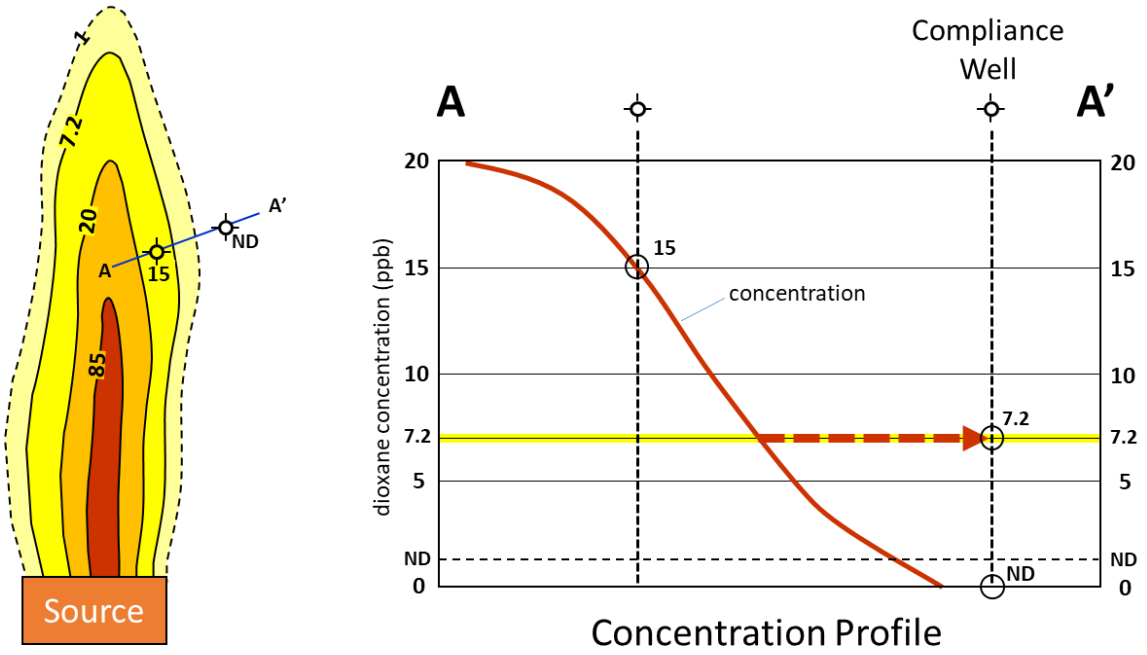


Figure 21. Concentration profile through two wells near the perimeter of a dioxane plume (shown in map view). It is not possible for concentrations in the Compliance Well to rise from non-detect to 7.2 ppb (or a lower concentration) without the position of the 7.2 ppb concentration line shifting toward the Compliance Well. This would constitute *de facto* expansion of the horizontal extent of groundwater contamination.

4C. Consistent application of response activity threshold frequencies

The Proposed 4th CJ uses a combination of Sentinel Wells and Boundary Wells to monitor movement of dioxane toward and near the boundary of the Prohibition Zone and to ensure that the Eastern Area Prohibition Zone Containment Objective is met. Response activities are triggered for verified exceedances of 7.2 ppb in Sentinel Wells and 4.6 ppb in Boundary Wells. In addition to monthly sampling after any individual exceedance, the Proposed 4th CJ requires specific actions after three successive monthly samples exceed these trigger values. Curiously, the Proposed 4th CJ requires only two consecutive months below the trigger levels to return to quarterly sampling.

A verified detection above 7.2 ppb in a Boundary Well confirms non-compliance with the Prohibition Zone Containment Objective and triggers monthly sampling of the affected well. Curiously, four successive monthly sampling events are required to initiate remedial responses thereafter. One of the required responses is the provision of bottled water to potentially impacted residences relying on private water wells if concentrations exceed 3.0 ppb. This provision terminates after two consecutive sampling events below 3.0 ppb.

A similar provision allows Gelman to discontinue bottled water supply after only two consecutive sampling events below 3.0 ppb in active private drinking water wells in the Western Area.

The Intervenors propose to simplify and rectify inconsistencies embedded within the Proposed 4th CJ by requiring three consecutive monthly concentrations above or below the relevant threshold to trigger the initiation or cessation of the applicable response activities.

Scientific Rationale. Requiring response actions following three consecutive monthly exceedances is justifiable based on statistical variability of concentration measurements. This provision essentially protects Gelman against actions triggered by one or two spuriously high dioxane measurements. An asymmetry in requirements to return to quarterly sampling (two months instead of three) is inconsistent, however, because spuriously low dioxane measurements may be just as common as high measurements (for example, see the concentration history of MW-112i, which sits at the boundary of the 85 ppb Prohibition Zone, shown in **Figure 4**). Similarly, cessation of bottled water should not be predicated on only two monthly samples. Clearly a three-in-a-row requirement to both initiate and terminate remedial activities would be more consistent and more protective of the health of residents depending on bottled water should an exceedance occur.

4D. More stringent residential well sampling/response requirements

The supply of safe, potable water is fundamental to individual, public, and community health. Detection of 1,4-dioxane in wells that currently provide drinking water to residents of Washtenaw County (**Figure 22**) has understandably heightened public concerns over the protection of drinking water wells.

Early detection is essential to protecting public health and arranging for alternate water supplies in the event contaminant levels rise above drinking water standards. To that purpose, Washtenaw County is contracted by EGLE to collect 1,4-dioxane samples from drinking water wells within 1,000 feet of the known limits of the plume. Samples are collected twice-per-year, once-per-year, or every-other year. Since 2014 this effort has sampled more than 130 drinking water wells. EGLE pays for the laboratory analyses and reimburses the County a small amount per sample collected. The County notifies homeowners and residents of sampling, coordinates the sampling with the lab and their staff, sends result letters, and discusses results with residents.

Currently, Gelman only monitors 4 drinking water wells at 697, 723, 745 and 777 S. Wagner Road. Comments at public hearings on the Proposed 4th CJ have clearly expressed the sentiment that Gelman should be taking greater responsibility for drinking well monitoring efforts associated with 1,4-dioxane in Washtenaw County. Western Area Response Activities in the Proposed 4th CJ include a Municipal Water Connection Contingency Plan (MWCCP) addressing the potential provision of township water to properties using private drinking water wells on Elizabeth Road. The Intervenors request that a similar requirement be included for Breezewood Ct., where 1,4-dioxane was detected in a residential well (at a concentration less than 7.2 ppb) in 2019.

Private Drinking Water Well Response Activities in the Western Area require Gelman to provide property owners the option of receiving bottled water if, at any time, 1,4-dioxane is detected above 3.0 ppb in an active private drinking water well. This obligation terminates, however, if the 1,4-dioxane concentration in the well drops below 3.0 ppb in two consecutive sampling events. The Intervenors request that this obligation be amended to terminate after three consecutive sampling events below 3.0 ppb.

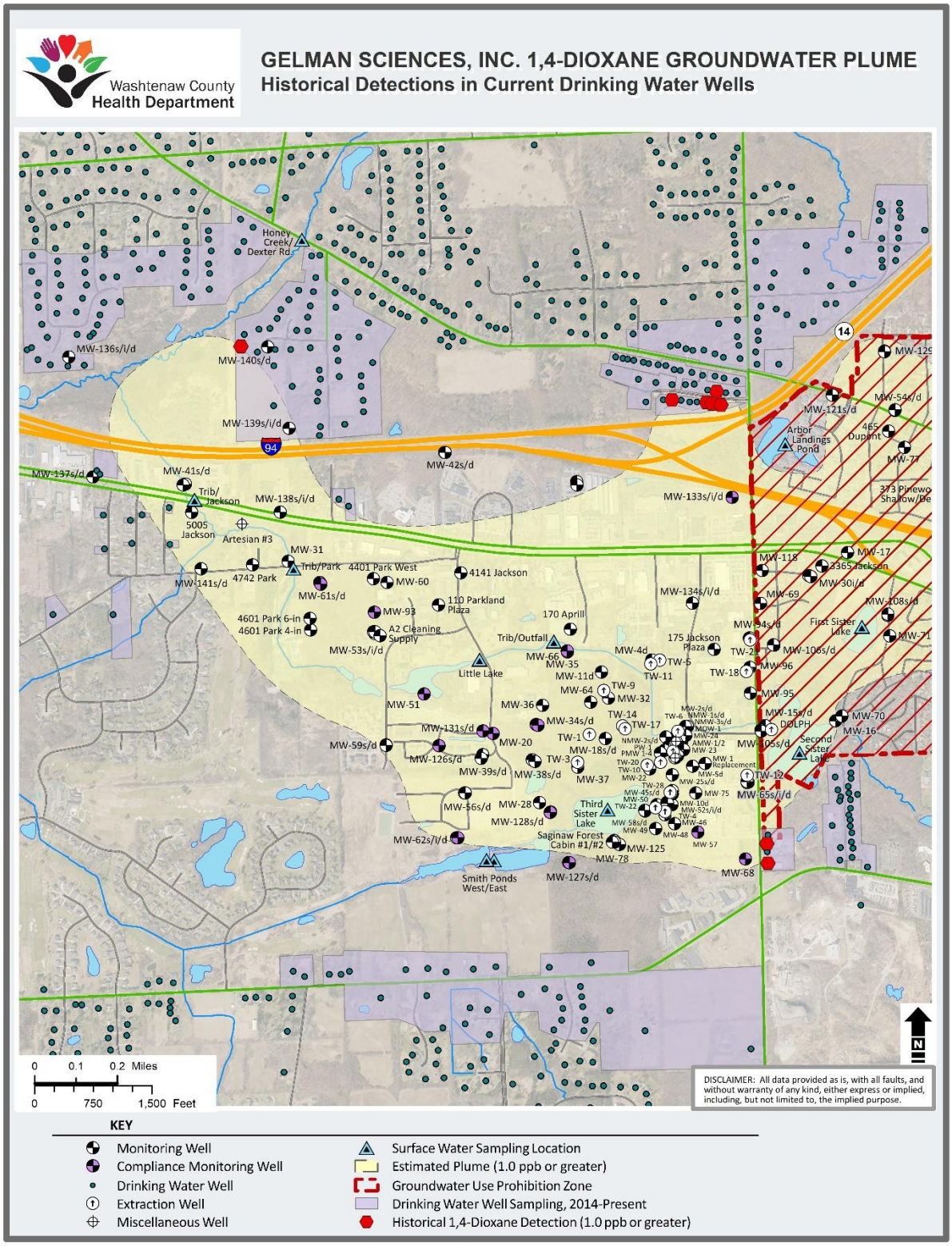


Figure 22. Location of residential and commercial water wells with 1,4-dioxane detections.

Scientific Rationale. The same rationale for proactively developing a MWCCP plan for Elizabeth Road residences should apply to residences on Breezewood Ct., where 1,4-dioxane has also been detected. Such contingency plans are necessitated by the long lead times required to design, construct, and activate municipal water supply systems in outlying areas.

Requiring or terminating response actions following three consecutive measurements is justifiable based on statistical variability of concentration measurements. A three-in-a-row requirement to terminate bottled water supplies to private residences would also be consistent with the Intervenors' proposed application of response activity threshold frequencies in Section 4C.

4E. Lower analytical method detection limits for residential water well samples near the plume

The USEPA has determined that 1,4-dioxane is a probable human carcinogen. Although the EPA has not established a federal drinking water standard for 1,4-dioxane, the State of New York adopted a 1 ppb maximum contaminant level (MCL) for 1,4-dioxane in 2020, and drinking water standards in other states range from 0.3 ppb in Vermont to 7.2 ppb in Michigan (Mohr and DiGuiseppi 2020). As a result, residents of households with private water supplies located close to the Gelman plumes are anxious to know if dioxane is present in their drinking water, even at levels below the State of Michigan drinking water standard.

To that end, the intervenors request that Gelman assume responsibility for collecting residential drinking water well samples within 1,000 feet of the known limits of the 1,4-dioxane as defined by the 1 ppb concentration line (Section 1A). These samples should be collected twice yearly and analyzed in accordance with USEPA Method 522, which was developed by USEPA specifically for the analysis of 1,4-dioxane in drinking water. This method must be used for the analysis of public drinking water supplies, so the application of this method to any other drinking water sources is both consistent and appropriate.

Scientific Rationale. USEPA Method 522 can achieve minimum reporting limits of less than 0.15 ppb. Gelman has a responsibility to identify the impact of its 1,4-dioxane plume on drinking water wells in the Western Area. Use of USEPA Method 522 for the analysis of drinking water from wells in close proximity to the plume is consistent with the requirements imposed on operators of public drinking water supplies and will provide residents and County health officials with information needed to evaluate exposure risks at levels consistent with the current USEPA Regional Screening Level (RSL) of 0.46 ppb for potentially potable groundwater for residential use ("tapwater").

4F. Data reporting and access

The long history and widespread extent of the Gelman plumes have led to the generation of enormous amounts of data including well locations and elevations, boring logs and engineering descriptions, static water level and 1,4-dioxane concentration measurements in monitoring wells, extraction well pumping rates, 1,4-dioxane mass removal rates, and NPDES discharge rates and concentrations, to name a few. Countless reports, maps, cross sections, and other tables and figures have also been produced.

Initially, hard copies of publicly available data were placed in repositories located in public libraries. Eventually, MDEQ (now EGLE) began collating and electronically posting data received from Gelman on

State of Michigan hosted websites. At the same time, public watchdog groups such as Scio Residents for Safe Water (SRSW) have maintained their own digital records and websites. Discrepancies in data sets maintained by Gelman, EGLE, SRSW, and academic researchers have raised questions about the completeness and accuracy of historic records and prompted public frustration because data are not provided by Gelman in common electronically readable formats, and delays arise between the provision of data to EGLE and its subsequent dissemination to the public.

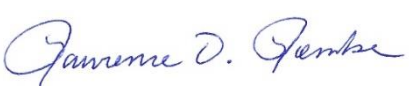
To rectify this situation, the Intervenors propose that the court order addressing Gelman dioxane response actions require Gelman to establish a cloud-based database designed specifically for the storage and validation of data and information associated with all monitoring wells, extraction wells, and NPDES treatment and discharge activity. This database should be identical to the database maintained by Gelman, without modification, and should include all historical as well as future information. The information should be available for read-only electronic download in one or more native Excel files (or in a successor program to Excel, provided that when the data are migrated to a new program, no data are lost). Gelman should be required to investigate and remedy any data gaps or discrepancies identified by the Intervenors and members of the public. If information needed to fill data gaps is not available, Gelman will explain why the information is not available.

In addition, the Intervenors request that the court direct Gelman to provide copies of technical analyses and environmental or engineering studies or reports pertaining to the selection and design of remedial activities proposed for the Gelman Site (phytoremediation and HSVE). These documents should be posted on EGLE's Gelman Sciences Selected Documents public website.

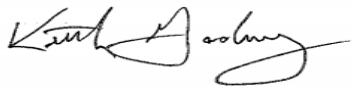
Scientific Rationale. Accurate and timely access to site data are needed by all stakeholders including Gelman, EGLE, and the general public. A single database containing all relevant analytical information associated with monitoring, extraction, and permitted discharges will ensure that all parties are viewing and making decisions based on the same information. It will also reduce delays and errors from double data entry. Moreover, a common database will enhance accessibility for all parties while providing transparency to build public confidence in the availability and reliability of the data.

The Proposed 4th CJ requires Gelman to provide "as-built" installation reports describing the components and operational specifications of each of the source control systems (i.e., phytoremediation and HSVE) installed on the Gelman Property. However, reports documenting prior on-site environmental investigations and pilot engineering studies are also essential for understanding the basis for the selection of the proposed remedies, as well as for formulating expectations about their anticipated performance. Thus, these documents should also be in the public domain.

Technical Justification Document Prepared by:



Lawrence D. Lemke, Ph. D.
Principal
Lawrence D Lemke, LLC



Keith A. Gadway, P. E.
Principal & Technical Director,
Quantum Environmental, Inc.

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Appendix 1. Expert Qualifications

The primary expert offering the scientific evaluations, interpretations and expert opinions on each subject area is identified in the "Summary Table of Intervenor Concerns and Solutions", incorporated in the Introduction to the Intervenors' Brief. The interpretations and opinions expressed in the scientific/technical expert report were formulated, supported by, and are stated with a reasonable degree of scientific certainty, based on available evidence. These interpretations and opinions are based upon the experience and professional expertise of the technical consultants to the Intervenors, which are summarized below. The interpretations and opinions are based on information available at the time of the report's preparation and may be amended in response to future data and information collected as part of ongoing monitoring and remediation operations at the Gelman Site and its surrounding environs in Washtenaw County, Michigan.

Keith Gadway

Keith Gadway is an environmental engineer with 40 years of experience in consulting for industry, commercial interests, and government. He holds B.S degrees in Environmental Science Engineering and Atmospheric and Oceanic Science from the University of Michigan. Mr. Gadway spent eight years working as an engineer for two private consulting firms and the U. S. EPA prior to founding Quantum Environmental, Inc. in 1988. At Quantum, the firm's focus has been investigation and remediation of contamination issues in air, soil, surface water, and groundwater. Mr. Gadway has managed a diverse group of environmental professionals, including engineers, geologists, chemists, and environmental scientists. Quantum staff have completed projects in 21 states, Mexico, Canada, Germany, and England. Now with more than 1,500 projects successfully completed, Quantum has extensive experience in evaluating and remediating contamination using the latest technologies, and typically designs, builds, and operates treatment systems to achieve results meeting or exceeding regulatory goals. Mr. Gadway has served as an expert witness on numerous cases involving groundwater, surface water, and air contaminated with chlorinated solvents, petroleum compounds, and metals. Mr. Gadway is currently Principal and Technical Director of Quantum Environmental, Inc. and RK2, Inc, the latter a developer of environmental assessment tools such as real-time water level data loggers.

Lawrence D. Lemke

Larry Lemke is a geologist and environmental scientist with extensive industry, academic, and environmental consulting experience. He holds a B.S. in Geology from Michigan State University, an M.S. in Geosciences from the University of Arizona, an M.B.A. from the University of Denver, and a Ph.D. in Environmental Engineering from the University of Michigan. Prior to leaving industry to earn his doctorate degree, Dr. Lemke spent 12 years working for Exxon and its subsidiaries exploring for oil and gas in the Rocky Mountains, Gulf of Mexico, North Sea, and the Peoples' Republic of China. His academic research interests focus on the fate and transport of contaminants in groundwater, air, and soil, with particular emphasis on human health and exposure risks in urban environments. His research on the behavior of 1,4-dioxane in glacial aquifer systems beneath Washtenaw County, Michigan, was funded by the National Science Foundation and, together with the efforts of six graduate students working under his direction, has led to the completion of five Master's theses and four peer-reviewed

publications in respected scientific journals. In 2005, Dr. Lemke founded his own consulting company, Lawrence D Lemke, LLC and began applying his scientific and subsurface hydrogeological skills to questions of groundwater contamination. He has acted as an expert witness on groundwater contamination lawsuits involving chlorinated solvents, gasoline (BTEX) compounds, and per- and polyfluorinated alkyl substances (PFAS). Dr. Lemke currently serves as Professor and Chair of the Department of Earth and Atmospheric Sciences at Central Michigan University.

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF WASHTENAW

JENNIFER GRANHOLM, Attorney General for the State of Michigan, ex rel, MICHIGAN NATURAL RESOURCES COMMISSION, MICHIGAN WATER RESOURCES COMMISSION, and MICHIGAN DEPARTMENT OF NATURAL RESOURCES,

Plaintiff,

vs

GELMAN SCIENCES, INC.,

Defendant.

Case No. 88-34734-CE

Honorable Donald E. Shelton

OPINION AND REMEDIATION ENFORCEMENT ORDER

At a Session of the Court held in the Washtenaw County Courthouse in the City of Ann Arbor, on July 17, 2000

PRESENT: HONORABLE DONALD E. SHELTON, Circuit Judge

This case was originally filed in 1988 by the State to require Gelman Sciences, Inc. to clean up pollution of local water supplies caused by the discharge of dioxane from its manufacturing facility. A consent judgment identifying the required remediation actions was agreed to by the parties and entered on October 22, 1992. In the 12 years this case has been pending, many things have changed, including the identity if the participants. The successor to the plaintiff agency is now called the Michigan Department of Environmental Quality ("MDEQ"). The defendant corporation has been acquired by another company and is now known as Pall/Gelman Sciences, Inc. ("PGSI).

The original judge retired and the case was reassigned and has subsequently been reassign to this Court as companion to other litigation involving this issue. The original consent judgment was amended by the parties and the Court on September 23, 1996 and again on October 20, 1999.

On February 14, 2000 plaintiff filed a motion to enforce the consent judgment. The MDEQ claims that PGSI has not complied with the terms of the consent judgment as amended and seeks equitable relief in the form of an order requiring PGSI to perform specific "environmental response activities" to achieve the cleanup requirements of the consent judgment. The MDEQ also seeks to an order requiring the payment of certain "stipulated penalties" provided in the consent judgment. PGSI asserts that it has actively sought to remediate the pollution and that no penalties are due under the terms of the judgment. The issues were defined in a Joint Prehearing Statement filed by the parties on June 21, 2000. An evidentiary hearing was conducted on July 6, 7 and 10, 2000. The parties were also given the opportunity to respond to the Court's proposed Order. The Court's findings and conclusions, in part, are set forth below in this Opinion and Order.

The monitoring and purging of dioxane from the aquifers flowing under and around the Gelman facility is an ongoing process. The defendant, particularly since the change in ownership, has acted in good faith to meet its obligations to identify and clean up the polluted water supplies. It is also clear, however, that the purging of dioxane has not occurred fast enough to provide the public, or the Court, with assurance that the plume of dioxane was contained as early as it should have been or that there is an ongoing approved plan that will lead to the removal of unlawful levels of this pollutant from the area's water supplies. In part this appears to be because Gelman, especially

early on, did not know how to detect or remove the pollutant or act quickly enough to find out and do so. In part, however, this also appears to be because the MDEQ itself did not know how to monitor or purge the pollutant or it just acted far too slowly in its "reactive only" mode to Gelman's proposed work plans. It also appears that some of the delay has been the result of the inability to obtain land and other access to install the necessary monitoring, purging and treating equipment.

Assigning responsibility for these delays however is not this Court's priority. The fact is that the consent judgment of the Court, as subsequently amended, was intended to bring about a cleanup of this pollution and it has not yet done so. It is far less important to fix blame for that failure than it is to enforce its terms to bring about the cleanup. Based upon the evidence submitted, this Court is going to grant equitable relief in the sense that the Court will use its equitable powers to enforce the consent judgment to insure that dioxane levels in these water supplies is brought within acceptable standards as soon as possible. Both sides in this dispute appear to need the intervention of the Court to keep them moving toward this goal.

The Court's remediation order is designed first to require PGSI to submit an enforceable long range plan which will reduce all dioxane in these water supplies below legally acceptable levels and second to order immediate measures to move that process along faster than it has moved in the past. As to the request for monetary penalties, there has been considerable testimony about whether PGSI is liable for stipulated penalties under the amended consent judgment. The Court will take these requests for penalties under advisement. However, the parties are advised that the Court intends to enforce the consent judgment and the equitable

remediation measures in this order by virtue of its contempt powers and all of the sanctions available thereunder.

Remediation Enforcement Order

1. PGSI shall submit a detailed plan, with monthly benchmarks, which will reduce the dioxane in all affected water supplies below legally acceptable levels within a maximum period of five years from the date of this Order. The plan will also provide for subsequent monitoring of those water supplies for an additional ten year period thereafter. This plan will be submitted to the MDEQ for review within 45 days of this Order. MDEQ will respond within 75 days of this Order and the parties will confer and discuss the issues raised by the MDEQ review, if any. The plan will then be submitted to this Court within 90 days of this Order, for review and adoption as an Order of the Court.
2. As to the area in which monitoring well "10d" is located, the additional monitoring wells requested by the MDEQ will be installed within 60 days of this Order. An additional two purging wells in the monitoring well 10d area will be also be installed and operational within 60 days of this Order.
3. PGSI will install an additional ultraviolet treatment unit which shall be operational within 75 days of this Order. The capacity of the unit shall be consistent with the Court's maximum total remediation period of 5 years described in paragraph 1 of this Order.

4. Purging from the horizontal well in the Evergreen area shall commence within 30 days after the additional ultraviolet treatment unit is installed.

5. The combined pumping rate of the LB1, LB2 and AE1 purging wells will be increased to 200 gpm within 30 days after the additional ultraviolet treatment unit is installed.

6. Monitoring wells in the Dupont section of the Evergreen area will be installed as requested by the MDEQ. These wells will be operational within 45 days after access is obtained. PGSI shall secure access for those wells within 30 days of this Order or, if necessary, commence legal action to do so within that time.

7. In the Western area, PGSI shall install monitoring wells as requested by MDEQ. These wells will be operational within 45 days after access is obtained. PGSI shall secure access for those wells within 30 days of this Order or, if necessary, commence legal action to do so within that time. In the event that monitoring of those wells for five months thereafter shows an increasing concentration of dioxane above legally acceptable levels, then a purging well will be installed and be operational within 60 days after that five month period. The Court reserves judgment as to any other remedial measures in this area in the event that there is no evidence of such increasing levels.

IT IS SO ORDERED.

Donald E. Shelton
Circuit Judge

Executive Summary
Gelman Sciences, Inc. Unit E Aquifer
Groundwater Contamination
Decision Document

Site Name and Location:

Gelman Sciences, Inc.
Scio Township
Washtenaw County
Site ID #: 81000018

Purpose:

This document is prepared in accordance with Section 20120d of Part 201 (Environmental Remediation) of the Natural Resources and Environmental Protection Act (NREPA) to provide a summary of the decision regarding cleanup of the Unit E aquifer groundwater contamination plume (Unit E Plume) plume, along with the reasons for the Department of Environmental Quality (DEQ) selecting a remedial action for the Unit E Plume at the Gelman Sciences, Incorporated site of environmental contamination (Gelman site.) This document is also prepared in response to the status conference in Washtenaw County Circuit Court on February 25, 2004, wherein the court ordered Pall Life Sciences, Inc. (PLS) to submit their comprehensive feasibility study (FS) by June 1, 2004, and the DEQ to respond to the FS by September 1, 2004. This document supplements previous remedial decisions for other contaminated groundwater units that are embodied in the October 1992 Consent Judgment (File No. 88-34734-CE), and subsequent Remediation and Enforcement Order dated July 17, 2000.

Basis:

The decision outlined in this document is based upon the Administrative Record developed by the DEQ.

Summary:

The Gelman site is comprised of the PLS plant property located on Wagner Road just south of Jackson Road in Scio Township, and extends eastward and north-eastward into the City of Ann Arbor, and westward and north-westward in Scio Township. From 1966, to 1986, PLS used 1,4-dioxane in the manufacture of medical filters. Various methods of disposal and waste handling during this period resulted in widespread groundwater contamination. Three major aquifers were identified and designated as the Unit C_3 (includes the Core Area), Unit D_0 (includes the Western System), and Unit D_2 (includes the Evergreen System) aquifers. PLS began groundwater remediation efforts to address these aquifers in 1997. In May of 2001 the deeper, Unit E Aquifer, was also discovered to be contaminated. Since the contamination in the Unit E aquifer was discovered, 30 monitoring wells have been installed to determine the nature and extent of contamination. In May 2003, PLS and DEQ agreed that PLS should develop a FS to systematically evaluate remedial alternatives for the Unit E Plume.

The June 2004, FS examined remedial alternatives for addressing the entire Unit E Plume, and proposed PLS's remedial alternative. The DEQ reviewed PLS's FS and

preliminarily concluded that PLS's proposed alternative could not be approved as presented. On July 7, 2004, the DEQ preliminarily identified a remedial alternative consistent with Part 201, and solicited public comment.

Upon considering public comments received during the public comment period, the DEQ makes the following decision regarding the Unit E plume:

In order to address the elements required for remedial actions under Part 201, the DEQ has determined that extracting and treating contaminated groundwater in the vicinity of Wagner Road and Maple Road, coupled with capture of the "leading edge" of contamination is necessary to comply with Part 201, and the Consent Judgment. The performance objectives for the groundwater extraction in the vicinity of Maple Road, the vicinity of Wagner Road, and for the leading edge are that, once initiated, a hydraulic barrier should be created to halt the further migration of concentrations of 1,4-dioxane above 85 ppb in the downgradient or easterly direction.

The DEQ believes there may an opportunity for PLS to satisfy the conditions set forth on pages 15 and 16 of the attached detailed Decision Document, and that, if those conditions can be satisfied, capturing the leading edge of the plume would not be necessary to satisfy Part 201 criteria. PLS has indicated to the DEQ that it may be able to satisfy those conditions within one year. Thus the DEQ has outlined in this Decision Document parallel pathways PLS can take to explore their ability to satisfy the necessary conditions that would allow the leading edge of the Unit E Plume to lawfully migrate untreated, while concurrently moving forward with the necessary steps to expeditiously perform interim response actions and enable timely treatment at the leading edge, if that is necessary.

Statutory Determinations:

This DEQ Decision is protective of public health, safety, and welfare, and the environment. The Decision provides for removal of hazardous substances from the Unit E Plume until Generic Residential Cleanup Criteria protective for drinking water are met. Alternatively, this Decision provides for complying with other provisions of Part 201 and the Consent Judgment.

_____ _____

Andrew W. Hogarth, Chief Date
Remediation and Redevelopment Division

Attachment

Decision Document
Gelman Sciences, Inc. Unit E Aquifer
Washtenaw County, Scio Township
Groundwater Contamination
September 1, 2004

Introduction

This document is prepared in accordance with Section 20120d of Part 201 (Environmental Remediation) of the Natural Resources and Environmental Protection Act (NREPA) to provide a summary of the decision regarding cleanup of the Unit E aquifer groundwater contamination plume (Unit E Plume), along with the reasons for the Department of Environmental Quality's (DEQ) selection of a remedial alternative for the Unit E Plume at the Gelman Sciences, Incorporated (GSI) site of environmental contamination (Gelman site.) This document is also prepared pursuant to a Washtenaw County Circuit Court order that required Pall Life Sciences (PLS) to submit a final feasibility study (FS) for the Unit E Plume to the DEQ by June 1, 2004, and required the DEQ to make a decision regarding cleanup of the Unit E Plume by September 1, 2004. In February 1997, the Pall Corporation acquired GSI, and the company was known as Pall/Gelman Sciences, Inc. until 2001, when the company changed its name to PLS. For simplicity, this document will refer to PLS regarding all past and current actions of the company. This document will refer to all areas that have been impacted by the contamination as the "Gelman site".

Gelman Site Location and General History

The Gelman site is comprised of the PLS plant property located on Wagner Road just south of Jackson Road in Scio Township, and extends eastward and north-eastward into the City of Ann Arbor, and westward and north-westward in Scio Township. From 1966, to 1986, PLS used 1,4-dioxane in the manufacture of medical filters. Various methods of disposal and waste handling during this period resulted in widespread groundwater contamination. In the fall of 1985, the first contaminated private water supply wells were discovered in the vicinity of the PLS property, and additional well sampling was done. Bottled water was provided to affected residences and businesses until the municipal water supply was extended into these areas. To date, approximately 124 private water supply wells have been connected to the municipal water supply system as a result of groundwater contamination.

Beginning in 1986, investigations by PLS identified soil contamination on the PLS property, and four areas of groundwater contamination extending off the property. Three major aquifers were identified and designated as the Unit C_3 (includes the Core Area), Unit D_0 (includes the Western System), and Unit D_2 (includes the Evergreen System) aquifers. In May of 2001, the deeper, Unit E aquifer, was also discovered to be contaminated. The complex geology in the vicinity of the PLS property contributed to the widespread nature of the contamination.

The compound of concern at the Gelman site is 1,4-dioxane ($C_4H_8O_2$). It is an organic solvent that is most often used as a stabilizer in chlorinated solvents. In the case of PLS, pure 1,4-dioxane was used as a solvent for cellulose in the filter manufacturing process. The compound 1,4-dioxane is completely soluble in water, and is held together by strong bonds that prevent it from breaking down readily in groundwater. Toxicity testing has

determined that high doses of 1,4-dioxane cause cancer in mice. It is presumed to be a human carcinogen through long-term exposure to low doses.

When the contamination was first discovered in late 1985, the generic residential cleanup criteria were 3 parts per billion (ppb) for groundwater, and 60 ppb for soils. In June 1995, the state legislature amended Part 201 of the NREPA, resulting in an increase of the generic residential cleanup criteria to 77 ppb for groundwater, and 1,500 ppb for soils. In June 2000, the DEQ updated its risk based cleanup criteria, which resulted in the current generic residential cleanup criteria of 85 ppb for groundwater, and 1,700 ppb for soils. The concentration in surface water considered safe for public health and the environment is 2,800 ppb if the surface water is not used as a source of drinking water. However, if that surface water is used as a source of drinking water, the concentration considered safe is 34 ppb.

Common treatment systems are ineffective in removing 1,4-dioxane from water. Ultraviolet oxidation, which is currently being used at the Gelman site, uses a combination of hydrogen peroxide (H_2O_2), and ultraviolet light to convert 1,4-dioxane to carbon dioxide and water.

PLS has tested a new treatment technology, using ozone and hydrogen peroxide, for use at current and future treatment locations. The DEQ has not yet approved the use of this new technology. One advantage of this treatment method would be that it eliminates the use of three hazardous chemicals required by the current treatment system.

The maximum concentration of 1,4-dioxane found in different areas of the Gelman site has changed over time, as shown in Table 1.

Table 1 - Concentrations of 1,4-Dioxane
Past and Recent

System	1,4-dioxane (ppb)	Year	1,4-dioxane (ppb)	Year	Applicable Standard
Core	212,000	1988	11,390	2003	85 ppb
Evergreen	43	1990	3,031	2003	85 ppb
Western	132	1986	175	2003	85 ppb
Marshy	49,800	1994	14,300	2003	85 ppb
Unit E	3,250	2001	7,800	2004	85 ppb
Soils	2,400,000	1988	944,000	1998	1,700 ppb

Summary of Gelman Site Risks

Part 201 of the NREPA requires liable parties to implement response activities at sites of environmental contamination. Parties are allowed to consider current and future land use as a basis for determining the degree of cleanup required at a specific site. As part of deciding whether a cleanup is appropriate, liable parties and the DEQ are required to evaluate many potential pathways of exposure and determine which, if any, pathways are or may be complete. Pathways that are complete, or realistically may become complete, must be addressed in some fashion. The types of pathways considered include, among

other things, use of groundwater for drinking water, groundwater discharging to surface water, volatilization from soil or groundwater to indoor air.

The DEQ has established generic cleanup criteria for soils and groundwater which are protective of public health and the environment in various exposure pathways. As mentioned in the "Gelman Site Location and General History" section of this document, the DEQ has promulgated a generic residential cleanup criterion (GRCC) for 1,4-dioxane in groundwater of 85 ppb, based on consumption of groundwater for drinking water. This is a risk based criterion calculated by the DEQ, and is not a drinking water standard as could be, but has not been, established by a state or federal agency. The use of groundwater for drinking water from the Unit E Plume is a completed pathway. Residents in Scio and Ann Arbor townships rely on groundwater for their drinking water, and the City of Ann Arbor uses a combination of groundwater and surface water to provide drinking water to their residents and citizens.

Gelman Site Enforcement Activities

Legal actions by the state against PLS began in 1988, and ultimately resulted in two separate Consent Judgments (CJ) in October 1992: one for cleanup actions, and another for recovery of state response costs of $1.1 million. In September 1996, the CJ for cleanup actions was amended to incorporate the cleanup criteria changes brought about by the June 1995 amendments to Part 201 of the NREPA, and to establish new schedules where needed. Because of the complexity of the Gelman site, the original CJ for cleanup actions divided the site into six separate systems (Core, Evergreen, Western, Marshy, Soils, and Spray Irrigation Field) with specific requirements for each.

In February 2000, the Department of Attorney General (DAG) filed a motion in Washtenaw County Circuit Court (court) to enforce several provisions of the CJ with which PLS had not complied. A hearing on the motion was held in July 2000, regarding stipulated penalties and injunctive relief for additional response actions. During the hearing, staff of PLS testified that they would have an additional treatment system added to their central treatment facility within ten weeks, after which accelerated extraction of contaminated groundwater would be initiated from the existing Evergreen extraction wells, and the horizontal wells in the aquifer leading to the Evergreen subdivision area. PLS staff estimated that their plan for additional extraction would result in achieving the cleanup criteria within five years. On July 17, 2000, the court issued an Opinion and Remediation Enforcement Order (REO). The DEQ's request for penalties was taken under advisement. The court ordered PLS to perform most of the additional investigation requested by the DEQ. The court also ordered PLS to install the additional treatment equipment within 75 days, and to submit a plan to the DEQ within 45 days to outline steps for achieving the cleanup criteria in all affected water supplies within five years.

As a result of the additional investigation of the Western System requested by the DEQ, a connection between the upper contaminated units and Unit E aquifer was discovered.

The court continues to hold all penalties under advisement. Status conferences are being held periodically, with the next one scheduled for 3:00 p.m. on September 8, 2004, at the Washtenaw County Circuit Court.

FIVE YEAR PLAN

The Five Year Plan (Plan), as revised to incorporate concerns raised by the DEQ, was adopted by the court in January 2001. The Plan covers the entire Gelman site except the Unit E aquifer, and generally replaces previously approved work plans for separate systems. The Plan allows PLS flexibility to adjust some components of the remediation systems, but requires minimum extraction rates at key locations until changes are approved by the DEQ. Monthly benchmarks, as required by the REO, have been incorporated into the Plan. These benchmarks require the removal of a specified number of pounds of 1,4-dioxane each month, and are revised annually. The rate of mass removal decreases gradually over the life of the Plan as the concentration of 1,4-dioxane in the aquifers is reduced by cleanup actions. PLS is submitting quarterly reports on the progress of the remedial actions. The DEQ and PLS also meet regularly to discuss progress and determine what adjustments are needed.

Unit E Plume

The Unit E aquifer is contaminated with 1,4-dioxane above the residential criterion (based on drinking water) in an area extending from Parkland Plaza to Worden Street, east of Veterans Park. The Unit E aquifer is the deepest of the glacial aquifers, and lies just above the bedrock, over 200 feet below the ground surface in some areas.

In the spring of 2001, as a result of the DEQ requested investigation of the Western System, it was discovered that there is no confining layer of clay separating the Unit D_2 aquifer from the Unit E aquifer in an area west of the PLS property. The exact location(s) of the connection(s) that has allowed 1,4-dioxane contamination to migrate into the Unit E aquifer has not been determined. Investigation to-date has focused on defining the extent of contamination. In reviewing historic data, it was discovered that earlier data indicated that the Unit E was contaminated, however, this fact escaped the attention of the DEQ at that time, and was not brought to the attention of the DEQ by PLS or other parties.

Following the discovery of contamination in the Unit E aquifer in May 2001, 30 monitoring wells have been installed to determine the nature and extent of contamination. Recent investigation has focused on the area in and around Veterans Park, and the Maple Village Shopping Center (MVSC). In March 2003, PLS proposed an interim response at the MVSC. Monitoring wells installed since that time show that the width of the plume at that location is over 1,000 feet. After reviewing the data, PLS determined that their March 2003, proposal was not feasible due to the volume of water that would need to be extracted, treated, and discharged.

In May 2003, PLS and DEQ agreed that PLS should develop a feasibility study to systematically evaluate remedial alternatives for the Unit E Plume.

In July 2003, PLS drilled a test boring on the west side of the MVSC as part of an effort to drill a test well for use as a potential extraction well. Sampling results obtained from the test boring determined that the highest concentration of 1,4-dioxane at that location was 282 ppb. Because this was much lower than the maximum concentration known to be present in the MVSC area, it was decided that the location of the test boring was not optimal for groundwater extraction. A new location for a test well was selected and

installed (TW-16), near the intersection of Jackson and Maple Roads. PLS completed an aquifer performance test of TW-16 in August 2003, and the results are being considered by the DEQ in its review of remedial alternatives proposed by PLS.

In November 2003, PLS performed a series of tests to determine if *in situ* (in place) oxidation of groundwater with ozone and/or hydrogen peroxide is a feasible remedial alternative and determined the need to do additional testing. This delayed the planned submittal date of a comprehensive feasibility study to examine alternatives for addressing the entire Unit E aquifer contamination. In January 2004, at the request of the DEQ, PLS submitted an interim FS to summarize remedial alternatives considered to-date. The DEQ provided comments on the interim feasibility study on April 13, 2004.

The DEQ also provided conditional approval of PLS's *In Situ* Work Plan dated February 17, 2004. PLS implemented the work plan in March through May 2004, and planned to evaluate the results for inclusion in the comprehensive feasibility study, if applicable. Because the technology proved to be infeasible, it was not considered further.

From May 2002, through June 2004, PLS operated two extraction wells (TW-11 and TW-12), in upgradient portions of the Unit E aquifer on their property, removing about 150 gallons per minute (gpm) during that time period. In July 2004, PLS began operating a new extraction well, TW-17, and ceased operation of TW-12, in which concentrations had decreased to 68 ppb. As of the end of July 2004, TW-11 and TW-17 were collectively removing 228 gpm, and the concentration of 1,4-dioxane in those two wells were 600 ppb and 670 ppb, respectively.

At a status conference in Washtenaw County Circuit Court on February 25, 2004, the court ordered PLS to submit their comprehensive FS by June 1, 2004, and the DEQ to respond to the FS by September 1, 2004. The FS examined remedial alternatives for addressing the entire Unit E Plume, and proposed PLS's remedial alternative.

As discussed below, the DEQ reviewed PLS's FS, and preliminarily concluded that PLS's proposed alternative could not be approved as presented. The DEQ preliminarily identified a remedial alternative consistent with Part 201, and solicited public comment. The following sections document the DEQ's decision process and identify the DEQ's remedial alternative and the rationale for its selection.

Evaluation of the Feasibility Study

On June 2, 2004, PLS submitted its Final FS, and Proposed Interim Response Plan to the DEQ. The DEQ thoroughly evaluated the FS, and has prepared this document in response to the major items addressed in the FS. PLS did not address all of the DEQ's comments on the interim FS for the Unit E Plume in the current FS. The absence of comments on any item in the FS should not be interpreted as DEQ's agreement with such items.

PLS considered an array of process options that were combined into thirteen separate remedial alternatives, and are summarized below. These alternatives were screened and the eight surviving alternatives were evaluated in more detail. PLS asserted that each of these eight alternatives would adequately protect public health due to the depth of the

groundwater and the existence of a municipal water supply. Alternatives that did not survive the screening process are noted below as having been eliminated. The DEQ's outline of the alternatives PLS considered is listed below. The DEQ has revised the title of some of the alternatives to more accurately reflect the proposed response action.

Alternative 1 – No Action

This alternative is considered for comparison purposes, and was eliminated due to not meeting the requirements of Part 201.

Alternative 2 – Monitored Natural Attenuation and Institutional Controls

This alternative includes:

- a hydrogeological investigation to determine where the groundwater contamination (plume) would flow if no remedial action is taken
- a network of monitoring wells to track the migration of the plume
- long-term monitoring
- institutional controls (deed restrictions or a local ordinance) to restrict use of the groundwater

This alternative was eliminated due to the uncertainty of public support.

Alternatives 3a-e – Groundwater Pumping at Leading Edge, Pipeline to PLS Wagner Road Facility, Treatment and Discharge by Various Methods

These alternatives share:

- extraction from three wells of approximately 500 gpm to prevent further migration of contamination in excess of the GRCC
- pipeline to PLS property on Wagner Road for treatment
- treatment with ultra-violet light and hydrogen peroxide (current method), or ozone and hydrogen peroxide

The five discharge methods/locations considered are:

a. pipeline to the Huron River
b. reinjection into plume at multiple locations on PLS property where 1,4-dioxane exceeds 85 ppb
c. reinjection into plume at multiple locations where 1,4-dioxane is 1-85 ppb
d. reinjection into plume at multiple locations where 1,4-dioxane is less than 1 ppb
e. Discharge to Honey Creek at existing outfall

Alternative 3b was eliminated due to the unknown effects of reinjection within the plume. Alternative 3d was eliminated due to the inability to reliably treat groundwater to non-detect.

Alternatives 4a-d – Groundwater Pumping at Leading Edge, Treatment with Ozone and Hydrogen Peroxide near Maple Road, Discharge by Various Methods

These alternatives share:

- extraction from three wells of approximately 500 gpm to prevent further migration of contamination in excess of the GRCC
- pipeline to the Maple Road area for treatment
- treatment with ozone and hydrogen peroxide

The four discharge methods/locations considered are:

a. pipeline to the Huron River

b. reinjection into plume at multiple locations on PLS property where 1,4-dioxane exceeds 85 ppb
c. reinjection into plume at multiple locations where 1,4-dioxane is 1-85 ppb
d. reinjection into plume at multiple locations where 1,4-dioxane is less than 1 ppb

Alternative 4b was eliminated due to the unknown effects of reinjection within the plume. Alternative 4d was eliminated due to the inability to reliably treat groundwater to non-detect.

Alternative 5 – Groundwater Pumping at Leading Edge, Pipeline to PLS Wagner Road Facility, Injection into Deep Formation Without Treatment

This alternative includes:

- extraction from three wells of approximately 500 gpm to prevent further migration of contamination in excess of the GRCC
- pipeline to PLS property on Wagner Road
- injection into the deep formation (about one mile deep, below bedrock) without treatment

Alternative 6 – Migration of Plume toward the Huron River, Groundwater Pumping near Huron River (if necessary to meet criteria), Treatment and Discharge to the Huron River

This alternative is similar to Alternative 2, with the addition of:

- a contingency to extract, treat and discharge groundwater to the Huron River if concentrations of 1,4-dioxane exceed relevant criteria
- relying on the Washtenaw County Rules and Regulations for Protection of Groundwater and court orders as institutional controls to restrict use of the groundwater

PLS's Proposed Remedial Alternative

PLS conducted a detailed review of the eight alternatives that survived the screening process and chose Alternative 6, with the addition of interim response actions for an undetermined length of time, to reduce the mass of 1,4-dioxane, in order to minimize the possibility that downgradient groundwater extraction and treatment will be necessary. The components of PLS's Proposed Remedial Alternative (PRA) are:

- a hydrogeological investigation to determine where the Unit E Plume would flow if no remedial action is taken
- a network of monitoring wells to track the migration of the plume
- long-term monitoring
- installation of one or two more extraction wells near Wagner Road and an increase in the extraction rate to 250 gpm (currently 228 gpm from two extraction wells), with treatment and discharge to the Honey Creek Tributary under their existing discharge permit;
- extraction of 200 gpm from one well at Maple Road, nearby treatment with ozone and hydrogen peroxide and reinjection into two wells at Maple Road, north and south of the extraction point.
- a contingency to extract, treat and discharge groundwater to the Huron River if concentrations of 1,4-dioxane exceed relevant criteria at compliance points protective of the Huron River

- relying on the Washtenaw County Rules and Regulations for Protection of Groundwater (WCRRPG) and court orders as institutional controls to restrict use of the groundwater

Criteria for Selecting Remedial Actions

Under the CJ, actions taken by PLS must capture groundwater contamination in excess of applicable cleanup standards emanating from its facility, and properly dispose of the treated groundwater. Part 201 and the Part 201 Rules identify a number of criteria the DEQ must use in selecting Remedial Actions. Section 20118(2) specifies that, at a minimum, remedial actions must:

a. assure the protection of the public health, safety, and welfare, and the environment;
b. except as otherwise provided, attain a degree of cleanup and control of hazardous substances that complies with all relevant and appropriate requirements, rules, criteria, limitations and standards of state and federal environmental law. [NOTE: Section 20118(5) and (6) allows the Department to "waive" the requirements of Rule 299.5705(5) and 299.5705(6) under certain conditions. These rules specify that remedial actions not allow contaminated groundwater plumes to expand once a remedial action is initiated, and provide for active removal of hazardous substances from contaminated groundwater. Exceptions to these rules will be referred to as a "waiver".]

The DEQ considers the above requirements to be "threshold criteria" that a remedial action must satisfy. In addition, the following are considered by DEQ to be "balancing criteria" in weighing alternatives that meet the threshold criteria. Section 20118(3) and (4) state that "the cost-effectiveness of alternative means of complying with Section 20118 shall be considered by the Department only in selecting among alternatives that meet all of the criteria in Section 20118(2); and that remedial actions that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances are to be preferred."

Part 6 of the Part 201 Rules provides additional criteria regarding remedy selection. While Rule 601 reiterates the Section 20118 requirements, Rule 603 provides additional criteria the DEQ must use in selecting remedies, including:

- The effectiveness of protecting the public health, safety, and welfare, and the environment;
- The long-term uncertainties associated with the proposed remedial action;
- The toxicity, mobility, and propensity to bio-accumulate of the hazardous substances;
- The short and long-term potential for adverse health effects from human exposure;
- The costs of the remedial action, including long-term maintenance;
- The reliability of the alternatives;
- The potential for future remedial action costs if an alternative fails;
- The potential threat to public health, safety, and welfare, and the environment associated with excavation, transportation and re-disposal or containment;
- The ability to monitor remedial performance;
- The public's perspective about the extent to which the proposed remedial action effectively addresses Part 201 and the Part 201 Rules.

DEQ Analysis of PLS's PRA Using the Above Criteria

The DEQ has carefully reviewed PLS's FS in relation to the criteria described above. The DEQ has determined that PLS's PRA is not acceptable for the reasons described below. PLS's estimated cost for their PRA is based on 20 years of monitoring followed by 30 years of operation and maintenance of the contingency treatment system, implying that the cleanup criteria will be achieved in 50 years. However, there is no documentation to support that the cleanup criteria will be achieved in 50 years. In addition, the DEQ has reviewed the WCRRPG and has determined it does not meet the requirements for an acceptable Part 201 institutional control in its current form, nor has any court order been imposed to reliably restrict groundwater use. An example of the deficiencies in the WCRRPG is that there is no provision to abandon existing drinking water wells in the area threatened or impacted by the groundwater contamination and there is no restriction on installation and operation of industrial wells, which could change the configuration of the plume.

PLS's PRA also relies on the City's anticipated decision not to resume operation of the Northwest Supply well (a.k.a. Montgomery well). PLS indicates that the available information shows that this well will not be impacted by the contamination. However, the Unit E Plume is in the western portion of the wellhead protection area for the Northwest Supply well, the City has not abandoned this well, and low levels of 1,4-dioxane have been detected in the well. In addition, the DEQ has a policy against granting waivers of its rules to allow for plume expansion in wellhead protection areas. Further, PLS's PRA presumes that the Unit E Plume will not underflow the Huron River and there is no provision to monitor or protect existing private water supply wells east of the Huron River if the plume does underflow the Huron River. PLS's PRA would impermissibly allow the extent of environmental contamination to expand. As proposed, and under present circumstances, this alternative does not meet the threshold criteria of assuring the protection of the public health, safety, and welfare, and the environment. This alternative is based on the assumption that the Unit E Plume will migrate along a predicted path toward, and discharge entirely to, the Huron River at concentrations below the groundwater-surface water interface criterion, as shown in Figure 11 from the PLS Feasibility Study. PLS assumes that no additional residential or community wells will become contaminated as a result of this migration. There is a substantial degree of long-term uncertainty associated with these assumptions and, consequently, PLS's remedial alternative. There is not currently enough information available to predict the exact route the plume will follow, including whether it will ultimately contaminate additional residential wells. Nor is there sufficient information about how long the plume will take to get to the river and/or other receptors, and what concentrations the plume will be when it arrives at receptors. The potential difficulty of securing adequate institutional controls from the City or County adds uncertainty to the feasibility of this remedial alternative and combines with the other uncertainties to make this alternative relatively unreliable in protecting public health, safety, welfare, and the environment.

PLS states that their PRA will be less disruptive and more compatible with existing land uses than the leading edge alternatives; however, it is premature to make such a statement since the ultimate path of the plume cannot be determined until a hydrogeological study is performed. The study required by such an approach would also

require numerous monitoring wells, which would also be likely to create some disruption of residential neighborhoods.

For the above reasons, the DEQ has determined that, under the present circumstances, PLS's PRA does not satisfy the requirements established by Part 201 and the Part 201 Rules.

The DEQ's preliminary identification of additional conditions that would have to be met in order for the DEQ to approve a modified version of PLS's PRA, including a waiver of Rule 705(5), are restated below. The DEQ initially identified these conditions only to allow for comparison to the other alternatives, not necessarily as a recommendation that these steps be taken.

1. Abandonment of the Montgomery well (Northwest Water Supply well) and elimination of the associated wellhead protection area designation by the City.
2. Prevention of any further migration of 1,4-dioxane contamination beyond Maple Road in excess of 2,800 ppb (the criterion protective of surface water).
3. A plan for monitoring any water supply wells that are found to be threatened with contamination by subsequent investigations to determine the fate of the plume, and a contingency plan to prevent unacceptable exposure if water supply wells are affected.
4. Enactment of an acceptable institutional control, in a specified period of time, to prevent any groundwater withdrawal that would exacerbate the contamination, in addition to preventing the use of contaminated groundwater for drinking water.
5. Groundwater monitoring to ensure that contamination above the GRCC does not underflow the Huron River, with a contingency plan to intercept any such contamination.
6. Provide for acceptable disposal of the treated groundwater from the Maple Road interim response, by providing sufficient hydrogeological information to resolve concerns about reinjection, and/or by shifting to an alternate means of disposal.

Public Involvement

The DEQ has developed an in-depth Citizen Involvement Plan (CIP) for the Gelman site. The plan is attached in Appendix A, and is summarized below.

The DEQ meets quarterly with local officials from Scio Township, Washtenaw County, the City of Ann Arbor, Ann Arbor Township, and representatives of Scio Residents for Safe Water to discuss the quarterly reports submitted by PLS and other relevant issues. The DEQ has established four information repositories that are sent updates on a regular basis, about every six weeks. A DEQ internet site devoted to the Gelman project went on-line in April 2004. The DEQ has developed an e-mail list to which updates are sent frequently.

As it relates to the FS and public involvement, the DEQ discussed with the attendees of the quarterly meeting on May 3, 2004, the plan to disseminate copies of the draft FS to the information repositories upon receipt. We also explained that there would be opportunity for public comment.

On June 3, 2004, the DEQ sent copies of the FS to the information repositories and an e-mail was sent to the distribution list regarding the availability of the FS, and the DEQ's proposed public comment period and intention to hold a public meeting during the last week of July. By mid-June the FS was made available on the DEQ's Gelman website and the public comment period was announced.

The DEQ calendars published on June 28, 2004, and July 12, 2004, announced the DEQ's public meeting to take oral and written comment on July 28, 2004 in Ann Arbor, and the public comment period from July 7, 2004, to August 6, 2004. The DEQ produced a fact sheet summarizing the FS, the DEQ's analysis of the FS, and DEQ's PRA on July 7, 2004. A legal notice announcing the date of the public meeting and brief summary of the FS, along with the DEQ alternative was published in the Ann Arbor News on page G30, on July 25, 2004.

A public meeting was held on July 28, 2004, in the Slausen Middle School Auditorium, during which time presentations were made, questions were asked and answered, and public comments were taken.

The DEQ attended two additional public meetings sponsored by the City of Ann Arbor on August 4, and 12, 2004, to further answer questions from the public. DEQ extended the public comment period first to August 9, 2004, then to August 16, 2004, in response to the public comment that more time was needed.

The DEQ's Public Comment Responsiveness Summary is attached as Appendix B.

DEQ's Preliminary (July 2004) Proposed Remedial Alternative and Evaluation

The DEQ reviewed each of the alternatives considered in the Feasibility Study individually and in combination with interim responses. The DEQ determined that extraction from the leading edge alone is not as protective of public health, safety and welfare, and the environment as it would be in combination with interim responses. Interim responses would significantly reduce the overall cleanup time and decrease the uncertainty associated with PLS's PRA, thereby limiting the potential for human exposure and unexpected impacts on the plume due to any groundwater withdrawals. The following factors were considered by the DEQ in making its recommendation for the PRA in its Fact Sheet released on July 7, 2004.

Interim Responses

The DEQ identified two interim responses that can, and should be implemented prior to efforts to begin extracting groundwater contamination at the leading edge of the Unit E Plume. Due to the size of the plume, the interim responses discussed below are intended to continue in operation as part of the final remedy.

Wagner Road: The DEQ has recently directed PLS to perform an interim response near Wagner Road to prevent further eastward migration of groundwater contamination. This can be accomplished in the near-term with limited additional infrastructure, independent of any decision on a final remedy. This can also likely be accomplished using the existing treatment system and available discharge capacity without compromising the ongoing cleanup of the shallower aquifers. Attaining capture any farther east using the existing

system would be significantly more difficult due to the wetlands immediately east of Wagner Road.

Maple Road: Additional interim response at Maple Road is also warranted, as there is a significant change in the geology east of Maple Road that has an unexplained impact on the migration of contamination. The known concentrations of 1,4-dioxane east of Maple Road (except MW-79 on the east side of Maple Road) are significantly lower than what is found west of Maple Road. For this reason, capture of the contamination at Maple Road will significantly reduce the uncertainty involved in extracting only at the leading edge. However, extraction to capture the Unit E Plume at this location cannot begin until a discharge method that has the capacity to accommodate the necessary volume of water is secured. Because of the importance of decreasing the migration of contamination to the east of Maple Road as soon as possible, the DEQ recommended that consideration be given to determining if the storm or sanitary sewer could be used on a temporary basis for discharge of treated groundwater using PLS's mobile ozone/hydrogen peroxide treatment system. This treatment system can treat up to 200 gpm of extracted groundwater.

Discharge Methods

Securing a reliable method for discharge of treated groundwater has been difficult throughout the history of the Gelman site, and the difficulty in doing so has often delayed implementation of response actions. For this reason, it is essential to identify a lawful, safe and reliable discharge method that is reasonably implementable.

In Situ Option: As discussed in the FS, *in situ* (in place) treatment of groundwater would reduce or eliminate the need to extract groundwater, as treatment would take place underground. Unfortunately, no *in situ* technology has been adequately developed to reliably treat such a large volume of water for this contaminant.

Reinjection Options: The FS examined several groundwater reinjection options, two of which survived the initial screening process. As indicated under the DEQ's analysis of those alternatives, the DEQ does not consider groundwater reinjection to be a feasible discharge method for technical reasons. These technical reasons include: 1) the unknown capacity of the aquifer to accept the amount of water that would need to be extracted and reinjected; 2) the unknown effects on the plume due to the complex geology; and 3) the probability that previous problems with fouling of the injection wells will reoccur, thereby resulting in interruptions in extraction that could allow the plume to move beyond the extraction wells. In addition, it appears the public may not support reinjection that could increase the area of groundwater impacted by low levels of contamination (1-85 ppb), as may be the case with Alternatives 3c and 4c. Reinjection would only be feasible if further investigation, coupled with intensive performance monitoring of reinjection, could alleviate the DEQ's concerns.

Surface Water Options: Several surface water discharge options have also been considered. There are several factors that raise questions about the feasibility of an increased discharge to the Honey Creek Tributary, including the capacity of the tributary to handle a doubling of the discharge volume. The use of the Allen Drain and the sanitary sewer were considered in the FS, and were eliminated for various reasons. Neither the Allen Drain, nor the sanitary sewer, which eventually flow to the Huron River, have the

capacity to allow for a continuous discharge of the volume of water necessary for remediation of the Unit E Plume.

As a result, the only remaining feasible discharge option is a surface water discharge to the Huron River. Due to the distance to the Huron River, extensive lengths of pipeline would be required to transport extracted groundwater (from the leading edge and Maple Road), first to a treatment location via a double-walled pipeline, then to the Huron River for discharge at a location downstream from the City of Ann Arbor's water supply intake. Although the installation of pipelines can be disruptive to the community, this is a relatively short-term inconvenience and could be accomplished using standard engineering and construction techniques, including horizontal boring in appropriate locations to minimize disturbance. The location of the treatment system and the route of the pipeline depicted in the DEQ's Fact Sheet was for discussion purposes, and was not a determination that these are the most suitable pipeline routes.

In summary, based on the DEQ's analysis through July 7, 2004, of the relevant criteria and available information, the DEQ proposed a remedial alternative that combined PLS's Alternative 4a with additional interim responses at Wagner Road and Maple Road. The location of the new treatment system was proposed to be in the vicinity of the Maple Village Shopping Center.

DEQ's September 1, 2004 Selected Remedial Alternative for the Unit E Plume

The DEQ has reviewed the public comments received, performed additional analysis, and has concluded that, under the present circumstances, the final remedy for the Unit E Plume should be slightly modified from that proposed in the DEQ's Fact Sheet released on July 7, 2004. In order to provide the best balance of criteria outlined in Part 201, the DEQ has determined that interim responses (extraction and treatment of contaminated groundwater in the vicinity of Wagner Road and Maple Road), coupled with capture of the "leading edge" of contamination, is necessary to comply with Part 201 and the CJ. The performance objective for the groundwater extraction in the vicinity of Maple Road and Wagner Road is that, a hydraulic barrier be created to halt the further migration at each location of concentrations of 1,4-dioxane above 85 ppb in the downgradient or easterly direction.

PLS should immediately conduct additional investigation of the Unit E Plume in the vicinity of Wagner Road to determine the necessary volume and flow rate to achieve the above performance objective. The DEQ's June 29, 2004, letter to PLS on this subject is currently under the dispute resolution process outlined in the CJ. The parties have agreed to extend the period of informal negotiations while PLS performs additional investigation to determine what response actions would be needed to create a hydraulic barrier at Wagner Road. Disposal of treated groundwater from the Wagner Road area should take place at the PLS groundwater treatment facility. If the volume of water necessary to be extracted to meet the performance objective outlined above is greater than the existing unutilized capacity of the groundwater treatment facility, the DEQ recommends that a reduced pumping rate from shallower groundwater units be allowed by the Court to free up necessary capacity to achieve the performance standard. This would require modification of the Court's order approving the Five-year plan, the objectives of which the DEQ believes will not be met by the July 2005 deadline, regardless of any reduction in extraction from

the shallower aquifers, to accommodate increased extraction from the Unit E Plume. The DEQ- approved groundwater modeling may be necessary to predict the minimum pumping rate necessary to maintain hydraulic capture of shallower unit contamination.

Treatment of contaminated groundwater in the Maple Road vicinity should take place at a newly constructed groundwater treatment facility. The DEQ has considered comments from the public and PLS regarding the location of this new treatment system at or near the MVSC and has obtained additional information about the operation of such a system. The DEQ recognizes that the MVSC may not be an ideal location; however, it is not clear that an ideal location exists. The DEQ believes it is feasible to construct and operate a treatment system at the MVSC, but recommends that alternate locations be explored. The treatment technology type for the Maple Road area action should be the ozone/hydrogen peroxide method, if subsequent remedial design work determines this method will be likely to achieve anticipated National Pollutant Discharge Elimination System (NPDES) permit requirements. If the ozone/hydrogen peroxide technology is unable to achieve the necessary treatment standards, then the treatment method should be the currently employed ultra-violet/hydrogen peroxide method. Disposal of treated groundwater from the Maple Road area treatment system should be to the Huron River, via transmission pipeline, with the outfall located downstream from the City of Ann Arbor's drinking water intake.

The additional interim responses described above are similar to those proposed by PLS, with the additional objective of cutting off the migration of groundwater contamination east of Wagner Road and east of Maple Road. This would effectively cut the plume into three sections, and significantly reduce the amount of time needed to clean up the contaminated aquifer, reducing the threat to public health, safety and welfare, and the environment, and addressing the uncertainties that make PLS's PRA unacceptable. In addition, the reduction of time to remedy the contamination, in comparison to PLS's remedial alternative, would offset, to some degree, the additional capital costs required for the DEQ's PRA. Because PLS's PRA is not protective, the relative costs cannot be used as a basis for the choice between the two remedies.

The DEQ also recommends that temporary use of the sanitary and/or storm sewer for disposal of treated groundwater from the Maple Road area should be pursued, as there is some limited capacity in the sewers that are available during dry weather. This would serve to reduce the migration of higher concentrations to the east while the infrastructure necessary for the final remedy is put in place. This option should be pursued concurrently with determining the best location, and securing access for, a treatment system and discharge pipeline, and investigation to better characterize the geology at the leading edge of the plume.

PLS must also perform a hydrogeological investigation at the leading edge of the contamination to determine the location and number of extraction wells necessary to capture the leading edge of the Unit E Plume in excess of 85 ppb. The investigation must be performed on a schedule that will ensure that extraction, treatment and discharge of groundwater from the leading edge can be implemented once a DEQ-approved work plan for the Maple Road extraction system Is implemented.

The DEQ has considered public comments regarding the need for a stochastic groundwater model and agrees that such a model could be an important tool for designing and evaluating response activities. An expert consulting firm is needed to evaluate the dataset to determine if it is adequate to conduct a stochastic modeling analysis. If the DEQ determines that stochastic modeling can be done, this model must be completed and submitted to the DEQ. This model would serve three functions: 1) provide information to monitor and assess the effectiveness of the Unit E Plume response activities; 2) serve as an important tool for the evaluation and optimization of the Unit E Plume response activities; 3) provide useful information for the design and implementation for PLS's proposed alternative, if that's the eventual decision, in which case additional data would need to be collected east of Maple Road.

The DEQ's PRA would require monitoring of the Northwest Supply well to ensure that the GRCC protective for drinking water is not exceeded. Of the six conditions that would have to be met for PLS's alternative to be approved, the potential impact to the Northwest Supply well is the only one that remains relevant to the DEQ's PRA. The DEQ's PRA is preferable because it reduces technical uncertainties associated with other remedial alternatives, achieves cleanup objectives more quickly, and is more readily implementable than PLS's PRA. Although the DEQ has not done a detailed analysis of the length of time to achieve cleanup using its PRA, the DEQ believes the cleanup can be achieved within 20 years. PLS's leading edge alternatives were also estimated to take 20 years to achieve cleanup. If a detailed analysis were done of the DEQ's PRA, compared to any of PLS's leading edge alternatives, there is no question that the DEQ's alternative would be completed in a significantly shorter length of time.

The DEQ has determined that, absent PLS satisfying the minimum conditions set forth below (as modified from DEQ's July 2004 conditions), implementation of the DEQ's PRA is necessary to satisfy the threshold criteria of protection of the public health, safety, welfare and the environment; and compliance with applicable or relevant and appropriate, rules, criteria, limitations and standards of applicable environmental law. However, the DEQ is sensitive to the numerous public comments received that do not support the "leading edge" portion of the DEQ's preliminary PRA. The DEQ is also aware that the City of Ann Arbor has initiated a claim against PLS to replace the Northwest Supply well. In light of the number of currently unresolved issues, the DEQ believes there may an opportunity for PLS to satisfy the conditions set forth below, and, as a result, is willing to allow a limited amount of additional time for PLS to meet these conditions.

1. Abandonment of the Northwest Supply well and elimination of the associated wellhead protection area designation by the City.
2. Prevention of any further migration of 1,4-dioxane contamination beyond Maple Road in excess of 2,800 ppb (the criterion protective of surface water).
3. Having an acceptable institutional control for relevant portions of the Gelman site, by September 1, 2005. The institutional control must address the deficiencies in the WCRRPG identified in the DEQ Interoffice Communication dated August 18, 2004 (Appendix C), including abandonment of any existing water supply wells that are within the area to be restricted by the institutional control and provision of a permanent alternate water supply.

4. A DEQ-approved plan for monitoring any water supply wells that are outside the area covered by an institutional control that are later found to be threatened with contamination by subsequent investigations to determine the fate of the plume, and a contingency plan to prevent unacceptable exposure if water supply wells are affected.
5. A DEQ-approved groundwater monitoring plan to ensure that contamination above the GRCC protective for drinking water does not underflow the Huron River, with a contingency plan to address any such contamination.
6. Provide for acceptable disposal of the treated groundwater from the Maple Road interim response, by providing sufficient hydrogeological information to resolve concerns about reinjection, and/or by shifting to an alternate means of disposal.

If these conditions can be satisfied, capturing the leading edge of the plume would not be necessary to satisfy Part 201 criteria. PLS has indicated to the DEQ that it may be able to satisfy the conditions within one year. However, efforts by PLS to satisfy the conditions should not result in a delay of implementing the DEQ's selected remedial alternative, in the event that PLS's efforts to satisfy the conditions fail. Therefore, PLS must take the following steps, concurrently with any efforts to satisfy the specified conditions:

1. Submit a schedule by October 1, 2004, that specifies implementation of interim response measures that will result in achieving capture of 1,4-dioxane in excess of 85 ppb at Wagner Road by March 1, 2005;
2. Determine whether temporary use of the storm and/or sanitary sewer during dry weather is feasible for discharge of some quantity of groundwater extracted at MVSC. If discharge to the sewer(s) is feasible then PLS should treat on location using an approved treatment technology. The PLS mobile ozone/hydrogen peroxide treatment system, if approved, and additional unit or units, should be used if sewer capacity is greater than 200 gpm, provided that any public safety issues associated with these treatment units can be addressed.
3. Identify a feasible location for a treatment system adequately sized to treat groundwater extracted from the vicinity of Maple Road and the leading edge by September 1, 2005.
4. Identify feasible routes for a pipeline from the Maple Road area to the treatment system and then to the Huron River downgradient of the City's water supply intake by September 1, 2005.
5. Submit a plan to the DEQ, by September 1, 2005, for securing access for the treatment systems and pipelines, that will result in PLS securing access for that infrastructure by March 1, 2006.
6. Hire a DEQ-approved expert consulting firm to provide an assessment, by December 1, 2004, of the Unit E Plume dataset to determine if it is adequate to conduct the stochastic modeling analysis. If the DEQ determines, based upon the firm's recommendation, that stochastic modeling can be done, this model must be completed and submitted to the DEQ by April 1, 2005. If the modeling firm determines the dataset is not adequate, the firm shall identify the deficiencies of the dataset to the DEQ.

If, by September 1, 2005, the conditions outlined on pages **15 and 16** have not been satisfied, PLS must then take the remaining steps necessary to implement the DEQ's selected remedial alternative. The exact timing and sequence of events cannot be

determined at this time; however, extraction at the leading edge should not begin until the extraction in the Maple Road area is operating according to a DEQ-approved work plan. These steps include, but are not limited to, the following, subject to DEQ approval:

1. Complete the plan and design for achieving capture at Maple Road;
2. Complete the plan and design for achieving capture at the leading edge;
3. Enact a monitoring plan at each location to verify capture;
4. Develop a contingency plan to be implemented if the objectives of any of the three Unit E capture systems are not being met. This plan must include identification of "trigger criteria" that initiate utilization of the plan and a schedule for implementation of the contingency plans;
5. Work with the DEQ and the City of Ann Arbor to revise the existing Citizen Involvement Plan (CIP). This revised CIP must inform residents and other stakeholders in the area to be affected by remedial actions about planning and remedy implementation.

This concludes the DEQ's analysis and selected remedial alternative.

Pall Life Sciences' Supplemental Filing In Support Of Pall Life Sciences' Remedial Alternative

I. Introduction

On June 1, 2004, Pall Life Sciences ("PLS") submitted its Final Feasibility Study ("FS") to the DEQ. The FS was intended to provide a framework for evaluating the need for, and the potential benefit of, various response action alternatives for addressing the Unit E contamination. PLS' analysis revealed a number of significant factors that PLS considered in designing its preferred remedy. These factors included:

- All available groundwater data indicate that the Unit E plume will migrate to the Huron River at a point that is well downstream of the City's Barton Pond water intake.
- There are no private drinking water wells between the leading edge of the Unit E plume and the Huron River. The entire area is already serviced by the City of Ann Arbor's municipal water system, which obtains the majority of its water from the Huron River, well upstream from the Unit E plume.
- The only municipal drinking water well in the vicinity of the plume – the Northwest Supply Well – has already been taken out of service due to "water quality concerns" either because of the trace levels of 1,4-dioxane detected in the well in February 2001 or because arsenic is also present in the well at levels almost twice the legal limit.
- Arsenic has also been detected in other areas of the Unit E at levels far above the legally permissible level, calling into question the usefulness of this aquifer as a source of drinking water.
- The recently adopted Washtenaw County Rules and Regulations for the Protection of Groundwater ("Washtenaw County Rules") effectively prevent the installation of any new drinking water wells in the migration pathway of the plume.
- The "groundwater/surface water interface" ("GSI") criterion of 2,800 ppb is the next most restrictive cleanup criterion once the drinking water pathway is eliminated.
- Even without any active remediation, it is extremely unlikely that concentrations in the plume would even approach the GSI criterion by the time the plume reaches the Huron River.
- Any attempt to capture the entire width of the Unit E plume, either at the leading edge or another location, would require the installation of miles of pipeline, which would disrupt the congested residential neighborhoods and retail businesses in the area.
- The incredible disruption associated with capturing the plume would serve no purpose because the water is "unsafe" only if it is going to be consumed, and it is already illegal to do so.

Based on these considerations, PLS identified a remedy that was both protective of human and environmental receptors and respectful of the community. PLS' remedy

focused on reducing concentrations at two locations so that the plume will pose no threat to receptors by the time it reaches the Huron River. In PLS' judgment, the location of this plume makes it inappropriate to blindly adhere to Part 201's default prohibition on allowing the plume to expand. PLS' focus on protecting receptors through mass reduction rather than containment allowed PLS to minimize the infrastructure associated with the remedial system and to locate the reduced infrastructure away from congested residential areas.

After reviewing the FS, the DEQ submitted its Decision Document to this Court on September 1, 2004. While the formality of the document and the excessive use of mandatory language can give the impression that the parties are at loggerheads, the reality is not so dire. The DEQ concluded that, as a legal matter, it could not approve PLS' alternative as a *final remedy* based on the current state of affairs. But the DEQ agreed that PLS' remedy could be a legal, approvable, and protective final remedy if six identified conditions could be met. The most significant issues that prevented the DEQ from approving PLS' remedy are legal in nature rather than technical. The DEQ gave PLS one year to resolve these issues. In the event PLS was unable to satisfy these conditions, the DEQ concluded that PLS should be required to implement the much more invasive and controversial remedy described in the Decision Document.[1]

After reviewing the DEQ Decision Document and PLS' status report, this Court indicated that it did not believe that it was appropriate to wait a year before determining what would be done as a final response for addressing the Unit E. This Court indicated that it would modify its REO to address the Unit E contamination within 60 days of the September 8, 2004 hearing. The Court invited the parties to submit additional materials if they wished, particularly to address the questions raised by the Court during the hearing. PLS appreciates the opportunity to submit the following report and attached materials.

II. Questions Raised by the Court.

This Court asked the parties to address four specific questions raised during the September 8, 2004 Status Conference. The first three inquires relate to several of the six conditions that the DEQ indicated PLS would have to satisfy before PLS' remedy could be approved. The fourth concerns the parties' respective positions regarding the work at Wagner Road. PLS' response to each is indicated below.

A. <u>What is the Technical Basis for the DEQ's Concerns Regarding PLS' Plan to Reinject Treated Groundwater near Maple Road?</u>

[1] PLS has submitted detailed comments on DEQ's plan, and has provided in Attachment A a list of disputed conclusions in the Decision Document along with explanations as appropriate. As noted in Attachment A, DEQ's contingency is subject to several significant unknowns, which it should also have identified as conditions to its own plan. These include the layout of the pipelines, the limits of an NPDES permit to the Huron River, and the feasibility of siting, constructing and operating a 1300 gpm treatment system in the Maple Road area.

PLS is proposing to reinject the purged groundwater after treatment via two injection wells located to the north and to the south of the extraction well along Wagner Road. The DEQ has responded that PLS must provide "sufficient hydrogeological information to resolve **concerns** about reinjection" and that PLS must identify an acceptable method of disposing of the treated groundwater.

During the recent status hearing, the Court asked the DEQ to identify the technical basis for its concerns. PLS has met twice with DEQ's technical staff, once in person just prior to the status conference and once after the conference via a conference call. The DEQ has been unable to identify what additional information it wants PLS to submit in this regard.

PLS strongly believes that it is not necessary to "study this to death" and that the available information provides a sufficient basis for approving this disposal method. PLS has numerous monitoring wells in the Maple Village area and has conducted two aquifer pump tests to determine aquifer characteristics in this area. PLS has submitted all of this data to DEQ. PLS has also submitted its Modeling Report (Exhibit 1) that addresses the DEQ's original concerns and demonstrates that the proposed reinjection will not adversely affect the plume. The modeling also shows that the proposed extraction will significantly reduce the contaminant levels that might otherwise migrate past Maple Road. PLS agrees with the DEQ that, given the size of the plume, it would be very problematic and likely impossible to reliably reinject the volume of water needed to capture the entire width of the plume, let alone the volume needed to capture it twice as the DEQ has proposed. The existing information, however, demonstrates that PLS' more realistic plan is technically feasible. Therefore, PLS believes this condition has already been met.

PLS' work plan for implementing its proposed interim response is ready to be submitted to the DEQ for approval. PLS is simply waiting for DEQ to identify what additional information it needs in order to satisfy DEQ's unarticulated technical concerns in this regard. If necessary, PLS will attempt to address any reasonable data requests, but PLS believes that its work plan is currently approvable.

B. <u>Can a Judicial Order be Used to Satisfy the DEQ's Institutional Control Requirement?</u>

The DEQ contends that in order for PLS' remedy to be protective, an institutional control must be in place that would prevent use of the groundwater in the "relevant areas" of the site.[2] To the extent an institutional control under Section 18 of Part 201 (MCL 324.20118) is required in order for the DEQ to approve PLS' remedy, the current Washtenaw County Rules already substantively accomplish this. The Washtenaw County Rules already reliably restrict the installation of new water supply wells in the areas affected by the Unit E plume under the following provisions:

[2] As set forth in PLS' FS, the DEQ has authority under Section 18 to waive its aquifer control rules without the need for institutional controls. PLS attempted to demonstrate how this could be done in its FS, but the DEQ has declined to use that authority.

- No one can construct or drill any well (including a drinking water well) without first obtaining a permit from the County Health Office (Sec. 2:1);

- No municipality within the county may issue a building permit where a well is necessary or allow construction to commence on any land where an approved public or private water supply is not available until issuance of a permit by the Health Officer (Sec. 2:4);

- No permit can be issued by the Health Officer if it is not in compliance with the Rules or if it would create a dangerous or unsafe condition (Sec. 2:5);

- It is unlawful for any person to occupy or permit to be occupied any premise in Washtenaw County not equipped with an adequate supply of potable water as determined by the Health Officer (Sec. 6:1);

- The rules apply to all non-community and private groundwater supplies within Washtenaw County (Sec. 6:2);

- Water supplies intended for human consumption that are not "potable" must either be abandoned, identified at the outlet as unfit for human consumption, or treated by methods approved by DEQ or the County Health Officer so as to make the water potable (Secs. 6:2, 6:3). "Potable" water is defined as water that is free of contaminants in concentrations that may cause disease or harmful physiological effects, is safe for human consumption and meets the State drinking water standards set forth in the Michigan Safe Drinking Water Act (Sec. 1:15);

- Newly drilled wells cannot be used for human consumption until approved by the Health Officer and after they have been tested for bacteriological or chemical contaminants (Sec. 6:6); and

- No well can be located within at least 100 feet of a source of contamination, or within such increased distance as determined necessary by the Health Officer (Sec. 6:7).

This existing institutional control already prohibits the installation of water wells in the affected areas. The DEQ acknowledges that the County Rules already prohibit property owners between the plume and the river from installing new water supply wells.[3]

[3] DEQ staff explained the issues they have with the ordinance in a memorandum attached as Appendix C to DEQ's Decision Document. DEQ staff acknowledged, however, that many of the specific issues appear to be easily addressed (*e.g.*, provide a map, limit variances to isolation zones, provide more clarity in decision standards). The primary concern expressed in the memo arises from the author's understanding that there are existing drinking water wells that would be in the area threatened or impacted by "the PLS plumes." DEQ district staff members more familiar with the site agree that this is not the case with Unit E,

To the extent it is necessary to supplement the existing institutional control, PLS has suggested that this Court could issue an order that would address the minor deficiencies in the existing Washtenaw County Rules. Such an order could also constitute a stand alone institutional control that would meet the requirements of Part 201.

As was acknowledged during the status hearing, Part 201 does not preclude such an order from serving as an acceptable form of institutional control. Part 201 provides, in relevant part:

> If the department determines that exposure to hazardous substances may be reliably restricted by an institutional control in lieu of a restrictive covenant, and that imposition of land use or resource use restrictions through restrictive covenants is impractical, the department may approve of a remedial action plan under section 20120a(1)(f) to (j) or (2) that relies on such institutional control. Mechanisms that may be considered under this subsection include, but are not limited to, an ordinance that prohibits the use of groundwater or an aquifer in a manner and to a degree that protects against unacceptable exposures as defined by the cleanup criteria approved as part of the remedial action plan. An ordinance that serves as an exposure control pursuant to this subsection shall be published and maintained in the same manner as zoning ordinances and shall include a requirement that the local unit of government notify the department at least 30 days prior to adopting a modification to the ordinance, or to the lapsing or revocation of the ordinance.

MCL 324.20120b(5) (emphasis added). Similarly, the Part 201 rules define "institutional control" as a "measure" that reliably prevents unacceptable exposures to contamination:

> (j) "Institutional control" means a measure which is approved by the department, which takes a form other than a restrictive covenant, and which limits or prohibits certain activities that may interfere with the integrity or effectiveness of a remedial action or result in exposure to hazardous substances at a facility, or which provides notice about the presence of a hazardous substance at a facility in concentrations that exceed only an aesthetic-based cleanup criterion.

Mich Adm Code R. 299.5101(j). Thus, under both Part 201 and the Part 201 rules, a judicial order could be an institutional control provided it was crafted in such a way that it satisfies the identified requirements.

Issuance of such a judicial institutional control is well within this Court's authority to enforce its judgments. The Michigan Revised Judicature Act provides that "[c]ircuit

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and indicated that the staff person who reviewed the ordinance may have also been looking at other portions of the site that do not need the institutional control.

courts have jurisdiction and power to make any order proper to fully effectuate the circuit courts' jurisdiction and judgments." MCL 600.611. Michigan case law provides that courts possess inherent authority to enforce their own directives. See Cohen v Cohen, 125 Mich App 206 (1983). In addition, courts have stated that circuit courts have broad powers, including the power to make an order to fully effectuate their jurisdiction and judgments. See Spurling v Battista, 76 Mich App 350 (1977).

This Court's authority under the RJA is analogous to the authority granted to federal courts under the federal All Writs Act, 28 USC 1651, which states that "courts established by Act of Congress may issue all writs necessary or appropriate in aid of their respective jurisdictions and agreeable to the usages and principles of law." Federal case law has held that "the All Writs Act provides district courts with the authority to bind nonparties in order to prevent the frustration of consent decrees that determine parties' obligations under the law." United States v City of Detroit, 329 F 3d 515 (CA 6 2003); see also Grand Traverse Band of Ottawa & Chippewa Indians v Director, Michigan Dep't of Natural Resources, 141 F 3d 635 (CA 6 1998) (affirming district court order barring non-parties from interfering with consent judgment). In City of Detroit, the Sixth Circuit held that the district court acted properly in ordering the United States Army Corps of Engineers to accept dredged sediment in connection with a consent judgment between the United States and the City of Detroit requiring the City of Detroit to bring its wastewater treatment system into compliance with its NPDES permit. Id.

Thus, this Court has authority to bind third parties as part of a enforceable judicial institutional control. Based on a review of these requirements and comments made by DEQ staff on the Washtenaw County Rules, PLS recommends that the following elements be included as part of an order imposing institutional controls:

1. The requirement that the parties confer and submit to the Court within a specified period of time a map that identifies the agreed upon area that would be covered by the judicial institutional control, including a buffer zone (the "Protected Area"), or if agreement cannot be reached, the parties' respective positions.

2. A prohibition against the installation of new water supply wells for drinking, irrigation, or commercial or industrial use, within the Protected Zone shown on the map.

3. Service of the Order on the Washtenaw County Health Department with the instruction prohibiting the County Health Officer from issuing permits for well construction in the Protected Zone. It should be noted that this prohibition is completely consistent with the existing County Rules governing issuance of permits.

4. A prohibition against consumption or use of groundwater from within the Protected Zone.

5. A requirement that PLS provide, at its expense, connection to the City of Ann Arbor municipal water supply for any existing private drinking water wells within the Protected Zone.

6. A requirement that the Order be published and maintained in the same manner as a zoning ordinance.

7. A provision that the Order shall remain in effect until such time as it is amended or rescinded by further Order of the Court, with a minimum 30 days notice to all parties, including specifically DEQ.

8. A provision to allow either party to move to amend the boundaries of the prohibition zone to reflect material changes in the boundaries or fate of the plume as determined by future hydrogeological investigations and/or monitoring.

An order that contains these elements would appear to be sufficient to reliably restrict groundwater use consistent with PLS's proposed response.

C. What Water Supply Wells Should PLS be Required to Monitor?

PLS agrees that its remedy should include a monitoring plan for any water supply wells outside the area covered by the institutional control that are conceivably threatened with contamination. The number and location of the wells that would need to be monitored would be dependant on the area to be covered by the judicial institutional control. PLS would anticipate, however, that wells on the east side (and in the vicinity of) the Huron River would eventually be monitored. PLS' monitoring plan would also include "sentinel wells" near the Huron River. PLS also anticipates that the Northwest Supply Well would be monitored (as it would be under the DEQ's contingent remedy). PLS' remedy includes a contingency plan to prevent unacceptable exposures if any such water supply wells are threatened. PLS has also, consistent with its proposal (and with one of DEQ's conditions), submitted a work plan for a downgradient investigation of the Unit E plume. (Exhibit 2). These wells may also be available for monitoring as a way of confirming the boundaries of an institutional control.

D. What Should be Done at Wagner Road?

The one aspect of PLS' proposed remedy on which the parties are in clear disagreement is the Wagner Road element. PLS has proposed to continue its on-site purging and to conduct an investigation in the Wagner Road area to determine if concentrations in this area are high enough to justify an additional purge well. PLS is not proposing to capture the entire width of the plume at this location because it serves no useful purpose to do so. Rather, PLS has proposed to reduce concentrations at this location, depending on the results of the pending investigation. The DEQ initially approved this mass reduction objective, but later asserted that PLS should attempt to capture the entire width of the plume at this location.

Capturing the width of the plume using conventional pump and treat technologies is, according to DEQ, a preferable remedy because DEQ "believes" it will accelerate groundwater cleanup horizons. As will be explained in more detail below, pump and treat technologies are not suitable for this objective. There is no basis for DEQ's assumption that its proposal would result in attaining the cleanup criteria any sooner than PLS' proposal. The most efficient mid-plume remedial technique is mass reduction in areas of high concentration, not containment. This is what PLS is doing in the C3/D2 plume (*e.g.*, the horizontal well).

PLS also is very concerned that a "capture" objective cannot be directly verified. Currently, hydraulic capture at other areas of the site is enforced through minimum purge rates and by monitoring verification wells to show that the plume is not "escaping" hydraulic capture. Monitoring downgradient of the barrier, however, cannot be used to verify compliance for Wagner Road. This is because there are significant concentrations of 1,4-dioxane in the ground on both sides of the hypothetical barrier. Monitoring wells installed ahead of the barrier will not be able to verify that the barrier is operating as designed. This puts PLS in a perilous position if capture becomes an enforceable objective. Relying only on minimum purge rates is really no different than mass reduction, which is what PLS has proposed.

The unilateral change in performance objectives would also directly conflict with PLS' obligations under this Court's REO. Although the exact capture volume is unknown, it will undoubtedly exceed the available capacity under the NPDES permit unless more capacity is diverted from the D2/C3 cleanup effort. PLS has already allocated approximately 180 gpm of the 1300 gpm capacity allowed under the permit to its on-site extraction wells. Because of decreasing water levels in the C3 and D2 aquifers (and resulting decrease in purge rates), there is still a small amount of capacity that can be allocated to mass removal at Wagner Road if concentrations in this area justify that response. What the DEQ has proposed, however, will greatly exceed the available capacity and would require PLS to choose between attempting to comply with the Court's REO and complying with the DEQ's proposed interim response.

PLS urges the Court to allow PLS to move forward with its groundwater quality investigation. If concentrations justify additional mass removal, PLS will install an additional well and connect it to the existing treatment system. There is, however, no basis for the DEQ's plume capture performance objective.

III. Satisfaction of DEQ Conditions.

PLS urges this Court to address the most problematic prerequisite to approval of PLS' remedy – the institutional control requirement (Condition 3). Issuance of a judicial institutional control would greatly benefit the community as a whole and spare residents the disruption and safety concerns associated with any other plan. If this condition is satisfied judicially, PLS' plan is readily approvable now, not a year from now. PLS has already agreed to Condition 2 (containment of 2800 ppb contour at Maple Road as a

performance objective) and Conditions 4 and 5 (monitoring of potential receptors and contingency plans). As discussed above, PLS believes that Condition 6 (acceptable disposal option for treated water at Maple Road) has already been met and is willing to attempt to address any reasonable requests for additional data to confirm that reinjection is feasible at this location. The only remaining condition, then, is the DEQ's insistence that the Northwest Supply Well be abandoned (Condition 1).

PLS strongly disagrees with DEQ's conclusion that formal abandonment of the Northwest Supply Well is a legal barrier to approval of PLS' proposed remedy. This condition arises from the DEQ's unpromulgated internal policy against allowing expansion of the plume within a designated wellhead protection area. This should not be considered a condition of approving PLS' plan for the simple reason that the City has effectively abandoned the well already. The City discontinued operation of this well in February 2001when it detected concentrations of 2 ppb of 1,4-dioxane. Given the City's very public position that any detectable levels of 1,4-dioxane are not acceptable, it cannot reasonably be expected that the City will ever use that well. Moreover, the well is independently contaminated with naturally occurring arsenic at levels above the allowable limit of 10 ppb. The City's own sampling data from 2002 confirms that the well contained 18 ppb of arsenic. (Exhibit 3). The City claims to have abandoned its well because it detected 1,4-dioxane – a "suspected carcinogen" – at levels 40 times lower than the cleanup standard. It necessarily follows that the presence of arsenic – a "known carcinogen" – at levels well above the cleanup standard would independently cause the City to abandon its well.[4] Under these circumstances, the DEQ's internal policy is irrelevant and should not drive remedial decisions.

In addition, the City has already sued PLS and is contending that PLS must pay to replace the well because it is no longer useable. The issue of proper compensation, if any, will be resolved shortly in that litigation. It would be inappropriate to reject a proposed remedial alternative that is otherwise protective based on the existence of a well that has in fact been abandoned. Certainly, PLS would urge the Court to refrain from ordering PLS to implement the DEQ's draconian and unsafe remedial alternative before the significance of this well is decided in the pending litigation.

IV. Additional Factors that Militate in Favor of PLS' Suggested Remedy.

PLS would ask the Court to also consider the factors discussed below when determining the proper course of action.

A. Timeliness

PLS' plan has the advantage of being timely. In addition to avoiding the multi-year effort needed to build pipelines three to four miles long, PLS' proposed plan incorporates the only discharge method that would not require a discharge permit and that

[4] The City's sampling arsenic result is consistent with preliminary sampling PLS conducted in other monitoring wells in the Unit E aquifer, which showed elevated arsenic levels well above the federal MCL at multiple locations.

can be implemented without requiring access to significant numbers of properties. PLS' proposed groundwater reinjection is authorized under Mich Adm Code R. 323.2210(u)(ii) and does not require a NPDES, deepwell injection, or groundwater discharge permit. DEQ's proposal, and any other discharge scenario, requires issuance of a permit that can and, given the history of this site, will be challenged in a contested case proceeding.

Once access for the treatment system and the limited amount of necessary infrastructure is obtained, PLS can install its Maple Road purge system within 4-6 months. PLS' ability to promptly address the Maple Road area is important because it allows PLS to prevent the much higher concentrations west of Maple Road from migrating into the congested residential areas to the east.

Moreover, it is unlikely that the DEQ's contingent plan would achieve the applicable cleanup criterion any sooner than PLS' plan. The DEQ claims that by segmenting the plume, its plan will shorten the cleanup horizon. This theoretical advantage has been repudiated by the experience of experts in the field. It is well known in the professional community that pump and treat approaches in all but very simple situations typically cannot fully attain groundwater restoration (health based goals) throughout a plume no matter how long the system is operated. The main reason is the phenomena of "tailing" and "rebound." This is described in guidance for pump and treat systems put out by USEPA for superfund sites. *Pump and Treat Groundwater Remediation, A Guide for Decisionmakers*, USEPA, July 6, 1996 (EPA/625/R-95/005), available at http://www.epa.gov/ORD/NRMRL/pubs/625r95005/625r95005.pdf. Tailing and rebound will, in situations such as this one, which involves multilayered heterogenous geology, frustrate any cleanup goal for Unit E that is based on attaining criteria throughout the aquifer. Thus, there is no basis for DEQ's assertion that more pumping at the interior of the plume will attain criteria "faster" than PLS' plan.

B. The DEQ's Contingent Remedy is Not Legally Required or Feasible.

1. There is no legal basis for DEQ's Plan.

The DEQ has taken the position that PLS is required to remediate the Unit E under the 1992 Consent Judgment. Specifically, the DEQ asserts that PLS is required to remediate the Unit E plume, which has migrated ***east*** from the Wagner Road facility under the Consent Judgment provisions regarding the ***Western*** System, which provide:

> **Western Plume System**
> (hereinafter AWestern System@)
>
> 1. Objectives. The objectives of the Western System are: (a) to contain downgradient migration of any plume(s) of groundwater contamination emanating from the GSI Property that are located outside the Core Area and to the **northwest, west, or southwest** of the GSI facility; (b) to remove groundwater contaminants from the affected aquifer(s); and (c) to remove all groundwater contaminants from the

> affected aquifer or upgradient aquifers within the Site that are not otherwise removed by the Core System provided in Section V.B. or the GSI Property Remediation Systems provided in Section IV.

Consent Judgment, Section V.C.1 (emphasis added).

PLS does not concede that the Consent Judgment requires PLS to remediate the Unit E. To this point, PLS has been willing to move forward with the investigation and remediation of the Unit E without engaging a legal effort to contest responsibility.[5] But even if the Consent Judgment was applied to this new area of contamination, it provides no support for a plan that requires three separate capture zones. The only interim response/source control required by the Consent Judgment is contained in Section V.B.1, which relates to the "Core Area" – the portion of the shallow **C_3** aquifer that contains contamination above 500 ppb. The Consent Judgment contains no interim response requirements that could possibly apply to the Unit E. There is no remedial objective or other requirement in the Consent Judgment that could be construed to require the type of program envisioned by DEQ. The most the Consent Judgment could be interpreted to require would be containment of the leading edge – a remedial objective that neither the City of Ann Arbor nor its citizens want implemented.

DEQ also claims that its proposal is supported by Part 201.[6] To the extent it applies, Part 201 does not require interim response on the grand scale suggested by DEQ. The releases at issue all took place well before 1995. Therefore, the source control measures suggested by DEQ would not be required by Section 14(1)(d), MCL 324.20114(1)(d), even if they were "technically practical, cost effective, and [protective of] the environment."[7] This is particularly true where PLS has already proposed appropriate interim response measures.

Moreover, PLS cannot be required to undertake ***any*** response activity under Part 201 because the releases that are alleged to have caused the Unit E contamination were "permitted releases." Part 201 defines a "permitted release" as "a release in compliance with an applicable, legally enforceable permit issued under state law." MCL 324.20101(aa)(i). After a six-month long trial, this Court's predecessor, Hon. Patrick J. Conlin, determined that the state authorized the very releases currently at issue pursuant to a series of state-issued wastewater discharge permits. His July 25, 1991 Opinion is attached as Exhibit 4. Therefore, the "permitted release" issue has already been adjudicated as between the parties in favor of PLS. That decision would be binding on

[5] PLS reserves the right to contest the applicability of the Consent Judgment to the Unit E in the event the DEQ or a Court attempts to compel PLS to implement the DEQ's proposed remedy.

[6] PLS notes that Part 201 gives a party to a consent judgment entered prior to the 1995 amendments the right to proceed under the consent judgment or under Part 201. MCL 324.20102a(3). Thus, Part 201 would only be relevant to the extent the Consent Judgment does not apply to the Unit E or, if it does, only to the extent PLS chooses to proceed under that statute.

[7] As PLS explained in its FS, interim response activities beyond what PLS has proposed would not satisfy any of these criteria.

the parties under the doctrines of *res judicata* and *collateral estoppel*. Dart v Dart, 460 Mich 573 (1999) (res judicata); Hawkins v Murphy, 222 Mich App 664 (1997) (collateral estoppel).

Part 201 does not require PLS to undertake any response activities to address such permitted releases:

> A person shall not be required under this part to undertake response activity for a permitted release. Recovery by any person for response activity costs or damages resulting from a permitted release shall be pursuant to other applicable law, in lieu of this part.

MCL 324.20126a(5) (emphasis added).

Thus the DEQ cannot compel PLS to implement the response activities that it asserts must be undertaken in the event PLS is unable to obtain approval of PLS' proposed remedy.

2. DEQ's plan is not feasible.

PLS has gone to great lengths and expense to avoid embroiling this community in a legal battle over the responsibility for the Unit E. Despite strong legal arguments in its favor, PLS has proposed a responsible and protective remedial alternative and is committed to implement it. What PLS is unwilling to do is to spend tens of millions of dollars to prove what should be clear on its face: the DEQ's contingent remedy is neither feasible nor appropriate.

a. Treatment System

DEQ's contingent remedy would require a Maple Road-based treatment system approximately the same size as the one PLS operates at its facility. To give the Court some perspective on the scale of operation the DEQ's proposal would require, the operational requirements of PLS' current system are instructive.

At the PLS facility, the UV-H202 system occupies a dedicated building that is 60 x 115 ft. and can treat 1300 gpm of groundwater contaminated with 1,4-dioxane. It receives shipments via tanker truck every three to four days of sulfuric acid, sodium bisulfite, caustic, and hydrogen peroxide in approximately 20-ton lots. The facility has its own transformer, which consumes approximately 530,000-kilowatt hours of electricity every month. PLS utilizes two 1,000,000-gallon equalization ponds to insure continuous operation and compliance with its stringent NPDES permit requirements. While an ozone/H2O2 system would consume a somewhat smaller volume of chemicals, a system sized to meet DEQ's requirements can be expected to be on a scale of the one that is located already at PLS and, in any event, to be far larger and to consume far more raw materials than the system proposed by PLS for its more realistic Maple Road purging

program.[8]

It is not feasible to place a treatment system large enough to accommodate 1150 gpm required by DEQ's plan in a commercial area. Installing and operating a system that could accommodate 1150 gpm anywhere in the vicinity of Maple Road is not feasible primarily because of three factors: i) the significant health and safety issues associated with liquid oxygen; ii) the physical size of the system; and iii) the absence of any properties in the area that are available and properly zoned for this type of industrial operation.

i. <u>It is Not Safe to Site a Liquid Oxygen-Based Treatment Unit in the Maple Road Area.</u>

A treatment system of this size would require liquid oxygen. PLS does not believe that it is safe to use and store the volume of liquid oxygen that would be needed to treat 1150 gpm of contaminated groundwater in the Maple Road area.[9] PLS estimates that such a treatment unit would require 40,000 cubic feet of liquid oxygen per day. This usage would require construction of a large liquid oxygen storage tank and frequent refilling by a liquid oxygen tanker truck. This use is not appropriate for a highly utilized retail commercial area. That is precisely why PLS designed the mobile ozone treatment unit to utilize a oxygen generator rather than liquid oxygen. Mr. Fotouhi convinced PLS management to adopt this design even though it would have been much cheaper to implement its proposed interim response with a liquid oxygen-based treatment system. (Compare the FS unit cost of treating 1000 gallons for the mobile unit ($2.64/1000gallons) with the on-site liquid oxygen-based treatment costs ($0.91/1000 gallons)).

Nor is it feasible to generate enough oxygen (with an oxygen generator) from the atmosphere to reliably treat 1150 gpm. PLS' current **200 gpm** system already utilizes the second biggest oxygen generator on the market. It is not technically feasible to string together six or seven of these units to generate the oxygen needed to treat 1150 gpm. Each oxygen generator would require its own compressor, air dryers, and other associated equipment. From an engineering standpoint, it is not possible to reliably operate such a system on anything approaching a continuous basis.

[8] DEQ's consultant estimated that their system would be of similar size. The "footprint" for the packaged system and supply equipment was estimated to be a total of 640 square feet, plus a large liquid oxygen tank with vaporizers (which will need containment and security) plus sufficient ground space for trucks to make chemical deliveries and additional ground space to secure the system (fencing, on-site security). (Email from Anne Turne to Mike Pozniak, August 25, 2004, attached as part of Appendix B, Attachment B, to DEQ's Decision Document). This is actually somewhat larger than PLS' facility.

[9] DEQ's vendor acknowledged that liquid oxygen presents significant health and safety issues, but claimed the concerns could be managed by securing the site and following proper liquid oxygen handling procedures. PLS submits this is an appropriate response only if the land is industrial. Zoning prohibits, for health and safety reasons, the location of this type of storage unit in a retail area.

ii. The Treatment System, Including Ponds, Required by the DEQ's Remedy is Too Large to be Accommodated by any Properties in the Wagner Road Area.

For a host of engineering reasons, a system sized to accomplish DEQ's proposed remedial objectives would require the construction of both an equalization ("Red") pond and a discharge ("Green") pond. Without such ponds it is PLS judgment that it would not be able to continuously purge the groundwater (as required to capture) or to meet the stringent discharge requirements of a NPDES permit. Again, this point is driven home by the fact that the treatment system would be essentially the same size as the system PLS operates on site. PLS currently utilizes two 1,000,000-gallon ponds. While it would not be absolutely necessary to have ponds with that volume at an off-site location, it would be prudent to have ponds with a volume of at least 500,000 gallons to accommodate a treatment volume of 1150 gpm. If the performance objective is to capture the entire width of the plume, ponds of this size would be needed to allow for continuous purging during maintenance of the treatment system. Even ponds this large would only provide storage capacity for approximately six hours of continuous operation.

These ponds would be necessary to meet the technical challenges associated with operating a treatment system that would have to meet NPDES discharge limits, 24 hours a day, 7 days a week, and 365 days a year – challenges with which PLS is well familiar. For example, the equalization or "Red" pond would be required so that the entity operating the system could precipitate out the iron in the water. If the iron is not removed prior to treatment, the treatment process would cause the iron to precipitate. In that condition, the iron would readily adhere to the interior of the lengthy pipelines associated with DEQ's proposal. Because of the extreme length of pipeline contemplated, it would not be practical to clean the iron residue from the pipeline to the River. The only practical way to address the iron issue is to precipitate the iron out prior to treatment, and that requires a pond.[10]

Moreover, much of PLS' success in operating a continuous purging/treatment operation is achieved because of the stability its on-site ponds provide. With such ponds, it is possible to maintain the steady volume of water needed to avoid constantly readjusting the calibration of the system, which would prevent the operator from meeting the discharge criteria. An equalization pond is particularly necessary under DEQ's proposal since water will be purged from multiple locations with varying concentrations and water chemistry.

It would also be necessary to have a discharge or "Green" pond to provide assurance that stringent NPDES permit requirements could be met by the treatment system. If effluent sampling shows that limit not satisfied, the operator would be able to re-circulate through the treatment system. Consistent compliance with a hypothetical

[10] DEQ's vendor acknowledged it had not field-tested its equipment where there is high iron, although it claimed it should not interfere with functioning of its unit. Even if this claim holds true, the iron would still have to be removed to control discharge to the Huron River through a long pipeline.

NPDES permit could not be achieved without such a pond. The Green pond also allows for further iron removal prior to being placed in a three-mile long pipeline.

Under DEQ's proposal, the resulting footprint of the required 1150 gpm treatment system would be far too large to be placed on any property in the vicinity of Maple Road. The treatment unit (even if it was feasible to configure a system that could generate the required amount of oxygen from the atmosphere) would at a minimum replicate PLS' current treatment building, which is approximately 60 X 115 ft. Treatment ponds would require an area of at least 120 X 140 ft. Therefore, even if it was safe to locate a system big enough to accommodate DEQ's remedial objectives it would not be possible to do so in the congested commercial area available.

iii. The DEQ's Proposed Remedy is Not Consistent with Existing Zoning.

Part of DEQ's response plan requires PLS to construct and operate a treatment plant of approximately 1300 gpm capacity in the vicinity of Maple Village Shopping Center ("MVSC") in Ann Arbor. A plant of this size would be an industrial use under Chapter 55 of the Ordinances of the City of Ann Arbor. Attached as Exhibit 5 are maps of the zoning above the Unit E plume from PLS' facility through the leading edge of the plume and beyond. These maps show that no property within the vicinity of MVSC (approximately 1000 foot radius from the proposed capture areas) is properly zoned for the DEQ's treatment plant. Even if one were to expand a search to cover more of the West Side of Ann Arbor, only two small parcels (near Liberty) have an industrial zoning classification. Both properties are too far away to be of practical use, are developed, occupied, and not for sale, and both are too small for a treatment plant that would meet DEQ's requirements. (See Map of Section 930).

Part 201 of NREPA requires that remedies selected by DEQ be consistent with zoning. This question most often arises when a response activity is intended to attain a criterion other than the most restrictive (residential) criterion. However, it is also a significant issue here, where in order to attain residential criteria, DEQ is ordering that property be put to non-residential use for a treatment plant, inconsistent with local zoning and current activity patterns. In this case, it is patently inconsistent for DEQ to insist that local ordinances controlling groundwater use must be made consistent with PLS' remedy, while ignoring zoning ordinances of these same local units of government in the case of its own remedy. Land use controls, including zoning and groundwater use ordinances, must both be examined in evaluating the appropriateness of a response activity plan, both in concept and in attaining cleanup objectives.

Section 20a of Part 201, MCL 324.20120a(6), provides in pertinent part that "the department shall not grant final approval for a remedial action plan that relies on a change in zoning designation until a final determination of that zoning change has been made by the local unit of government." That section also requires that a remedial action plan include documentation that the current property use is consistent with the current zoning or is a legal nonconforming use. While the shopping center use is consistent with

the current zoning, the DEQ's plan is manifestly not, and cannot be legally approved as a final remedy for the site unless and until there is a zoning change approved by the local unit of government. DEQ's administrative rules similarly emphasize that zoning must be consistent with the selected response activity. See Mich Adm Code R. 299.526(6)(b) (final interim responses must be consistent with zoning and land use activity patterns); R. 299.522(7)(d) (requiring DEQ to consider comments from neighbors or the local unit of government that a proposed response activity is inconsistent with current zoning); R. 299.532(8)(b) (a remedial action plan must contain statements and representations regarding current zoning to show consistency with proposed response actions).

DEQ's "Decision Document", its "Public Comment Responsiveness Summary" and the "Executive Summary" say nothing about zoning. The only comments regarding land-use that it responded to were in connection with PLS's plan, where DEQ did not dispute the relevance of this factor but only said it was "premature" with respect to evaluating PLS' contingency plan along the river. (Decision Document at 9). The record is otherwise devoid of any consideration of this issue.

b. Pipelines

Given the history of this site, it is capricious for DEQ to assume that PLS could implement a remedial alternative that requires construction of three to four miles of pipeline (about 1.5 miles of which would be installed within congested neighborhoods). As documented in the FS, these pipelines would cause tremendous disruption in the community, without any corresponding environmental or human health benefit. Recent public hearings/meetings have made clear that there is no public support for such construction among the affected homeowners (to the extent they even received notice of the project). Over 500 homeowners signed declarations and petitions opposing the disruption of their neighborhoods that would be caused by attempting to implement the DEQ's contingent remedy. These petitions were only from persons mobilized by DEQ's incomplete conceptual pipeline map. DEQ acknowledges that it is in fact not possible to know the extent of opposition or disruption until a complete design (all the way to the River) is proposed.

In the Evergreen subdivision, PLS sued the City to obtain access to City right-of-ways to install approximately 1000 feet of pipe. Even though this took place in a situation that demanded the utmost urgency, and even with this Court's intervention, it took over a year to get that 1000 feet of pipe installed. DEQ's proposal would require approximately 16,000 feet of pipeline to be installed in front of hundreds of homes and businesses, through right-of-ways owned by at least three different governmental units. The contemplated pipeline construction would not be feasible or even remotely timely. Even if such a series of pipelines were feasible and access to pipelines voluntarily granted, the construction would take years to complete.

LIST OF ATTACHMENTS AND EXHIBITS

Exhibit 1 Modeling Report for Reinjection
Exhibit 2 Work Plan for Downgradient Investigation
Exhibit 3 Arsenic data for Northwest Supply Well
Exhibit 4 Opinion and Order of Judge Conlin
Exhibit 5 Zoning Maps

Attachment A: PLS Response to MDEQ September 1, 2004 Decision Document
Attachment B: Decision Matrix

ATTACHMENT A
Pall Life Sciences Response to
DEQ's September 1, 2004 Decision Document

Introduction

DEQ issued its Decision Document on September 1, 2004. To the extent this document represents a final decision of DEQ, PLS is disputing that decision. This document lists conclusions set forth in DEQ's decision document which PLS disputes, the reason for the dispute, and additional supporting materials.

Cover Letter, Robert Reichel to Honorable Donald E. Shelton, September 1, 2004

- PLS disputes the conclusion that its proposed remedy as outlined in the FS "cannot be approved by DEQ, based upon the requirements of Part 201 of the Natural Resources and Environmental Protection Act." (Par. No. 1).

- PLS disputes (for the reasons stated below) the remedial alternative suggested by DEQ if PLS cannot meet the six specified conditions within one year. (Par. No. 3).

- PLS disputes (for the reasons stated below) that it must concurrently with pursuing its proposal begin to implement DEQ's alternative. (Par. No. 5).

Gelman Site Enforcement Activities

- PLS disagrees with DEQ's characterization of the disposition by this Court of the February 2000 motion by the Michigan Department of Attorney General ("DAG"). (Decision Document, at 3). PLS incorporates by reference its responsive pleadings and testimony in court in connection with its defense of the motion. PLS specifically denies, for the reasons set forth in the referenced documents, the statement in the Decision Document that PLS had not complied with the Consent Judgment. It is not appropriate to present this as a fact when it was contested and this Court did not decide the underlying contentions.

Unit E Plume

- PLS disagrees with the DEQ's characterization of the historic data regarding Unit E. Specifically, there is an implication that PLS or other parties knew of, but did not disclose, Unit E contamination before it was found in May, 2001. (Decision Document, at 4). This is not accurate.

- PLS does not agree that the test it conducted on in-situ treatment at MVSC proved that the technology was infeasible. (Decision Document, at 5). PLS agrees the results of the test ruled out use of the technology in the MVSC area based on the conditions of the test. PLS is

still reviewing the potential for in-situ to work in other locations, for other applications at the site, and under different conditions than those imposed by DEQ for the MVSC test.

DEQ Analysis of PLS's Proposed Response Action

- PLS disputes DEQ's characterization of the time that it would take PLS to achieve cleanup criteria using its proposed method. (Decision Document, at 9). Any remedy that involves pump and treat technology to address the Unit E suffers from the same uncertainty in predicting cleanup horizons due to the phenomenon of tailing and rebound. (See note 2). The statute and rules do not require DEQ to balance estimated cleanup times in evaluating options, nor is it possible to do so where both options involve pump and treat. It is arbitrary to rely on guesses as to cleanup horizons as a basis for selecting an option in this context.

- PLS disputes DEQ's conclusion that the WCRRPG is not adequate under Part 201. (Decision Document, at 9). The contours of the Unit E contamination (as defined by the 85 ppb iso-concentration line) are fairly well established. No one has identified existing drinking water supply wells in this zone. There are also no industrial wells within this zone. The "deficiencies" identified by DEQ are, therefore, speculative and should not disqualify an otherwise useable institutional control.

- PLS disagrees with DEQ's analysis of the viability of the Northwest Supply Well. (Decision Document, at 9). The analysis arbitrarily ignores the fact that the City of Ann Arbor has publically stated it will not turn on that well, and that it has sued PLS for, among other things, the replacement value of the well. Use of the well would be inconsistent with the City's lawsuit. Moreover, there is nothing in the record or the Decision Document that suggests that the City needs the well for water supply or otherwise intends to use the well under any circumstances.

- DEQ's application of its "policy" (Decision Document, at 9) to deny a waiver request when a plume is in a wellhead protection area is arbitrary and capricious and not supported by the record. No such written policy has, in fact, been produced. There is no way for PLS to comment upon, or for the Court to determine if the rationale for that policy (if it indeed exists independent of this particular site) applies to the circumstances of the Northwest Supply Well.

- DEQ's determination that the WCRRPG does not meet the requirements for acceptable institutional controls is also arbitrary and not supported by the record. There are no rules or written guidance that elaborate on the elements of an institutional control. Section 18 of Part 201 provides only that an institutional control that is proposed as part of a remedy be adequate "to prevent unacceptable risk from exposure to the hazardous substances, as defined by the cleanup criteria approved as part of the remedial action plan." Section 20b of Part 201 provides: "mechanisms that may be considered under this subsection include, but are not

limited to, an ordinance that prohibits the use of groundwater or an aquifer in a manner and to a degree that protects against unacceptable exposures as defined by the cleanup criteria approved as part of the remedial action plan. An ordinance that serves as an exposure control pursuant to this subsection shall be published and maintained in the same manner as zoning ordinances and shall include a requirement that the local unit of government notify the department at least 30 days prior to adopting a modification to the ordinance, or to the lapsing or revocation of the ordinance." It should be noted that neither statute prohibits exposure to *any* risk. The ordinance must be sufficient to prevent *unacceptable* exposure. With the exception of the Northwest Supply Well (discussed above) there are no water supply wells currently in the Unit E. While other Unit E wells exist, they are not near the plume and are located either cross-gradient or very far downgradient from the leading edge of the plume. There is, therefore, no basis in the record for concluding that the WCRRPG is insufficient merely because it does not require abandon of wells that actually do not exist within the plume boundaries or within any area that the plume could reasonably reach for many years.[1]

- DEQ's observation that the WCRRPG does not restrict operation of industrial wells (Record of Decision, at 9) is also misplaced. Current zoning does not allow industrial uses along the projected flow path, except in limited areas adjacent to the Huron River that is far downgradient of the leading edge. Also, the basis for this objection is stated to be that an industrial well "could change the configuration of the plume." DEQ fails to explain why it matters if the configuration of the plume changes, provided the plume remains subject to the WCRRPG. Finally, while it is "possible" that zoning may change, that land uses may change in Ann Arbor, that a heretofore non-existent hypothetical industrial user might then move to Ann Arbor and want to install a well notwithstanding that its due diligence should show that the Unit E is contaminated, this is not a risk that is significant enough to be a basis for rejecting PLS's plan. The statute only requires protection against unacceptable risk.

- PLS rejects as inaccurate and misleading DEQ's contention that there is no provision to monitor or protect existing private water supply wells east of the Huron River if the plume does underflow the Huron River. (Decision Document, at 9). The nearest such well is *three miles away*. PLS has already proposed a downgradient investigation that will answer DEQ's concern many years before the plume could ever reach that well, even assuming it took a bee-line under the river. In addition, as DEQ elsewhere acknowledges but omits in its analysis, PLS has proposed a contingency plan to intercept contaminated groundwater *before* the water

[1] The wells generally downgradient are in Ann Arbor Township. As part of its proposal, DEQ acknowledges that PLS has agreed to further demonstrate through investigation that these wells are not threatened by continued migration of a portion of the Unit E plume. In the interim, the WCRRPG is more than adequate to control actual exposures within the current plume boundaries and projected flowpath for the foreseeable future.

reaches receptors. There is, therefore, no basis in fact for DEQ's suggestion that PLS's plan would allow downgradient wells to become contaminated. One other observation – PLS is aware of one well, three miles away, that is on the other side of the river along the projected flow path. All other residential wells in that general direction are four miles away. While PLS, this Court, and DEQ all share in a goal to get started in addressing Unit E, there is no imminent threat to the public health or safety. The Decision Document is flawed to the extent it suggests that DEQ must reject PLS's proposal as inadequate to protect the public health and safety.

- DEQ also rejects PLS's proposal on the basis that there is a substantial degree of long-term uncertainty associated with assumptions about groundwater flow and that there is currently not enough information to predict the exact route the plume will follow. (Decision Document, at 9). PLS disagrees with this assessment. PLS' projected the plume flow path using available geologic information and analysis. The projection was not a mere "assumption." Nothing in the record shows that DEQ has in any way attempted to quantify the "uncertainty" it references, and DEQ ignores the WCRRPG, the current flowpaths delineated in the DEQ-approved wellhead protection report, the available hydrogeologic information, and logic. PLS submitted information to support its proposed flow path, including model runs that show the dramatic decline in concentrations in the projected plume as PLS's mass removal strategy is implemented. While it is always possible to claim, as DEQ does here, that there is not enough information to determine "exactly" where the plume goes, there is nothing in the record that suggests it is necessary to know this to such a degree of certainty. To the contrary, the record evidence suggests that concentrations will be low enough to not present an unacceptable risk, even if the exact flowpath is not yet known. Moreover, DEQ's finding ignores three components of PLS's plan: (1) collection of additional information downgradient to verify the information PLS has submitted (which will provide more certainty, even if not "exact"); (2) the WCRRPG, which controls risk of exposure; and (3) PLS's contingency plan to intercept the plume near the river should (1) and (2) prove inadequate to control risks.

- PLS acknowledges that a hydrogeologic study is necessary to add certainty to its plan. It has submitted a work plan to accomplish this to DEQ. PLS disputes that the current uncertainty is any more significant than the uncertainty in DEQ's alternative proposal. If and until an NPDES permit is issued, for example, neither PLS nor DEQ can know if it is feasible to discharge to the river or to treat extracted water at MVSC.

- PLS disagrees with DEQ's position that it need not evaluate "as premature" the claim made by PLS that its proposal would be more compatible with existing land uses than the leading edge alternatives. (Decision Document, at 9). It is not premature to make this evaluation. PLS has submitted information to DEQ, as have other commentators, regarding these issues.

Public Involvement – Responsiveness Summary

Comment 28 (Responsiveness Summary at 7): PLS strongly objects to and disputes statements made by DEQ to the public that suggests PLS is responsible to third parties in any respect. This statement is inappropriate in the context of the Decision Document and is not accurate as a matter of law.
Comment 29 (Responsiveness Summary at 7): PLS disputes that a pipeline to the Huron River is the only feasible method of discharge for treated groundwater from the Unit E.

Comments 31 and 32 (Responsiveness Summary at 7): PLS disputes the technical objections DEQ has interposed to reinjection as proposed by PLS.

DEQ's Preliminary (July 2004) Proposed Remedial Alternative and Evaluation

This section of the Decision Document (Page 11 to 17) reiterates the position taken in July 2004. PLS has already submitted comments on that document which is part of the record here, and PLS incorporates by reference those comments.

In addition, PLS disputes that it is necessary to design a conveyance system to transport water downstream of the City's water intake in the Huron River. (Decision Document, at 13). PLS has operated a 1300 gpm groundwater treatment system at its facility for years without any incident that threatens the City's water supply. There are numerous controlled and uncontrolled industrial, agricultural and residential discharges to the Huron River upstream of the water supply intake that in comparison are far greater threats than the strictly controlled discharge from PLS. In fact, PLS has added significant volumes of clean water to the Huron River. There is no basis on the record for designating a location downstream of the intake as the only acceptable surface water discharge point into the Huron River.

DEQ's September 1, 2004 Selected Remedial Alternative for the Unit E Plume

- PLS does not agree with the conclusion of DEQ that its proposed plan "is necessary to comply with Part 201 and the CJ." (Decision Document, at 13). This is not correct as a matter of law. The CJ does not require capture of the width of any of the identified plumes, except at the leading edge.

- PLS disputes that the balance of the criteria favor DEQ's alternative over PLS's selected remedial action. (Decision Document, at 13). A matrix comparing PLS's remedial action with DEQ's alternative is included as Attachment B. As shown on that matrix, none of the factors favor DEQ's alternative, and several factors favor PLS's remedial action.

- PLS also disputes the viability of verifying compliance with DEQ's approach. DEQ would require at each location the prevention of further migration at each location of concentration of 1,4-dioxane above 85 ppb in the downgradient or easterly direction. No method is suggested by DEQ, nor does PLS know of one, that can verify that this performance objective is being met, even if such a system were installed. That is because it is expected

that interior concentrations of the plume will continue to be at levels above 85 ppb for an undetermined time following initiation of DEQ's response. It does not appear feasible to directly verify whether the hydraulic barrier actually functions. Since PLS can be subject to penalties for failing to meet this directive, it is impermissible for the DEQ to establish an unattainable (or at least an unverifiable) performance objective. To the extent DEQ specifies some indirect measurement (such as purge rate) as the only way to document performance, DEQ's remedy in effect becomes only a more vigorous mass reduction strategy. DEQ cannot, and has not attempted to, justify their proposal on that basis.

- PLS disputes DEQ's conclusion that a new 1300 gpm groundwater treatment facility can be located at or near the MVSC. (Decision Document at 14). PLS submitted significant information on the needs and risks of such a system in support of its contention that it is not feasible to build nor safe to operate at that location. DEQ, without any contrary information on specifications, research into existing property uses, or available property in the area, has dismissed PLS's information and simply stated it "believes" such a system to be feasible. This is patently insufficient. There is no support in the record for the DEQ's belief. Belief will not change zoning requirements; it will not create vacant land where there is none; it will not force owners of property to give up ownership for a cleanup; nor it will make a project feasible that is not. The very fact that DEQ suggests that alternative locations be explored illustrates that a suitable location may, in fact, not exist at all. Additionally, this decision is arbitrary. There is no legal distinction between the type of uncertainty associated with the groundwater plume direction and the uncertainty associated with whether the DEQ's treatment plant could be sited and constructed. On the contrary, PLS has made a record in support of its plan and explaining in detail the infeasibility of DEQ's treatment system. Yet DEQ has rejected the former as unacceptable (for the time being) because of lack of precision, while accepting the uncertainty of its own proposal on the basis of "belief."

- PLS disputes DEQ's assertion that its plan would "significantly reduce" the amount of time needed to clean up the contaminated aquifer, and that this time difference (if it exists) reduces the threat to the public health, safety and welfare. (Decision Document, at 14, 15). There is no record on this. DEQ's position is once again based on belief instead of data. More importantly, there is no identified threat to the public health, safety and welfare presented by the Unit E that is time sensitive so there is absolutely no basis for the conclusion that a faster remedy is somehow a better one, even if DEQ's remedy could be

faster.[2]

- PLS disputes that DEQ need not consider balancing costs of PLS and DEQ's proposals because PLS's proposal is not protective. (Decision Document, at 14). The response actions are both protective and this balancing should occur.

- PLS disputes DEQ's conclusion that there is a need for a stochastic groundwater model. (Decision Document, at 15). This model is wholly unnecessary for DEQ's proposed remedy because the leading edge of the plume (not to mention two other locations) will have to be contained, leaving no need to do anything other than conventional performance monitoring outside of the plume and no need to do anything at all interior to the plume using a model.
- PLS disputes DEQ's assertion that its proposal reduces uncertainties associated with PLS proposal (Decision Document, at 14). As stated here and in earlier comments, the record shows that the uncertainties regarding risk are comparable for each remedy. The uncertainties regarding implementation are, however, far greater for DEQ's proposal.

- PLS disputes DEQ's conclusion that its remedy is "more readily implementable" than PLS's proposed remedy. (Decision Document, at 15). PLS and other commentators provided significant information to DEQ calling into question the implementability of its remedy. There is no substantive record response to these concerns. DEQ has, instead, dismissed them. Without limitation, DEQ has not responded substantively to the following facts regarding implementation of their remedy: (1) no available proximate property, suitable zoned and sized for DEQ's treatment system; (2) resistance expressed by the citizens of Ann Arbor, and even the City itself, to DEQ's plan to the extent it involves bringing contaminated groundwater to the surface in residential neighborhoods and disrupting those neighborhoods with infrastructure; (3) no NPDES permit has been issued for discharge to the Huron River; and (4) no transmission pipeline routes have been proposed by DEQ, making it impossible to

[2] It has been well known in the professional community that pump and treat approaches in all but very simple situations typically cannot fully attain groundwater restoration (health based goals) throughout a plume no matter how long the system is operated. The main reason is the phenomenon of "tailing" and "rebound." This is described in guidance for pump and treat systems put out by USEPA for superfund sites. *Pump and Treat Groundwater Remediation, A Guide for Decisionmakers,* USEPA, July 6, 1996 (EPA/625/R-95/005), available at http://www.epa.gov/ORD/NRMRL/pubs/625r95005/625r95005.pdf. Tailing and rebound will, in situations such as this one, involving multilayered heterogenous geology, frustrate any cleanup of Unit E that is based on attaining criteria throughout the aquifer. There is no basis for DEQ's assertion that more pumping at the interior of the plume will attain criteria "faster."

know if a feasible route in fact exists at this time.

- PLS disputes DEQ's "recommendation" that it pursue use of the sanitary and/or storm sewer for disposal of treated groundwater from the Maple Road area. (Decision Document at 14). The record shows that the City cannot accept enough capacity to make this worthwhile, and has imposed conditions that make effective use of the sanitary impossible. The treatment system operational records at the Wagner Road facility show that it cannot be reliably switched on and off in response to weather conditions and still attain treatment limits. The calibration needed to assure that the right combination of energy, oxidants, contaminants, and balancing chemicals are maintained to meet cleanup limits is upset when the system is brought up and down.

- PLS disputes that it has not already met with its proposal, conditions 2, 3, 4, and 6 as outlined by DEQ in its Decision Document at 15-16. PLS also maintains, for the reasons discussed above, that condition 1 (Northwest Supply well elimination) is moot, unnecessary, and hence arbitrary.

- PLS disputes all of the elements of DEQ's proposal. (Decision Document, at 16).

Appendix B, Attachment A: Response to Summary Comments (Weston)

- PLS disputes Weston's response to PLS's comments regarding construction of pipelines. Based on the record and this response, Weston acknowledges that the full extent of the difficulties that will be encountered during the construction of the pipelines along the final pathway can only be determined as the design of the proposed alternative is refined. It is arbitrary and capricious, then, to make a judgment that the difficulties would be acceptable or surmountable without a final design. DEQ's solution, which is also arbitrary, is to make this PLS' problem. This is a further example of how DEQ is prepared to make judgements on inadequate information (or none at all) in support of its proposal, but requires PLS to make additional demonstrations as a condition to approval PLS's response action. So, for example, if there is not enough information to make decisions on the feasibility of reinjection (despite information provided in support to DEQ), then there is also not enough information to determine the feasibility of lengthy pipelines until a design is put forward.

- PLS disputes Weston's conclusions about the feasibility of treating 1300 gpm at Maple Village. In order to answer PLS's comments, Weston went back to a system vendor and asked for additional information. This information does not support DEQ's or Weston's conclusion as to feasibility, however. The record shows that the vendor acknowledged that it did not have data related to iron content or other characteristics of area groundwater, making their conclusions regarding the necessity of detention ponds unreliable. The record shows that the vendor acknowledged that "there are potentially significant health and safety issues associated with the handling and storage of liquid oxygen." The record shows that the neither DEQ nor the vendor can say reliably that treatment ponds would not be necessary

because the NPDES limits are not known. In particular, background concentrations of iron, bromide and arsenic may all create significant problems for the vendor's system.

- PLS also disputes Weston's conclusion that ponds will not be needed to assist the treatment system. First, it is not disputed that PLS's existing UV-H202 system does use and need such ponds. DEQ stated in its decision document that PLS might have to use this system at MVSC if the proposed hydrogen-peroxide and ozone system will not meet (as yet undetermined) NPDES permit requirements. (Decision Document, at 14). While PLS is confident that it will be able to switch technologies DEQ apparently does not share that view and so cannot, as a basis of its decision, assume that UV-H202 will not be used. Second, until NPDES permit limits are known and a large scale H202/ozone system can be field tested using the Unit E water chemistry it cannot be said that ponds will not be necessary. There may be other engineering solutions to water quality problems, but these may involve additional cost, additional space, and may have other unintended or unforeseen consequences that preclude reliably selecting a treatment location that does not have room for ponds. This is particularly true where past experience has shown that these ponds are very useful in managing treatment efficiency and compliance with permit limits at the PLS plant.

Attachment 2: Decision Matrix

Rule 603 Criteria for Evaluation of Remedial Alternatives	Comments	Favors PLS Plan	Favors DEQ Alternative
The effectiveness of protecting the public health, safety, and welfare and the environment	Both remedies are equally protective.	--	--
Long-term uncertainties associated with proposed remedial action	For PLS plan, uncertainty is with projected pathway and fate of plume; for DEQ uncertainty is NPDES permit conditions and feasibility of treatment at MVSC and of construction of pipelines	--	--
The toxicity, mobility, and propensity to bio-accumulate of the hazardous substance	Not evaluated. Same for both.	--	--
The short and long-term potential for adverse health effects from human exposure	There are no current exposures. Both plans prevent future exposures	--	--
The costs of the remedial action, including long-term maintenance	DEQ did not balance the costs, although it did review the estimates. PLS estimates its plan will be much less costly.	Yes	No
The reliability of alternatives	Both rely on "pump and treat."	--	--
The potential threat to public health, safety and welfare and the environment associated with the excavation, transportation, and re-disposal or containment	PLS's plan is low (reinjection into aquifer). DEQ's alternative considerably higher (large scale treatment, oxygen storage, materials transportation, construction and operation of pipelines)	Yes	No
The ability to monitor remedial performance	Both require extensive monitoring	--	--
The reliability of the alternatives	Large scale system proposed by DEQ is more prone to long term operation and maintenance problems; no way to directly verify internal "capture" requirement. PLS has proposed reinjection, which is well established technology.	Yes	No
The public's perspective about the extent to which the proposed remedial action effectively addresses Part 201 and the Part 201 Rules.	Public comments went both ways. However, residents at the leading edge and the City of Ann Arbor do not favor "leading edge" capture.	--	--
The potential for future remediation if the alternative fails	Same for both.	--	--

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF WASHTENAW

JENNIFER GRANHOLM, Attorney General for the State of Michigan, ex rel, MICHIGAN NATURAL RESOURCES COMMISSION, MICHIGAN WATER RESOURCES COMMISSION, and MICHIGAN DEPARTMENT OF NATURAL RESOURCES, Plaintiff, vs GELMAN SCIENCES, INC., Defendant.	Case No. 88-34734-CE Honorable Donald E. Shelton

OPINION AND ORDER REGARDING REMEDIATION OF THE CONTAMINATION OF THE "UNIT E" AQUIFER

At a Session of the Court held in the
Washtenaw County Courthouse in
the City of Ann Arbor, on December 17, 2004

PRESENT: HONORABLE DONALD E. SHELTON, Circuit Judge

Background

Gelman Sciences makes filters for medical purposes and employs several hundred people at a facility located on Wagner Road in Scio Township, adjacent to the City of Ann Arbor. For several years in its production of these filters Gelman used a man-made compound known as 1,4 dioxane, a solvent used in a number of products and industries. It is classified by the Environmental Protection Agency as a "possible" human carcinogen. Gelman had been storing waste water containing dioxane in unlined lagoons near its plant and had apparently also sprayed the wastewater on the ground around the plant. In the mid 1980's, it was discovered that this waste water had seeped

through the ground and contaminated the ground water supply in the area. Gelman ceased using dioxane in 1986.

This case was originally filed in 1988 by the State to require Gelman to clean up pollution of local water supplies caused by the discharge of dioxane. The original judge conducted a trial in 1991 and found that the contamination was the result of waste disposal practices by Gelman but that those practices had been done in accordance with State approved procedures. Eventually, a Consent Judgment identifying the required remediation actions was agreed to by the parties and entered on October 26, 1992. In the 16 years this case has been pending, many things have changed, including the identity if the participants. The successor to the plaintiff agency is now called the Michigan Department of Environmental Quality ("MDEQ"). The defendant corporation was acquired by another company in 1997 and is now known as Pall Life Sciences, Inc. ("Pall"). The original judge retired, the case was reassigned, and then was subsequently reassigned to this Court.

The original Consent Judgment was amended by the parties and the Court on September 23, 1996 and again on October 20, 1999. In early 2000, the MDEQ filed a motion to enforce the Consent Judgment and for monetary sanctions. This Court conducted a lengthy evidentiary hearing. On July 17, 2000 the Court entered its Remediation Enforcement Order which ordered the development and implementation of a detailed plan to reduce the dioxane in all affected water supplies below legally acceptable levels within a period of five years. The Court ordered plan also provided for subsequent monitoring of water supplies for an additional ten year period. The parties

were advised that the Court intended to vigorously enforce the Consent Judgment and its remedial orders with all of its statutory and equitable powers.

The parties have complied with the basic provisions of Court's Remediation Enforcement Order. By pumping and treating over a billion gallons of contaminated water at a treatment facility constructed on its Wagner Road site, over 37,000 pounds of 1,4 dioxane has been removed from the aquifer covered by this Court's five year order. Pall has complied with the terms of that Order.

However, in 2001 it was discovered that the contaminant had somehow seeped below the shallower aquifer and had contaminated a much deeper aquifer denominated by the parties as "Unit E". Test wells revealed that the plume of dioxane in that aquifer had spread Eastward under the City of Ann Arbor. The parties have been testing throughout the area to determine the spread of the plume and have been trying to develop a plan to treat the contamination of that aquifer. While there is apparent agreement on several aspects of the proposed remedial action, MDEQ and Pall disagree about important parts of the plan. The Court ordered the parties to submit their view of the proposals and to respond to questions posed at the last hearing so that the Court could resolve the outstanding issues and expedite the decontamination process for Unit E.

Procedural Posture

Initially, the parties have raised questions about the applicability of the Consent Judgment to Unit E, the responsibility of the Court to review MDEQ actions, and the scope of the Court's role in this process.

The Court finds that the Unit E contamination is subject to the Consent Judgment in this case. While this particular area of contamination had not been discovered at the time of the Consent Judgment, that judgment was intended to address the entire issue of the remediation of 1,4 dioxane emanating from the Gelman property on Wagner Road. Technically, the Court agrees with the MDEQ assertion that Unit E falls within the "Western System" as that phrase was used in the Consent Judgment. Its subsequent migration in an easterly direction does not negate that finding. The Court has the inherent and equitable powers to enforce its judgment with all appropriate measures and sanctions as to Unit E contamination.

The MDEQ, however, also questions the scope of the Court's powers and responsibilities regarding enforcement of the Consent Judgment and the Court's statutory powers and responsibilities pursuant to Part 201 of the NREPA, MCL 324.20101 *et seq*. As MDEQ asserts, the Court's determination of appropriate remedial action under both the Consent Judgment and the statute should normally be based on the administrative record, including all materials submitted by the defendant. *Consent Judgment*, Sec. XVI.C; MCL 324.20137(5). The Consent Judgment also provides for the taking of additional evidence "by the Court on its own motion or at the request of either party if the Court finds that the record is incomplete or inadequate". *Consent Judgment*, Sec. XVI.C.

The Court's review of MDEQ actions is not solely limited to a determination of whether those actions are "arbitrary and capricious". The standard for review under the statute is whether the "decision was arbitrary and capricious or 'otherwise not in accordance with law'". MCL 324.20137(5). The standard for review of MDEQ remedial

action proposals under the Consent Judgment in this case is broader as well. It provides that MDEQ actions are reviewed by this Court to determine if the decision is either (1) inconsistent with the Consent Judgment, or (2) not supported by competent, material, and substantial evidence on the whole record, or (3) arbitrary, capricious, or clearly an abuse or unwarranted exercise of discretion, or (4) affected by any other substantial and material error of law. *Consent Judgment*, Section XVI.D.

Additionally, the Court has and intends to exercise its inherent powers to enforce its own directives. Circuit courts have the jurisdiction and the power to make any order to fully effectuate the circuit courts' jurisdiction and judgments. See *St. Clair Commercial & Savings Bank v. Macauley*, 66 Mich App 210 (1975); *Schaeffer v. Schaeffer*, 106 Mich App 452 (1981); *Cohen v. Cohen*, 125 Mich App 206 (1983); MCL 600.611. This case ended up in Court initially because no clean up of significant pollution had even begun without Court intervention. The MDEQ, and subsequently the defendant, sought to invoke the equitable and statutory powers of the Court to bring about remediation of a dangerous contamination of the public's water supply. Eventually a judgment was entered and remediation orders have been made by the Court to effectuate that judgment and the goal of cleaning up this pollution. Despite the best efforts of the parties, it is not done. The extent of the contamination is deeper and greater than originally known, perhaps aggravated many years ago both by the initial resistance of Gelman and the initial ineffectiveness of the State agency. It is going to take continued concerted actions by all of the parties to remedy this expanding contamination. The Court is determined to exercise all of its inherent, statutory, and equitable powers to assure that those actions take place as soon as possible.

The Unit E Disputes

The Unit E aquifer is extremely deep, apparently over 200 feet underground. It appears to flow in an easterly direction eventually depositing water into the Huron River, which runs through Washtenaw County and the City of Ann Arbor. Test wells have indicated the presence of 1,4 dioxane under the City with the leading edge of the plume more than two miles from the Wagner Road facility. The plume is continuing to spread. At this point, the aquifer is not a source of drinking water. The City of Ann Arbor services all of its citizens with a municipal water system which draws its water primarily from the Huron River but at a point well upstream of the point at which the Unit E aquifer vents into the river. One City well did draw water from the aquifer but it has been taken out of service. There are no private wells drawing from the affected portion of the aquifer.

The MDEQ and Pall have diligently been pursuing a plan to control the contamination plume in the Unit E aquifer. Test wells have been put in place. Working in conjunction with the MDEQ, Pall has designed new technologies to arrest the contamination. The parties have cooperated in the exchange of technical data and other information. There is significant public interest and several public hearings have been held. Input has been received from public interest organizations as well as from the City of Ann Arbor. MDEQ made a decision on September 1, 2004 outlining its plan for Unit E remediation. The parties agree on much of that plan but disagree on two important elements: (1) the actions to be taken at the Wagner Road facility to prevent further contamination of the aquifer, and (2) the approach to be used to remove contaminants

from the plume in the aquifer that is already migrating East of the Wagner Road facility. The disputes as to those issues are properly before the Court.

Actions to be Taken at the Wagner Road Facility

The MDEQ calls for Pall to do test borings and then install extraction wells into the Unit E aquifer at the Wagner Road site and to purge the water from those wells at the treatment facility Pall has built and operates on that property. The purged water would then be discharged into Honey Creek in the same manner as Pall has successfully treated and discharged water from shallower sources. Pall agrees with the test borings, including one with the "rotosonic" technique required by MDEQ.

Pall disputes the MDEQ requirement that extraction wells and treatment then be undertaken with a goal to "capture the entire width of the Unit E plume at Wagner Road" and to "create a hydraulic barrier near Wagner Road to prevent further migration of groundwater contamination above 85 ppb east of Wagner Road". Pall proposes that any extraction wells would be designed to reduce the mass of contaminants but claims that the objective of capturing the entire width of the plume at that point is not feasible, not supported by the evidence, and would be inconsistent with its obligations under the Consent Judgment.

It appears to the Court that much of this dispute is semantic, or at least premature. The goal set by the MDEQ of total capture of the width of the plume is certainly appropriate - if it can be done. Whether it is feasible or not depends on a number of factors that will not be known until the test borings are complete. That portion of the MDEQ rationale relating to protecting non-existent private wells and protecting the non-operational City Northwest Supply well is not supported by the evidence on the

record. However, the primary MDEQ rationale is that controlling groundwater contamination at or near its source is more efficient than trying to capture it later as it spreads through the aquifer. There is ample support for that position. Pall does not seriously contest that proposition but disagrees with MDEQ's projection of the degree to which such interception will prove successful. Pall may well be right but the reality is that we will simply not know how much reduction is possible until the test wells are complete and extraction wells placed into operation.

One portion of the Pall objection to the Wagner Road plan deserves more serious consideration. Pall maintains that if it extracts and treats all of the Unit E water that MDEQ wants at Wagner Road, it will not be able to discharge that water into Honey Creek because, when combined with the other required treatment already underway, the total will exceed the NPDES discharge permit levels allowed by MDEQ. To the extent that this proves to be true, the MDEQ will either have to expeditiously increase the discharge permit level or forego its goal of complete Unit E capture at Wagner Road. To the extent that there is a "competition" for permitted discharge, priority must be given to the water currently being treated from shallower levels.

Subject to the limitations expressed above, Pall shall:

1. Perform the investigation described in the August 1, 2004 Work Plan for Test Boring/Well installation and Aquifer Testing in the Wagner Road Area, as modified by MDEQ's letter of August 19, 2004, including the use of rotosonic drilling for at least one boring.
2. Submit a report of the investigation to MDEQ within 30 days of the completion of the aquifer performance test.

3. Within 60 days after completion of the aquifer performance test, submit a work plan to MDEQ which will, to the maximum extent feasible, prevent further migration of groundwater contamination above 85 ppb of 1,4 dioxane eastward into the Unit E aquifer. The plan will identify any required increase in the NPDES discharge permit to accommodate such additional treatment.
4. If the parties do not agree on a Unit E Wagner Road work plan within 30 days after submission, it will be brought before the Court on motion by MDEQ for resolution.

Actions to be Taken in the Eastern Portion of Unit E

The other major issue is how to remove contaminants from the plume that has already spread eastward into the Unit E aquifer. It will never be possible to extract all of the 1,4 dioxane from this deep aquifer and the geology is such that it will ultimately end up in the Huron River and be diluted far below currently acceptable standards. But the goal must be to remove as much of the contaminant as possible, as quickly as possible, so that the ultimate dilution will take place with minimal impact on the water resource.

Pall has proposed remediation by means of a reinjection system in which water is extracted from the aquifer, treated on the Maple Road site, and immediately reinjected into the aquifer at that location. This system is one which has been developed over the last many months and has been the subject of much investigation by the parties as well as review hearings by the Court. The MDEQ has, with the conditions and qualifications discussed below, agreed with the Pall reinjection plan. The Court believes that treatment and reinjection of Unit E water

should commence forthwith in accordance with that plan. Pall shall submit its detailed work plan to MDEQ not later than thirty days from this Order. The work plan will be designed to purge enough water so that any water escaping from the purging zone in Unit E will not exceed 2,800 ppb recommended by the MDEQ.

The MDEQ qualified its approval of the Pall plan on six conditions, some of which form the basis of the disputes now before the Court. The first MDEQ condition is that the City of Ann Arbor formally abandon the Northwest Water Supply ("Montgomery") well. The City closed the well in February of 2001. The cause for the closing is being disputed between the City and Pall in a separate lawsuit. The City there claims that it closed the well because dioxane from the Gelman site had contaminated it. Pall claims that the level of 1,4 dioxane alleged to be in the well was 2 ppb, well below the 85 ppb standard. Pall also claims that the well is closed because the City found 18 ppb of arsenic, unrelated to any Gelman contamination, in the well. The outcome of those allegations, and any compensation claims, will be decided in that separate action. As far as this case is concerned, the closed well has no bearing on the remediation plan for Unit E. There is no basis to include it as a condition to the clean up plan.

The third condition imposed by MDEQ relates to the administrative requirements of the statute. Since the proposed remedial plan contemplates levels above 85 ppb, provisions of the rules require an administrative "waiver". Pursuant to MCL 324.20118(6)(d), such a waiver would require "other institutional controls necessary to prevent unacceptable risk from exposure to the hazardous substances". MCL 324.20120b(5) states the mechanisms for such institutional

controls “include, but are not limited to, an ordinance that prohibits the use of groundwater or an aquifer in a manner and to a degree that protects against unacceptable exposures as defined by the cleanup criteria approved as part of the remedial plan”. Applied to this case, this means that there must be enforceable restrictions on the human use of water from the Unit E aquifer during remediation. Pall asserts that the Washtenaw County Rules and Regulations for the Protection of Groundwater adopted on February 4, 2004, if supplemented by an appropriate order from this Court, meet that statutory requirement. The Court agrees. Under the circumstances of this case it would be arbitrary and unreasonable to delay the cleanup of the Unit E aquifer pending the drafting and potential adoption of an ordinance or other legislative action to supplement the Washtenaw County Rules and Regulations already in place. The parties are directed to submit a proposed order to this Court which will include at least the following controls:

1. A map that identifies the area that would be covered by the judicial institutional control, including a buffer zone.

2. A prohibition against the installation of new water supply wells for drinking, irrigation, or commercial or industrial use, within the zones shown on the map.

3. A prohibition directed to the County Health Officer prohibiting permits for well construction in those zones.

4. A prohibition against consumption or use of groundwater from within the zones.

5. A requirement that PLS provide, at its expense, connection to the City of Ann Arbor municipal water supply for any existing private drinking water wells within the zones.

6. A requirement that the Order be published and maintained in the same manner as a zoning ordinance.

7. A provision that the Order shall remain in effect until such time as it is amended or rescinded by further Order of the Court, with a minimum 30 days notice to all parties.

8. A provision to allow either party to move to amend the boundaries of the prohibition zone to reflect material changes in the boundaries or fate of the plume as determined by future hydrogeological investigations and/or monitoring.

Next, the MDEQ conditions its approval of the remediation plan on the retention by Pall of a person to do "stochastic modeling" of Unit E. Based on the record, there is no substantial evidence to indicate that such a model would assist the remediation of this area in any way. The field data required by the MDEQ has served to develop the model for remediation and will continue to do so. It is this field data that allows the MDEQ, and then the Court, to review whether the remediation is working. There is no indication that "stochastic modeling" will add anything to those remediation efforts and it is not required. MDEQ has properly required that Pall conduct future monitoring of the plume path and plume concentration. Pall has agreed and has submitted a work plan to meet that requirement.

Finally, and most importantly, the MDEQ has conditioned its approval of the remediation plan on the development of an alternative plan that would require construction of a large treatment facility at Maple Road and the piping of water from significant distances through Unit E back to Maple Road for treatment and then discharge into the Huron River via another pipeline. The alternative insisted upon by MDEQ would require the installation and operation of a treatment system large enough to accommodate 1150 gallons per minute in the commercial area near Maple Road. Pall contends that such a facility is not feasible and would not be safe. The feasibility of the MDEQ proposal is subject to serious question. The acquisition and rezoning of enough

land to site both the treatment facility and the required ponds in this congested area would take considerable time, if it ever could be done. Such a facility would require location and storage of an amount of liquid oxygen equal to that currently used at the Wagner Road treatment facility and five times the amount used at the current Maple Road mobile facility. Locating such a facility in this retail commercial area does pose significant dangers.

Most importantly, the alternative in this MDEQ condition means that thousands, perhaps millions, of gallons of contaminated water would need to be piped under the City to be treated at the proposed Maple Road facility. This would require the installation of three to four miles of pipelines, including at least 1½ miles of pipelines in residential Ann Arbor neighborhoods. To say that the residents in the affected areas would be reluctant to agree to have pipelines containing 1,4 dioxane running through their neighborhoods is an understatement by several degrees of magnitude. Public hearings have demonstrated overwhelming opposition to such a plan. While the City of Ann Arbor has filed a pleading agreeing with the construction a Maple Road facility, notably missing from its brief is any commitment to facilitate the location of the required dioxane-bearing pipelines in Ann Arbor neighborhoods. In 1998 it took months, and this Court eventually had to intervene with an Order, to force the installation of 1000 feet of a pipeline near the Wagner Road facility--and that pipeline was only running under a freeway.

Whether the concerns of residents about such pipelines are scientifically justified or not, the political and practical reality is that the required pipeline rights-of-way and construction could not begin to take place for years, if ever. This contamination was

discovered twenty years ago and this lawsuit to get it cleaned up has been pending for sixteen of those years. The water in the Unit E aquifer continues to flow and the plume of 1,4 dioxane continues to expand within it. We simply do not have the years it would take for the MDEQ alternative to begin to remove any contamination from the leading edge of the Unit E. plume. After careful examination of the MDEQ alternative set forth in its conditions, the Court finds that it is not feasible, is unwarranted, and is not supported by competent, material, and substantial evidence.

Conclusion

The parties have worked diligently to address the question of how the contamination of the Unit E aquifer should be addressed and have investigated several alternatives. The process has been exhaustive but not expeditious. In the meantime the plume of 1,4 dioxane continues to spread. It is not the role of this Court to devise or fashion remedies for the spreading pollution of this deep aquifer. It is the role of this Court to enforce the Consent Judgment and to assure that whatever remedy is implemented conforms to that Judgment and to the pollution statutes of the State. The overriding guideline for that enforcement is the health and welfare of the public. The health and welfare of the public demands that the cleanup of the contamination of this large body of underground water begin, and proceed, as soon as humanly possible. The parties are ordered to implement the holdings in this Opinion and Order forthwith.

IT IS SO ORDERED

_____
Donald E. Shelton
Circuit Judge

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF WASHTENAW

JENNIFER M. GRANHOLM, Attorney General for the State of Michigan, *ex rel*, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY,

Plaintiffs,

v

GELMAN SCIENCES, INC., a Michigan corporation,

Defendant.

File No. 88-34734-CE

Honorable Donald E. Shelton

ORDER PROHIBITING GROUNDWATER USE

At a session of said Court held in the City of Ann Arbor, County of Washtenaw, Michigan, on the 17th day of May, 2005.

PRESENT: HONORABLE DONALD E. SHELTON
Circuit Court Judge

On December 17, 2004, this Court issued its Opinion and Order Regarding Remediation of the Contamination of the "Unit E" Aquifer. That Opinion and Order resolved a dispute between the Parties regarding the September 1, 2004 Decision Document issued by the Michigan Department of Environmental Quality (MDEQ) regarding remediation of the "Unit E" groundwater contamination emanating from the Pall Life Sciences (PLS) (formerly known as Gelman Sciences, Inc.) facility in Scio Township, Washtenaw County.

Among other things, this Court determined that in order to satisfy the requirements of MCL 324.20118(6)(d) and MCL 324.20120b(5) for institutional controls preventing

unacceptable exposure to 1,4-dioxane in the groundwater, it is necessary and appropriate to supplement the Washtenaw County Rules and Regulations for the Protection of Groundwater adopted February 4, 2004, with a legally enforceable order of this Court prohibiting certain groundwater uses in specifically defined areas and addressing the relevant conditions identified in the MDEQ's September 1, 2004 Decision Document.

ACCORDINGLY, pursuant to the December 17, 2004 Opinion and Order, based upon further information provided by the Parties, for the reasons stated by the Court in its May 4, 2005 ruling on Plaintiffs' Motion to Enter Order Prohibiting Groundwater Use, and in the exercise of this Court's statutory and inherent authority to enforce its orders and judgments,

IT IS HEREBY ORDERED:

1. The prohibitions imposed by this Order apply to the zone identified in the map attached hereto as Figure 1 (Prohibition Zone).

2. The installation by any person of a new water supply well in the Prohibition Zone for drinking, irrigation, commercial, or industrial use is prohibited.

3. The Washtenaw County Health Officer or any other entity authorized to issue well construction permits shall not issue a well construction permit for any well in the Prohibition Zone.

4. The consumption or use by any person of groundwater from the Prohibition Zone is prohibited.

5. The prohibitions listed in paragraphs 2, 3, and 4 do not apply to the installation and use of:

(a) groundwater extraction and monitoring wells as part of response activities approved by MDEQ or otherwise authorized under Parts 201 or 213 of NREPA, or other legal authority.

(b) dewatering wells for lawful construction or maintenance activities, provided that appropriate measures are taken to prevent unacceptable human or environmental exposures to hazardous substances and comply with MCL 324.20107a.

(c) wells supplying heat pump systems that either operate in a closed loop system, or if not, are demonstrated to operate in a manner sufficient to prevent unacceptable human or environmental exposures to hazardous substances and comply with MCL 324.20107a.

(d) emergency measures necessary to protect public health, safety, welfare or the environment.

(e) any existing water supply well that has been demonstrated, on a case-by-case basis and with the written approval of the MDEQ, to draw water from a formation that is not likely to become contaminated with 1,4-dioxane emanating from the PLS facility. Such wells shall be monitored for 1,4-dioxane by PLS at a frequency determined by the MDEQ.

6. PLS shall provide, at its expense, connection to the City of Ann Arbor municipal water supply to replace any existing private drinking water wells within the Prohibition Zone. Within thirty (30) days after entry of this Order, PLS shall submit to MDEQ for review and approval a work plan for identifying, or verifying the absence of, any private wells within the Prohibition Zone, for the abandonment of any such private wells and for replacement of private drinking water wells with connection to the municipal water supply. Well abandonment and replacement shall be performed in accordance with all applicable regulations and procedures at the expense of PLS. PLS shall implement the work plan and schedule approved by MDEQ.

7. This Order shall be published and maintained in the same manner as a zoning ordinance.

8. This Order shall remain in effect in this form until such time as it is amended or rescinded by further order of this Court, with a minimum of thirty (30) days prior notice to all Parties.

9. Either Party may move to amend the boundaries of the Prohibition Zone to reflect material changes in the boundaries or fate of the groundwater contamination plume as described by future hydrogeological investigation or MDEQ approved monitoring of the fate of the groundwater contamination.

10. In the event the boundary of the Prohibition Zone is expanded, PLS shall, within thirty (30) days after entry of such an Order, submit to the MDEQ for review and approval, a work plan for identifying, or verifying the absence of any private wells within the modified Prohibition Zone, for the abandonment of any such private wells, and for the connection to the municipal water supply to replace any drinking water wells within the modified Prohibition Zone.

11. Either Party or a local unit of government having jurisdiction within the Prohibition Zone may seek enforcement of this Order by the Court.

12. This Order shall not affect the rights, liabilities, or defenses of any party in any other legal or administrative proceeding, nor shall it constitute evidence of either the presence or absence of 1,4-dioxane at any location inside or outside the Prohibition Zone in any such proceeding.

/s/DONALD E. SHELTON

HONORABLE DONALD E. SHELTON
Circuit Court Judge

APPROVED AS TO FORM:

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Michael L. Caldwell by RPR with consent

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Gelman/19890014677/Order3

DEPARTMENT OF ENVIRONMENTAL QUALITY

REMEDIATION AND REDEVELOPMENT DIVISION

ESTABLISHMENT OF CLEANUP CRITERIA FOR 1,4-DIOXANE

EMERGENCY RULES

Filed with the Secretary of State on

These rules take effect upon filing with the Secretary of State and shall remain in effect for 6 months.

(By the authority conferred on the Department of Environmental Quality by 1994 PA 451, 1969 PA 306, MCL 324.20104(1), MCL 324.20120a(17), and MCL 24.248)

FINDING OF EMERGENCY

These rules are promulgated by the Department of Environmental Quality to establish cleanup criteria for 1,4-dioxane under the authority of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The Department of Environmental Quality finds that releases of 1,4-dioxane have occurred throughout Michigan that pose a threat to public health, safety, or welfare of its citizens and the environment. Recent shallow groundwater investigations in the Ann Arbor area have detected 1,4-dioxane in the groundwater in close proximity to residential homes. The known area of 1,4-dioxane groundwater contamination in Ann Arbor covers several square miles defined by a boundary of 85 parts per billion, the current residential cleanup criteria. The extent of 1,4-dioxane groundwater contamination that is less than 85 parts per billion, but greater than 7.2 parts per billion, is unknown; and 1,4-dioxane contamination is expected to be present beneath many square miles of the city of Ann Arbor occupied by residential dwellings. The current cleanup criteria for 1,4-dioxane, initially established in 2002, are outdated and are not protective of public health with respect to the drinking water ingestion pathway and the vapor intrusion pathway.

These rules establish the 1,4-dioxane cleanup criterion for the drinking water ingestion pathway at 7.2 parts per billion and the vapor intrusion screening criterion at 29 parts per billion. These criteria are calculated using the latest United States Environmental Protection Agency toxicity data for the chemical 1,4-dioxane and the Department of Environmental Quality's residential exposure algorithms to protect both children and adults from unsafe levels of the chemical.

The Department of Environmental Quality, therefore, finds that the current cleanup criteria for 1,4-dioxane are not protective of public health with respect to the drinking water ingestion pathway and the vapor intrusion pathway, which, therefore, requires

the promulgation of emergency rules without following the notice and participation procedures required by sections 41, 42, and 48 of 1969 PA 306, as amended, MCL 24.241, MCL 24.242, and MCL 24.248 of the Michigan Compiled Laws.

Rule 1. The residential drinking water cleanup criterion for 1,4-dioxane in groundwater is 7.2 parts per billion.

Rule 2. The residential vapor intrusion screening criterion for 1,4-dioxane is 29 parts per billion.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

C. Heidi Grether

C. Heidi Grether
Director

Pursuant to Section 48(1) of 1969 PA 306, as amended, MCL 24.248(1), I hereby concur in the finding of the Department of Environmental Quality that circumstances creating an emergency have occurred and the public interest requires the promulgation of the above rule.

Governor

10-27-16
Date

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF WASHTENAW

ATTORNEY GENERAL for the
STATE OF MICHIGAN, et al,
MICHIGAN NATURAL RESOURCES
COMMISSION, MICHIGAN WATER
RESOURCES COMMISSION, and
MICHIGAN DEPARTMENT OF NATURAL
RESOURCES,

Plaintiffs,

Case No. 88-34734-CE

vs

Hon. Donald E. Shelton

GELMAN SCIENCES INC.,
a Michigan corporation,

Defendant.
_____/

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BRIEF IN SUPPORT OF
MOTION TO AMEND CONSENT JUDGMENT

Zausmer, Kaufman, August, Caldwell & Tayler, P.C.,
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INTRODUCTION

Pall Life Sciences ("PLS") seeks to amend the Consent Judgment to clarify its obligations with regard to the Evergreen System. Specifically, PLS asks that the Consent Judgment be amended to clarify that the objectives of the Evergreen groundwater extraction system do not apply to the plume of contamination in the Unit E aquifer. As the Court is aware, contamination in the Unit E was discovered in 2001, well after the parties drafted the October 1992 Consent Judgment. The proposed amendment to the Consent Judgment will make it consistent with the current state of knowledge and this Court's December 17, 2004 Opinion and Order Regarding Remediation of the Contamination of the "Unit E" Aquifer (the "Unit E Order"). This amendment is necessary because operation of the Evergreen System, which is designed to meet the current objective of capturing the "leading edge" of the groundwater contamination "in the vicinity of" the Evergreen Subdivision, has unintentionally distorted the Unit E plume and drawn additional groundwater contamination from the Unit E aquifer into the Evergreen Subdivision. Continued adherence to the original Consent Judgment objectives will negatively affect both the Evergreen Subdivision cleanup and the institutional control established by this Court's "Unit E Order" to protect the public from the Unit E plume. In particular, continued operation of the Evergreen System will continue to pull the Unit E plume north, beyond the current boundary of the Prohibition Zone.[1]

[1] As set forth in PLS' Motion to Amend Consent Judgment, PLS is also proposing to modify the cleanup criteria set forth in the Consent Judgment to make them consistent with the current DEQ regulations. This type of amendment is specifically required by State law, and the parties have previously stipulated to a much more significant modification of the cleanup criteria based on earlier revisions to the State-wide cleanup criteria. PLS does not expect the State to oppose these modifications. Consequently, PLS will not address these changes in this brief, but reserves the right to do so if they are, in fact, opposed.

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FACTUAL AND PROCEDURAL BACKGROUND

A. Consent Judgment Objectives for the Evergreen System.

The parties to this action entered a Consent Judgment in this matter on October 26, 1992. The Consent Judgment has been amended on two occasions since that time. (Relevant portions of the Consent Judgment are attached as Exhibit 1.) The Consent Judgment requires PLS to implement various remedial actions to address environmental contamination in the vicinity of PLS' property.

The Consent Judgment addresses each of the known areas of groundwater contamination, including the plume of contamination that migrated into the "Evergreen Subdivision Area."[2] The plume of contamination located in the Evergreen Subdivision has generally been referred to as the D_2 plume, so named after the aquifer within which the plume has migrated to the subdivision.

At the time the parties entered into the Consent Judgment, the parties were unaware of any contamination in what is now known as the "Unit E" aquifer. Accordingly, the parties drafted the Consent Judgment objectives for the Evergreen System broadly, based on the assumption that the only contamination "in the vicinity of the" Evergreen Subdivision was contamination known to be present in the D_2 aquifer:

> (a) to intercept and contain *the leading edge of the plume of groundwater contamination detected in the vicinity of the Evergreen Subdivision area*; (b) to remove the contaminated groundwater from the affected aquifer; and (c) to remove all groundwater contaminants from the affected aquifer or upgradient aquifers within the Site that is not otherwise removed by the Core System provided in Section V.B. or the GSI Property Remediation Systems provided in Section VI.

(Exhibit 1, § V.A.1 (emphasis added).) In 2001, the parties discovered that the assumption underlying this provision was inaccurate.

[2] The Consent Judgment defines the "Evergreen Subdivision Area" as the "residential subdivision generally located north of I-94 and between Wagner and Maple Roads, bounded on the west by Rose Street, on the north by Dexter Road, and on the south and east by Valley Drive." (Exhibit 1, § III.D.)

B. Interaction of Unit E and D_2 Plumes.

Contamination in the Unit E aquifer was discovered for the first time in 2001. (Unit E Order, Exhibit 2, p. 3.) After extensive briefing and public debate, the Court issued its Unit E Order. The Unit E Order sets forth how PLS will be required to address the groundwater plume present in the Unit E aquifer. Among other protections, the Unit E Order establishes a "Prohibition Zone" within which the use of, and exposure to, the groundwater is generally prohibited. PLS is also required to prevent groundwater contamination in excess of 2800 parts per billion ("ppb") from migrating east of Maple Road. Less contaminated portions of the Unit E plume are allowed to migrate safely to the Huron River, subject to the protections of the Prohibition Zone. Although concentrations in the Maple Road area have not approached 2800 ppb, PLS has been operating its Maple Road groundwater extraction/treatment/reinjection system since March of last year.

Historically, the parties understood that Unit E plume and the D_2 plume were two distinct plumes of contamination. However, based on newly collected data, it is now clear that there is no geologic separation between the two aquifers in certain areas and that they can hydraulically communicate in the areas where they are not physically separated. (Affidavit of James W. Brode ("Brode Aff."), Exhibit 3, ¶ 19.) It is also clear that, as a result of this connection, operation of the Evergreen System has unintentionally pulled in a portion of the Unit E plume into the Evergreen Subdivision from the south and into the capture zone of the Evergreen System extraction wells. (Brode Aff., Exhibit 3, ¶¶ 18, 19.)

Pumping the Evergreen System at the current rates has caused a significant hydraulic depression in the area of LB-1 and LB-3 as well as a steep hydraulic gradient from south to north along the southern flank of the Evergreen System area. (Brode Aff., Exhibit 3, ¶ 19.) This has

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caused the plume at that location to be drawn into the Evergreen Subdivision Area and beyond the northern boundary of the Prohibition Zone. (Brode Aff., Exhibit 3, ¶ 20.) The evidence that this is occurring is overwhelming. Among other things, recent data show that the concentration of 1,4-dioxane in groundwater samples from wells LB-1, LB-2 and LB-3 (which has replaced LB-2) has remained stable. (Brode Aff., Exhibit 3, ¶ 19.) On the other hand, concentrations of 1,4-dioxane in the upgradient portion of the D_2 plume – the Evergreen System's only known source of contamination other than contribution from the Unit E plume – *have been declining since 2001.* (Brode Aff., Exhibit 3, ¶ 19.) Similarly, the concentration of 1,4-dioxane has steadily increased in samples from wells located southeast of the LB extraction wells (see, e.g., 440 Clarendon and 456 Clarendon), even though the LB wells have prevented groundwater contamination from migrating east of Evergreen Street since 1996. (Brode Aff., Exhibit 3, ¶ 19.) These data, and the other evidence described in Mr. Brode's affidavit, indicate that the capture zone for LB-1, LB-3 and AE-1 includes a portion of the "Unit E" plume and that operation of those wells at the current rates (LB-1 at 90 gpm and LB-3 at 80 gpm) has pulled the northern portion of the Unit E plume toward those wells and into the Evergreen Subdivision. (Brode Aff., Exhibit 3, ¶¶ 18, 19.)

C. The Allison Street Extraction Well Is No Longer Necessary to Satisfy the Consent Judgment.

Moreover, data gathered by PLS indicate that further operation of the Allison Street extraction well (currently AE-3) is not necessary to satisfy the original intent of the parties with regard to the objectives of the Evergreen System remediation, *i.e.*, capture and containment of the D_2 plume. As this Court will recall, PLS installed an extraction well along Allison Street (after extensive litigation) in order to capture a small portion of the plume that may have escaped beyond the LB extraction location on Evergreen Street in 1996, during the period PLS was

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forced to stop extraction because the injection well used to dispose of the treated water became inoperable. PLS restarted the LB extraction and reestablished capture at the Evergreen Street location within a few months, after PLS obtained permission to dispose of its treated water via the City's sanitary sewer. PLS has captured the entire width of the D_2 plume at the Evergreen Street location since that time. (Brode Aff., Exhibit 3, ¶ 18.)

Because the upgradient source of contamination was quickly cut off, the escaped portion of the plume the Allison Street extraction well was intended to capture was quite small – PLS estimates the mass of this plume fragment to be approximately 60 pounds. (Brode Aff., Exhibit 3, ¶ 19.) Despite the fact that PLS' Evergreen Street extraction has cut off the upgradient source of contamination reaching the Allison Street extraction wells, PLS has removed approximately 100 pounds of 1,4-dioxane from the AE wells to date. In addition, concentrations in a small area in the immediate vicinity of the AE wells have also remained slightly above the cleanup criterion, even though the upgradient contaminant source was cut off in 1996. (Brode Aff., Exhibit 3, ¶ 19.) The only plausible explanation for these data is contribution from the Unit E aquifer. Accordingly, and contrary to the original purpose of the Allison Street extraction, the small amount of contaminant mass currently being captured by AE-3 (concentrations in AE-3 have been below 85 ppb since July, 2005) is primarily, if not entirely, Unit E contamination, not the leading edge of the D_2 plume. (Brode Aff., Exhibit 3, ¶ 19.) Therefore, continued operation of an extraction well at Allison Street is no longer necessary to achieve the Consent Judgment objectives for the Evergreen System, as the parties originally envisioned them. Indeed, operation of the Allison Street extraction well only exacerbates the distortion of the Unit E plume and the extent to which that plume is being pulled beyond the Prohibition Zone boundary.

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D. Proposed Amendment to Consent Judgment.

Accordingly, PLS seeks to amend the Consent Judgment to clarify that it obligations with regard to the Evergreen System do not unintentionally require it to operate the Evergreen System in such a way that it draws contamination from the Unit E aquifer into the Evergreen Subdivision. PLS proposes to amend the Consent Judgment as follows:

> A. Evergreen Subdivision Area System
> (hereinafter "Evergreen System")
>
> 1. Objectives. The objectives of this system shall be: (a) to prevent groundwater contamination that is present north of Valley Street and west of Evergreen Street within the Evergreen Subdivision area from migrating east of Evergreen Street, except to the extent such groundwater contamination may migrate east of Evergreen Street, but remains within the capture zone of the extraction well or wells located in the immediate vicinity of Evergreen Street; (b) to remove the contaminated groundwater from the affected aquifer; and (c) to remove all groundwater contaminants from the affected aquifer or upgradient aquifers within the Site that is not otherwise removed by the Core System provided in Section V.B. or the GSI Property Remediation Systems provided in Section VI. The objectives of the Evergreen System shall not apply to groundwater contamination that is addressed by this Court's December 17, 2004 Order and Opinion Regarding Remediation of the Contamination of the "Unit E" Aquifer.

(Proposed changes highlighted.)

By removing the reference to intercepting the "leading edge" of groundwater contamination in the "vicinity of" the Evergreen Subdivision area, the proposed modification eliminates the ambiguity caused by the intrusion of Unit E contamination and the confusion between what constitutes the leading edge of the D_2 plume versus the northern edge of the Unit E plume. The proposed amendment unequivocally requires PLS to capture the entire width of the D_2 plume at the LB extraction well location on Evergreen Street, consistent with the DEQ's past interpretation of the Consent Judgment. These modifications will allow PLS to design the Evergreen System in a way that minimizes if not eliminates the unintended distortion of the Unit E plume, allowing that plume to resume its natural migration pathway within the Prohibition

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Zone. Amending the Consent Judgment objectives to allow PLS to terminate the Allison Street extraction will not cause any significant environmental harm or danger to the public. If AE-3 were to be permanently shut off, any such contamination beyond the capture zone of LB-1 and LB-3 would migrate a short distance (about 500 feet), then enter the existing boundaries of the Prohibition Zone. The contamination would then merge with the existing Unit E plume in the area of Maple Road. (Brode Aff., Exhibit 3, ¶ 16.)

LEGAL STANDARDS FOR AMENDING THE CONSENT JUDGMENT

A consent decree is a judicial "hybrid," with characteristics of both a voluntary settlement agreement and a final judicial order. *Vanguards of Cleveland v City of Cleveland*, 23 F3d 1013, 1017 (CA6 1994). "[J]udicial approval of a consent decree places the power and prestige of the court behind the agreement reached by the parties." *Id.* at 1018. Accordingly, "[t]he injunctive quality of a consent decree compels the approving court to: (1) retain jurisdiction over the decree during the term of its existence, (2) protect the integrity of the decree with its contempt powers, and (3) modify the decree is 'changed circumstances' subvert its intended purpose." *Id.*

Modification of a consent decree is appropriate "(1) 'when changed factual conditions make compliance with the decree substantially more onerous,' (2) 'when a decree proves to be unworkable because of unforeseen obstacles,' or (3) 'when enforcement of the decree without modification would be detrimental to the public interest.'" *Vanguards,* 23 F3d at 1018; *Rufo v Inmates of Suffolk County Jail*, 502 US 367, 384 (1992). The moving party has the burden of establishing a "significant change in circumstances." *Vanguards,* 23 F3d at 1018; *Rufo,* 502 US 367 at 383. A party satisfies this burden "'by showing either a significant change in factual conditions or in law.'" *Vanguards*, 23 F3d at 1018, *quoting Rufo*, 502 US at 384.

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A. Amendment is Necessary Because of Changed Circumstances.

Here, a significant change in factual circumstances has occurred with regard to the Evergreen System that was unknown to the parties at the time they entered into the Consent Judgment. At time of Consent Judgment, the parties were not aware that the Unit E plume existed. PLS' continued investigation of the Unit E plume and its relationship to the D_2 plume only recently revealed that a portion of the Unit E plume was being drawn into the Evergreen Subdivision area by the unnecessarily high purge rates of the extraction wells.

When the Consent Judgment was drafted, there was no reason to distinguish between the known contamination migrating to this area in the D_2 aquifer and contamination from some other location because the D_2 aquifer was the only known source of contamination in the area. In light of the existence of the Unit E plume and the recent discovery that it is being artificially drawn into the Evergreen Subdivision area, the existing requirement to generally "intercept and contain the leading edge of the plume of groundwater contamination detected in the vicinity of the Evergreen Subdivision area" no longer makes sense. This is particularly true with regard to the operation of AE-3. That purge well is not capturing the "leading edge" of the D_2 plume any longer – it is distorting the "side edge" of the Unit E plume. This is not what the parties intended when the Consent Judgment was drafted. The Consent Judgment needs to be amended so that its requirements for the Evergreen System are consistent with both the parties' original intent and the current factual circumstances.

B. Amendment of the Consent Judgment is Necessary to Effectuate this Court's Unit E Order and to Protect the Public Interest.

PLS' current obligation under the current Consent Judgment to capture and remove any contamination "in the vicinity of the Evergreen Subdivision area" is endangering the effectiveness of this Court's Unit E Order and the protections put in place to protect the public

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from that area of contamination. The excessive purging required to meet this objective has already distorted the Unit E plume and drawn the northern edge of that plume beyond the original boundary of the Prohibition Zone. PLS and the DEQ have already begun the process of revising the Prohibition Zone boundary, and further amendment will likely be necessary unless the excessive Evergreen purging is reduced. Continued distortion of the Unit E plume could potentially cause the plume to flow in an unanticipated direction, which would further endanger the ability of the Unit E Order to protect the public.

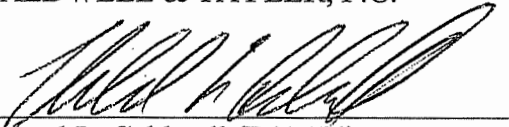
Finally, as set forth in Mr. Fotouhi's affidavit, the currently required level of groundwater extraction is having, and will continue to have, a detrimental effect on the groundwater cleanup as a whole. (Affidavit of Farsad Fotouhi, Exhibit 4, ¶ 33.)

CONCLUSION

For the reasons stated above, and for the reasons set for in the Petition for Dispute Resolution filed contemporaneously with this motion, PLS asks this Court to enter the Third Amendment to Consent Judgment attached to PLS' motion in order to clarify PLS' obligations under the Consent Judgment with regard to the Evergreen Subdivision area.

Respectfully submitted,

ZAUSMER, KAUFMAN, AUGUST
CALDWELL & TAYLER, P.C.



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Dated: July 6, 2007

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Attorney General For State Of Michigan v. Gelman Sciences, et al

Deponent:

Taken: **12/15/2016**

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TRANSCRIPTION OF A VIDEOTAPED COURT HEARING

HELD THURSDAY, DECEMBER 15, 2016

BEFORE HON. TIMOTHY P. CONNORS

WASHTENAW COUNTY CIRCUIT COURT

CASE: ATTORNEY GENERAL FOR STATE OF MICHIGAN v GELMAN SCIENCES, et al

ATTORNEYS SPEAKING ON VIDEO:

BRIAN J. NEGELE, Appearing for State of Michigan
THOMAS P. BRUETSCH, Appearing for City of Ann Arbor
STEPHEN K. POSTEMA, Appearing for City of Ann Arbor
FREDRICK J. DINDOFFER, Appearing for City of Ann Arbor
MICHAEL L. CALDWELL, Appearing for Gelman Sciences
ROBERT C. DAVIS, Appearing for Washtenaw County Defendants
ODAY SALIM, Appearing for Huron River Watershed Council

Ann Arbor, Michigan
Thursday, December 15, 2016
Approx. 9:11 a.m.

(The case was called and the attorneys introduced themselves.)

THE COURT: Let me say if I may to help guide the oral arguments on your motion, first let me say that I have read the briefs, I took them home, read them all last night (INDECIPHERABLE) so I'm familiar with this case first of all, so you don't need to just repeat what you have in the written brief. All your records are available for public view and it's available for (INDECIPHERABLE).

Secondly, you don't need to say by way of background about the case, you know, go to the beginning of the world and tell me all about it. I'm familiar with the case.

In its very initial inception in the 1980s I was actually in this courtroom when Judge Conlin (sp) handled it. I was appointed as the Special Master by Judge Conlin on discovery issues, so I've been with it two decades.

The reason that it is assigned to me now is with the retirement I guess of the various

judges before me that handled it so I have it now and I'll have it for the next eight years.

Third, I am familiar, I'm aware, that there are multiple audiences in the case like this. Of course, there's your client, of course there's public interest, of course there's appellate audience which you have, but today we're going to be talking about what is the status of the case as it currently exists and whether or not different entities should be a part of that case by way of intervention, so we're just focused on that aspect of the case and we're aren't -- that's really where I want to stay focused.

Third, on oral argument there are three rhetorical questions that I have in my head and so therefore your arguments when you focus it in that structure, you become more effective. Even whether I agree with you or not, you won't get lost in terms of I'll hear you.

The first thing, of course, is what it is you want me to do today (INDECIPHERABLE). Secondly, how I can do it and (INDECIPHERABLE) statute, case law and court rule, and then third why.

So in reading the briefs and so forth, you know, sometimes when you say here's a long recitation of facts, etc, in the recitation of facts (INDECIPHERABLE), and then we start getting off into disagreement about a particular fact and then we're arguing all about that and never get to really the underlying core issue.

It seems to me the underlying core issue is the quality of the water. If there is a problem, what is the problem and to what degree, what should be done about it and who should be responsible for carrying it out.

And in that sense I do want to emphasize that this is a matter of interest to everybody and we need you to speak to us here as adults with on average about 50 to 65 percent water and babies it's 78 percent water, so it was about each of us and the decisions we make will affect those that come after us.

So when I read the briefs -- let me just (INDECIPHERABLE) with summation -- my understanding is there's three separate entities who are seeking intervention. There are two avenues leading to intervention. One is intervention by right and one is permissive

intervention.

The two parties who are involved in the case currently, some of them are in agreement or has no objection to permissive intervention. They take affront (INDECIPHERABLE) or concerns with the finding at this stage by the Court (INDECIPHERABLE) adequately represented, but they don't have any objection to permissive intervention.

One of the parties does object to any intervention, so rather than getting into findings or arguments or defensiveness about whether an institution or an entity is being adequate in their representation, which I think sidetracks this from the real issue, can get us off on a path that I think is not particularly helpful, I would like to focus your arguments today on permissive intervention and so let's see where are those who would disagree with permissive intervention, give me your arguments why and then I'll make a decision for you.

All right, so with that, first at the podium, boy, you got to that podium, you didn't give it up, did you.

MR. BRUETSCH: I'm not going to.

THE COURT: All right. Your name again, so tell me who you are and who you represent and what you're seeking today.

MR. BRUETSCH: Certainly, your Honor. My name is Tom Bruetsch, Thomas Bruetsch, and I represent the City of Ann Arbor, one of the parties that seeks intervention into this case, and I'll deal with your questions first.

Also, just in case, I brought a big blowup of what we submitted as Exhibit A which is the big map that shows where the plumes are. And you've indicated your history with the case, so I don't know if you'll need it, but if there comes a time where you want additional explanation about why is the quality of the groundwater in this area that you're claiming an interest in -- why does that matter, you know, we're happy to break out the big map and try to explain that and work through it.

What do we want you to do today? That's probably the easiest question that you've posed to us, and the answer to that question is we'd like you to allow the City of Ann Arbor to intervene in this case.

There are a number of reasons for that.

One of them is that as I think everyone has stated in their briefs there are ongoing negotiations right now as I understand it about a fourth amendment to the consent order that's to be brought before this court and to date those negotiations are between the State through the Attorney General and the Defendant Gelman, and we would like to participate in those negotiations.

We would like to influence those negotiations and we would like, you know, the proverbial seat at the table in those negotiations so that we can protect the City's interests and hopefully advance this clean-up to a better stage.

The unfortunate part about those negotiations is that even though we've asked, we've not been allowed the proverbial seat at the table and we've not even been allowed to understand or know what's going on in them.

These negotiations are being done in secret and despite the fact that we've asked the parties would you please share with us your proposals, would you please share with us what you're thinking so that we know how much or how little we need to be concerned, they haven't

shared that with us.

And I think the Attorney General would, but the Attorney General I think feels bound by a confidentiality of settlement discussions and unless Gelman gives its approval for that dialog to occur, they can't do anything is what they're telling us and so that's one of the reasons we've asked the Court to allow us to intervene so that we can get that seat at the table.

How do -- how can you, how can the Court make that happen, that was your second question, and you focus rightly on the intervention court rule. There's also the statute though that I want to make sure is on the Court's radar.

Under Part 201 which is the environmental statute at interest here, there is actually a specific intervention provision which is fairly rare. Usually we just rely on the court rule, but Part 201 has an intervention provision which does not have a time limit by the way and it says that when the Attorney General has brought a suit like this, any party may intervene if it's got an interest and that interest is at risk unless the Court finds that

the State or another party adequately represents the party seeking to intervene's interests.

So it's similar to the intervention-by-right rule with a couple of twists. I think that either the statute which the Court can rely on the statute to allow us to intervene, the Court can rely on either the intervention by right or, as you have indicated, the permissive intervention provisions of the court rule.

Why should you allow us to intervene? That's the question that we probably would need to spend the most time on. Ann Arbor has a number of interests in this case and a number of reasons why it wants to intervene.

The first is because the City's interests are threatened by the continued expansion of the plumes of 1.4 dioxane that are under the city and the surrounding communities and I'll get into that a little bit more in a moment.

Second is because the continued expansion of these plumes has caused a public health emergency which the State actually expressed on October 27th when it issued its new

rules on the clean-up standards for 1.4 dioxane and declared that a public emergency existed which allowed them to do this outside the regular administrative process.

Third, as I've mentioned, there are current negotiations that we very much want to be a part of to protect our own interests and fourth -- and we won't focus on this one so much given what you said is -- we've got a great deal of concern about how the interests of Ann Arbor have been represented in the past and how they might not be represented going forward in the future.

And I think, your Honor, the critical point is that Ann Arbor and other critical stakeholders here deserve a voice in the future remediation of these plumes and another consent order amendment, and this would be the fourth, should not be entered without these participants' approval.

The City's interests I think here are extreme. Ann Arbor is the only source of municipal water in this area. There are wells out there. You know, some of the wells have had to have been abandoned because of the pollution. We are the only source of municipal water and we

need to be able to protect our sources of clean safe drinking water.

The primary source for the city is up at Barton Pond and if you looked at Exhibit A, you'd see that the Barton Pond is kind of to the north, northeast of where the plume of 1.4 dioxane is currently. And one of the things that we have seen is that the plume has expanded in the north area which is very concerning for us.

There is a prohibition zone that you're, I'm sure, familiar with. The prohibition zone in the north is in the area of the Evergreen Subdivision and we've seen now two of the wells, the monitoring wells, which are on the far north border of that prohibition zone test positive for 1.4 dioxane at small levels. So the plume is reaching the border of the prohibition zone.

In addition, if you move a little bit south from the border we're seeing increased concentrations at other monitoring wells, concentrations above the new 7.2 ppb standard, concentrations even above the old 85 ppb standard. So there's more 1.4 dioxane going into that area and it's even hitting the border of the prohibition zone at at least two wells.

So we're concerned because as that plume continues to go north, if that's what it does, it starts potentially impacting Barton Pond. And they've said well, you know, you hired a consultant and your own consultant said, "No, I think it's going to go east", and that's exactly what he didn't say. He said yes, in the area of a couple of wells I think it's going to go east. We've seen these increased clusters of concentration that may go east, it may go north.

And a bigger problem is, you've got too much separation between the wells to the northeast and we don't know if 1.4 dioxane is going to be able to get through there or not. So that's one area of concern of ours.

We also have an area of concern just to the west of downtown, so if you recall kind of the plume is shaped like a long cigar and 1.4 dioxane is generally traveling west to east and the leading edge of the plume by all accounts I believe is somewhere east of 7th Street roughly. It's being detected in wells.

And the MDEQ did a shallow groundwater investigation recently and they published the results just this past October. And the results

were that they found 1.4 dioxane in two wells, shallow water wells, on 7th Street between Huron and Liberty. That's again on the leading area or leading edge area of the dioxane plume.

This is an area where the groundwater is very shallow, so, you know, it's one thing if you're out at Maple Road and Jackson Road where your water level may be 130 feet underground. It's another thing at 7th Street where the water table is 5 or 6 feet underground.

And you remember the concept that we've been operating under since about 2005 is we've got this prohibition zone or pollution zone, whatever you want to call it, where we're just going to let the dioxane flow east and the thinking is it's going to kind of take a little bit of a left turn and vent out into the Huron River.

So we're not really trying to so much clean it up, we're letting it flow and it's going to turn and go into the Huron River and vent out over a period of decades or centuries or however long it takes. Certainly longer than anyone in this courtroom is going to be around to see it.

The problem is, as I said, out at Maple

and Jackson if it's 130 feet underground and you ban drinking water wells, the theory is it will never come into contact with human beings and it's okay. At 7th Street, now that we've seen test results where dioxane is in the water, and the water table is 5 to 6 feet below ground in an area where, as you go down the hill -- I'm sure the Court know to topography.

If you leave the Court and you drive out Huron Street or you drive out Liberty Street, you do down the big hill towards 1st and then slowly start sloping up and rolls a little bit out towards Maple.

You've got that big valley down there. You've got Allen Creek down there, and so there's a sink down there where this could collect and then perhaps turn to the river.

So now you've got 1.4 dioxane in an area of very shallow groundwater and the response to that was but it's only at 1.5 ppb, it's only at 3.3 ppb. But you only have to look at the map to understand what is coming. If you look at Exhibit A and you see that six blocks to the west of 7th you're measuring at 85 ppb or more. At 10 blocks away, monitoring wells are recording 330

ppb. The design of this plan is that that's all going to travel towards 7th, towards 1st where the shallow groundwater is.

And so we think that steps need to be taken now to prevent that from happening, and the City would like to be a part of that.

As I indicated just briefly, your Honor, and this is one of our other concerns, the State, the DEQ and documents signed by the governor, indicated that there was presently a public health emergency. They issued their orders on October 27th, so just less than two months ago. And we had some concerns obviously coming from that order.

They mention the shallow groundwater investigation when they issued their order and a couple of the things that came out of that and then in the briefing, one of the things was that the extent of the plumes in that 7.2 ppb to 85 ppb, the extent of the plume is not known.

Well, that's one of the things that the statute in Part 201 requires is that you delineate the extent of the plume. We're 25 years into the investigation.

A second thing that we saw in one of

Gelman's -- in Gelman's response filed Monday was that there's still 1.4 dioxane coming out of the source property out at Wagner Road. That's what they said on Page 5 of their brief. That they've diminished the amount that's coming out, but it's still coming out, which is another thing covered by the statute.

You're supposed to stop the releases from the source property. We want to be a part of the solution that stops the pollution from flowing from the source property, that stops it from doing downhill toward the shallow groundwater area, that stops it moving north and potentially impacting our source of water at Barton Pond.

So that's why we think that you should allow us to intervene and allow other important stakeholders to intervene. We'd rather not litigate this case. We'd rather not go through another several years of litigation with Gelman. We've done that before. We will if we have to, but what we really want to do and why we're really here today is because we want that seat, that proverbial seat at the table, and I know that's kind of a -- you know, one of those abject

constructions, but we think that Ann Arbor can offer quite a bit.

We think that Washtenaw County and other important stakeholders can offer quite a bit to the negotiations because this really is our future.

This is not just the DEQ's future or the State's future, this is really our future and we want to be allowed to intervene and actually protect ourselves.

Just to wrap up, we don't believe this is just an intervention of right or an intervention of permissive -- permissive nature. We think this is an intervention of necessity. The consent order that's negotiated over the next months or, if necessary, the litigation that follows to enforce the new clean-up standards will determine what happens with this plume or these plumes or the next decade or more and to say that this public health emergency is going to be rectified by some negotiations that are done outside the public view without the participation of the key stakeholders I think would be unconscionable, so I would ask that you grant our motion and I'm happy to answer any questions you

have.

THE COURT: (INAUDIBLE) parties to the case and then any rebuttal that each of you (INAUDIBLE).

MR. DAVIS: Judge, my name is Robert Davis and I represent the County entities including the Health Department and the director, health officer.

I know you've indicated that you've read the briefs and I appreciate the opening to help us frame these arguments for you I think is wise.

2.209(b) allows for permissive intervention. I'll focus on (b) because I think it is the least restrictive method of intervention for you to grant and I would say that I'm asking you for an order under permissive intervention to allow my County Defendants to be in this litigation for two reasons, Judge.

One, because my County Health Department has a statutory duty that is now triggered and has been presented to you in the briefs you read until the twilight of last evening and, Number 2, because of my argument on standing if there were a challenge to standing, I

think that I meet the test with my County clients as having standing in this litigation.

How do I want you to go about that? By way of a court order, a court order that would grant permissive intervention by the County Defendants and why -- I want to adopt by reference all of the factual issues that you just heard from the City. If they're happening in the city, I think the judge can draw the conclusion they're happening in the county.

This entire issue is centered in Washtenaw County and that's why my clients are here. So without repeating the plume and the testing and all that, I just want to punctuate, Judge, for you my statutory obligation coming down from the State Legislature to my Health Department.

There is no dispute that the emergency rules comes out in October of 2016 and there's no dispute that in pronouncement of those rules there was a clear indication that the prior rules had been insufficient to protect public health. The new rules establish what I consider to be an actionable clean-up standard for both groundwater and residential vapor intrusion.

So what we're talking about here, Judge, is we've got new standards with respect to drinking water ingestion pathways and vapor intrusion pathways and maybe what I should say at the beginning is if we put those clean-up standards right in the middle of your courtroom here, Judge, and we said they're brand new, they're emergency, they're important, it's a declared public health concern, then why aren't all these parties sitting at a table trying to just address those clean-up standards?

We should not be standing here at odds with you or with the issues, we should be focused on those clean-up standards and my Health Department has a statutory duty coming down from the State of Michigan that says she has to be involved in that health protection. And we all should have a common goal here.

We shouldn't be fighting about the -- although I like the words the proverbial seat at the table, the table should be open and in the middle of the table should be 7.2 and other standard for vapor intrusion 20 -- 29. Thank you, Mr. Dindoffer.

And that's what we should be focused

on, Judge. Everybody here -- this is a Washtenaw County issue. The City of Ann Arbor is in Washtenaw County. The plume is entirely in Washtenaw County. The clean-up standards are directly related to the plume and the stuff, the 1.4 dioxane.

So we all have a common interest here, okay, and so when I go through the statute, for the first time the governor who is now going on break I guess into the wee hours of last night, but he said -- he said to us, we now have a public health concern. And when you use those words, it's a declared public health concern.

So you go to the other statutes that haven't been mentioned before you yet, but are in my brief, and it says that the state law concurrent says that the County has to have a Health Department and it creates a full-time health director or health officer who's in the courtroom, Judge, listening intently because she -- she's come to me and said, "I have an absolute statutory responsibility to address environmental health concerns. The governor just said there's an environmental health concern. I need to get involved" and that's why we're here.

Nobody has argued, even brother counsel from Gelman has not argued that well, there's a statute somewhere out there that says my health director, well, you can just sit on the sidelines because the State is taking care of it, or that there's a preemption. There's jurisdiction here from my Health Department. My County health officer has a statutory duty. I've outlined for you, MCL 333.2433. It's a "shall" duty.

The Supreme Court, you know, has ruled that "shall" means mandatory. She can't ignore her duty, she can't be sidelined. So when I go through the statutes that I've laid out for you in my brief, she -- it anticipates that the County health officer via the County will work with other agencies including the DEQ on matters that come down as public health concerns and that's what we have here, Judge.

It's as simple as that. And, you know, the County meets the test for intervention. I gave you some case law that said under permissive intervention (b), just because there's been a judgment entered it's not untimely. There's cases that say that and I pointed those out to you in the latter part of my brief starting at

Page 15.

So nobody has responded to me, Judge, with respect to the statutory duties of my health officer saying, "Oh, no, it's preemptive, the state law preempts your health director. Oh, no, she can sit on the sidelines. We'll indemnify her and hold her harmless in case she gets sued for not doing anything." That's not what we're hearing.

At Page 11 of the response to my motion Gelman says we -- the County may have these duties as argued. The County may have a duty to prevent and control environmental health hazards, but nothing precludes the DEQ from sharing in those goals. I kind of agree, and I think what we're saying is that in the middle of your courtroom should be those clean-up standards.

Around the table should be those with a duty to address public health concerns. My public health director, my public health officer, my County, has a duty under a separate set of statutes that have not been contested in any of the arguments before you, Judge.

And I think that if we work together we can do what you said at the beginning, clean up

the impacted groundwater to the new standard, clean up the vapor intrusion to the new standard and address as a group this public health issue.

I'm triggered statutorily and I would ask that you consider that. Thank you.

MR. SALIM: Good morning, your Honor, my name is Oday Salim, I'm with the Great Lakes Environmental Law Center and I represent the Huron River Watershed Council.

THE COURT: Tell me about your center. I'm not as familiar with it as I am some of the other entities.

MR. SALIM: Sure thing, your Honor. So Professor Noah Hall as Wayne State University Law School founded the center when I was a law student there. I was actually one of the first students to intern at it.

The Great Lakes Environmental Law Center exists to do two things. One, it exists to help government. We produce and develop policy, we provide recommendations and findings to local county, state and other kinds of government entities.

And we also try to get involved in permit comments, sometimes permit challenges and

enforcement litigation such as this.

The center is a separate non-profit entity, but it actually serves as the practical experience for the environmental law clinic students at Wayne State University Law School, so I'm the senior attorney at the center. Some of my legal work is my own, but much of the legal work at the center we do in conjunction with our students at Wayne State Law School.

So that's the background of the center.

Let me, your Honor, begin just by addressing your three questions, then I can get into the council and the interests in this matter.

What we would like this court to do, your Honor, is grant a motion for the Huron River Watershed Council to intervene, not just any motion, your Honor. We would be happy for the Court to grant a narrowing motion to use its plenary trial court authority to tell us, if you're going to intervene because there are already two parties in the matter, there may be four -- by the way, we support the City and the County in their attempts to intervene -- in order to manage the case appropriately, we want you to

intervene in a limited manner, the manner being to protect the surface water interests here.

So we'd like a grant of -- an order granting us the ability to intervene and we're happy to have that intervention narrowed to surface water interests so that we're not working too much in the areas of vapor intrusion and drinking water quality where we don't need to.

How can you do it? Certainly we would be happy for you to do it under any of the standards that are mentioned in our brief, the City's and the County's briefs, whether it's intervention by right or the statute, but of course I'll focus today on intervention -- permissive intervention as you've suggested.

Why? Well, your Honor, the Huron River Watershed Council literally only cares about the Huron River. Well, i shouldn't say it only cares, it cares about all kinds of other natural resources, but its focus is exclusively on the Huron River.

Whether it's interested in the groundwater or soils, natural resource management, it's only interested in those things with respect to the protection of the Huron

River, not only for the aquatic life in the river, the macroinvertebrates, the fish, the other species that may use the river, but also for the human beings who enjoy hiking by the river, recreating inside of the river and appreciating the river.

Our interests are incredibly narrow, your Honor. They're not only narrow, but we think that they're -- it's necessary for us to care for the surface water in a situation where the other parties understandably care a lot about vapor intrusion, drinking water quality and the kind of public health issues that come from groundwater directly.

I thought that the presentations today by the City -- the counsel for the City and the County were excellent and we certainly adopt the facts that they brought up and I think the Court will notice that one thing that was mentioned, but perhaps not emphasized is the interests of the surface water itself.

That's why we want a seat at the table, that's why we want to be part of the negotiating process and I will emphasize, your Honor, that not only do we have a narrow interest that we

want to address through intervention, we want to be part of a solution that comes more -- that comes sooner than later.

In other words, I am not here to litigate this case for the next five years unless I absolutely have to. Our primary focus is entering the negotiating realm and not working against the State and Gelman and the other parties, but working with them. There's no doubt that we all want some level of protection of groundwater, public health and the river.

The question is, what does everybody bring to the table, what kinds of areas of expertise and interest do we all bring to the negotiations.

And I think that having someone at the table who can be focused on well, understandably we think this material will vent to the river, where will it vent, in what concentrations, how can we detect it to ensure that it's venting in the places we expect it to vent, when it vents what will be acutely affected and what may be chronically affected.

I can't remember whether it was counsel for the City of the County who said this may be

venting for many, many, many years to come on an ongoing basis. So what are the chronic impacts to the aquatic life who may be in the area of the venting.

Will there be monitoring to make sure that the concentrations that we assumed would enter the river are there and are managed. We never say that the substance won't get to the river or that -- you know, we wish that it wouldn't at all, but we understand that it may, so all we're saying is let's make sure that if it gets there at all, it gets there in a manner that is not injurious to recreational interests and aquatic life interests.

And I think, you Honor, that we need to be there in this forum as opposed to other fora. For example, I understand that there may be more permits that have to be issued to the company. It's possible that they'll have to get a Part 31 permit for a discharge later, it's possible that these emergency clean-up standards that were issued will ultimately be issued in the more normal way through public notice and comment and month long administrative process.

And it's true, it's possible that we'll

get involved in those procedures as well, but the point is the two parties already in this case have been at the negotiating table ready to go for that fourth consent judgment before those potential Part 31 permits are issued, before these clean-up standards go through public notice and comment, so we need to be here now.

We got involved as soon as we reasonably could after we heard about the -- the threat to the river, after we heard about the public emergency rules and after we heard that the negotiations were -- were ongoing and leading potentially to a fourth proposed consent judgment.

That's why I think it's crucial that we not -- that it's not -- that this forum is not considered some alternative forum that if this doesn't work out for us, well, we can always come around later. It should be the opposite. We should be in this forum now and try to take care of these standards here and now so that we don't have to belabor the processes of future discharge permits and future clean-up standards.

So, your Honor, I think I'd like to just keep it brief. I think the City and

County's attorneys said a lot of what I was going to say anyway and, again, just to say one more time, our interests are narrow. We're happy to be held to that through a court order and we want to be helpful in the negotiating process and contribute to the surface water aspects of that process so that hopefully we can get at that fourth consent judgment and that it will be the appropriate one and that we won't need to get to a fifth and sixth or a seventh in years to come.

Thank you.

THE COURT: Who would like to respond first from the parties who are already in the case?

MR. CALDWELL: Your Honor, this is Mike Caldwell on behalf of Gelman. I think if it's all right, Mr. Negele, I'll go right.

MR. NEGELE: Go ahead.

MR. CALDWELL: Thank you, your Honor. The Court has had the pleasure of reviewing the extensive briefs and I'm not going to go through and even respond to what has been put forth here today. I think our briefs adequately respond to those issues and I think the Court is more interested in solutions than argument and I'd

like to provide that proposed solution to you.

First of all, the problem with the relief being sought by the proposed interveners is that if these interveners are added as parties it will unavoidably delay the important work that the parties, the DEQ and Gelman, have been undergoing for the last year in terms of negotiating the consent judgment modifications.

We have -- in anticipation of the new drinking water standard we have been proactively addressing that as far back as 2014 when we did a pretty intensive investigation of the Honey Creek area out in Scio Township to ensure that even though we had no legal obligation to do it at the time, to make sure that the plume, even when measured at detectable levels, 1 ppb, was not expanding and we did confirm that, so there's no well that -- we wanted to make sure that there were no wells that would be threatened in that area.

Over the last year we've been actively negotiating terms of consent judgment modifications with the State. We have exchanged drafts of proposed consent judgment modifications and, frankly, if it wasn't for the necessity of

having to respond to these motions to intervene, we would probably be very close if not having completed the process of drafting a document for the Court and the community's consideration.

And bringing the -- you know, the truth is the existing program is quite protective, but obviously with new standards, 10-fold decrease in the drinking water standard, although nobody is drinking the water anywhere close to that level, there are some needed modifications that we are perfectly willing to move forward with and that's what we've been discussing with the State and we'd like to move forward with that process.

Adding the interveners as parties would, even if it was just the proverbial seat at the table as counsel for the City suggests, would require a restart of those negotiations, but more important as a party any party -- any of the interveners that's added would essentially have a veto over any consent judgment that the parties and even the Court may feel is protective and makes sense.

We're going to potentially be stuck in litigation. We'd have to respond to the complaints. If one or more of the interveners

was not satisfied with the outcome of the negotiations that were initially delayed by their addition, they could simply refuse to concur in any consent judgment and we'd actually have to resolve those claims either by motion or, in a worst case scenario, by trial.

So that's the problem with allowing intervention, so -- and that's the prejudice in terms of permissive joinder, prejudice to the parties -- frankly, prejudice to the community and to this court is the delay and the potential hijacking of the whole consent judgment modification process and those are very real concerns for I think, I would hope, all involved.

So in terms of what relief we seek, the relief we would ask is that these motions be denied for the reasons set forth in our brief and I'm not going to repeat them now regarding timeliness and prejudice that I just outlined a little bit, but if the Court has any concerns in that regard, I'd like to propose an alternative that I think addresses the concerns of the proposed interveners and their desire -- an understandable desire to have a voice in the outcome of the consent judgement modifications,

but avoids the downside risk of allowing them to become parties to the action.

And, frankly, I've been practicing environmental law for quite a while, I know Mr. Davis has and all of counsel here have been and I would think that there's not one situation in Michigan where we've had an environmental consent judgment that's had parties other than the agency and the responsible party to it, so this is very unusual type relief that they're seeking.

But the idea that I would like to propose to the Court is, A, deny the motions -- you know, I'm asking you to deny them with prejudice -- but if the Court has concerns about the possibility that maybe they should have additional input into this, deny them without prejudice today, let us finish the consent judgment modifications.

This is not going to be a long process. I mean, obviously we've missed a key window between Thanksgiving and Christmas, so with the holidays it may take six to eight weeks to finish -- to have a document.

My understanding is that the State

plans to -- and Mr. Negele can speak to this in more detail -- that the State plans to when we submit this to the Court we wouldn't be asking for immediate approval, that the State plans to publish the proposed consent judgment modifications and put it out for public comment so that the entire community, not just the three proposed interveners, can comment on the revised clean-up program and the DEQ would respond -- you know, would respond to those comments, and there may be some, you know, additional modification that the parties could agree on.

And at that point we would submit the comments received, the DEQ's response to those comments, the actual document that we've put together that describes the revised clean-up program, submit that all to the Court with that kind of record.

And then if the proposed interveners have -- still feel that their concerns have not been adequately represented or that there are still deficiencies in the program, we can have a real conversation. We can talk about specifics.

Right now, the interveners don't know what they're objecting to and we don't have the

ability to explain to the Court how the concerns of the interveners have been addressed by these three modifications that take care of this interest.

These interests over here, well, this is why, you know, these were not addressed -- you know, we can't have a concrete discussion. Right now we're -- this is all speculation and hypothetical concerns.

Let us have an actual document to debate and at that point the Court could either entertain renewed motions to intervene if -- and I would like a more productive and frankly less costly method of participating would be to accept amicus briefs from the parties that are now trying to intervene.

And I think that process avoids the potential downsides of granting the intervention motions at this point when we're really talking about hypothetical concerns, hypothetically whether the DEQ is adequately representing the interests of the community, and I think that makes a lot more sense.

Now, obviously, your Honor, I'm happy to answer any questions you have about either in

briefs or that have been raised in your mind by the arguments at this point, but that's my suggestion.

THE COURT: Thank you very much.

MR. NEGELE: Good morning, your Honor. Mr. Caldwell took a lot of my talking points away, but that's fine. You know, part of an observation that he made is an observation that I want to make too is that I've been in environmental practice for quite a while. I have a number of colleagues at the State that have been in environmental practice for quite a while and in our experience we've never seen a circumstance where an environmental policy group or, you know, a public interest group basically has intervened and been a participant in the negotiation of a consent judgment, whether it's the very first negotiation of a consent judgment, or in this case the fourth amendment to a consent judgment.

It may have happened, but it must be extremely rare and, you know, I expect that if such a situation had existed that counsel would have pointed out that situation as justification for intervention.

And I would point out too I'm really focusing on one case -- or one portion I filed a brief on which is the Watershed Council's motion to intervene because our filings for the City and the County speak for themselves.

So this has been going on for, you know, 28 years and why is -- with the Watershed Council on the sidelines, so what's happened that warrants intervention now? We have new clean-up criterion for drinking water and for vapor intrusion, but where were they for the two prior criteria revisions which were the Number 1 up. Now it's gone down to the lowest level that's only like slightly more than twice what it was back in 1992.

They seem to suggest that due to their narrow interests really all they're interested in is the -- what we refer to as the GSI criterion, it's the criterion that applies to where groundwater enters to the surface water through like the bottom of a lake or a stream and that criterion is currently 2,800 ppb.

The rules right now for Part 201 are up for amendment and that's part of where this emergency rule came from because those rules are

still being considered. And the GSI criterion is one of the criteria that could be possibly considered.

So really the Watershed Council, where they really belong right now is not at the table trying to negotiate a site-specific possibly GSI criterion for this plume, but is presenting scientific evidence and information to the DEQ rule making process.

And I'd point out too that the City of Ann Arbor has one of its employees as part of a stakeholder group that is working on the rule amendments. I'd also point out too that a site-specific standard usually is used to have a higher standard rather than a lower standard because the generic criteria are presumed to be protective of whatever they're designed to protect, in this case the groundwater/surface water interface.

So really, you know, what would normally happen is there would be a showing that 2,800 is protective and a higher number is still protective in a given circumstance. We've made -- you know, in our brief we've said that we believe that we are fully protecting the

interests of the public and here the clean-up criteria are designed to specifically address the uses that the council seeks to protect.

They bring no special expertise to the table. In fact, they pointed out that they're looking for an expert to assist them in this. And while they may care more about the water in the Huron River than the, you know, other members of the public, I point out that there are, you know, quite a few number of people and I'm surprised that there aren't more of them in the audience, but I expected to see a number of members of the people we regularly see at CARD (sp) meetings in the audience that care very deeply about this, this matter.

And, you know, I'm only using this as, you know, like a purely theoretical or hyperbolic sense, but shouldn't they also be granted intervention? You know, how many cooks do we need in the kitchen here?

The State is specifically charged with protection of the environment and water resources and, you know, we fully believe that we are protecting those interests. And, you know, again, as the point was made by counsel for

Gelman is that intervention by the Watershed Council will help -- will serve to kind of -- more than kind of, to derail the negotiations that we were so close to having finished at this point.

And I'll fill in in a little more detail on what we're proposing as far as this public comment period. First, it's not required and -- but it does fit in with the -- we've made a commitment to more public engagement with respect to our involvement with this site. And so it's consistent with our public outreach commitment.

So mechanically the way we would envision this working is provide notice in the DEQ environmental calendar. It's a calendar that DEQ publishes monthly and seek public comments there and, as Mr. Caldwell pointed out, it would be public comments, it would not be just our three proposed interveners, but it would give the opportunity for the public to provide their comments.

DEQ staff, we're thinking -- you know, what I've looked at -- I don't know how long the period it would be. Typically looking at the

calendar for mostly it's air cases that are published -- public commented -- or public noticed. They typically have a 30-day period in which to provide comments. Another time period may be more appropriate, I'm not sure.

But that would still delay us, but I think the public input would be valuable. DEQ will provide responses to those comments. This is similar to what's done on a federal level too for superfund cases when they're lodging a consent judgment.

The agency will basically assemble all the comments into certain categories and provide responses to those comments, and that way we can look at whether there would be a reason to like modify certain provisions or add certain provisions and possibly make those revisions. And as I believe Mr. Caldwell explained that we would submit our proposed amended consent judgment to you along with those comments so the Court would have the benefit of those comments too and proceed from there.

THE COURT: And was I correct in my summation at the beginning that I understood that you were not objecting to permissive intervention

by either the council or the City?

MR. NEGELE: That is correct.

THE COURT: Thank you, sir. Let me say as to the interveners -- go ahead and sit down, I haven't asked you to stand up here.

I recognize and I said at the beginning that it is your motion, under the court rules you have the right if you wish to rebuttal argument.

What I find in fact is what happens is you say that and then the other side, "May I just --", and (INDECIPHERABLE) and then you say a few more.

COUNSEL: We've never done that before, your Honor.

THE COURT: Well, we'll see. I believe having read the briefs and hearing the arguments from each of you I think you have articulated your viewpoints and I have enough that I can do (INDECIPHERABLE) this motion, but if you insist, I will give you that opportunity, but I would love to (INDECIPHERABLE) opportunity to --

MR. BRUETSCH: Your Honor, we're prepared to let you move, thank you.

MR. DAVIS: Your Honor, Robert Davis for the County, same.

MR. SALIM: Oday Salim for the Huron River Watershed Council, same, your Honor.

THE COURT: There are three entities which are seeking intervention in a case involving two parties that relates to the quality of the water in Washtenaw County.

And obviously the quality of the water in Washtenaw County can have an effect on the quality of the water well beyond the geographic borders of the county. There has been in the discussion today and in the briefs a lot about process and philosophy.

The legal avenue that the parties who are seeking intervention was focused primarily at my urging under the Court Rule 2.209 intervention (b) (INDECIPHERABLE) intervention.

I acknowledge for the record that there are other avenues by statute that could grant the relief that the parties have requested, but not every path is necessary and (INDECIPHERABLE) interveners so let's focus on 2.209(b).

That court rule says that on timely application a person may intervene in an action (b)(1) when a statute, Michigan statute, or court rule confers a conditional right to intervene or

(2) when an applicant's claim or defense in the main action have a question of law or fact in common. In exercising its discretion, the Court shall consider whether the intervention will unduly delay or prejudice the adjudication of the rights of the original parties.

In the responses against intervention in whole or in part or at some level as to some or all of the interveners their argument is that it is not timely since this matter has been going on for 28 years, and that there really -- it should have been done earlier and was not done earlier.

There are arguments about delay. There are arguments about prejudice against that.

In weighing those arguments and the reason I mentioned process and philosophy at the beginning, a lot of the discussion is talking related to process about undue delay or about prejudice.

The proposals against intervention had talked about alternative processes that would still address the concerns of those seeking to intervene. Of all of the descriptions of process I will tell you the one I find the most

persuasive is that advanced by the County.

I think that your literal description of how we should approach this is right on, and that being the notion that at the center of this room is the quality of the water in these new standards, and philosophically what we all concurred, that is the charge with which we are to address, that's the thing we should be keeping in the middle at all times and those around the table then philosophically, it's an issue of stewardship.

Whether we are public entities or private entities, that by our actions may have affected the quality of water there is this responsibility of stewardship.

When we look at this philosophically then we start to say well, of course, those who have a statutory duty or a legal responsibility or the entrustment of the public need to be at that table because the collective wisdom and viewpoints in solving a problem is always preferable to individual views.

So I think absolutely, the questions of the City and the County both have similar but different obligations, it makes all the sense in

the world that you have (INDECIPHERABLE) of the collective wisdom that you bring in looking at a solution and I would grant that and I'll address the arguments against it in a minute.

The Huron River Watershed Council is different in its request both in terms of the nature of the request because you're asking or accepting a more limited rule and as pointed out, at least in the experience of the attorneys involved for the two parties, this would be unusual and a first.

What's wrong with that? If you have a problem, I don't see what's inherently wrong because it hasn't been done before. I do think that the Huron River Watershed Council -- and this is why I asked about the background -- I think one of the things that this county is blessed with is institutions of higher learning as our neighbors and we should be always seeking the help of those who spend their lives in the advancement of thinking about things, so I welcome in the courts and in our county the wisdom of those who spend their lives thinking about these issues.

As to undue delay or prejudice, this

case as we said has been going on, I was with it at the beginning in this courtroom. It's been going on for decades and it will go on for decades until it's cleaned up and we know it's safe.

So I don't think a few more months to incorporate collective wisdom is undue delay. I think it's being thorough and careful, transparent and open and considering. I think it is time well spent as opposed to undue delay and even procedure is delayed.

As to any prejudice, this notion of veto power and that, for example, you would only be coming in by the way, as you said, for protection of surface water.

MR. SALIM: That's correct, your Honor.

THE COURT: I'm confirming that with you, that you understand that.

MR. SALIM: Confirmed.

THE COURT: But this notion that somehow there would be a veto power at the table, etc, well, again, if consensual agreement is always good in and of itself, but I don't see anybody hijacking the process, particularly when we keep this as centered (INDECIPHERABLE).

And if it goes astray, then we have a process to determine that, so I think courts are exactly the place that provides and space and the place for the resolutions of these disputes.

We start with that philosophy, we nurture that philosophy that the County has done, we try to stay on course with that philosophy and if any entity strays from that philosophy, we bring it back and assert in another mode (INDECIPHERABLE) as opposed to litigation and an independent fact-finder hears all those arguments and makes the determination.

So motion for intervention are granted as to the City, as to the County and its entities and as to the Huron River Watershed Council for that limited purpose of protection of the surface water interests.

I will be available to all of you. You think about what are the challenges going forward in line with this philosophical approach and to the extent you need my active involvement, you probably will pick a time different than the Thursday morning motion docket (INDECIPHERABLE).

Think about that. If you want to come back to me, come back and meet with me soon just

to talk about where do we go forward from here, I am available and I will assist you in that regard.

ALL COUNSEL: Thank you, your Honor.

(Proceedings concluded at 10:18 a.m.)

CERTIFICATE OF REPORTER

STATE OF MICHIGAN)
) SS
COUNTY OF WAYNE)

I HEREBY CERTIFY that I transcribed this video recording and that this is a full, true, complete and correct transcription of said audio recording (to the best of my ability to hear and understand said recording).

DALE E. ROSE,
CSR-0087

STATE OF MICHIGAN

IN THE COURT OF APPEALS

ATTORNEY GENERAL FOR THE STATE OF MICHIGAN *ex rel*. MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT,

Plaintiff/Appellee,

and

THE CITY OF ANN ARBOR,

Intervenor-Plaintiff/Appellee,

and

WASHTENAW COUNTY,

Intervenor-Plaintiff/Appellee,

and

THE WASHTENAW COUNTY HEALTH DEPARTMENT,

Intervenor-Plaintiff/Appellee,

and

WASHTENAW COUNTY HEALTH OFFICER, ELLEN RABINOWITZ,

Intervenor-Plaintiff/Appellee,

and

THE HURON RIVER WATERSHED COUNCIL,

Intervenor-Plaintiff/Appellee,

and

SCIO TOWNSHIP,

Intervenor-Plaintiff/Appellee,

v

GELMAN SCIENCES, INC., a Michigan Corporation,

Defendant/Appellant.

Court of Appeals
Docket No.

Lower Court
Washtenaw County Circuit Court
Case No. 88-34734-CE
Hon. Timothy P. Connors

GELMAN SCIENCES, INC.'S APPLICATION FOR LEAVE TO APPEAL

ORAL ARGUMENT REQUESTED IF APPLICATION FOR LEAVE IS GRANTED

EMERGENCY APPEAL

Part 201 of the Natural Resources and Environmental Protection Act demands expeditious remediation for environmental contamination, which has been stalled by the trial court's rulings

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DEFENDANT/APPELLANT GELMAN SCIENCES, INC.'S APPLICATION FOR LEAVE TO APPEAL

EMERGENCY APPEAL

Part 201 of the Natural Resources and Environmental Protection Act demands expeditious remediation for environmental contamination, which has been stalled by the trial court's rulings

ORDERS APPEALED FROM

Pursuant to MCR 7.203 and MCR 7.205, Defendant/Appellant Gelman Sciences, Inc. ("Defendant" or "Gelman"), through its counsel of record, Zausmer, August & Caldwell, P.C., hereby submits this Application for Leave to Appeal from interlocutory orders dated January 18, 2017 Granting Motions to Intervene of the City of Ann Arbor, Washtenaw County, and the Huron River Watershed Council (**Exhibit A**), February 6, 2017 Granting Scio Township's Motion to Intervene (**Exhibit B**), and March 24, 2017 Denying Gelman Sciences, Inc.'s Motion for Reconsideration. (**Exhibit C**). The trial court Register of Actions is attached hereto as **Exhibit D**.

The transcript of the December 15, 2016 hearing on the underlying motions to intervene filed by the City of Ann Arbor, the Huron River Watershed Council, Washtenaw County, the Washtenaw County Health Department, and Washtenaw County Health Officer Ellen Rabinowitz is attached hereto as **Exhibit E**. The transcript of the February 2, 2017 hearing on the underlying motion to intervene filed by Scio Township is attached hereto as **Exhibit F**. The Motion for Reconsideration was decided without oral argument.

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STATEMENT OF JURISDICTION

This Court has jurisdiction under MCR 7.203(B)(1) to consider this application for leave to appeal the trial court's January 18, 2017 Order Granting Motions to Intervene of the City of Ann Arbor, Washtenaw County, and the Huron River Watershed Council (**Exhibit A**), its February 6, 2017 Order Granting Scio Township's Motion to Intervene (**Exhibit B**), and its March 24, 2017 Opinion and Order Denying Defendant's Motion for Reconsideration. (**Exhibit C**). This application for leave to appeal is filed timely, as required by MCR 7.205(A)(2), because the Motion for Reconsideration was filed with the Circuit Court on February 8, 2017, which was within 21 days of both underlying orders, and this application is being filed within 21 days of the denial of Gelman Sciences, Inc.'s Motion for Reconsideration on March 24, 2017.

QUESTIONS PRESENTED

1. Part 201 of the Natural Resources and Environmental Protection Act creates a comprehensive statutory framework that prohibits challenges by citizens and local governments when the expert state agency, MDEQ, is diligently prosecuting the enforcement action and remediation is not complete. Here, MDEQ has been diligently prosecuting this enforcement action, including spending over a year negotiating an amended consent judgment with Gelman Sciences, Inc. However, the trial court expressly said "so what" when faced with these statutory limitations, instead letting six new parties intervene. Did allowing these entities to intervene violate Part 201?

   The trial court answered: "No."

   Defendant/Appellant Gelman Sciences, Inc. answers: "Yes."

2. Permissive intervention is improper when intervention will prejudice the existing parties, including when intervention poses a threat to a consent decree. Here, MDEQ and Gelman have spent over a year completing amendments to the consent judgment, including updated remediation requirements under the new standards. However, the addition of six new parties as intervenors will make resolution, approval of the amendments, and, if necessary, further litigation impractical. Further, the grant of these intervention requests opens the door to a parade of future intervention motions, thereby placing any further discussions at risk. Did the trial court err in concluding that permissive intervention was proper for the six new parties?

   The trial court answered: "No."

   Defendant/Appellant Gelman Sciences, Inc. answers: "Yes."

3. In order to intervene, a proposed intervenor must file a "timely application." Here, the six intervening parties filed their motions to intervene nearly thirty years into this litigation, and months after the announcement of proposed changes to the standards upon which they rely. Did the trial court err in impliedly concluding that the applications were "timely"?

   The trial court impliedly answered: "No."

   Defendant/Appellant Gelman Sciences, Inc. answers: "Yes."

REASONS FOR INTERLOCUTORY REVIEW

Gelman Sciences, Inc. ("Gelman") requests interlocutory leave to appeal to correct the trial court's erroneous decision to allow six new parties to intervene in this environmental contamination enforcement action, an action over which the Michigan Legislature vested primary responsibility in the State of Michigan—the original (and exclusive) plaintiff for the past three decades.

The Michigan Legislature has created a comprehensive statutory framework for the expeditious remediation of environmental contamination. In crafting Part 201 of the Natural Resources and Environmental Protection Act ("NREPA"), the Legislature deliberately placed responsibility for enforcement, and selecting an appropriate remediation plan, in the hands of an expert agency: the Michigan Department of Environmental Quality ("MDEQ" or "the State"). In so doing, the Legislature ensured that appropriate action would be taken to protect state citizens and the environment from hazardous contamination, while simultaneously limiting the impact of lobbying by more localized government units. *See* MCL 324.20102(m) (setting forth the legislative declaration that "it is the intent of the legislature that, in implementing this part, the department shall act reasonably in its exercise of professional judgment") (emphasis added).

Part 201's statutory scheme makes clear that the Legislature intended MDEQ to be the primary enforcer of remediation efforts, unencumbered by potentially unreasonable or conflicting demands by third parties. For example, Section 20135 permits a "person, including a local unit of government on behalf of its citizens, whose health or enjoyment of the environment is or may be adversely affected by a release from a facility. . . [to] commence a civil action." MCL 324.20135(1) (emphasis added). But in keeping with the statute's intent to appoint MDEQ as the primary gatekeeper, this provision then places two important restrictions on such "citizen-suit"/"local-government" actions. First, the challenging party must provide at least 60 days'

written notice of its intent to sue to MDEQ. MCL 324.20135(3)(a). Second, the citizen or local government suit is only permitted if "[t]he state has not commenced and is not diligently prosecuting an action under this part or under other appropriate legal authority to obtain injunctive relief concerning the facility or to require compliance with this part or a rule or an order under this part." *Id.* at 324.20135(3)(b). In other words, the statute requires that the proposed plaintiff first give MDEQ an opportunity to seek enforcement and, if the agency does so in a diligent fashion, the plaintiff's suit is barred. In this way, the Legislature ensured that contamination issues would be handled swiftly and that the State Agency with the requisite expertise would have the initial opportunity to address these problems. In that same vein, the Legislature removed a court's jurisdiction to "review challenges to a response activity selected or approved by the department [unless] the action is filed after the completion of the response activity." *See* MCL 324.20137(6)(d) (emphasis added).

In 1988, the State filed an enforcement action against Gelman regarding 1,4-dioxane contamination resulting from Gelman's production of medical-grade filters. In 1990-1991, the trial court presided over a nearly year-long bench trial before concluding that all of the significant releases that resulted in the contamination had been authorized by a series of wastewater discharge permits. In October 1992, Gelman and the State agreed to a consent judgment that set forth the framework of the initial remediation plan.

Over the next nearly three decades, the State and Gelman diligently worked to remediate the contamination, often agreeing on work plans and sometimes requiring court intervention where the State and Gelman could not reach agreement. The parties litigated proper enforcement and interpretation of the consent judgment and agreed to several court-approved modifications to that consent judgment. Throughout all these proceedings, although state cleanup standards for

1,4-dioxane changed and the plan for remediation evolved, the State and Gelman remained the only two parties to the litigation.

In March 2016, the State announced its intention to again revise the drinking water cleanup criterion for 1,4-dioxane, this time from 85 parts per billion ("ppb") to 7.2 ppb. In anticipation of this change, MDEQ and Gelman had already been negotiating modifications to the remediation plan for nearly a year, in an effort to ensure that the remedy remained protective of public health and the environment under the new cleanup standard. Then, in October 2016, MDEQ issued the new standard as an emergency rule, which will remain in effect for six months. At that time, MDEQ and Gelman were on the verge of finalizing the amended consent judgment, with the intent to lodge it with the trial court and present it to the general public for comment shortly thereafter.

Weeks after MDEQ issued the emergency rule, the City of Ann Arbor ("the City"), Washtenaw County, the Washtenaw County Health Department, and Washtenaw County Health Officer Ellen Rabinowitz (collectively, "the County"), and the Huron River Watershed Council ("the HRWC") filed motions to intervene in the almost thirty-year-old enforcement action. Two months later, Scio Township ("the Township") requested to intervene as well.[1] Each of the Intervenors sought to become parties to MDEQ's enforcement action so that each could demand its own changes to the remediation plan. Many of the demands go far beyond the remediation requirements under state law. The demands also threaten to compete with, and thus undermine, the remediation plan MDEQ had negotiated with Gelman as part of the proposed amended consent judgment arrived at between the original parties to this matter.

[1] The City, the County, the HRWC, and the Township will collectively be referred to as the "Intervenors" in this Application for Leave to Appeal.

Yet, notwithstanding that Part 201 does not permit claims such as these when MDEQ is diligently prosecuting an ongoing remediation action, and that the Intervenors' demands would unravel the remediation plan that MDEQ (as the designated enforcer) had negotiated for over a year, the trial court expressly said "so what" when presented with the Legislature's statutory framework. *See* **Exhibit F**, at 24:13-18 (emphasis added). In an unprecedented and precedential decision, the trial court allowed all six entities to become parties to this action under Michigan Court Rule 2.209(b), the rule providing for permissive intervention, on the theory that "a collective wisdom of viewpoints in solving a problem is always preferable to individual views." **Exhibit E**, at 45:6-7. Indeed, even HRWC proclaimed this ruling as "precedent setting" on its website, highlighting that intervention into an ongoing environmental enforcement action, where a consent judgment was already in place, had never been allowed in the state. *See* **Exhibit G** ("News to Us," HRWC (Jan. 23, 2017)); *see also* **Exhibit E**, at 37:1-8 (Assistant Attorney General Brian Negele explaining that his colleagues at the State have "never seen a circumstance where an environmental policy group or . . . a public interest[] group . . . has intervened and been a participant in the negotiation of a consent judgment").

Unfortunately, the trial court's decision constitutes both an error of law and an abuse of discretion. The trial court ignored that permitting these entities to intervene to challenge the selected remediation plan undermines Part 201's prohibition on such challenges when MDEQ is diligently prosecuting the enforcement action and remediation is not complete. Indeed, by allowing these entities to hold hostage the selection of a remediation plan by injecting their individualized, politicized, and untenable demands into the negotiating process, the trial court undermined the Legislature's goal of giving primary enforcement responsibility to MDEQ and of facilitating expedited remediation of contamination.

Further, by permitting the Intervenors to become parties to this action, the trial court prejudiced the existing parties—MDEQ and Gelman—and created delay in the remediation efforts. The intervening parties are now guaranteed a seat at the negotiating table and the counsel table, with the ability to destroy a mutually agreed-upon resolution simply because their individualized demands may not have been met to their full satisfaction. Thus, instead of encouraging a thoughtful and efficiently negotiated remediation plan between Gelman and the responsible State Agency, as contemplated by Part 201, the addition of these parties threatens to increase wasted time and resources exponentially, due to extended and likely futile negotiations, unnecessary motion practice, discovery, and, quite likely, a trial on the merits with eight separate parties presenting evidence. Indeed, Gelman and MDEQ have reached agreement on appropriate additional remedial work to ensure that the remedy remains protective of human health and the environment and are prepared to agree to an amended consent judgment describing those changes today. Unfortunately, the trial court's rulings on the requests to intervene currently are preventing that judgment from being finalized and the agreed-upon additional environmental response actions from moving forward.

The trial court's decision, which substitutes its preference for "a collective wisdom of viewpoints," *see* **Exhibit E**, at 45:6-7, over the Legislature's choice of vesting authority in the expert State Agency, also creates a dangerous precedent that encourages innumerable other individuals and entities to seek to intervene—a threat already coming to fruition as shown by the Township filing its own motion to intervene a month after the trial court granted the other intervenors' requests. As each new request for intervention is filed, the settlement discussions will have to be stopped, reset, and restarted to accommodate the new party's demands, thereby prejudicing the original parties and delaying the remediation efforts. And the trial court

permitted this all to occur despite Gelman emphasizing in its briefing the Legislature's limitations on such actions and the inexplicable fact that none of the Intervenors formally sought to intervene at any other point in this case's nearly three-decade-old history. The trial court's actions also create troubling precedent that, if allowed to stand, would bring havoc and uncertainty to existing and future environmental cleanups throughout the state, completely contrary to the Legislature's intent.

Interlocutory appeal is necessary to correct the trial court's erroneous decision before it is too late to afford an opportunity for practical review of the underlying decision. By granting the Intervenors party status and declaring "so what" to the statutory framework of Part 201, the trial court undermined the Michigan Legislature's goal of expeditiously addressing environmental contamination and its intent that MDEQ be the primary enforcer of remediation efforts. As parties to the action, the Intervenors now have the ability to direct the course of the litigation and to reject remediation efforts that have been chosen by the State as part of its diligent prosecution. Indeed, although Gelman and MDEQ have agreed upon a consent judgment for submission, the intervention of six new parties has prevented that judgment from being deemed final (and corresponding updated remediation efforts from being implemented). Consequently, rather than presenting the Fourth Amended Consent Judgment that is the product of a year of negotiations, MDEQ and Gelman must now return to the negotiating table with six new parties and a looming threat of more potential intervenors to come. Furthermore, and as already revealed by the Intervenors' unreasonable demands and inflammatory rhetoric included in their motions to intervene, the likelihood that all parties will agree on a remediation plan is substantially diminished, which will in turn require extensive and time-consuming litigation and trial that would otherwise be wholly unnecessary. To that end, the first trial in this matter took nearly a

year for the State's presentation of its proofs alone. It is unthinkable how long a trial will last if eight separate parties are permitted to submit proofs and argument to the trial court—with some evidence about activities that are now over thirty years old.

The time is now to return control of this enforcement action back to MDEQ, as the Legislature's designated gatekeeper. Overturning the intervention orders will swiftly close the lid on the Pandora's Box of other parties seeking to intervene, as well as restore the Legislature's intent that environmental contamination be timely addressed by permitting MDEQ and Gelman to promptly finalize the consent-judgment modifications, which set forth the expert agency MDEQ's negotiated remedy. Nor will such a result prejudice the Intervenors (and other interested community members), because MDEQ has already committed to a public comment process, which allows MDEQ and the Court to consider any objections to the proposed consent judgment amendment and, if appropriate, to seek further modifications based on the comments, either cooperatively with Gelman or by motion to the Court. Accordingly, Gelman respectfully requests that this Honorable Court grant its application for leave to appeal the trial court's January 18, 2017 Order Granting Motions to Intervene of the City of Ann Arbor, Washtenaw County, and the Huron River Watershed Council (**Exhibit A**), its February 6, 2017 Order Granting Scio Township's Motion to Intervene (**Exhibit B**), and its March 24, 2017 Opinion and Order Denying Defendant's Motion for Reconsideration. (**Exhibit C**).

STATEMENT OF FACTS

I. Background Facts

Gelman moved its microporous filter business to Scio Township in 1963. In 1966, Gelman began utilizing 1,4-dioxane in its production of medical-grade filters. Through this process, wastewater containing 1,4-dioxane and other chemicals was generated. Pursuant to a series of wastewater discharge permits, Gelman disposed of its wastewater in treatment ponds

which—by design and with the permission of the relevant authorities—leached treated wastewater to the ground. In accordance with similar permits, Gelman also utilized a spray irrigation system to dispose of its treated wastewater to the ground.

These wastewater discharges were legal and authorized. However, while the treatment systems successfully addressed the other chemicals found in the processed wastewater, they could not successfully treat 1,4-dioxane due to its unique resistance to biodegradation. Gelman did not know and was not advised by its consultants, experts, or the suppliers or manufacturers of 1,4-dioxane that the treatment processes would not successfully biodegrade that substance. Unfortunately, Gelman's permitted and legal waste disposal practices resulted in the unintended release of 1,4-dioxane into the groundwater.

In 1988, the State filed its complaint in this matter. After hearing the State's case during a nearly year-long bench trial in 1990-1991, but before Gelman even presented its defense, Judge Patrick J. Conlin granted Gelman's Motion for Involuntary Dismissal and dismissed all of the State's claims against Gelman (except as to the overflows from one of the treatment ponds) on the basis that the discharges were permitted releases for which Gelman could not be held liable. *See* **Exhibit H**, Opinion & Order (July 25, 1991) at 27; *see also id.* at 24. The court's prescient "permitted release" ruling is consistent with current Michigan statutory law. *See* MCL 324.20126a(5).

Ultimately, in October 1992, Gelman and the State entered into a consent judgment, under which Gelman agreed to take specified response actions to address the 1,4-dioxane contamination. *See* **Exhibit I**, Consent Judgment. The consent judgment incorporated the statewide health-based cleanup standards for 1,4-dioxane that were in effect at the time. *Id.*, §§ G, N (pp. 4, 5). As part of the cleanup objectives of the consent judgment, Gelman agreed to

install groundwater extraction systems to deal with the known contaminant plumes and to address the on-site contamination at the Gelman facility. *Id.*, § V (pp. 6-17).

In 2000, Gelman and MDEQ were at loggerheads over how to properly implement the consent judgment. The State took aggressive action and filed a motion to enforce the consent judgment, seeking to require Gelman to undertake additional cleanup. From Gelman's perspective, the Company was trying to accelerate the cleanup as demanded by MDEQ, but could not secure necessary approvals from MDEQ for various response actions. Consequently, in response to the State's motion, Gelman asked the court to hold an evidentiary hearing during which Gelman could present its cleanup plan. That plan included a wide range of aggressive response activities designed to greatly increase the pace of cleanup.

Following the evidentiary hearing, Judge Donald E. Shelton essentially ordered Gelman to implement its proposed cleanup plan. *See* **Exhibit J**, Opinion & Order (July 17, 2000). Over the next five years, as part of a plan approved by MDEQ and the court, Gelman increased its extraction/treatment rate from approximately 250 gallons per minute ("gpm") to approximately 1200 gpm, installed 11 new purge wells to eliminate the areas of highest groundwater contamination near the Gelman property, and decreased the 1,4-dioxane concentrations in the groundwater. At Gelman's Wagner Road facility, for example, dioxane groundwater detections were reduced from over 25,000 parts per billion ("ppb") to approximately 1,000 ppb or less in most areas, substantially diminishing the mass of 1,4-dioxane migrating off-site and the risk to the public and to the environment.[2]

Gelman continued to comply with its obligations under the consent judgment and completed every remediation milestone within the time frame set by the court-approved 5-Year

[2] *See* Time-Series Maps showing concentration decreases, attached as **Exhibit K**.

Plan. By 2004, as a result of Gelman's "pumping and treating over a billion gallons of contaminated water[,] . . . over 37,000 pounds of 1,4 dioxane ha[d] been removed from the aquifer covered by th[e] Court's five year order." *See* **Exhibit L**, Opinion and Order (Dec. 17, 2004) at 3.[3]

In 2005, the trial court established a "Prohibition Zone" to address a plume located under commercial and residential neighborhoods in the City of Ann Arbor. *See* **Exhibit M**, Order (May 17, 2005). The court prohibited the use of groundwater within the Prohibition Zone for drinking water and other purposes, consistent with ordinances already in place at the time that precluded the installation and use of wells in areas served by the City's water supply system. The purpose of the Prohibition Zone is and always has been to prevent unacceptable exposure (e.g., drinking water) to the groundwater contamination, while allowing the groundwater contamination to migrate safely to the Huron River, where it should vent at safe levels well downstream from the City's municipal water supply intake at Barton Pond.[4]

The City of Ann Arbor brought its own state and federal court claims against Gelman in 2004 and 2005 in connection with this same groundwater plume. Those cases settled in 2006, and the City executed liability releases in Gelman's favor. *See* **Exhibit N**, Settlement Agreement. Importantly, as part of that settlement, the City agreed to cooperate with Gelman's implementation of the Prohibition Zone-based remediation of this plume. *Id.*, Section IX.G.

[3] To date, Gelman has extracted and treated almost 8 billion gallons of contaminated groundwater and removed over 110,000 pounds of 1,4-dioxane.

[4] Part 201 provides for the establishment of such an "institutional control" remedy to prevent unacceptable exposures to contamination. MCL 324.20121(8). The institutional control-based remedy in the City is also consistent with the methods used by the U.S. EPA to address 1,4-dioxane plumes at other sites in Michigan.

In 2011, MDEQ and Gelman agreed to amend the consent judgment again, to reflect a greater understanding of the groundwater conditions in the Evergreen Subdivision area and to better coordinate the cleanup objectives. *See* **Exhibit O**, 2011 Amended Consent Judgment. The Prohibition Zone was expanded to include the existing northernmost portion of the plume near the Evergreen Subdivision area.[5] *Id.*, §§ III.R, V.A.1.b (pp. 3, 5). The expansion required Gelman to provide municipal water to the six homes in the area that were still utilizing a private water well, an obligation with which it promptly complied. The requirement from the original 1992 consent judgment that Gelman capture the leading edge of the Evergreen Plume was eliminated, as it interfered with other cleanup objectives, but Gelman continued to operate the Evergreen extraction system to reduce the contaminant concentrations that could migrate eastward through the Prohibition Zone. *Id*, ¶ V.A.2.f (pp. 7-8).

The 2011 consent judgment amendment also reflected the reality and limitations of pump-and-treat remediation: despite the dramatic decreases in 1,4-dioxane groundwater concentrations attained as a result of Gelman's initial cleanup efforts, it became clear that the pump-and-treat approach could not reduce the groundwater concentrations below the 85 ppb cleanup standard in effect at that time.[6] Accordingly, the 2011 revisions instead provided for a

[5] The Prohibition Zone was not extended because the plume itself had expanded— the plume was known to be present in the Evergreen Subdivision area since well before the 1992 consent judgment. The 1992 consent judgment addressed this portion of the plume by requiring Gelman to utilize groundwater extraction wells to prevent the leading edge from migrating further east. *See* **Exhibit I**, § V.A (pp. 6-11). With the implementation of the Prohibition Zone institutional control in 2005 to address the larger portion of the plume to the south, it made little sense to continue to capture the small portion of the plume located in the Evergreen Subdivision area. Consequently, Gelman and MDEQ agreed to extend the Prohibition Zone to include the Evergreen Subdivision plume as well.

[6] *See* Analytical Data Graphs from Gelman's extraction wells, attached as **Exhibit P**, showing concentrations leveling off over time well above 85 ppb cleanup standard.

performance-based groundwater extraction requirement: Gelman was to pump as much groundwater as was necessary to keep the footprint of the plume in the Western Area (west of Wagner Road) from expanding, while simultaneously pumping enough from the Eastern Area extraction wells to keep the plume within the Prohibition Zone. *Id*., § V.B.1, 2.a (pp. 15-16). Since 2011, Gelman has continued to satisfy the "non-expansion" objective of the revised consent judgment and has prevented any new water supply wells from being affected by the groundwater contamination.

In March 2016, MDEQ announced a draft revised drinking-water criterion for 1,4-dioxane of 7.2 ppb (from the previous 85 ppb), and in October, it enacted an emergency rule implementing that change and imposing a residential-vapor-intrusion screening level of 29 ppb.[7] The emergency rule will remain in effect for six months, after which point it will expire unless extended.

For more than a year, in addition to continuing its remediation efforts, Gelman worked proactively with MDEQ to prepare for the anticipated change in the drinking-water standard. In 2014 and 2015, for example, Gelman implemented an extensive hydrogeological investigation in the Honey Creek area, confirming that no drinking water wells were threatened, that the plume in that vicinity was not expanding (even when measured at 1 ppb), and that it was in fact declining in concentration. **Exhibit Q**, Aff. of James W. Brode, ¶ 12. Even before the 7.2 ppb draft standard was announced, Gelman agreed to provide municipal water to the one property at the

[7] It is important to emphasize that 1,4-dioxane has never been considered to be sufficiently volatile to pose a vapor-intrusion risk. 1,4-dioxane's "Henry's Law Constant," which is a measure of a chemical's ability to volatize out of a solution with water, is an order of magnitude below the threshold for considering a chemical to be a "volatile." The draft administrative rules, however, identify 1,4-dioxane as one of approximately 20 chemicals that "may become volatile," apparently based on the chemical's vapor pressure (a measure of a chemical's ability to volatize from its pure form, which has little relevance to conditions encountered in the environment).

site that used a well with concentrations above single digits. Last summer, in conjunction with MDEQ, Gelman undertook a shallow groundwater investigation to determine whether groundwater that could potentially come into contact with residential basements posed a threat under the more recently contemplated vapor-intrusion screening level. The investigation did not reveal any risk to the public: 1,4-dioxane was detected in only 2 of the 27 borings, and only at 1.9 and 3.3 ppb—well below the 29 ppb vapor-intrusion screening level imposed by the emergency rule. *See* Shallow Groundwater Investigation, Exhibit B to City Mot. to Intervene at p.4, **Exhibit R**.[8]

Gelman and MDEQ had also been negotiating revisions to the consent judgment for more than a year, well in advance of the promulgation of the revised standards. The parties had been exchanging draft consent-judgment language to memorialize the necessary adjustments to the cleanup program to ensure that it remains protective of the public health. Those discussions proved fruitful, and MDEQ and Gelman now stand ready to present a Fourth Amended Consent Judgment describing those changes to the trial court for its review. However, MDEQ and Gelman currently are unable to do so, because of the trial court allowing six new parties to intervene in the case.

II. Procedural History of the Motions to Intervene

In November 2016, after nearly thirty years of litigation solely between MDEQ and Gelman, and on the eve of those parties finalizing their amendments to the consent judgment, the City filed its motion to intervene. *See* **Exhibit R**, City Mot. to Intervene. The City argued that intervention was

[8] Furthermore, although this groundwater cannot legally be used for drinking water because it is within the Prohibition Zone, it would even be safe to drink under the new drinking-water criterion. It is thus ironic that the shallow groundwater investigation findings were used to justify the emergency rule and now, in turn, the motions to intervene filed in this action, when they evidence a lack of danger.

necessary in light of the new MDEQ standards and to protect itself from potentially having to provide water to more of its residents under an expanded Prohibition Zone. The hearing on the City's motion was set for December 15, 2016.

On December 5, 2016—nearly three weeks after the City filed its motion—the HRWC filed its own motion to intervene. *See* **Exhibit S**, HRWC Mot. to Intervene. HRWC claimed that its intervention was necessary to protect the Huron River's surface water, aquatic life, and recreation given the anticipated venting of 1,4-dioxane into the river—a process that has been contemplated for more than a decade and is far in the future.

Then, on December 6, 2016, Washtenaw County, the Washtenaw County Health Department, and Washtenaw County Health Officer Ellen Rabinowitz (collectively, "the County") filed their own motion to intervene. *See* **Exhibit T**, County Mot. to Intervene. The County argued that intervention was necessary due to the statutory obligation to protect the health and safety of County residents.

Gelman opposed each of these motions. *See* **Exhibit U**, Gelman Opp. to City Mot. to Intervene; **Exhibit V**, Gelman Opp. to HRWC Mot. to Intervene; **Exhibit W**, Gelman Opp. to County Mot. to Intervene. As relevant here, Gelman raised a number of arguments against intervention, including that: (i) the claims were barred under Part 201; (ii) the motions were unjustifiably delinquent; (iii) MDEQ adequately represents the interests of these entities; and (iv) granting intervention would delay (or destroy) possible resolution, thereby prejudicing the parties.[9]

[9] With respect to the City's motion, Gelman also argued that a prior settlement and release barred its claims.

The trial court heard oral argument on December 15, 2016. After argument from counsel, the court granted the motions, focusing on permissive intervention under MCR 2.209(B).[10] **Exhibit E**, at 43:5-15. The court found that "those who have a statutory duty or a legal responsibility or the entrustment of the public need to be at [the negotiating] table, because a collective wisdom of viewpoints in solving a problem is always preferable to individual views." *Id*. at 45:4-7. The court also added that it did not think any undue delay or prejudice would arise from the grant of the motions, because this case has "been going on for decades; it will go on for decades, until it's cleaned up and we know it's safe. So I don't think a few more months incorporating collective wisdom is undue delay. I think it's being thorough and careful, transparent and open and considerate. I think it is time well spent as opposed to undue delay." *Id.* at 46:7-13. Finally, with respect to concerns about individual intervenors rejecting an otherwise agreed-upon resolution, the court stated that "a consensual agreement is always good, in and of itself," but that, "if it goes astray, then we have a process to determine that" and that "courts are exactly the place that provides the space and the place for the resolution of these disputes." *Id.* at 46:24-47:13. Therefore, the court granted the motions as to the City and the County, and granted HRWC's motion for the purpose of protecting surface-water interests. *Id.* at 47:14-17. Importantly, the trial court did not substantively address Gelman's argument that the Intervenors' claims are statutorily barred under Part 201.

The court cemented its decision in an Order Granting Motions to Intervene of the City of Ann Arbor, Washtenaw County, and the Huron River Watershed Council on January 18, 2017. **Exhibit A**. The Order stated that the motions were granted pursuant to MCR 2.209(B), that the City, the County, and the HRWC are "entitled to participate in negotiations concerning the proposed Fourth Amended

[10] Notably, the Court granted permissive intervention as to each of the moving parties, despite the fact that the City had explicitly sought only intervention as of right pursuant to MCR 2.209(A), and not permissive intervention. *See* **Exhibit R**, City Mot. to Intervene.

Consent Judgment," and that any of them could file their complaint if they concluded "in good faith that the negotiations have failed or that insufficient progress has been made during negotiations." *Id*.

On January 17, 2017, more than a month after the Court's hearing on the other motions to intervene, the Township filed its own motion to intervene. *See* **Exhibit X**, Township Mot. to Intervene. Gelman opposed that motion, once again arguing that: (i) the claims are barred under Part 201; (ii) the motion was unjustifiably delinquent; (iii) MDEQ adequately represents the Township's interests; and (iv) granting intervention would delay (or destroy) possible resolution, thereby prejudicing the original parties. **Exhibit Y**, Gelman Opp. to Township Mot. to Intervene.

The trial court held a hearing on February 2, 2017, at which it granted the Township's motion. The court noted that "an issue like this . . . affect[s] everyone . . . because water is . . . the basic block of who we are in our bodies and who we are in our communities." *See* **Exhibit F**, at 24:3-7. The court reiterated that it hoped agreement could be reached, but, "if we can't reach a consent judgment[,] this space provides a place for those issues which can't be agreed to which are litigated, a record is established, findings of fact are made and we have appellate review." *Id.* at 26:15-19. Finally, the court responded to arguments about MDEQ's authority and the environmental litigation process under Part 201 with a simple, "[S]o what"? *Id.* at 24:13-18 (also adding that "we should do what makes sense").

On February 6, 2017, the court entered the Order Granting Scio Township's Motion to Intervene. *See* **Exhibit B**. Like the January 18, 2017 Order, the February 6, 2017 Order regarding Scio Township stated that the motion was granted pursuant to MCR 2.209(B), that the Township is "entitled to participate in negotiations concerning the proposed Fourth Amended Consent Judgment," and that the Township could file its complaint if it concluded "in good faith that the negotiations have failed or that insufficient progress has been made during negotiations." *See id*.

On February 8, 2017, Gelman filed a motion for reconsideration of the Court's orders granting intervention. *See* **Exhibit Z**, Mot. for Reconsideration. Gelman once again highlighted the issues posed by Part 201's framework, and requested that the trial court adequately consider and resolve these concerns. *Id.* at 14-17. Gelman also pointed out the wave of intervenors the court's precedent threatened to create, the prejudice and undue delay that would result, and the lack of clarity regarding the timeliness of the motions. *Id.* at 8-14, 17. On March 24, 2017, the court denied Gelman's motion, without oral argument, via a short opinion and order: "This Court having reviewed Defendant's Motion for Reconsideration pursuant to MCR 2.119(F), and being otherwise fully advised and there being no just reason for delay, the Court finds that no palpable error exists and that the parties have not been misled sufficient to show that a different disposition must result." **Exhibit C**.

STANDARD OF REVIEW

The trial court granted the Intervenors' motions pursuant to Michigan Court Rule 2.209(B), which provides for permissive intervention.[11] MCR 2.209(B) allows a person to intervene "[o]n timely application . . . (1) when a Michigan statute or court rule confers a conditional right to intervene; or (2) when an applicant's claim or defense and the main action have a question of law or fact in common." The rule also requires that, "[i]n exercising its discretion, the court shall consider whether the intervention will unduly delay or prejudice the adjudication of the rights of the original parties." *Id.*

This court reviews a trial court's decision on a motion to intervene for abuse of discretion. *WA Foote Mem Hosp v Mich Dep't of Pub Health*, 210 Mich App 516, 525; 534 NW2d 206 (1995). A trial court abuses its discretion when it reaches a decision that falls outside the range of principled outcomes or makes an error of law. *In re Waters Drain Drainage Dist*, 296 Mich App 214, 216, 220; 818 NWd2d 478 (2012).

[11] The court did not rule on intervention of right. *See* **Exhibit E**, at 43:11-15.

In granting the intervention motions, the trial court ignored Part 201's requirement that civil suits may not be brought by private parties—including a local unit of government on behalf of its citizens—when the State is "diligently prosecuting" the enforcement action. MCL 324.20135(3)(b). It also declined to address the law providing that courts lack jurisdiction to review challenges to a response activity selected or approved by MDEQ until the completion of that response activity. *Id*. at 324.20137(6)(d). This appeal thus also presents questions of law, because the trial court's decision implicitly was based, in part, on its incorrect interpretation that Part 201 does not preclude the Intervenors' claims.

Questions of statutory interpretation are issues of law that are reviewed de novo by an appellate court. *Devillers v Auto Club Ins Ass'n*, 473 Mich 562, 566; 702 NW2d 539 (2005). Where a trial court incorrectly chooses, interprets, or applies the law, it commits legal error that appellate courts are bound to correct. *Bracco v Michigan Technological University*, 231 Mich App 578, 585; 588 NW2d 467 (1998) (citing *Fletcher v Fletcher*, 447 Mich 871, 881; 526 NW2d 889 (1994)). Further, a trial court abuses its discretion when it misinterprets or misapplies the law. *Bynum v ESAB Group, Inc.*, 467 Mich 280, 283; 651 NW2d 383 (2002). Where the trial court has misinterpreted or misapplied the law, interlocutory review is an appropriate means to obtain prompt correction of legal error. *See, e.g., Janczyk v Davis*, 125 Mich App 683, 688 n1; 337 NW2d 272 (1983) (citing *Belt v Ritter*, 18 Mich App 495, 498; 171 NW2d 581 (1969)).

ARGUMENT

I. Part 201 precludes the Intervenors' claims, because MDEQ is diligently prosecuting this ongoing enforcement/remediation action.

The City, the County, the HRWC, and the Township each sought to intervene to demand that their desired modifications to the remediation plan be incorporated into the selected response activity. For example, the City requests that the trial court:

> [e]njoin[] [Gelman] and require[] [Gelman]: (i) to undertake necessary actions to determine the full nature and extent of [Gelman]'s 1,4 dioxane in all areas; (ii) to take all actions necessary to stop further spread of 1,4 dioxane beyond the boundaries of the Prohibition Zone that was established under the Settlement Agreement, including, as appropriate to achieve that result, stopping the release at the Source Property and in downgradient portions of the plume; and (iii) to take all necessary actions to cleanse 1,4 dioxane from groundwater to achieve the cleanup criterion and screening levels established by MDEQ in all areas outside of the Prohibition Zone established in the Settlement Agreement, such that there no further [sic] Hazardous Substances will remain in the soil or groundwater at and under the City's property.

See City Compl., ¶ 86(1), Ex. G to City Mot. to Intervene, **Exhibit R**. The County argued in its motion to intervene that "cleanup," rather than containment, "must be the goal and the objective going forward given the now identified public health issue." County Br. in Support of Mot. to Intervene at 11, **Exhibit T**. The HRWC seeks to have the trial court:

> [e]njoin[] [Gelman] and require[] [Gelman]: (i) to prevent dioxane from entering the surface waters of the Huron River watershed in concentrations that would be unlawfully injurious to humans or aquatic life; (ii) to use the best scientific practices and information available to model the migration of the dioxane through the groundwaters; (iii) to develop and implement a groundwater monitoring and detection scheme that accurately assesses the risk of dioxane entering the surface waters of the Huron River watershed; (iv) to maintain dioxane levels in surface waters of the Huron River watershed to below an appropriate water quality criterion that would be protective of any relevant water use; (v) to develop and implement a surface water monitoring and detection scheme that accurately measures the concentration of dioxane in the surface waters of the Huron River watershed.

HRWC Compl., ¶ 45(b), Ex. 6 to HRWC Mot. to Intervene, **Exhibit S**. And the Township has demanded that the court "[r]equire [Gelman] to undertake necessary response activities to determine the extent of the Hazardous Substances plume migrating throughout the Township and City of Ann Arbor, prevent the further migration of Hazardous Substances to Township property

and take all necessary action to remove Hazardous Substances from Township property in accordance with applicable cleanup standards." Township Compl., ¶ 84(a), Ex. J to Township Mot. to Intervene, **Exhibit X**.

Therefore, each of the Intervenors seeks to impose specified requirements onto Gelman's remediation efforts. These claims are, consequently, essentially independent citizen suits under Part 201, which provides, in relevant part:

> [A] person, including a local unit of government on behalf of its citizens, whose health or enjoyment of the environment is or may be adversely affected by a release from a facility, . . . may commence a civil action against . . . (a) [a]n owner or operator who is liable . . . for injunctive relief necessary to prevent irreparable harm to the public health, safety, or welfare, or the environment from a release . . . in relation to that facility [or] (b) [a] person who is liable . . . for a violation of this part or a rule promulgated under this part or an order issued under this part in relation to that facility.

MCL 324.20135(1)(a) (emphasis added).

But courts only have jurisdiction to adjudicate such claims where "[t]he state has not commenced and is not diligently prosecuting an action under this part or under other appropriate legal authority to obtain injunctive relief concerning the facility or to require compliance with this part or a rule or an order under this part." *Id.* at 324.20135(3)(b).[12] The court similarly lacks jurisdiction to hear citizen-suit challenges to a response activity "selected or approved by" MDEQ, unless the response activity is completed. *Id.* 324.20137(6)(d). The purpose of these provisions is to "prevent a multitude of litigation which would otherwise stall government action." *River Vill W LLC v Peoples Gas Light & Coke Co*, 618 F Supp 2d 847, 853–54 (ND Ill 2008) (discussing similar provision under federal law); *see also* MCL 324.20135(3)(a) (requiring a proposed challenging party to give MDEQ at least 60 days' notice prior to filing suit, so as to

[12] Such citizen suits are similarly barred under federal environmental laws if the state or federal agency is pursuing its own enforcement action. *See, e.g.*, 42 USC 9659(d)(2).

allow MDEQ the opportunity to diligently prosecute in place of the proposed challenger).[13] For this reason, the "case law favors a broad reading of the diligent prosecution bar so as to bar a citizens suit when the pollution which is the subject of the suit is also the subject of current . . . enforcement." *Cooper Indus, Inc v Abbott Labs*, No 93-CV-193, 1995 US Dist LEXIS 7454, at *6 (WD Mich May 5, 1995) **(Exhibit AA)**; *see also Genesco, Inc v Mich Dep't of Envt'l Quality*, 250 Mich App 45, 54-56; 645 NW2d 319 (2002) (rejecting claims challenging remediation activity in light of Part 201's statutory prohibition on such challenges before the remedy is completed).[14]

Here, if the Intervenors had sought to bring the same proposed claims in an independent citizen suit, those claims would be precluded because MDEQ has commenced and is diligently prosecuting an action to obtain injunctive relief regarding the same contamination—as shown by the recent negotiations and agreed-upon amended consent judgment, as well as the numerous prior consent judgments and adversarial court proceedings. Citizen suit challenges to the remedy selected or approved by MDEQ are similarly barred. MCL 324.20137(6)(d); *see also, e.g., Arkansas Peace Center v EPA*, No. 94-265, 1994 U.S. Dist. LEXIS 12231, at *5-7 (ED Ark. Aug. 4, 1994) (**Exhibit BB)**; *Ludwig v Pilkington N Am, Inc*, No. 03-C-1086, 2003 U.S. Dist. LEXIS 9495, at *5-11 (ND Ill June 5, 2003) (**Exhibit CC**). The Intervenors should not be permitted to circumvent these statutory bars by intervening in this action, because both an

[13] Notably, and as a threshold matter, none of the intervening parties provided the required 60 days' notice under MCL 324.20135(3)(a) before filing their motions. This alone should have prevented them from joining in this matter.

[14] Pursuant to MCR 7.215(C)(1), Gelman cites the few unpublished decisions contained in this Application due to their relevance and importance on the issues at hand.

independent action and intervention would frustrate the goal of Part 201—allowing MDEQ to quickly, efficiently, and effectively select and enforce a remediation plan.[15]

The trial court responded to Gelman's arguments that this statutory framework bars intervention with a simple, "[S]o what?" **Exhibit F**, at 24:13-18. In so doing, the trial court disregarded the Legislature's intent that MDEQ, with its technical expertise and familiarity with enforcing the state's environmental laws, serve as the enforcing agency. The court's cursory rejection of this framework was both an error of law and an abuse of discretion—and one that both intervenor HRWC and the Attorney General's office acknowledge is "precedent setting," creating potential ramifications for future enforcement actions in the state. *See* **Exhibit G**; **Exhibit E**, at 37:1-8. Part 201's statutory provisions bar the Intervenors' claims and instead designate MDEQ as the agency responsible for enforcing the state's environmental laws so long as (i) MDEQ is acting diligently and (ii) the remediation is not yet completed. Both requirements are satisfied here. Accordingly, granting these entities party status—and correspondingly awarding them seats at the negotiating table and the counsel table with veto power over a proposed resolution—was error. Immediate interlocutory appeal is necessary, and indeed, it is the only means available to correct this mistake.

II. The trial court abused its discretion granting permissive intervention, because the existing parties, and the general public, will be prejudiced by having so many parties in this litigation.

Even if the Intervenors were statutorily permitted to be parties to this enforcement action, which they were not, the trial court still abused its discretion in concluding there would be a lack

[15] Under Part 201, intervention is only allowed if a party is not adequately representing the proposed intervenor's interests. MCL 324.20137(8). The trial court in this case specifically refused to rule on the Intervenors' motions for intervention by right, which would have required a finding of inadequate representation. Thus, there is no finding sufficient to support intervention under Part 201.

of prejudice to MDEQ and Gelman from intervention, and that intervention would not unduly delay the proceedings. *See* MCR 2.209(B) (permissive intervention is improper when it "will unduly delay or prejudice the adjudication of the rights of the original parties").

A. With so many parties at the negotiating table, discussions and possible resolution become impractical.

Allowing the City, the County, the HRWC, and the Township to act as parties to this action prejudices MDEQ and Gelman by substantially undermining any hope for a resolution without resource-intensive litigation. As described below, as more parties are added to the negotiating table, the likelihood of reaching a mutual resolution is severely diminished, given that each individual party can insist upon a "my-way-or-the-highway" approach. Consequently, and despite having completed a proposed amendment to the consent judgment already, MDEQ and Gelman will likely now be forced to go through an expensive and time-consuming trial that will unnecessarily divert limited resources that otherwise could have been devoted to the ongoing remediation efforts. And the delay that will result is contrary to one of the primary purposes of environmental statutes like Part 201: to encourage a quick remedial response. *See Genesco, Inc v Mich Dep't of Envt'l Quality*, 250 Mich App 45, 51–52; 645 NW2d 319 (2002); *see also Indep Petrochem Corp v Aetna Cas & Surety Co*, 105 FRD 106, 112 (DDC 1985) (denying motion to intervene because a contrary result would "be incompatible with the efficient disposition of this lawsuit").

At a minimum, the addition of so many parties causes logistical nightmares that will delay settlement negotiations. In the span of a few weeks, the number of parties in this case increased from two (1988-2016) to eight (2017). Of those eight parties, six have unique counsel and, as more parties seek intervention, that number threatens to grow. The need to coordinate the schedules of so many different parties/attorneys for effective settlement discussions will, in

and of itself, significantly delay the process. *See Sch Dist of the City of Ferndale v Royal Oak Twp Sch Dist No 8*, 293 Mich 1, 10; 291 NW 199 (1940).

More importantly, the individualized claims, inflammatory rhetoric, and inevitable politicking that will come from having so many parties around the negotiating table regarding such a fraught and important issue threatens to derail any hope for a mutually agreeable resolution. Indeed, the surge in the number of parties—with the related introduction of often conflicting and unreasonable demands—exponentially increases the likelihood that this matter ends up being resolved by an eight-plus-party trial or evidentiary hearing, rather than by consent judgment.

This risk is not theoretical; rather, it is exemplified by the Intervenors' claims for relief and the language contained in their motions. For example, the County argued in its motion that a "cleanup has not been completed" and that cleanup (not containment) "must be the goal and the objective going forward." **Exhibit T**, County Br. at 5, 11; *see also* **Exhibit X**, Township Compl., ¶ 84(a), Ex. J to Township Br. in Support of Mot. to Intervene. But the complete removal of all of the contaminant from the aquifers—as opposed to taking all actions necessary to prevent any unacceptable exposures—is simply not technically feasible and goes far beyond what is required under Michigan law and at other 1,4-dioxane-contamination sites in Michigan.[16]

[16] In April 2016, the Washtenaw County Board of Commissioners tasked its staff to compare the monitored natural attenuation remedy approved by MDEQ and the trial court at the Gelman site to the remedial approach at other Michigan 1,4 dioxane sites. The staff concluded:

> The current cleanup remedies implemented at these [other] Superfund sites is monitored natural attenuation (MNA). . . . The presence of 1,4 dioxane has been known at two of the sites for over 10 years, and still no aggressive cleanup remedies have been implemented . . . [N]one of the four Michigan Superfund sites with 1,4 dioxane are pumping or treating groundwater presently. . . . There are currently no Superfund sites in Michigan where complete cleanup of 1,4 dioxane is taking place or has been identified as the goal.

Such a demand suggests that the County does not agree with the requirements imposed by state law—in which case the appropriate course of action is to petition the Legislature for changes to the state's environmental laws, not intervention in a thirty-year-old enforcement action. By being given party status, however, the County is able to maintain this "cleanup or bust" attitude, thereby holding the parties' negotiations hostage to its unreasonable demands. This prejudices MDEQ and Gelman's ability to reach an agreement for a plan that complies with Michigan law, protects the public, results in timely remediation modifications, and does not impose unreasonable obligations—precisely what MDEQ and Gelman were on the verge of finalizing when the Intervenors belatedly demanded to be parties to this proceeding.

Similarly, the individualistic demands that each Intervenor set forth in its motion shows that even if the demands were not independently unreasonable, the combination makes any negotiations unmanageable. Practically speaking, reaching a resolution that addresses all of these demands—if even possible—would be exceptionally difficult. Each party's request utilizes and competes for the limited pool of resources available for the remediation efforts, including pipeline, well, and permitting capacity. And as parties to this action, each intervenor possesses the unilateral power to destroy an agreed-upon resolution because that intervenor's particular demand was not met to its full and complete satisfaction. As more parties request to be added—as even the Township has acknowledged is likely to occur—this risk gets greater and greater. *See* **Exhibit X**, Township Br. in Support of Mot. to Intervene at 7 (discussing the purportedly necessary intervention of the Township "and other interested parties").

Comparing the County's demands and those of other Intervenors with the uniform approach to dioxane remediation across all of Michigan alone establishes how disruptive the Intervenors would be to the smooth implementation of the consent judgment.

This considerable reduction in the likelihood of reaching a resolution prejudices MDEQ and Gelman, which were on the verge of submitting to the court their proposed modifications that were the product of over a year of negotiations, now potentially wasted. For these reasons, when presented with similar circumstances, courts have routinely denied intervention requests in CERCLA actions in which the existing parties have negotiated, or are finishing negotiations of, a consent decree. *See United States v Bliss*, 132 FRD 58, 59-60 (ED Mo 1990) (collecting cases); *see also, e.g., Cal Dep't of Toxic Substances Control v Comm Realty Projects*, 309 F3d 1113, 1118–20 (9th Cir 2002); *United States v Pitney Bowes, Inc*, 25 F3d 66, 72 (2d Cir 1994). Indeed, this is precisely why the Michigan Legislature vested the primary responsibility to select and enforce an appropriate remediation plan with the State. *See, e.g.*, MCL 324.20135(3)(b); 324.20137(6)(d).

The trial court found that intervention would not prejudice the parties or cause undue delay because the case has "been going on for decades; it will go on for decades," and "a few more months incorporating collective wisdom is [not] undue delay." **Exhibit E**, at 46:7-10. But the belief that granting intervention will only delay matters by a "few more months" is optimistic and, ultimately, unrealistic. Gelman and MDEQ spent nearly a year negotiating the modifications to the existing consent judgment, and that was without the unreasonable demands and politicking that the rhetoric and inflammatory accusations in the motions to intervene suggest the Intervenors will now bring to the table. Similarly, the 2011 modifications to the consent judgment took nearly eighteen months of negotiating. And the trial court did not just permit the new entities to intervene for purposes of settlement discussions; rather, they are now permitted to act as separately represented plaintiffs in the action. Therefore, as the case proceeds, the inevitable increase in motion practice, discovery demands, and likelihood of trial

that comes with having so many different parties as part of the litigation will undoubtedly cause delay that would not otherwise exist.

In short, with each additional entity or individual that is given a seat at the negotiating table, the likelihood of being able to reach a mutually agreeable resolution is significantly diminished, and the need to engage the court in otherwise-unnecessary delaying motion practice and litigation increases. As "[w]e have been instructed from childhood[,] too many cooks spoil the broth." *See San Juan Cnty v United States*, 503 F3d 1163, 1206 (10th Cir. 2007). This alone constitutes sufficient prejudice and undue delay to the adjudication of the existing parties' rights, such that intervention should not have been permitted.

B. The grant of intervention creates the potential for a never-ending wave of intervenor requests, requiring repeated restarting of the negotiations, wasting time and resources, and undermining the goals of Part 201.

The trial court's grant of permissive intervention to the City, the County, the HRWC, and the Township further prejudices MDEQ and Gelman because of the precedent it has created. The court found that permitting intervention was appropriate "because a collective wisdom of viewpoints in solving a problem is always preferable to individual views." **Exhibit E**, at 45:6-7. The court added that it "welcome[s] in the courts and in our county the wisdom of those who spend their lives thinking about these issues." *Id.* at 46:3-4. But by granting these parties a seat at the negotiating table based on a vague reasoning that more viewpoints are always better, the trial court has opened a Pandora's Box of other potential intervenors that would leave this litigation even more unmanageable than it already is with eight parties.

Nor is this never-ending parade of intervention requests hypothetical; to the contrary, the march has already begun. The trial court orally granted the original intervenors' motions on December 15, 2016. One month later, the Township filed its motion to intervene, which the

court then granted. And based on the court's reasoning, there is nothing to prevent another individual or public-interest group from filing another motion to intervene a month from now, and another a month after that, and another a month after that. One can easily envision the innumerable individuals or entities that could claim a purported need to intervene in the future. The likelihood of a flood of intervention motions has led other courts to deny similar intervention requests. *See Indep Petrochem Corp v Aetna Cas & Surety Co*, 105 FRD 106, 112 (DDC 1985) (denying motion to intervene because a contrary result would "likely result in a flood of intervention motions by other 'apparently concerned persons' whose participation would clearly be incompatible with the efficient disposition of this lawsuit"); *United States v Metro Dist Comm'n*, 147 FRD 1, 6 (DMass 1993) ("To allow MASPC to intervene would open the floodgates to innumerable others with the potential for drowning the whole project in a sea of litigation.").

This threat of extensive motion practice and infinite intervention requests also severely prejudices the original parties to this action: MDEQ and Gelman. As described above, at the time the City, the County, and HRWC filed their motions to intervene, MDEQ and Gelman had already engaged in nearly a year of negotiations toward an amended consent judgment, and they now stand ready to propose the same to the court. In light of the grant of the motions to intervene, however, the continued viability of those modifications is uncertain, particularly given that the Intervenors raised their own individualistic concerns and demands that they believe should be incorporated into any amendment. Therefore, nearly a year of time and resources expended by MDEQ and Gelman toward revising the consent judgment have gone to waste, as the parties are required to start the process anew or, at a minimum, devote time and resources toward educating the new parties about the settlement negotiations conducted thus far.

This process will continue to repeat itself with each new intervention request. As additional individuals and entities seek to intervene, any progress that has been made toward resolution will be put at risk. At best, already limited time and energy will have to be spent on educating the new intervenor about the status of the negotiations each time a seat gets added to the negotiating table. More likely, as described above, the addition of each party will require restarting the negotiations again, and makes the likelihood of finding a mutually-agreeable resolution less likely. *See Sch Dist of the City of Ferndale v Royal Oak Twp Sch Dist No 8*, 293 Mich 1, 10; 291 NW 199 (1940) (a court may deny intervention when "it will have the effect of . . . complicating the case and producing a multifariousness of parties and causes of action").

For this reason, courts have found that "[t]o the extent intervention poses a threat of disruption to the consent decree process . . . the untimeliness of the . . . motion threatens significant prejudice to the existing parties." *United States v Bliss*, 132 FRD 58, 60 (ED Mo 1990). This is especially true here, where granting more and more parties a seat at the negotiating table at this late stage in the proceedings threatens to "derail[] a lawsuit within sight of the terminal" or, at a minimum, unduly delay the proceedings by repeated starts and stops of the negotiating process. *See United States v BASF-Inmont Corp*, No 93-1807, 1995 US App LEXIS 9158, at *7 (6th Cir Apr 18, 1995) (**Exhibit DD)**; *see also Ferndale*, 293 Mich at 10 ("It is the general rule that an intervention is not a proper proceeding where it will have the effect of retarding the principal suit . . . ."); *Smith v Iosco Cnty Bd of Comm'rs*, No 209634, 1999 Mich App LEXIS 1123, at *7-8 (Mich Ct App June 18, 1999) (**Exhibit EE**). Therefore, granting interlocutory review is necessary to affirmatively stop the line of intervention requests that the trial court's precedent has already created, and the continued stopping and restarting of negotiations (and corresponding delay in changes to remediation efforts) that will result.

C. Gelman and MDEQ's proposed alternative to intervention still grants the proposed intervenors a voice before the court, without the threat of hindrance or delay.

It is important to highlight that Gelman is not seeking to prevent the City, the County, the HRWC, the Township, or any other community member from having a voice in the remediation plan. **Exhibit E**, at 45:6-7. But there is a difference between encouraging input from community members so as to build a "collective wisdom," and, alternatively, letting each of those contributors have an absolute right to delay or derail an agreed-upon resolution as a party to the action. *See San Juan Cnty v United States*, 503 F3d 1163, 1206 (10th Cir. 2007) ("To oppose another cook in the kitchen is not to oppose the other cook's desire for a superb meal.").

Gelman's proposed solution to the court appropriately struck this balance. At the hearing on the original motions to intervene, Gelman informed the court that MDEQ and Gelman were nearing completion of the consent judgment amendment and that, once it was completed, the parties would submit the revised document to the court without asking for immediate approval. At that time, MDEQ would publish the proposed modifications for public comment so the entire community—not just the Intervenors—could offer comments, suggestions, and proposed revisions. MDEQ would respond to those comments, and address any valid community concerns not already dealt with in the proposed consent judgment amendment, either cooperatively with Gelman or by motion to the Court. This process would give voice to the community while still adhering to the Legislature's intent that MDEQ serve as the gatekeeper for collecting and addressing such community concerns. *See* **Exhibit E**, at 34:23-35:17.

Following this notice-and-comment period, MDEQ and Gelman planned to provide the comments that were submitted, MDEQ's responses to the comments, and the final negotiated document to the trial court. The court could then review all of the comments and responses and make a determination whether the incorporated modifications are appropriate. *Id.* In this way,

the entire community—including the Intervenors—could add to the collective wisdom, without the risk that one of these individuals or entities could independently sink the entire resolution or undermine MDEQ's role as the primary enforcer of remediation efforts. In other words, it was wholly unnecessary to permit the Intervenors to join in this action as parties—their preferences and interests would have been heard, considered, and potentially incorporated into the consent judgment amendment through the above-described process.

III. The motions to intervene were untimely, having been filed years after the entry of earlier consent judgments and decades into the litigation.

Finally, the trial court abused its discretion because all four motions to intervene were untimely. Both intervention of right under MCR 2.209(a) and by permission under MCR 2.209(b) demand a "timely application." A movant seeking to intervene "must be diligent, and any unreasonable delay after knowledge of the action will justify a denial of intervention where no satisfactory excuse is shown for the delay." *Prudential Ins Co of Am v Oak Park Sch Dist*, 142 Mich App 430, 434; 370 NW2d 20 (1985). In determining whether a motion to intervene is timely, courts consider: (1) the point to which the suit has progressed; (2) the purpose for which intervention is sought; (3) the length of time preceding the application during which the proposed intervenor knew or reasonably should have known of its interest in the case; (4) the prejudice to the original parties due to the proposed intervenor's failure, after he knew or reasonably should have known of his interest in the case, to apply promptly for intervention; and (5) the existence of unusual circumstances. *See Blount-Hill v Zelman*, 636 F3d 278, 284 (6th Cir 2011); *see also Smith v Iosco Cnty Bd of Comm'rs*, No 209634, 1999 Mich App LEXIS 1123, at *2-4 (Mich Ct App June 18, 1999) (adopting these factors under MCR 2.209) (**Exhibit EE**).

This litigation has been ongoing for nearly three decades, yet the Intervenors only sought to intervene in the past several months. The Intervenors provided little explanation for this

exceptionally delayed attempt to inject themselves into the proceedings. To the contrary, the City's and the Township's briefing conveniently omitted the "timely application" requirement of Rule 2.209 from the quoted language entirely. *See* **Exhibit R**, City Br. in Support of Mot. to Intervene at 10 (completely eliminating the opening clause: "On timely application"); *see also* **Exhibit X**, Township Br. in Support of Mot. to Intervene at 10 (same).

Nevertheless, timeliness remains a vital consideration in a request to intervene, and one that undermines the Intervenors' attempts. *See Am States Ins Co v Albin*, 118 Mich App 201, 209; 324 NW2d 574 (Mich Ct App 1982). This case has been through almost thirty years of litigation, including a year-long trial, a later evidentiary hearing, and a consent judgment with three amendments, including the most recent in 2011. At the time the intervention motions were filed, MDEQ and Gelman were on the verge of finalizing a fourth amended consent judgment that had been the product of months of negotiations over additional remedial work to address the new cleanup standard. Now entry of that document and implementation of the additional environmental response actions deemed protective of public health have been put on hold because the trial court saw fit to add six new parties. To allow the Intervenors to enter the litigation at this late stage in the proceedings thus threatens to "derail[] a lawsuit within sight of the terminal." *See BASF-Inmont Corp*, 1995 US App LEXIS 9158, at *7 (**Exhibit DD**); *Smith*, 1999 Mich App LEXIS 1123, at *7 (delay of even five months too long) (**Exhibit EE**). And the Intervenors offered absolutely no justifiable excuse for their failure to seek to intervene earlier in the litigation.[17]

[17] The Township's delay was particularly egregious, having waited to file its motion until two months after the City first filed its motion and one month after the court granted that request. The Township offered absolutely no explanation for why it could not have filed its motion at the same time as the City or, at a minimum, the County and the HRWC. If the Township had done so, the court may have been able to consider all four requests to intervene together.

Unfortunately, the trial court did not directly address the timeliness requirement in its rulings. Although the court presumably found the motions to be timely based on its grant of intervention under MCR 2.209(B), it never expressly made such a finding, nor did it address the extensive arguments Gelman raised as to why the motions were delinquent. But regardless of this omission, none of the purported interests the Intervenors claimed rendered their motions timely.

For example, the City argued that it has an interest in this litigation based on speculation that the new consent judgment may require it to supply more citizens with municipal water, thus foisting on the City the "burden and obligation to construct the infrastructure necessary to supply the water." **Exhibit R**, City Br. in Support of Mot. to Intervene at 10-11. But when the State's enforcement action was first filed in the late 1980's and continuing into the early 1990's, Gelman paid to supply many properties with municipal water and the City made no effort to intervene.

The City similarly failed to intervene in 2011, when the Prohibition Zone was expanded in an area that required an additional six municipal-water connections.[18] To the contrary, the City expressly incorporated the Prohibition Zone into its resolution of the 2004 and 2005 lawsuits. *See, e.g.*, **Exhibit N**, Settlement Agreement, § IX.G. And having failed to intervene when the State filed its enforcement action or even in 2011, it is hard to understand how the City's current effort—based on similar issues regarding the need to connect to municipal water—is timely or warranted. The City's significant delay undermines any suggestion that potential expansion of the Prohibition Zone creates a new interest of which the City was

[18] Gelman paid all costs of connecting these homes to existing municipal-water mains (previously paid for by Gelman, not the City). In addition, although not required by MDEQ or the Court, Gelman paid each homeowner's cost of connecting to the City sewer system—a requirement imposed by the City in order to obtain municipal water.

previously unaware. *Cf. Cal Dep't of Toxic Substances Control v Comm Realty Projects*, 309 F3d 1113, 1120 (9th Cir 2002) ("While Cities were not certain that the consent decree would be adverse to their interests, they had reason to know that negotiations might produce a settlement decree to their detriment."). The same is true for the County's and Township's challenges to the earlier remediation efforts, *see* **Exhibit T**, County Br. in Support of Mot. to Intervene at 2-3, 6, and HRWC's concerns about the venting of 1,4-dioxane into the Huron River, *see* **Exhibit S**, HRWC Br. in Support of Mot. to Intervene at 1-2.

The City also seemed to suggest that it had acted promptly because "[m]onitoring wells have now detected 'New Contamination,' and 'unforeseen changes in the migration pathway of a known plume.'" **Exhibit R**, City Br. in Support of Mot. to Intervene at 2. But in addition to being factually inaccurate and misleading, the City's own briefing contradicted any suggestion that it had acted promptly on this basis. For example, the City argued that "test results in 2014 from monitoring well MW54d, which is sited outside of the Prohibition Zone, showed levels of 1,4 dioxane exceeding both the former generic criterion for groundwater based on ingestion (85 ppb) and the newly adopted generic criterion for groundwater based on ingestion (7.2 ppb)." *Id.* at 9, n.4. But the City did not seek to intervene (or take any action) in 2014—instead waiting over two years to bring this motion. The same is true for the City's allegations regarding well MW121d (2013 test) and 465 DuPont (2015 tests). *See id.* at 9.

The shallow-groundwater investigation upon which Intervenors relied also does not help their cause. In that test, 25 of 27 borings revealed no detectable concentrations of 1,4-dioxane in groundwater, and both of the remaining borings were significantly below both the old and new MDEQ standards, including the drinking-water standards. *See* Shallow Groundwater Investigation, Exhibit B to City Mot. to Intervene at p.4, **Exhibit R**. Moreover, MDEQ is on

record as saying that it is unknown whether these low-level detections are even associated with the Gelman plume at all; indeed, there are other sources of 1,4-dioxane contamination in the area aside from Gelman's site. This groundwater investigation thus provides absolutely no basis for intervention.

Finally, despite all four Intervenors' claims to the contrary, MDEQ's October 2016 emergency rule did not suddenly render the Intervenors' motions timely. That rule changed the criterion for drinking water from 85 ppb to 7.2 ppb, and added residential-vapor-intrusion screening criterion of 29 ppb. As a threshold matter, MDEQ first announced the revised 7.2 ppb drinking water criterion for 1,4-dioxane in March 2016, meaning that even if the emergency rule provided the Intervenors with a legitimate basis to intervene—which it did not—the Intervenors should have sought to intervene months ago. *See, e.g.*, *Smith*, 1999 Mich App LEXIS 1123, at *7-8 (denying motion to intervene where "[a]t best, the delay was . . . more than five months," and where, in reality, the parties "had an obligation to intervene several years earlier, i.e. as soon as they knew of the pending suit," which "had a direct effect on [their] rights") (**Exhibit EE**). Furthermore, Intervenors sat by quietly for years while MDEQ enforced what Intervenors apparently now claim are insufficiently strict cleanup criteria and inadequately protective remediation agreements.

Moreover, if the emergency rule serves as the baseline for determining timeliness, this would mean that Intervenors suddenly had an interest justifying intervention because MDEQ has made its criteria more stringent. It makes no sense to allow the Intervenors to become parties to the enforcement action in this situation—where MDEQ is presumably acting consistent with the communities' wishes—when they failed to seek to intervene with respect to previous consent judgments that made the cleanup standard less stringent than it is now. And to the extent the

Intervenors are concerned because potential issues now exist under the new MDEQ guidelines, MDEQ was adequately addressing those issues (and, correspondingly, Intervenors' interests) by negotiating an amended consent judgment with Gelman based on the new criteria.

In any event, the emergency rule does not provide the Intervenors with a valid basis to intervene: there is no risk to the public health posed by the dioxane contamination even under the revised standard. Due to the Prohibition Zone and Gelman's aggressive groundwater extraction in the Western Area, which has prevented the expansion of the plume, no person is drinking unsafe water,[19] and the detections of dioxane in the shallow groundwater—found at only 2 of the 27 locations sampled—were at concentrations of 1.9 ppb and 3.3 ppb, well below the newly-established vapor-intrusion screening criterion of 29 ppb.[20]

Accordingly, all four motions to intervene were inexplicably untimely, and this should have been fatal to the Intervenors' requests to join this matter. Interlocutory appeal is necessary to correct this issue now, before it becomes practically unreviewable due to the time, efforts, and proceedings that MDEQ and Gelman will have to otherwise incur with these improperly admitted parties.

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[19] Indeed, as an April 2016 memorandum prepared by one of the County intervenors, Ellen Rabinowitz, acknowledges:

> A well, that as of 2016, had levels of 1,4-dioxane of 17 ppb was connected to municipal water by Gelman in March. . . . The current criterion is 85 ppb. At present, this was the only known property in Washtenaw County with levels of 1,4-dioxane between 7.2 and 85 ppb.

[20] Additionally, although the groundwater tested as part of the shallow groundwater study could not be legally used for drinking water as it is within the Prohibition Zone, the levels detected were even below the new drinking water criterion of 7.2 ppb and would be considered safe to drink.

REQUESTED RELIEF

For the reasons stated above, Defendant/Appellant Gelman Sciences, Inc. respectfully asks this Court to grant it leave to appeal the trial court's January 18, 2017 Order Granting Motions to Intervene of the City of Ann Arbor, Washtenaw County, and the Huron River Watershed Council (**Exhibit A**), its February 6, 2017 Order Granting Scio Township's Motion to Intervene (**Exhibit B**), and its March 24, 2017 Opinion and Order Denying Defendant's Motion for Reconsideration (**Exhibit C**), to permit a full review of the issues presented on appeal or, in the alternative, for peremptory reversal.

Respectfully submitted,

ZAUSMER, AUGUST & CALDWELL, P.C.

/s/ Michael L. Caldwell

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Dated: April 6, 2017

STATE OF MICHIGAN
MI Court of Appeals

Proof of Service

Case Title:	Case Number:
ATTORNEY GENERAL V GELMAN SCIENCES INC	357599

1. Title(s) of the document(s) served:

Filing Type	Document Title
Brief	Intervenor-Appellees' Brief on Appeal
Appendix	Intervenors' Appendix

2. On 10-25-2021, I served the document(s) described above on:

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