

August 4, 2003

Honorable Donald E. Shelton  
22nd Circuit Court  
Courthouse  
101 E. Huron  
Ann Arbor, MI 48107

Re: Attorney General v Gelman Sciences Inc.  
Case No: 88-34734-CE  
Our File No: 471

Dear Judge Shelton:

This letter is intended to update the Court on the status of developments that have occurred since the last status hearing in February. In particular, this letter will apprise the Court on the progress Pall Life Sciences (“Pall”) has made in investigating and remediating the Unit E groundwater contamination.

I. Unit E Progress

As discussed in detail below, Pall has made significant progress in addressing the Unit E aquifer, despite some frustrating difficulties. Pall has further characterized the Unit E to the point where interim responses can be developed, has obtained access for necessary remedial activities, and is currently preparing for a second aquifer performance test. Pall has also built and continues to test its mobile treatment system. The most difficult remaining issues are what to do with the purged groundwater after treatment and how to address the portion of the plume east of Maple Road.

A. Characterization of Unit E and Access.

Since the February status hearing, Pall has installed six new monitoring wells in the Unit E. MW-85, placed in the Maple Village Shopping Center in February, revealed that there was no separation between the upper and lower portions of the Unit E aquifer at this location. This discovery suggested that an efficient capture system that would capture the entire vertical thickness of the contamination could be placed at this location. In March, Pall submitted its Groundwater Remediation Work Plan to the MDEQ. This work plan was designed to gather the

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additional information needed to implement Pall's plan to intercept the plume in the area of the Maple Village Shopping Center. This conceptual plan anticipated re-injecting the purged groundwater at IW-2, an existing injection well located in the Evergreen Subdivision. This injection well has a capacity of approximately 140 to 150 gpm.

Pall then installed MW-87 and MW-88 north and south of MW-85 to establish the width of the plume in this area. The relatively high levels in these wells indicate that the plume is wider than Pall had hoped. The width of the plume has a direct effect on the potential remedial options for this location, since these options are driven by the amount of treated water that must be disposed of. The parties' preliminary analyses indicate that the volume of water that must be purged in order to capture the entire width of the plume would exceed IW-2's capacity and likely the ability of the aquifer in that area to accept re-injected water. Thus, another method of disposing of the water from this area must be identified. The near non-detect levels of 1,4-dioxane found in monitoring wells MW-89 and MW-90, however, provide a clear southern edge of the plume. These data also ruled out a southern component of groundwater flow in this area.

The non-detectable levels found in MW-86, located on Worden Street, along with the water level data from this well, helped the parties rule out an eastern groundwater flow pattern in this area. Pall has also obtained access for MW-91, which is to be located northeast of MW-81. The purpose of this well is to rule out a northeastern flow component from the MW-81 area.

#### B. Test Well and Aquifer Performance Test

Pursuant to its June 9, 2003 work plan, Pall obtained permission from the Maple Village Shopping Center owner to install an extraction well just west of the Kmart building. Pall intended to use this well to conduct an aquifer test to determine what volume of water would Pall would have to purge in order to capture the entire plume in this area. Pall attempted to install TW-16 in July. Rather surprisingly, however, the approved location proved to be a poor spot for an extraction well. Only low levels of 1,4-dioxane (approx. 200 ppb) were detected in the initial boring. In addition, the boring subsequently collapsed before even a monitoring well could be installed. Consequently, Pall was forced to find another location for TW-16.

TW-16 will now be installed southeast of MW-85 in the shopping center parking lot, near Maple Road. Pall obtained access to install TW-16 at this location and installed the initial well last week. The data from the well indicate that it is an adequate location for an extraction well. Pall is scheduled to install the extraction well itself beginning on August 11, 2003. The aquifer pump test will take place beginning on August 25, 2003.

#### C. Ozone Treatment System

Pall's mobile ozone treatment unit has been built and subjected to several rounds of testing. The data from the initial testing demonstrated that the system could achieve the same level of treatment as the existing UV technology. These data have been shared with the MDEQ. Pall has continued to calibrate the system to reduce 1,4-dioxane levels and avoid unacceptable levels of any harmful treatment by-products. Pall has discussed these recent results with the MDEQ and a report summarizing these data will be submitted to the MDEQ shortly. Because Pall's D2/C3 aquifer remediation utilizes nearly all of Pall's treatment pond capacity, Pall has only been able to test the new ozone treatment unit on a "batch basis." Pall is seeking permission to discharge the treated effluent into the "Green Pond" that discharges to the Honey

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Creek Tributary so that Pall can operate the system continuously for a month to further evaluate the unit.

D. Disposal of Treated Groundwater/Remedial Options.

The question of what to do with the water after it is treated and how to address the portion of the aquifer east of Maple Road remain the most vexing issues to be resolved. Consistent with the June 19, 2003 letter submitted jointly by counsel, Pall submitted a draft scoping document that identified all of the practical options for addressing the Unit E contamination. Pall discussed these options with, and received comments from both the MDEQ and a technical group, which includes representatives from the City, Washtenaw County, USGS, and Wayne State University. Pall is now working on completing a detailed feasibility study of each of the agreed upon options. One of the options that will be considered is in-situ treatment with ozone.

As noted in counsel's June 19, 2003 letter, Pall conducted a pilot study of its ozone in-situ treatment technology using an existing monitoring well located on its property. Although this well was not designed to be used as an injection well, the test showed that ozone can successfully treat 1,4-dioxane in the ground. During the test, the injection of a small amount of ozone over a few hours achieved a 60 percent reduction in 1,4-dioxane levels (from 919 ppb to about 331 ppb). Mr. Fotouhi is currently working on the work plan for the next phase of testing for this technology. The next phase will involve installing an ozone injection well specifically designed for this purpose and a number of nearby observation wells so that the ozone's zone of influence can be measured. At this point, it would appear that in-situ ozone treatment may at a minimum, be a valuable adjunct to the remedial option(s) selected.

Due to the delay associated with the relocation of TW-16, Pall is now scheduled to submit its feasibility analysis to the MDEQ on or before October 30, 2003. The MDEQ intends to solicit public comment on this study and hold a public hearing, likely sometime in November. It is hoped that this process will provide a rational framework for identifying potential remedial options and for selecting the most effective option(s).

**II. Five year plan Cleanup Progress.**

A. Overall Progress.

As indicated by the time-series isoconcentration maps previously provided to the Court, the parties have made tremendous progress in remediating the D2 and C3 aquifers. As of the end of July, Pall has removed almost 29,000 pounds of 1,4-dioxane since August, 2000. This is almost 3,000 pounds more than the mass the parties originally estimated needed to be removed in order to achieve the cleanup criterion. Although this total has been revised to include the additional, unanticipated, mass from Unit E that Pall's aggressive pumping has pulled up into the D2/C3 aquifers, Pall continues to be ahead of its benchmarks and is within about 6,000 pounds of achieving the cleanup goal. All indications are that Pall is making satisfactory progress toward the goals of the 5-Year Plan.

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B. Western System.

As Pall previously advised the Court, there is small area of the aquifer in the Western System that contains 1,4-dioxane above the drinking water criteria. This area is cutoff from any continuing source and Pall has calculated that the contamination will attenuate to acceptable levels within the 5-year time frame. As a contingency plan, Pall installed a purge well in late September, 2002, near the only monitoring well with levels above the drinking water criterion, MW-53i.<sup>1</sup> Pall proposed to perform batch purging from this well if the data trend from this well indicated that the 5-year goal would not be met. Immediately after the purge well was installed, the levels in 53i briefly reversed their downward trend and began increasing for three monitoring periods.

Pall, with the MDEQ's approval, initiated a batch purging program at this location in February, 2003. Pall has also increase the frequency of its monitoring of all three MW-53 wells to help gauge the effectiveness of this batch purging program. Since February, Pall has purged almost 500,000 gallons of water from the Ann Arbor Cleaning Supply Well (the extraction well near MW-53i). This program has reduced the levels in MW-53i to below the drinking water criterion. The levels found in the purge well itself, however, remain above the criterion, although they are decreasing. Pall will continue purging this well and to analyze whether additional remedial steps are needed to achieve the five-year cleanup goal. In the future, this may be an ideal location to apply Pall's ozone in-situ treatment technology.

C. Southwest Area.

Pall previously installed the additional monitoring wells the MDEQ requested to confirm that this area of contamination has been delineated. Pall is in the process of preparing a capture zone analysis to demonstrate that the existing purge wells are successfully capturing the 1,4-dioxane in this difficult area. Pall anticipates submitting this analysis by September 5, 2003, as requested by the MDEQ.

D. Evergreen Dispute Resolution.

As this Court may recall, during the July 18, 2001 status hearing, this Court heard the Pall's motion for dispute resolution regarding a dispute arising from the pumping rate of AE-1, the purge well that captures the leading edge of contamination in the Evergreen Subdivision area. Falling water levels in this area prevented Pall from maintaining the MDEQ-approved 35 gpm pumping rate for this well. Even though a subsequently approved capture zone analysis demonstrated that the reduced rate would capture the leading edge, the MDEQ sought over \$142,000 in stipulated penalties for the period prior to the date the capture zone analysis was submitted. This Court's ruling holding this matter in abeyance is reflected in its August 1, 2001 Order, which provides in pertinent part as follows:

4. The Court concludes that there is a "substantial basis" for Defendant's position with respect to the issues that are the subject of the June 20, 2001 Petition for Dispute Resolution and that the Court therefore has discretion as to whether to assess the

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stipulated penalties demanded by Plaintiffs.

5. The Court takes under advisement, pending the January 16, 2002 hearing, the issues of whether and in what amount, if any, stipulated penalties shall be ordered paid in connection with the subject of the June 20, 2001 Petition for Dispute Resolution.

6. Prior to the January 16, 2002 hearing, Plaintiffs and Defendant shall each submit to the Court their conclusions, based on groundwater monitoring data, as to whether, and to what extent, groundwater contaminated with 1,4-dioxane in excess of applicable cleanup criteria migrated beyond extraction well AE-1 between January 11, 2001 and May 8, 2001.

At the January 2002 status hearing, the parties informed the Court that, due to the distance between AE-1 and the downgradient monitoring wells, it was too soon to determine whether the lower pumping rate had allowed any groundwater contamination in excess of the cleanup criterion to migrate beyond AE-1. The parties now agree that sufficient time has passed and that the data from these well shows that the leading edge did not escape during this period. A stipulation attaching these data will be submitted to the Court shortly so that the Court can resolve the penalty claim.

### **III. Contested Case.**

As this Court is aware, the City of Ann Arbor, Washtenaw County and a local citizens group have contested Pall's NPDES permit modification, which allowed Pall to increase its discharge volume from 800 gpm to 1300 gpm. Pall sought this additional capacity so that it could speed up the rate at which it was cleaning up the groundwater. The hearing on these challenges is scheduled for September 30, 2003. Earlier this year, the ALJ granted the motions filed by Pall and the MDEQ and dismissed the majority of the challenges to the modified permit. Pall has submitted a settlement proposal to the City and County in an attempt to resolve the remaining issues. Pall is hopeful that this matter can be resolved short of hearing.

Pall will be available to answer any additional questions this Court may have at the status hearing.

Very truly yours,

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

Michael L. Caldwell

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cc: Robert Reichel  
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MLC/smw

<sup>1</sup>It should be noted that the monitoring wells at this same location located in the shallow and deep portions of the aquifer are both well below the drinking water criterion.