



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



DAN WYANT
DIRECTOR

December 22, 2011

VIA E-MAIL and U.S. MAIL

Mr. Farsad Fotouhi
Corporate Vice President
Environmental Engineering
Pall Life Sciences, Inc.
600 South Wagner Road
Ann Arbor, Michigan 48103-9019

Mr. Michael L. Caldwell
Zausmer, Kaufman,
August & Caldwell, P.C.
31700 Middlebelt Road
Suite 150
Farmington Hills, Michigan 48334-2301

Dear Mr. Fotouhi and Mr. Caldwell:

SUBJECT: Gelman Sciences, Inc. Remedial Action
Eastern Area Monitoring Plan

The Department of Environmental Quality (DEQ) has completed its review of the documents relevant to the Eastern Area Monitoring Plan (EAMP), as described below. Section A.6.a. of the Third Amendment to Consent Judgment (CJ), entered by the Washtenaw County Circuit Court (WCCC) on March 8, 2011, required that Pall Life Sciences, Inc. (PLS) implement the EAMP upon approval by the DEQ. Section A.6.b. of the CJ also specified that the Maple Road Performance Monitoring Plan be incorporated into the EAMP.

Pursuant to the CJ, the DEQ reviewed the portion of PLS's Comprehensive Groundwater Monitoring Plan (ACGMP), dated May 4, 2009, and amended June 2, 2009, relevant to the Eastern Area. Since the submittal of the ACGMP, the DEQ and PLS also engaged in discussions about the monitoring required for the Eastern Area, and new developments from the implementation of amendments to the CJ that have occurred. These were also considered during the DEQ's review.

PLS is required by the CJ to prevent concentrations of 1,4-dioxane greater than 2,800 parts per billion (ppb) from migrating east of Maple Road. PLS is also required to prevent groundwater contamination (1,4-dioxane greater than 85 ppb) from migrating outside of the Prohibition Zone established by the Order Prohibiting Groundwater Use (PZ Order) entered by the WCCC on May 17, 2005, and as expanded by the recent amendment to the CJ. The DEQ will determine compliance with these requirements by evaluating results from this and future monitoring plans. It is anticipated that additional monitor wells (MWs) will need to be installed as the plume migrates, as discussed in the DEQ's March 11, 2008, letter in response to PLS's Phase 2 Downgradient Groundwater Investigation Report, Unit E.

The DEQ has also reviewed the PLS Groundwater Sampling Procedure, dated October 18, 2011, as part of our review of the EAMP. The procedure does not mention the collection of equipment, field or trip blanks. PLS's Standard Operating Procedure for 1,4-Dioxane Determination, dated January 14, 2009, provides that equipment, field or trip blanks will be analyzed by the PLS laboratory upon request. Please clarify if any blanks are collected as part of the Groundwater Sampling Procedure. It is the DEQ's position that appropriate blanks should be collected at established intervals to ensure the integrity of groundwater samples. If PLS is not collecting any blanks as part of its groundwater sampling procedure, please provide a proposal for incorporating collection of blanks or an explanation of why they are not needed.

PLS may now begin implementation of the DEQ-approved EAMP as detailed in this letter and the attached Table 1. With the approval of this monitoring plan, all of the MWs that are scheduled for monitoring, except for the irrigation well at 2801 Jackson Road, are permitted to be used for monitoring or extraction as allowed by Paragraph 5(a) of the PZ Order. This includes the former residential wells at the following addresses that have not previously been approved for monitoring as allowed by the PZ Order, subject to the requirement that access to these wells is restricted to prevent any use other than sampling of groundwater: 593 Allison, 456 Clarendon, 2819 Dexter, 3161 Dexter, 465 Dupont, 3365 Jackson, 373 Pinewood (shallow and deep wells) and 2575 Valley.

PLS requested an exception for the Bethlehem Cemetery irrigation well at 2801 Jackson Road in an email from Mr. Fotouhi on September 23, 2011. The DEQ requested additional information to make its determination, which PLS submitted on December 12, 2011. That submittal specified that PLS was requesting an exemption as provided under Paragraph 5(e) of the PZ Order. The DEQ is reviewing that information. PLS must sample this well at least semi-annually until the DEQ determines if an exception can be granted.

The wells in the attached Table 2 may be removed from the sampling schedule. Any wells that are not included in Table 1 that have not been plugged must be properly plugged unless PLS requests and receives approval from the DEQ to keep them open, as allowed by Paragraph 5 of the PZ Order. Please provide us with a copy of the well abandonment logs after the plugging is completed.

This monitoring plan will be reviewed on an annual basis and the DEQ reserves the right to require modifications as necessary, based on the monitoring results, including requiring the installation of additional MWs, if necessary to verify that the objectives for the Eastern Area are being met.

The June 2, 2009, ACGMP indicated that maps would be submitted to the DEQ annually. Due to seasonal fluctuations, maps must be updated semi-annually, and submitted with the quarterly Progress Reports, which are required under Section XII of the CJ. Monthly data should be submitted each month for the preceding month, per the current practice, in an electronic format compatible with the Excel software program, as well as in hard copy initialed by the analyst.

Should you require further information, please contact me at 517-780-7937; kolons@michigan.gov; or the DEQ Jackson District Office, 301 East Louis Glick Highway, Jackson, Michigan 49201.

Sincerely,

Sybil Kolon
Senior Environmental Quality Analyst
Gelman Sciences Project Coordinator
Remediation Division

Enclosures

SK/ja

cc: Ms. Celeste Gill, Department of Attorney General
Mr. Mitchell Adelman, DEQ/Gelman File
Mr. Jim Coger, DEQ

**Table 1 - December 2011
DEQ-Approved Eastern Area Monitoring Plan
Gelman Sciences, Inc.**

Well Name	Aquifer	1,4-Dioxane		Statics		Purpose	DEQ comments
		Current	DEQ Approved	Current	DEQ Approved		
Allison 593	D2	Q	S	Q	S	GM	DEQ approved MW w/restricted access
Clarendon 456	D2	S	S	none	none	PM	DEQ approved MW w/restricted access
Dexter Rd 2819	D2	S	Q	S	Q	PM	DEQ approved MW w/restricted access
Dexter Rd 3161	D2	none	S	none	S	PM	DEQ approved MW w/restricted access
Dupont 465	D2	Q	Q	Q	Q	PM	DEQ approved MW w/restricted access
Jackson Rd 2801	Not Det.	A	S	none	none	GM	cemetery irrigation well; exception requested 9/23/11; under review by DEQ
Jackson Rd 3365	D2	S	A	S	S	PM	DEQ approved MW w/restricted access
Pinewood 373 Deep	E	S	A	S	S	GM	DEQ approved MW w/restricted access
Pinewood 373 Shallow	D2	S	Q	S	Q	PM	DEQ approved MW w/restricted access
Valley 2575	Not Det.	A	A	A	S	GM	DEQ approved MW w/restricted access
Wagner 697 S.	Not Det.	A	Q	none	none	GM	in PZ, residential well in use; connect to city water when 685 S Wagner is or upon owner request
Wagner 723 S.	Not Det.	none	A	none	none	GM	water supply well in use
Wagner 745 S.	Not Det.	none	A	none	none	GM	water supply well in use
Wagner 777 S.	Not Det.	none	A	none	none	GM	water supply well in use
IW-2	E	S	S	S	S	GM	
LB-1	D2	M	M	none	none	GM-E	quarterly monitoring if not extracting
LB-3	D2	M	M	none	none	GM-E	quarterly monitoring if not extracting
LBOW-1	D2	none	none	none	S	GM	
TW-2 (Dolph)	C3	M	M	none	none	GM-E	omitted from prior list; quarterly monitoring if not extracting
TW-19	E	M	M	none	none	GM-E	quarterly monitoring if not extracting
MW-15d	C3	A	A	S	Q	GM	also part of WAGMP
MW-15s	C3	A	A	S	S	GM	omitted from prior list
MW-16	C3	A	A	S	S	PM	
MW-17	D2	Q	Q	Q	Q	PM	
MW-30d	E	Q	Q	Q	Q	PM	
MW-30i	D2	S	A	S	S	GM	
MW-400 Clarendon	D2	S	B	S	Q	GM	
MW-43	D2	A	B	S	S	GM	
MW-47d	D2	Q	Q	Q	Q	PM	
MW-47s	D2	Q	Q	Q	Q	PM	

**Table 1 - December 2011
DEQ-Approved Eastern Area Monitoring Plan
Gelman Sciences, Inc.**

Well Name	Aquifer	1,4-Dioxane		Statics		Purpose	DEQ comments
		Current	DEQ Approved	Current	DEQ Approved		
MW-54d	D2	Q	Q	Q	Q	PM	
MW-54s	D2	S	Q	S	Q	PM	
MW-55	D2	S	S	none	S	PM	deep nest at 3161 Dexter
MW-67	E	A	B	S	S	PM	
MW-69	E	A	A	S	S	PM	
MW-70	E	A	A	S	S	PM	
MW-71	E	Q	S	Q	S	PM	
MW-72d	E	Q	Q	Q	Q	PM	
MW-72s	E	Q	S	Q	Q	PM	
MW-76d	E	S	B	S	S	PM	
MW-76i	E	S	A	S	S	PM	
MW-76s	E	S	A	S	S	PM	
MW-77	D2	Q	Q	Q	Q	PM	
MW-79d	E	Q	Q	Q	Q	PM	
MW-79s	E	M	Q	Q	Q	PM	
MW-81	E	Q	Q	Q	Q	PM	
MW-82d	E	A	A	S	S	PM	
MW-82s	E	S	A	S	S	PM	
MW-83d	E	A	B	S	S	PM	
MW-83s	E	Q	S	Q	S	PM	
MW-84d	E	Q	B	Q	Q	PM	
MW-84s	E	Q	Q	Q	Q	PM	
MW-85	E	M	Q	Q	Q	PM	
MW-86	E	A	B	S	S	PM	
MW-87d	E	M	Q	Q	Q	PM	
MW-87s	E	M	Q	Q	Q	PM	
MW-88	E	M	Q	Q	Q	PM	
MW-89	E	A	A	S	S	PM	
MW-90	E	Q	Q	Q	Q	PM	
MW-91	E	S	S	S	S	PM	
MW-92	D2	Q	Q	Q	Q	PM	
MW-97d	E	A	A	S	S	GM	
MW-97s	E	A	A	S	S	GM	
MW-98d	E	S	S	S	S	PM	

**Table 1 - December 2011
DEQ-Approved Eastern Area Monitoring Plan
Gelman Sciences, Inc.**

Well Name	Aquifer	1,4-Dioxane		Statics		Purpose	DEQ comments
		Current	DEQ Approved	Current	DEQ Approved		
MW-98s	E	S	A	S	S	PM	
MW-99d	E	A	A	S	S	GM	
MW-99s	E	A	A	S	S	GM	
MW-100	E	M	Q	Q	Q	PM	
MW-101	E	Q	Q	Q	Q	PM	
MW-103d	E	Q	Q	Q	Q	PM	
MW-103s	E	Q	Q	Q	Q	PM	
MW-104	E	Q	Q	Q	Q	PM	
MW-105d	E	Q	Q	Q	Q	PM	
MW-105s	C3	Q	Q	Q	Q	PM	omitted from prior list
MW-106d	E	Q	A	Q	Q	PM	
MW-106s	E	Q	Q	Q	Q	PM	
MW-107	E	Q	Q	Q	Q	PM	
MW-108d	E	Q	Q	Q	Q	PM	
MW-108s	E	Q	Q	Q	Q	PM	
MW-110	E	Q	Q	Q	Q	PM	
MW-111	E	A	B	S	S	GM	
MW-112d (A Series)	E	Q	Q	Q	Q	PM	
MW-112i (A Series)	E	Q	Q	Q	Q	PM	
MW-112s (A Series)	E	Q	Q	Q	Q	PM	
MW-113	D2	Q	Q	Q	Q	PM	
MW-115	E	M	Q	Q	Q	PM	
MW-116	E	Q	Q	Q	Q	PM	
MW-117	D2	Q	S	Q	S	PM	
MW-118	D2	Q	Q	Q	Q	PM	
MW-119	E	Q	Q	Q	Q	PM	
MW-120d	E	Q	Q	Q	Q	PM	
MW-120s	D2	Q	Q	Q	Q	PM	
MW-121d	E	Q	Q	Q	Q	PM	
MW-121s	D2	Q	Q	Q	Q	PM	
MW-122d	E	Q	Q	Q	Q	PM	
MW-122s	D2	Q	Q	Q	Q	PM	
MW-123d	E	Q	Q	Q	Q	PM	
MW-123s	D2	Q	Q	Q	Q	PM	

**Table 1 - December 2011
DEQ-Approved Eastern Area Monitoring Plan
Gelman Sciences, Inc.**

Well Name	Aquifer	1,4-Dioxane		Statics		Purpose	DEQ comments
		Current	DEQ Approved	Current	DEQ Approved		
MW-124d	E	-	Q	-	Q	GM	replacement for MW-102d
MW-124s	E	-	Q	-	Q	GM	replacement for MW-102s
MW-129d	E	-	Q	-	Q	PM	
MW-129i	D2		Q		Q	PM	
MW-129s	D2	-	Q	-	Q	PM	
MW-130d	E	-	Q	-	Q	PM	
MW-130i	D2		Q		Q	PM	
MW-130s	D2	-	Q	-	Q	PM	
MW-133d	E	-	Q	-	Q	PM	also part of WAGMP
MW-133i	D2	-	Q	-	Q	PM	also part of WAGMP
MW-133s	D2	-	Q	-	Q	PM	also part of WAGMP
MW-BE-1d	D2	S	Q	S	Q	PM	
MW-BE-1s	D2	S	Q	S	Q	PM	
MW-KD-1d	D2	Q	Q	Q	Q	PM	
MW-KD-1s	D2	Q	Q	Q	Q	PM	
MW-east of Maple-d	TBD	-	Q	-	Q	PM	after installation in spring 2012
MW-east of Maple-i	TBD	-	Q	-	Q	PM	after installation, if needed, in spring 2012
MW-east of Maple-s	TBD	-	Q	-	Q	PM	after installation in spring 2012

Sampling Frequency Codes
A - Annual
B - Biennial
M - Monthly
Q - Quarterly
S - Semi-annual

**Table 2 - December 2011
DEQ-Approved Wells to Remove from Monitoring Schedule for Eastern Area
Gelman Sciences, Inc.**

Well Name	Aquifer	1,4-Dioxane		Statics		DEQ comments
		Current	DEQ Approved	Current	DEQ Approved	
Allison 544	D2	A	none	S	none	to be plugged
Allison 545	D2	Q	none	none	none	plugged
Barber 430 East	D2	A	none	S	none	to be plugged
Barber 430 West	D2	Q	none	Q	none	to be plugged
Barber 435	D2	S	none	S	none	to be plugged
Barber 476	D2	A	none	A	none	to be plugged
Clarendon 440	D2	none	none	none	none	to be plugged
Dexter Rd 2643	D2	S	none	none	none	to be plugged
Dexter Rd 2652	D2	S	none	S	none	to be plugged
Dexter Rd 3225	D2	Q	none	none	none	plugged
Dexter Rd 3249	D2	Q	none	none	none	plugged
Dupont 453	D2	Q	none	none	none	previously accessed from 427 Barber, plugged
Kingwood 3245	D2	A	none	S	none	to be plugged
Kingwood 3250	D2	none	none	none	none	to be plugged
Parkwood 441	Not Det.	A	none	S	none	to be plugged
Pinewood 305	D2	Q	none	none	none	plugged
Pinewood 354	D2	A	none	none	none	to be plugged
Wagner 685 S.	Not Det.	A	none	none	none	to be plugged
AE-3	D2	none	none	none	none	plugged
MW-KZ-1	D2	S	none	none	none	to be plugged
TW-15	E	M	none	none	none	to be plugged

Sampling Frequency Codes
A - Annual
B - Biennial
M - Monthly
Q - Quarterly
S - Semi-annual