STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

May 25, 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 Sirs:

SUBJECT: Gelman Sciences, Inc. Remedial Action
Western Area Groundwater Monitoring Plan, April 18, 2011

The Department of Environmental Quality (DEQ) received the above referenced plan (WAGMP) from Pall Life Sciences (PLS) by U.S. mail on April 20, 2011. Staff of the DEQ has reviewed the WAGMP and provides the following conditional approval.

The compliance well network, to be defined by the DEQ-approved compliance monitoring wells (CMW), is intended to monitor the objective of the Third Amendment to Consent Judgment (CJ) to "prevent the horizontal extent of the groundwater contamination in the Western Area from expanding." Groundwater contamination is defined in the CJ as 1,4-dioxane in groundwater at a concentration in excess of 85 parts per billion (ppb). The horizontal extent of groundwater contamination (plume) was not depicted on Figure 1 of the original WAGMP. Upon DEQ's request, PLS submitted a revised Figure 1 that does depict PLS's interpretation of the location of the plume.

The DEQ has two major concerns with the PLS proposed compliance well network:

1. The distance between the depicted extent of the plume and three of PLS's proposed CMW nests would effectively allow the plume to migrate as far as 1,100 feet before such migration would be considered expansion.

2. The distance between PLS's proposed CMWs varies from 630 to 2,800 feet and in several locations is too great to detect expansion of the plume between those points.

The DEQ acknowledges that the depiction of this, as well as any other plume, is an interpolation based on available data. Identifying the precise location of this long plume boundary would require many closely spaced monitoring wells (MWs) along the entire boundary of the plume. To then establish a compliance monitoring network that can effectively monitor a non-expansion objective would require many more wells just outside the plume to assure the plume never reaches those points. We have worked with PLS to utilize existing and newly installed wells for characterization and potential compliance monitoring purposes, taking into consideration the issues associated with obtaining access around existing infrastructure and natural features. However, based on available data, PLS's proposed compliance well network is not adequate to monitor the non-expansion objective of the CJ.

The DEQ's intent in agreeing to the non-expansion objective in conjunction with an associated compliance monitoring network was that once the plume was delineated, DEQ-approved CMWs would establish points along a continuous boundary outside of which the plume is not allowed to expand. This position is supported by Section V.B.1. of the CJ which states, in part: "If prohibited expansion occurs, Defendant shall undertake additional response activities to return the groundwater contamination to the boundary established by the Compliance Well Network." The CMW network and resulting boundary, as proposed by the DEQ, more effectively monitors the non-expansion objective than PLS's proposed plan, while providing a limited buffer to allow for some variability in the exact location of the plume's boundary, as shown on the enclosed Figure 1. The DEQ has accepted PLS's depiction of the plume with the addition of the area including Third Sister Lake.

As stated, in some cases the distance between the PLS proposed CMWs would not allow for the detection of an expansion of the plume outside of the boundary established by the CMWs. There is a great deal of data from MWs in the Western Area; however, the current nature and extent of the plume has been influenced by continuous groundwater extraction since 1997. In addition, the DEQ's approval of previous monitoring plans was intended to satisfy the previous objective of achieving a full cleanup, which required continued extraction until generic residential criteria were achieved for soil and groundwater. Because extraction will be reduced and eventually terminated, leaving soil and groundwater contamination in place under the non-expansion performance objective, it is critical that the monitoring network be adequate to detect any return to the migration pathways that allowed the plume to expand to the west prior to any extraction.

For the reasons stated, the DEQ requires the installation of additional CMWs, as discussed below. Alternatively, the DEQ may be willing to consider a CMW network that does not require the installation of all of the additional CMWs discussed below, but would require the use of additional existing wells as an early-warning system, triggering additional steps if specific MWs indicate that the plume is expanding. This potential alternative is discussed at the end of this letter, but would require substantial development before the DEQ could agree to use it rather than the DEQ-approved CMW network.

Explanation of the DEQ-approved CMW Network

For ease of reference, the enclosed Figure 1 depicts the DEQ-approved CMWs (Points 1-15) and the enclosed Figure 2 depicts PLS's proposed CMWs (Points A-K). The enclosed Table 1 refers to the points on Figure 2 and provides a summary of the deficiencies that the DEQ has identified with regard to PLS's proposed CMWs. The DEQ-approved CMW Network includes seven of PLS's proposed CMWs, three additional existing MWs and five new MWs to make the CMW network adequate for the purpose for which it was intended.

PLS proposes the MW-133 well nest as CMWs (Figure 2, Point A). Point A is approximately 1,100 feet north of the plume and 1,4-dioxane has not been detected at this location. Due to this distance, and the fact that new infrastructure would be needed to remediate the plume if it expanded beyond the compliance well network in this area, Point A is not an appropriate location for CMWs. A new CMW nest will be required at Point 1, in the approximate location shown on Figure 1.

The MW-134 well nest (Figure 1, Point 2) was installed in March 2011 and in three sampling events have shown concentrations of 1,4-dioxane from 3 to 9 ppb, providing an excellent location for interpolating the location of the plume throughout the vertical extent of the groundwater-bearing formations when compared to MWs within the plume. The WAGMP

indicates that groundwater contamination above 85 ppb has historically been detected in this area. In fact, PLS only began depicting the plume near the MW-134 well nest in 2008, after installation of MW-118, over 700 feet northeast of the MW-134 well nest. In addition, neither the groundwater flow maps nor PLS's conceptual site model support PLS's depiction of the plume in the vicinity of the MW-134 well nest. The DEQ will require the use of the MW-134 well nest as CMWs.

The distance between Point 2 and Point 4 (Figure 1) is too great to ensure the detection of any expansion of the plume along this boundary. A new CMW nest will be required at Point 3, in the approximate location shown on Figure 1.

The distance between Point B and Point C (Figure 2) is too great to ensure the detection of any expansion of the plume along this boundary. A new CMW nest will be required at Point 5, in the approximate location shown on Figure 1.

PLS proposes the MW-63 well nest as CMWs (Figure 2, Point F). Point F is approximately 800 feet west of the plume and 1,4-dioxane has not been detected at this location since 2002. Due to this distance, Point F is not an appropriate location for CMWs. The concentration of 1,4-dioxane in MW-56s (Figure 1, Point 9) has been decreasing steadily and results from January and May 2011 were below 85 ppb (59 ppb and 62 ppb, respectively), indicating that it is no longer in the plume. The DEQ recognizes that the concentration of 1,4-dioxane in MW-56s may fluctuate above 85 ppb. However, if it remains below 85 ppb for the next four quarterly sampling events, that would indicate that it is appropriate to serve as a CMW, along with MW-56d, where 1,4-dioxane has not been detected since 2003. If MW-56s does not remain below 85 ppb, or PLS is not confident that it will remain below 85 ppb in the long term, a new MW nest must be installed not more than 300 feet to the west of the MW-56 well nest by August 1, 2013. Either of these locations is designated as Point 9 on Figure 1. The MW-62 well nest (Figure 2, Point G) is not an appropriate location for CMWs for the same reasons stated for the MW-63 well nest.

The distance between Point I and Point J (Figure 2) is too great to ensure the detection of any expansion of the plume along this boundary. A new CMW nest will be required at Point 12, in the approximate location shown on Figure 1.

PLS proposes MW-68 as a CMW (Figure 2, Point K). Point K is approximately 1,100 feet south of the plume and 1,4-dioxane has not been detected in this MW since 2003. Because Point K is south of the Prohibition Zone (on the east side of Wagner Road), it cannot be used as a CMW. If 1,4-dioxane migrated to MW-68 it would also be likely to migrate east, into an area where use of groundwater is not restricted by the Prohibition Zone. The DEQ will require the use of the MW-65 well nest (Figure 1, Point 15) as CMWs.

The distance between Point 13 and Point 15 (Figure 1) is too great to ensure the detection of any expansion of the plume along this boundary. A new CMW nest will be required at Point 14, in the approximate location shown on Figure 1.

The enclosed Table 2 contains the DEQ's revisions to Table 1 included in the WAGMP. The sampling frequencies of a few of these MWs have been increased. Two MWs not included in PLS's Table 1 have been added, MW-15d and MW-33. MW-15d is on the east side of Wagner Road; however, it has monitored TW-2, from which extraction will be terminated. Although there is no longer any requirement to prevent migration of groundwater contamination east of Wagner Road, it is important to monitor this location to analyze the effects of this change in the Western

Area. MW-33, which PLS has been monitoring for static water levels, has also been added to monitor changes in groundwater flow as extraction is reduced. In cases where the DEQ agrees that MWs do not need to be monitored for 1,4-dioxane or static water levels, those MWs are not included in the DEQ Table 2. The DEQ's additional CMWs have also been added. The monitoring schedule will be reviewed annually, and revised as necessary. The DEQ reserves the right to request additional monitoring and investigation if the data indicates that the plume is expanding.

Potential Alternative Approaches

As stated above, the PLS proposed CMW network is not adequate for purposes of monitoring the non-expansion performance objective of the Consent Judgment. The DEQ-approved CMW network provided above addresses those deficiencies. However, the DEQ recognizes that there may be other approaches available to accomplish the objective of the CMW network.

The DEQ is willing to consider an alternative to the DEQ-approved CMW network discussed above. Under such an alternative, all of the existing MWs included as part of the DEQ-approved CMW network described above (Points 2, 4, 6, 7, 8, 9, 10, 11, 13 and 15 on Figure 1) would still be designated as CMWs. In addition, other specific existing MWs (trigger MWs) would be designated to detect any potential expansion of groundwater contamination. The DEQ and PLS would need to establish criteria for these trigger MWs, such as the magnitude of the increase in the concentration of 1,4-dioxane, changes in static water levels and proximity to the non-expansion boundary that would result in the requirement for additional analysis or investigation to determine if the non-expansion objective is being met.

Conclusion

If PLS is interested in pursuing an alternative approach, please inform us within ten days so we can schedule a meeting to fully define the terms of such an option. The DEQ is willing to defer the schedule for dispute resolution for a reasonable period of time if PLS wishes to discuss this alternative. Otherwise, PLS must proceed with regard to the conditionally approved WAGMP, including the DEQ-approved CMW network described above, as provided under the Consent Judgment.

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
Environmental Quality Analyst
Gelman Sciences Project Coordinator
Remediation Division

Enclosures

SK/JM

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

Table 1
Western Area Groundwater Monitoring Plan
DEQ Summary Comments on PLS Proposed Compliance Well Network
May 25, 2011

DEQ Figure 2 Point(s)	Monitoring Wells	Issue
A	MW-133s, MW-133i, MW-133d	Would allow the plume to expand 1,100 feet to the north of the plume before requiring any response
A-B		Distance of 2,800 feet between CMWs would allow the plume to migrate to the north without being detected
B	MW-35, MW-66	Adequate in combination with DEQ-approved CMWs
B-C		Distance of 1,050 feet between CMWs would allow the plume to migrate to the west without being detected
C	MW-34s, MW-34d	Adequate in combination with DEQ-approved CMWs
D	MW-20, MW-131s, MW-131d	Adequate
E	MW-126s, MW-126d	Adequate in combination with DEQ-approved CMWs
F	MW-63s, MW-63i, MW-63d	Would allow the plume to expand 800 feet to the southwest of the plume before requiring any response
G	MW- 62s, MW-62i, MW-62d	Would allow the plume to expand 700 feet to the south of the plume before requiring any response
H	MW-128s, MW-128d	Adequate in combination with DEQ-approved CMWs
I	MW-127s, MW-127d	Adequate in combination with DEQ-approved CMWs
I-J		Distance of 1,700 feet between CMWs would allow the plume to migrate to the south without being detected
J	MW-57	Not adequate by itself to monitor the plume in this area.
K	MW-68	MW-68 is located south of the PZ and would not protect the area south of the PZ on the east side of Wagner Road

Table 2 - DEQ-Approved Western Area Monitoring Program, May 25, 2011

Well Name	Aquifer	Most Recent 1,4-Dioxane Result (ppb)	Date Sampled	Purpose for Sampling	Current Sampling Frequency	Revised Groundwater Sampling Frequency	Groundwater Quality Sampling Frequency (future)	Water Level Measure-ment Frequency	Revised Water Level Frequency	DEQ Revisions to PLS Sampling Frequency	DEQ Revisions to PLS Purpose for Sampling	DEQ Revisions to Water Level Measure-ment Frequency
AMW-1	Marshy	342	8/11/10	GM	A	A	B	Quarterly	A			
AMW-2	Marshy	7	8/5/10	GM	A	A	B	Quarterly	A			
HZ-S	D2	958	3/7/11	GM-E	M	M*	M*	NM	NM			
MOW-1	Marshy	565	8/5/10	GM	A	A	A	Quarterly	A			
MW-1	C3	1,017	10/20/10	GM	S	Quarterly	S	Quarterly	A			
MW-2s	Shallow	10	11/7/07	-	R	O	O	NM	NM			
MW-2d	C3	42	7/16/10	GM	A	Quarterly	A	Quarterly	A			
MW-3d	C3	ND	8/5/10	-	A	O	O	Quarterly	A			
MW-4s	Sh	2	8/5/10	-	A	O	O	Quarterly	A			
MW-4d	D2	836	10/28/10	GM	S	Quarterly	S	Quarterly	A			
MW-5d	Sh	8,618	2/18/11	GM	Quarterly	Quarterly	Quarterly	Quarterly	A			
MW-8d	C3	ND	8/5/10	-	A	O	O	Quarterly	A	A	GM	
MW-10s	Southwest	ND	8/10/10	-	A	O	O	Quarterly	A		GM	
MW-10d	Southwest	1,505	10/19/10	GM	S	Quarterly	S	Quarterly	A			
MW-11s	Shallow	ND	8/10/10	-	S	O	O	Quarterly	A		GM	
MW-11i	C3	1	10/19/10	-	S	O	O	Quarterly	A	Q	GM	
MW-11d	D2	194	10/19/10	GM	S	Quarterly	S	Quarterly	A			
MW-12d	C3	ND	7/21/10	-	A	O	O	Quarterly	A		GM	
MW-13	D2	ND	7/16/10	-	A	O	O	Quarterly	A		GM	
MW-14d	D2	ND	7/22/10	-	A	O	O	Quarterly	A		CMW	
MW-15d	C3									A	GM	Quarterly
MW-18d	C3	226	10/19/10	GM	S	Quarterly	S	Quarterly	A			
MW-20	C3	ND	7/27/10	CM	A	Quarterly	S	Quarterly	A		CMW	
MW-22	C3	1,312	10/20/10	GM	S	Quarterly	S	Quarterly	A			
MW-23	C3	184	8/5/10	GM	A	A	A	Quarterly	A			

Table 2 - DEQ-Approved Western Area Monitoring Program, May 25, 2011

Well Name	Aquifer	Most Recent 1,4-Dioxane Result (ppb)	Date Sampled	Purpose for Sampling	Current Sampling Frequency	Revised Groundwater Sampling Frequency	Groundwater Quality Sampling Frequency (future)	Water Level Measure-ment Frequency	Revised Water Level Frequency	DEQ Revisions to PLS Sampling Frequency	DEQ Revisions to PLS Purpose for Sampling	DEQ Revisions to Water Level Measure-ment Frequency
MW-24	C3	958	8/11/10	GM	A	A	A	Quarterly	A			
MW-25s	Shallow	834	8/10/10	GM	A	Quarterly	A	Quarterly	A			
MW-25d	C3	292	8/17/09	-	A	O	O	NM	NM	A	GM	Quarterly
MW-26	Shallow	5	8/10/10	-	A	O	O	Quarterly	A		GM	
MW-27	Shallow	16	8/5/10	-	A	O	O	Quarterly	A		GM	
MW-28	C3	ND	8/4/10	GM	A	Quarterly	O	Quarterly	A			
MW-32	C3	16	8/6/10	GM	A	Quarterly	O	Quarterly	A			
MW-33	C3									O	GM	Quarterly
MW-34s	C3	ND	8/6/10	CM	A	Quarterly	O	Quarterly	A		CMW	
MW-34d	D2	ND	8/6/10	CM	A	Quarterly	O	Quarterly	A		CMW	
MW-35	C3	8	8/6/10	CM	A	Quarterly	O	Quarterly	A		CMW	
MW-36	C3	ND	8/6/10	GM	A	A	O	Quarterly	A			
MW-37	C3	249	10/19/10	GM	S	Quarterly	A	Quarterly	A			
MW-38s	C3	ND	8/6/10	-	A	O	O	Quarterly	A		GM	
MW-38d	D2	94	1/18/11	GM	Quarterly	Quarterly	A	Quarterly	A			
MW-39s	C3	22	1/5/11	GM	Quarterly	Quarterly	O	Quarterly	A			
MW-39d	D2	207	1/5/11	GM	Quarterly	Quarterly	A	Quarterly	A			
MW-44	D2	ND	8/4/10	-	A	O	O	Quarterly	A		GM	
MW-45s	Southwest	13	10/19/10	GM	S	S	O	Quarterly	A			
MW-45d	Southwest	1,953	10/19/10	GM	S	S	A	Quarterly	A			
MW-46	Southwest	53	8/5/10	GM	A	S	A	Quarterly	A			
MW-48	Southwest	133	10/20/10	GM	S	S	A	Quarterly	A			
MW-49	Southwest	ND	8/4/10	GM	A	S	O	Quarterly	A			
MW-50	Southwest	697	10/28/10	GM-E	M	M*	M	Quarterly	A			
MW-52s	Southwest	1,305	8/10/10	GM	S	S	A	Quarterly	A			

Table 2 - DEQ-Approved Western Area Monitoring Program, May 25, 2011

Well Name	Aquifer	Most Recent 1,4-Dioxane Result (ppb)	Date Sampled	Purpose for Sampling	Current Sampling Frequency	Revised Groundwater Sampling Frequency	Groundwater Quality Sampling Frequency (future)	Water Level Measure-ment Frequency	Revised Water Level Frequency	DEQ Revisions to PLS Sampling Frequency	DEQ Revisions to PLS Purpose for Sampling	DEQ Revisions to Water Level Measure-ment Frequency
MW-52i	Southwest	ND	8/10/10	-	A	A	O	Quarterly	A		GM	
MW-52d	Southwest	ND	8/10/10	-	A	A	O	Quarterly	A		GM	
MW-56s	D2	58	1/5/11	GM	Quarterly	Quarterly	S	Quarterly	A		CMW	
MW-56d	E	ND	8/4/10	GM	A	Quarterly	B	Quarterly	A		CMW	
MW-57	Southwest	ND	8/10/10	CM	A	Quarterly	O	Quarterly	A		CMW	
MW-58s	Southwest	214	10/7/09	CM	S	S	A	Quarterly	A			
MW-58d	Southwest	15	8/4/10	CM	A	S	B	Quarterly	A			
MW-59s	C3	ND	7/20/10	GM	A	A	O	Quarterly	A			
MW-59d	D2	ND	7/20/10	GM	A	A	O	Quarterly	A			
MW-62s	D2	ND	8/5/10	CM	A	S	B	Quarterly	A		GM	
MW-62i	D2	ND	8/5/10	CM	A	S	B	Quarterly	A		GM	
MW-62d	E	ND	8/5/10	GM	A	S	B	Quarterly	A			
MW-63s	D2	ND	8/4/10	CM	A	S	B	Quarterly	A		GM	
MW-63i	D2	ND	8/4/10	CM	A	S	B	Quarterly	A		GM	
MW-63d	E	ND	8/4/10	GM	A	A	B	Quarterly	A			
MW-64	E	66	10/19/10	GM	S	Quarterly	B	Quarterly	A			
MW-65s	E	25	7/30/10	GM	A	S	B	Quarterly	A		CMW	
MW-65i	E	2	7/30/10	GM	A	S	B	Quarterly	A		CMW	
MW-65d	E	31	11/8/10	GM	S	S	B	Quarterly	A		CMW	
MW-66	E	2	8/10/10	CM	A	Quarterly	B	Quarterly	A		CMW	
MW-68	E	ND	7/21/10	CM	A	S	B	Quarterly	A		GM	
MW-75	C3	30	10/20/10	GM	S	S	A	Quarterly	A			
MW-78	C3	22	10/18/10	GM	S	S	A	Quarterly	A			
MW-94s	D2	1,294	1/27/11	GM	Quarterly	Quarterly	Quarterly	Quarterly	A			
MW-94d	E	ND	1/27/11	GM	Quarterly	S	B	Quarterly	A			

Table 2 - DEQ-Approved Western Area Monitoring Program, May 25, 2011

Well Name	Aquifer	Most Recent 1,4-Dioxane Result (ppb)	Date Sampled	Purpose for Sampling	Current Sampling Frequency	Revised Groundwater Sampling Frequency	Groundwater Quality Sampling Frequency (future)	Water Level Measure-ment Frequency	Revised Water Level Frequency	DEQ Revisions to PLS Sampling Frequency	DEQ Revisions to PLS Purpose for Sampling	DEQ Revisions to Water Level Measure-ment Frequency
MW-95	E	73	1/27/11	GM	Quarterly	S	A	Quarterly	A			
MW-96	E	79	1/27/11	GM	Quarterly	S	A	Quarterly	A			
MW-125	C3	276	1/5/11	GM	-	Quarterly		Quarterly				
MW-126s	D2	ND	1/5/11	CM	-	Quarterly		Quarterly			CMW	
MW-126d	E	ND	1/5/11	CM	Quarterly	Quarterly		Quarterly			CMW	
MW-127s	C3	ND	1/5/11	CM	-	Quarterly		Quarterly			CMW	
MW-127d	E	ND	1/5/11	CM	-	Quarterly		Quarterly			CMW	
MW-128s	C3	ND	2/14/11	CM	-	Quarterly		Quarterly			CMW	
MW-128d	E	ND	2/14/11	CM	-	Quarterly		Quarterly			CMW	
MW-131s	D2	ND	3/22/11	CM	-	Quarterly		Quarterly			CMW	
MW-131d	E	ND	3/22/11	CM	-	Quarterly		Quarterly			CMW	
MW-133s	ND	ND	3/22/11	CM	-	Quarterly		Quarterly			GM	
MW-133i	ND	ND	3/22/11	CM	-	Quarterly		Quarterly			GM	
MW-133d	ND	ND	3/23/11	CM	-	Quarterly		Quarterly			GM	
MW-134s	ND	7	3/30/11	PCM	-	Quarterly		Quarterly			CMW	
MW-134i	ND	5	3/30/11	PCM	-	Quarterly		Quarterly			CMW	
MW-134d	ND	3	3/30/11	PCM	-	Quarterly		Quarterly			CMW	
NMW-1s	Marshy	1,577	8/11/10	CM	A	Quarterly	A	Quarterly	A			
NMW-1d	Marshy	639	8/11/10	GM	A	A	A	Quarterly	A			
NMW-2s	Marshy	1,684	8/11/10	CM	A	Quarterly	A	Quarterly	A			
NMW-2d	Marshy	597	8/11/10	GM	A	A	A	Quarterly	A			
NMW-3s	Marshy	1,010	8/11/10	GM	A	A	A	Quarterly	A			
NMW-3d	Marshy	918	8/11/10	GM	A	A	A	Quarterly	A			
Point 1 nest										Quarterly	CMW	Quarterly
Point 3 nest										Quarterly	CMW	Quarterly

Table 2 - DEQ-Approved Western Area Monitoring Program, May 25, 2011

Well Name	Aquifer	Most Recent 1,4-Dioxane Result (ppb)	Date Sampled	Purpose for Sampling	Current Sampling Frequency	Revised Groundwater Sampling Frequency	Groundwater Quality Sampling Frequency (future)	Water Level Measure-ment Frequency	Revised Water Level Frequency	DEQ Revisions to PLS Sampling Frequency	DEQ Revisions to PLS Purpose for Sampling	DEQ Revisions to Water Level Measure-ment Frequency
Point 5 nest										Quarterly	CMW	Quarterly
Point 12 nest										Quarterly	CMW	Quarterly
Point 14 nest										Quarterly	CMW	Quarterly
PMW-1	Marshy	162	8/11/10	GM	A	A	A	Quarterly	A			
PMW-2	Marshy	5,708	8/5/10	GM	A	A	A	Quarterly	A			
PMW-3	Marshy	7,348	8/5/10	GM	A	A	A	Quarterly	A			
PMW-4	Marshy	930	8/5/10	GM	A	A	A	Quarterly	A			
PW-1	Marshy	1,112	3/7/11	GM-E	M	M*	M	NM	NM	S*		
SW-COMB	Southwest	574	3/7/11	GM-E	M	M*	M	NM	NM	S*		
TW-1	C3	121	3/7/11	GM-E	S	M*	A	NM	NM	S*		
TW-3	C3	5	11/11/10	-	S	M*	O	NM	NM	S*	GM	
TW-4	Southwest	28	11/11/10	-	S	M*	O	NM	NM	S*	GM	
TW-5	D2	872	3/7/11	GM-E	M	M*	M	NM	NM	S*		
TW-6	C3	66	5/12/10	GM-E	M	M*	M	NM	NM	S*		
TW-8	Southwest	503	3/7/11	GM-E	M	M*	M	NM	NM	S*		
TW-9	D2	981	3/7/11	GM-E	M	M*	M	NM	NM	S*		
TW-10	C3	751	3/7/11	GM-E	M	M*	M	NM	NM	S*		
TW-11	E	223	3/7/11	GM-E	M	M*	M	NM	NM	S*		
TW-12	E	23	11/11/10	-	S	M*	O	NM	NM	S*	GM	
TW-13	Southwest	736	12/7/10	GM-E	M	M*	M	NM	NM	S*		
TW-14	C3	129	3/7/11	GM-E	M	M*	A	NM	NM	S*		
TW-17	E	89	3/7/11	GM-E	M	M*	A	NM	NM	S*		
TW-18	E	384	3/7/11	GM-E	M	M*	M	NM	NM	S*		
TW-20	C3	1,487	3/7/11	GM-E	M	M*	M	NM	NM	S*		
TW-21	D2	230	3/7/11	GM-E	M	M*				S*		

Table 2 - DEQ-Approved Western Area Monitoring Program, May 25, 2011

Well Name	Aquifer	Most Recent 1,4-Dioxane Result (ppb)	Date Sampled	Purpose for Sampling	Current Sampling Frequency	Revised Groundwater Sampling Frequency	Groundwater Quality Sampling Frequency (future)	Water Level Measure-ment Frequency	Revised Water Level Frequency	DEQ Revisions to PLS Sampling Frequency	DEQ Revisions to PLS Purpose for Sampling	DEQ Revisions to Water Level Measure-ment Frequency
TW-22	Southwest	760	3/7/11	GM-E	M	M*		NM		S*		
170 Aprill	C3	18	7/16/10	-	A	A	O	NM	NM		GM	Quarterly
175 Jackson Plaza	D2	706	11/8/10	GM	S	S	A	Quarterly	A			
371 Parkland Plaza #1	E	ND	10/19/10	-	R	R	O	NM	NM	A	GM	
371 Parkland Plaza #2	E	ND	10/19/10	-	R	R	O	NM	NM			
Sag. Forest Cabin #1	E	27	8/6/10	GM	A	S	B	Quarterly	A			
Sag. Forest Cabin #2	E	2	8/6/10	GM	A	S	B	Quarterly	A			
Sag. Forest Cabin #4	C3	ND	8/6/10	-	A	O	A	NM	NM	A	GM	

Frequency Codes:
M = Monthly
M* = Monthly while operating, otherwise randomly sampled
S = Semi-Annually
S* = Semi-annually when not operating
A = Annually
B = Biannually
R = Randomly

O = No longer sample (statics if applicable)
NM = Not Measured

Analytical Codes:
ND = Non-Detect

Sampling Purpose Codes:
CMW = DEQ Compliance Monitoring Well
GM = General Monitoring
GM-E = General Monitoring - Extraction

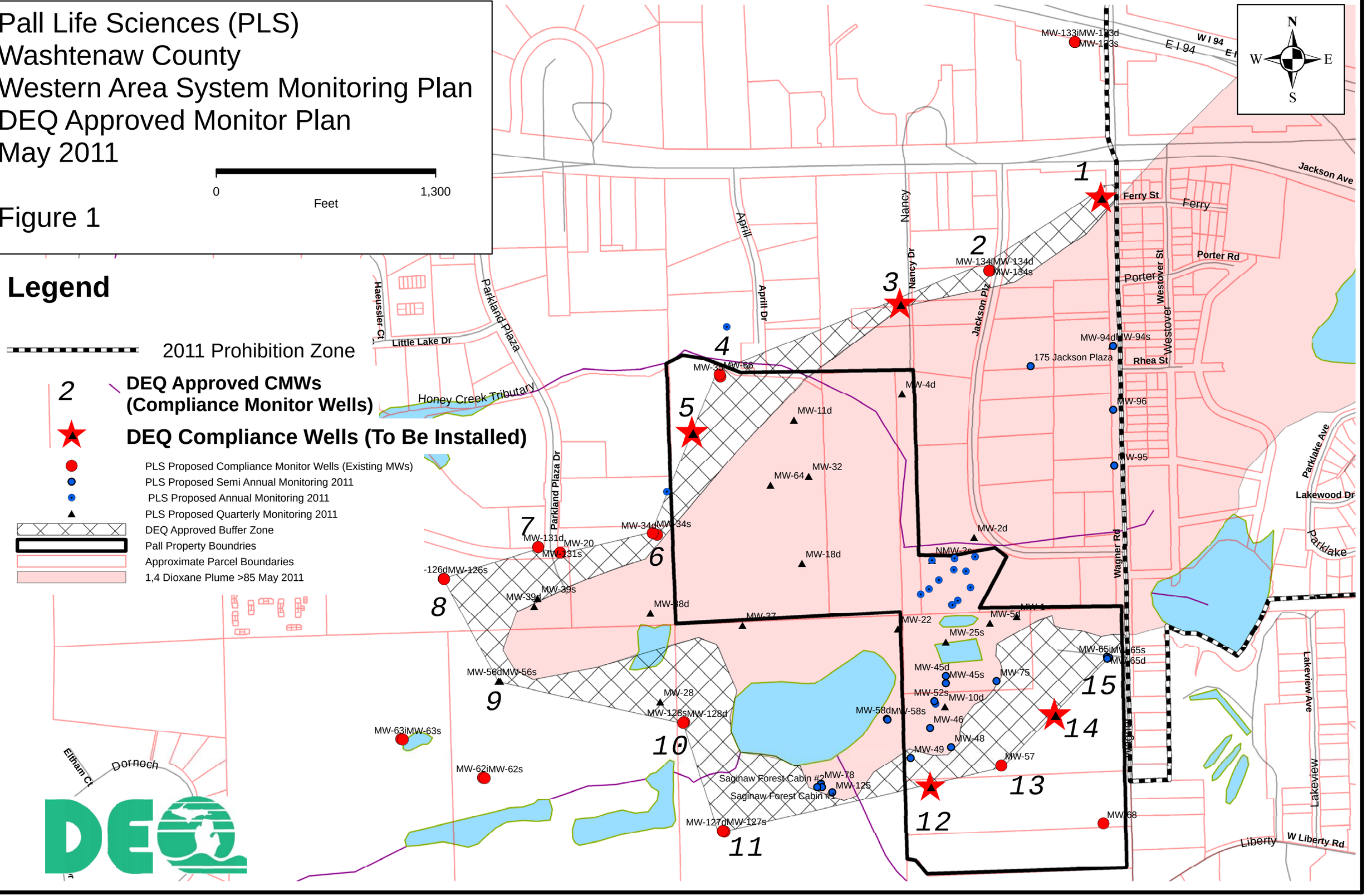
Pall Life Sciences (PLS)
Washtenaw County
Western Area System Monitoring Plan
DEQ Approved Monitor Plan
May 2011

0 Feet 1,300

Figure 1

Legend

- 2011 Prohibition Zone
- 2 — DEQ Approved CMWs (Compliance Monitor Wells)
- DEQ Compliance Wells (To Be Installed)
- PLS Proposed Compliance Monitor Wells (Existing MWs)
- PLS Proposed Semi Annual Monitoring 2011
- PLS Proposed Annual Monitoring 2011
- PLS Proposed Quarterly Monitoring 2011
- DEQ Approved Buffer Zone
- Pall Property Boundries
- Approximate Parcel Boundaries
- 1,4 Dioxane Plume >85 May 2011



Pall Life Sciences (PLS)
Washtenaw County
Western Area System Monitoring Plan
PLS Monitor Plan
May 2011

Figure 2

0 Feet 1,300

Legend

2011 Prohibition Zone

C

PLS Proposed CMWs (Compliance Monitor Wells)

- PLS Proposed Compliance Monitor Wells (Existing MWs)
- PLS Proposed Semi Annual Monitoring 2011
- PLS Proposed Annual Monitoring 2011
- PLS Proposed Quarterly Monitoring 2011
- Pall Property Boundries
- Approximate Parcel Boundaries
- PLS proposed Buffer
- 1,4 Dioxane Plume >85 May 2011