Department of Environmental Quality
Public Comment Responsiveness Summary, August 31, 2004
Final Feasibility Study & Proposed Interim Response for the Unit E Plume
Pall Life Sciences, June 1, 2004
Gelman Sciences Site of Environmental Contamination

The Department of Environmental Quality (DEQ) received the following comment during the public comment period from July 7, 2004 through August 16, 2004:

- 14 verbal comments from individuals at the public hearing
- 27 written comments from individuals
- petitions signed by 373 individuals
- declarations signed by 270 individuals
- City of Ann Arbor
- Village of Barton Hills
- Ann Arbor Township (verbal only)
- Washtenaw County
- Technical Outreach Services for Communities (TOSC)
- Scio Residents for Safe Water
- New Plan Excel Realty (owner of Maple Village Shopping Center)
- Pall Life Sciences (PLS comments are addressed separately at the end of this summary)

DEQ staff also attended two public meetings sponsored by TOSC, the City of Ann Arbor, and Scio Residents for Safe Water.

All of the public comments received are available at the four information repositories, and at the Jackson District Office, by appointment.

Comment 1: More monitoring wells (from PLS property, within plume and in the predicted path of the plume) and advanced modeling (stochastic groundwater model), as recommended by TOSC, should be included, to track migration of the contamination, to allow for the design of a more reliable remedial alternative and testing of various re-injection scenarios, to better understand the effects of any remedial alternative on the migration of contamination and to calculate of the mass of 1,4-dioxane remaining.

Response: For the DEQ's alternative, some additional monitoring wells may be needed in the vicinity of the leading edge. There is no reason to put monitoring wells further downgradient than that, certainly not adjacent to the river, as recommended by TOSC. It is likely that some additional monitoring wells would be needed within the plume to monitor the effects of the remedial action.

Comment 2: Monitoring of effectiveness should be an explicit part of the remedial plan.

Response: PLS's Final Feasibility Study & Proposed Interim Response for the Unit E Plume (FS), and the DEQ's response did not include this level of detail due to the nature of the submittal. Any remedial action will require submittal of a detailed work plan, which will require a monitoring plan in order to be approved.

Comment 3: The volumetric flux calculations included in Appendix B of the FS rely on simplified assumptions that result in a high degree of uncertainty if used to design a remedial system.

Response: The DEQ agrees that more detailed flux information would be needed to properly design a remedial system.

Comment 4: The two-dimensional contaminant transport model in Appendix C, constructed to evaluate the fate of the Unit E Plume, is based on simplified assumptions and does not provide a reliable basis for predicting the transport of the Unit E Plume.

Response: The DEQ agrees that due to the many simplifying assumptions made in developing the model and the lack of model calibration or uncertainty analysis, the model simulations presented in the FS should be viewed as gross approximations and not necessarily accurate predictions of the fate of the 1,4-dioxane plume.

Comment 5: Rotosonic drilling should be used in at least three boring locations (PLS property, Maple Village Shopping Center (MVSC) area and leading edge) to obtain a continuous core of the subsurface geology to the bedrock.

Response: The DEQ supports using Rotosonic at a minimum of 2 or 3 locations.

Comment 6: The existing city water supply wells on Montgomery street and the *in situ* observation wells should be gamma logged. All future extraction wells should be gamma logged; quality control of gamma logging should be done.

Response: While gamma logging the Montgomery well, and some of the in situ observation wells might be useful, it is not absolutely necessary to do so. Depending on the amount of other geological data known in the vicinity of the extraction well, gamma logging could be useful. The DEQ supports quality control of gamma logging in accordance with ASTM D 6274-98 *Standard Guide for Conducting Borehole Geophysical Logging - Gamma* and will follow-up with PLS to ensure that they are doing so.

Comment 7: The effects of interim responses in the Unit E Plume on the shallower aquifer cleanup should be monitored to avoid compromising the cleanup of the shallower aquifers.

Response: It is possible that pumping additional groundwater from the Unit E Plume in the vicinity of the PLS property may lengthen the time needed to clean up the shallower aquifers. As long as the additional pumping from the Unit E Plume prevents the escape

of the plumes in the shallower aquifers, this should not be a problem. The current monitoring should be adequate for determining if that happens.

Comment 8: Investigation is needed between the Evergreen system at Valley and Clarendon and the Maple Village Shopping Center (MVSC) to identify any hydraulic connection between these areas.

Response: It is almost certain that there is a hydraulic connection between the Evergreen system and the groundwater at the MVSC. The DEQ does not believe there is a need for further investigation at this time to further investigate this connection. The DEQ will continue to evaluate monitoring results, and the effects of future remedial actions, to determine if such investigation is needed in the future.

Comment 9: Such a large volume of water extracted from the aquifer could dry up existing water supply wells; studies of the impact of large withdrawals should be done before a decision on a remedy Is made.

Response: Currently pumping and treating the groundwater is the only viable alternative for treatment. Delaying the decision on a remedy for such a study would be counterproductive since the results of any such study would unlikely change the remedy.

Comment 10: The remedial plan should be comprehensive and include the entire site, including contaminated soils.

Response: The 1992 Consent Judgment established separate systems with specific objectives for each. The DEQ recognizes that the site needs to be addressed as a whole, and is considering the entire site as it relates to our decision on the Unit E Plume. See responses to Comments 7 and 8 . There remains a limited area of soil contamination on PLS property and PLS is taking steps to address this area by July 2005, to ensure that it is not a continuing source of groundwater contamination.

Comment 11: All releases of 1,4-dioxane at the Gelman site should be investigated.

Response: Extensive investigation began after the contamination was discovered in 1986 and all source areas have been identified. There will be additional investigation of the nature and extent of contamination in the Unit E Plume and in other areas.

Comment 12: Monitoring of groundwater discharging to surface water, sanitary and storm sewers and basements should be required.

Response: Investigations have determined that groundwater that has migrated off of the PLS property is at a depth that would not impact basements, sanitary or storm sewers. The potential discharge to the Huron River will be addressed through monitoring if future investigation identifies this threat.

Comment 13: There is no need to spend large sums of money to clean up tiny amounts of 1,4-dioxane in groundwater; there is no literature showing concentrations less than 100 ppb are harmful to humans; dioxane disperses in groundwater.

Response: Concentrations of 1,4-dioxane in the Unit E Plume of up to 7,800 ppb have been identified and pose a threat that must be addressed as required by state law.

Comment 14: People are upset because they are confusing 1,4-dioxane with dioxin, which is much more toxic.

Response: This may be true to some extent. The DEQ will make an effort to point out this difference; however, 1,4-dioxane is a hazardous substance that needs to be addressed.

Comment 15: The Unit E contamination should have been recognized sooner from data available over ten years ago.

Response: 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 there were earlier data indicating 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. The DEQ will do its utmost to ensure such an oversight does not occur in the future.

Comment 16: The method of measuring cleanup of the aquifers should be changed from how much contamination has been removed to how much remains.

Response: The court established the removal of mass as a benchmark for the shallower aquifers. The DEQ's measure of compliance for all aquifers is our cleanup criteria.

Comment 17: The mass of existing contamination should be estimated for areas east of Maple Road; the rate of contaminant migration before and after response actions begin should be estimated; the amount of mass that needs to be removed to intercept contamination in the Maple Road area should be estimated.

Response: The DEQ has concluded that estimation of contaminant mass is not of primary importance in making this decision. Performance monitoring will be used to determine if the response actions are achieving the objectives.

Comment 18: Capture at the leading edge does not make sense until the contamination at Wagner Road, Maple Road and other areas are addressed (interim

responses) and the geology at the leading edge is better understood; monitoring should be used to demonstrate that capture is being achieved in intermediate areas before extraction is begun at the leading edge; interim response to intercept the highest concentrations of contamination is an integral part of any remedial action.

Response: The DEQ agrees that it is important to intercept higher concentrations of contamination upgradient of the leading edge and that is reflected in the DEQ's September 1, 2004, Decision Document. The DEQ will require PLS to implement a DEQ-approved work plan at Maple Road prior to allowing extraction from the leading edge to begin.

Comment 19: The plume should be intercepted well in advance of the Huron River as proposed by DEQ, and not left for others to deal with later. There is too much uncertainty in allowing the plume to migrate close to the Huron River, where it could impact water supply wells north of the river.

Response: The DEQ generally agrees with these comments and our remedial alternative addresses these concerns. The DEQ's September 1, 2004, Decision Document also outlines conditions that PLS would have to meet in order to implement their proposed remedial alternative. These conditions would provide for protection of public health and the environment if the contamination were allowed to migrate toward the Huron River.

Comment 20: The leading edge of the plume should be addressed immediately to avoid contamination of the city's drinking water. Capturing most of the contamination at the leading edge makes the most sense.

Response: Due to the complex geology and the significant decrease in contamination east of Maple Road, the DEQ will require that upgradient interim responses precede any efforts to capture the leading edge, as discussed in Comment 18.

Comment 21: The contamination will continue to migrate and will not be captured by the proposed extraction wells at the leading edge; extraction at the leading edge will draw more contamination into that area; extraction at the leading edge is likely to fail due to the complex geology.

Response: These concerns will be addressed as discussed in Comment 18. Additional investigation will be done at the leading edge prior to design and implementation of response actions in this area to ensure that the response actions will meet the objective of capturing all of the contamination above 85 ppb.

Comment 22: There is another area of commercial property in the path of the plume that is a better location to intercept the leading edge of the plume after the contamination is cut off at Maple Road.

Response: This comment will be considered and a determination of the best location of extraction wells will be made after investigation ahead of the leading edge, in conjunction with relevant access concerns.

Comment 23: A similar leading edge approach in the Evergreen subdivision failed.

Response: The DEQ agrees that there are lessons that can be learned from problems that occurred in the Evergreen area. One of the problems that occurred at Evergreen that is addressed by the DEQ's Unit E Plume alternative is that a reliable method of discharge be secured. This is the primary reason the Evergreen plume moved beyond the original extraction well. In addition, the DEQ's Unit E Plume alternative calls for a treatment system that will be adequately sized to treat the volume of water that will need to be extracted to halt the migration of contamination.

Comment 24: The MVSC is a good location for extraction wells and treatment systems.

Response: The DEQ believes the treatment system can be located at the MVSC, but recommends that other locations be considered to determine if a more suitable location can be found.

Comment 25: The plume should be stopped at the source; more extraction wells should be placed along Wagner Road and Maple Road; the proposed alternative should include the use of Veterans Park; extraction should be concentrated at the Michigan Inn.

Response: The DEQ's alternative did estimate the number of extraction wells that would be required at Wagner Road, Maple Road and the leading edge. The actual number of wells required to capture the plume will be determined by further investigation. In evaluating the location of extraction wells within the plume, the DEQ did consider other areas and determined that extraction at the two locations selected are the most feasible based on environmental and logistical considerations.

Comment 26: The proposed pipeline to the Huron River downstream of the city's water intake at Barton Pond should begin at the PLS property and should include the effluent from the current remediation of the shallower aquifers.

Response: The DEQ believes that additional disruption and cost required by installation of this length of pipeline is not justified if an appropriate location for a treatment system can be found in the Maple Road area. The current discharge to the Honey Creek Tributary from the current treatment system has been operating with few problems and do not justify this change.

Comment 27: Design and permits for the pipeline should begin immediately.

Response: The DEQ will require PLS to begin planning for the pipelines.

Comment 28: Pall Life Sciences (PLS) should be held accountable for costs to address any damages due to the pipeline, sewer or gas line leaks and it should be specified in a contract.

Response: PLS is the liable party and will be responsible for construction, operation and maintenance of the pipeline, including repair and compensation for any damages. The DEQ will not be a party to any contract for placement of the pipeline.

Comment 29: A pipeline to the Huron River is the only feasible method of discharge; the pipeline should be designed with excess capacity.

Response: The DEQ agrees with these comments and this is addressed in our September 1, 2004, response to the FS.

Comment 30: An increase of flow to the Honey Creek tributary (HCT) from the increased discharge will cause more erosion; PLS should pay for hardening the banks of HCT to prevent more erosion. Funding should be providing to address the ongoing erosion.

Response: An increase in the volume of discharge to the HCT is not contemplated in the DEQ's alternative.

Comment 31: Reinjection at the rear of the MVSC is preferable to a pipeline up Maple Road.

Response: Reinjection in the MVSC would require significant additional monitoring and modeling, and is unlikely to accommodate the volume of water necessary to meet the objectives of the DEQ's alternative. Reinjection at the rear of Maple Village would produce a mounding effect in the groundwater that would affect the flow of groundwater from the west and widen the upgradient plume.

Comment 32: Reinjection will push the contamination ahead of it; reinjection will increase the size of the area affected by low levels of contamination.

Response: The DEQ agrees that reinjection has the potential to produce these results and would only consider reinjection if PLS provided sufficient data to demonstrate that reinjection would not interfere with achieving the objective of the overall response actions. In such case, PLS would also be required to monitor the effects of the reinjection.

Comment 33: Storm and sanitary sewers should not be used for discharge due to leaks and potential back ups.

Response: Discharge to the storm or sanitary sewers are only suggested as a temporary discharge during dry weather and water would be treated to below the

cleanup criteria. Any such discharge would be controlled by the City of Ann Arbor and/or the Washtenaw County Drain Commission and those entities would take such factors into consideration before allowing use of their infrastructure for any discharge.

Comment 34: The city storm sewer should be used to discharge the treated groundwater.

Response: See Comment 33. There is not adequate capacity in the storm sewer to accommodate the volume of water necessary on a continuous basis.

Comment 35: The temporary use of the storm sewer may be preferred to temporary use of the sanitary sewer.

Response: The DEQ agrees that temporary use of either discharge method could be considered.

Comment 36: There has been inadequate public notice of the proposed remedial alternative and the public meetings held by DEQ and TOSC.

Response: In addition to publication in the DEQ Calendar on June 28, and July 12, 2004, and in the legal notices section of the July 25, 2004 Ann Arbor News, the DEQ coordinated with local officials and representatives regarding the meeting date and comment period and also sent notices to the DEQ's Gelman e-mail distribution list. The DEQ also extended the original comment period by 11 days.

Comment 37: A stakeholders group should be established and provided with funds to hire experts to assist in the review of technical information.

Response: The City of Ann Arbor and the Scio Residents for Safe Water have entered into an agreement with the Michigan State University Technical Outreach Services for Communities (TOSC). The services provided by the TOSC program provide for the review of technical information. It would be an inefficient use of resources to spend additional public funds to hire an additional outside consultant when the TOSC has many technical resources they have provided and can continue to provide, based on the agreement.

Comment 38: The DEQ should engage local governments and residents in the area of the leading edge to ensure their involvement; the impact to residents in terms of access to roads, driveways, traffic and noise should be explained.

Response: The DEQ heard the concerns voiced by several residents east of Veterans Park that they want additional opportunity for input. In addition to the community outreach efforts undertaken to date, the DEQ has amended its decision to include a request that PLS work with the DEQ and the City of Ann Arbor to develop a revised Citizen Involvement Plan. This Citizen Involvement Plan must inform residents and other stakeholders in the area about how they may be affected by the remedial actions.

Comment 39: PLS's preferred alternative endangers residential water supply wells in Ann Arbor Township islands west of the Huron River, residential water supply wells east of the Huron River, and future municipal water supply wells that may be placed east of the Huron River.

Response: The DEQ agrees that PLS's alternative has the potential to have these detrimental effects and that is one of the reasons PLS's alternative is not being approved as proposed.

Comment 40: The remote possibility of contamination of city water in 20-30 years is not worth the disruption of neighborhoods.

Response: Allowing the contamination to migrate has the potential to require similar disruptions in other neighborhoods in the future. Any remedial alternative approved by the DEQ will consider the concerns of residents, but must meet the requirements of Part 201.

Comment 41: 85 ppb is not a drinking water standard, it is a cleanup level, which used to be 3 ppb; there is currently no drinking water standard.

Response: This is true. The DEQ has promulgated a generic residential cleanup criterion 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.

Comment 42: Placement of extraction wells, treatment systems and pipelines in residential neighborhoods should be avoided; disruptions to neighborhoods should be minimized and residents should be given time to learn and comment about the proposal before any decision is made; plans for any pipeline should be coordinated to minimize disruption and protect the safety of residents. The pipeline to the river should avoid residential areas, a pipeline along Maple Road to M-14 would hurt the businesses at the Maple Miller Plaza; Maple Road north of Dexter, along the route of the proposed pipeline, is very residential; a new high school is planned for M-14 and Maple Road.

Response: The pipeline route has not been determined. The concerns raised by these comments will be considered. Additional input from residents will be considered prior to any decision on pipeline locations. Surface water discharge to Huron River, which would require a pipeline, may be the only viable discharge alternative if the performance standard in the vicinity of Maple Road is 85 ppb. If PLS can be successful in meeting the conditions for a waiver, then reinjection may be a viable alternative for discharge of treated water in the vicinity of Maple Road.

Comment 43: Only treated water can be safely piped; pumping a known carcinogen to within a few feet of the surface is a threat to public health; there are no guarantees against pipeline breaks and leaks.

Response: To avoid piping of uncontaminated groundwater it would be necessary to have a treatment system at each extraction location. Due to the size of the plume, this is not feasible. Pipelines transporting contaminated groundwater will be double-walled and connected to leak detection monitors. The concentration of 1,4-dioxane in untreated groundwater would be unlikely to exceed the direct contact criterion.

Comment 44: Use of ozone, a toxic gas, is less desirable in built up areas; safeguards should be in place if this treatment method is used.

Response: There are health and safety concerns involved in the operation of either of the two treatment systems that are expected to be used. The location of the treatment system has not yet been established. These concerns will be considered prior to selection of the treatment equipment and location.

Comment 45: The party responsible for the contamination should bear the risks and costs of remediation.

Response: PLS is responsible for the costs of remediation, including consideration and reduction of risks to the public. Due to the existence of contamination in large areas off of PLS property, these risks can not be entirely eliminated. The risk to public health and safety from the contamination is also a risk that must be balanced in the selection of a remedial alternative.

Comment 46: Washtenaw County will not consider adoption of a local ordinance or modification of its existing well regulation to serve as an institutional control to restrict use of groundwater. The City of Ann Arbor has expressed an interest in active remediation to prevent further migration of contamination, and has not appeared willing to enact an ordinance that could be used as an institutional control.

Response: Enactment or modification of an ordinance or local regulation is at the discretion of the individual municipality.

Comment 47: Installation of wells and pipelines constitutes a loss of property rights.

Response: These potential impacts must be balanced against the risks to the public from the continuing migration of contamination. Such infrastructure can often be placed in the right-of-way. Reasonable compensation is required for such uses. Once installed, this infrastructure is relatively unobtrusive.

Comment 48: Monitoring and extraction wells should be placed on city owned property to the extent practicable.

Response: The DEQ agrees that monitoring and extraction wells, and pipelines, can often be placed on city property or city controlled right-of-ways, and that it is appropriate to do so, when possible.

Comment 49: 270 individuals (mostly residents east of Maple Road) signed a declaration stating they would not agree to placement of any installations involved in remediation, including monitoring, test or purge wells, transmission or discharge pipelines, treatment centers or power supply stations.

Response: Private property owners have the right to control access to their property. As stated in response to the preceding comment, the DEQ supports the use of publicly controlled property and rights-of-way, where possible.

Comment 50: There should be extraction and treatment of groundwater where the concentration of 1,4-dioxane is less than 85 ppb, in addition to extraction at the leading edge (85 ppb) and other upgradient locations; dividing the plume into three sections as proposed by the DEQ makes sense, but it should control all of the contamination at those locations, not just concentrations above 85 ppb.

Response: The DEQ does not have the authority to require remediation below 85 ppb except in cases where groundwater is venting to surface water immediately upgradient of a public water supply, in which case the criterion would be 34 ppb.

Comment 51: The DEQ should ask for cleanup to 35 ppb in anticipation of the drinking water standard being established at that level.

Response: If a drinking water standard is established that is lower that the current 85 ppb generic groundwater and commercial cleanup criterion of 85 ppb, that would become the criterion the DEQ would require. The DEQ cannot require a lower criterion until a drinking water standard is legally promulgated.

Comment 52: The decision on treatment technology should be based on best available technology and an ozone/hydrogen peroxide system should not be approved unless it is demonstrated to be as effective as the current ultra-violet/hydrogen peroxide system; the treatment system near Maple Road should achieve the same concentrations as the current ultra-violet/hydrogen peroxide system at the PLS property; treatment to 3 ppb should be required; the discharge to the Huron River should meet the 10 ppb daily max/3 ppb monthly average.

Response: Prior to the re-issuance of the current permit or issuance of a new permit, the Water Bureau of the DEQ, which administers the discharge of treated groundwater to surface water, will re-evaluate the best available technology (BAT) according to standard procedures and consideration of the operation of the current treatment system.

Comment 53: A decision on the location of the treatment system should not be made until the type of treatment system is determined, and the decision should not be made based on expense or convenience.

Response: The DEQ agrees that siting of a treatment system must be done in logical manner. As noted in the response to Comment 44, these concerns will be considered prior to selection of the treatment equipment and location.

Comment 54: Testing of treated water should be done by someone other than PLS.

Response: The DEQ periodically splits samples of the effluent and has the samples analyzed in the DEQ's laboratory. These results have been consistent with PLS's results. There are stiff fines for falsification of data and we have no reason to question PLS's results.

Comment 55: Treated water should be sampled every day, including weekends.

Response: PLS has a good compliance history and they have consistently met their discharge limits, except for an occasional exceedance. The DEQ considers the current monitoring adequate. Any new discharge permit would be open for public comment on this and other issues, and would be considered before any decision on compliance monitoring is made.

Comment 56: An ozone-hydrogen peroxide treatment system near Maple Road should have adequate capacity to reliably treat the necessary volume of water.

Response: The DEQ agrees with this comment and will require the treatment system to be adequately sized.

Comment 57: Location of a treatment system at the MVSC would be an industrial use that requires handling of large volumes of chemicals and would endanger public health.

Response: The DEQ recognizes these concerns and recommends that alternate locations be explored; however, the DEQ believes that appropriate measures could be taken to accommodate these concerns, upon consultation with City of Ann Arbor officials, if a more suitable location is not identified.

Comment 58: Location of a treatment system at the MVSC would have negative economic affects, including difficulty financing or refinancing, increased insurance rates, decreased market value and reduced acceptability for tenants and shoppers.

Response: See the response to Comment 57. PLS would be required to compensate the owner of the MVSC for any such negative effects if a more suitable location cannot be identified.

Comment 59: The DEQ should hire a consultant to advise the DEQ on all technical issues. The US-EPA should be asked to provide professional assistance.

Response: The DEQ has hired a consultant to assist in its review of the FS. The DEQ received a suggestion to seek assistance from the US-EPA in March 2003 and followed up with the US-EPA regarding their ability to assist with a groundwater modeling project. The US-EPA section that handles groundwater modeling would be available to review a groundwater model, but does not create groundwater models. The large-scale model that PLS submitted to the DEQ did not include the Unit E Plume. The DEQ is the lead agency overseeing the Gelman Sciences site and has adequate staff available to do so.

Comment 60: PLS should be required to fund an independent environmental engineering firm to assist the DEQ.

Response: The DEQ does not have a legal basis for such a requirement. The DEQ is considering environmental engineering input provided by TOSC.

Comment 61: The DEQ should take control of the cleanup from PLS.

Response: Under the Consent Judgment and Part 201, the DEQ retains and is continuing to exercise authority over the response activities to be implemented by PLS, the legally responsible party at the site.

DEQ Response to Pall Life Sciences Comments

Many of PLS's comments were related to the comments Weston Solutions of Michigan, Inc. (Weston) made on PLS's FS. Weston provided responses to PLS's comments in a letter dated August 31, 2004, at the request of the DEQ. Weston's letter and supporting documents provide additional details in response to many of PLS's comments, and are included here as Attachment 1.

PLS Comment 1: There is no legal basis for the DEQ's plan.

Response: PLS is required to remediate the Unit E Plume pursuant to the 1992 Consent Judgment (CJ). Any contamination not identified at the time the CJ was entered is covered in Section V.C.1. PLS's obligation to remediate the Unit E Plume is also required by Part 201 of the NREPA. There is no limit in either the CJ or Part 201 regarding capture only at the leading edge of groundwater contamination. There is a basis for the DEQ's alternative. Capturing the contamination at Wagner and Maple roads will reduce the long term uncertainties and limit the threat to the public health, welfare and safety and the environment, as specified in Part 6 of the Part 201 Rules. The legal basis for requiring PLS to perform interim measures is explained in the DEQ's letter to PLS dated June 29, 2004.

PLS Comment 2: DEQ's plan is not feasible due to the required pipelines and treatment system related infrastructure and operations.

a) Pipelines will disrupt neighborhoods and local businesses.
b) Pipelines are not supported by the public.
c) Access to the right-of-ways to install pipelines will not be provided voluntarily.
d) There is no legal authority for PLS to obtain access for the pipelines outside of the plume.
e) The treatment system required to treat the necessary volume of groundwater is too large to site in commercial areas near Maple Road.
f) It is not feasible to generate enough oxygen to treat the required volume of water.
g) A treatment system of this size would require liquid oxygen, which would not be safe to use in the Maple Road area.
h) Equalization and discharge ponds would be required to reliably treat the necessary volume of water.

Response:

a) and b) Addressed in several responses to public comments, above.
c) and d) The Consent Judgment requires PLS to use its "best efforts" to secure access to property it does not control in order to perform remedial actions. If necessary, there are legal options that PLS can use to obtain access.
e) through h) As indicated in pages 3-9, Appendix A to the August 31, 2004 letter from Weston, the DEQ believes that it is feasible to place such a treatment system at or near the MVSC. However, the DEQ recommends that other potential treatment system locations be considered to alleviate these potential conflicts, if possible.

PLS Comment 3: PLS's plan is protective of human health and the environment and avoids the disruption to the public that would be required by the DEQ's plan.

Response: PLS's plan does not protect the environment, as it allows contamination to migrate into large areas, as yet not adequately defined, degrading the quality of a large volume of groundwater in those areas for decades. If the conditions for obtaining a waiver in the DEQ's Decision Document can not be met, PLS is legally obligated to design and implement an active remediation system to address the entire Unit E Plume.

PLS Comment 4: The DEQ's six conditions for approving PLS's plan are met by their plan, or are not required.

a) The City has effectively abandoned the Northwest Water Supply well (a.k.a. Montgomery Well); therefore, Condition 1 does not apply.
b) The City can not use the Northwest Water Supply well because the concentration of arsenic exceeds the standard that the state will enact in 2005.
c) Condition 2 (containment of 2,800 ppb at Maple Road) is overly conservative.
d) Condition 3 (monitoring of threatened residential wells and a contingency for preventing unacceptable exposures) is met by their plan.

e) A court order can be used to satisfy Condition 4 (enactment of an acceptable institutional control).
f) An institutional control is not required in this case because the adverse environmental impact of implementing the DEQ's plan exceeds the environmental benefit of the DEQ's plan.
g) Condition 5 (groundwater monitoring to ensure that contamination above 85 ppb does not underflow the Huron River, and a contingency plan for addressing) is met by their plan.
h) Condition 6 (provide sufficient hydrogeological information to resolve concerns for reinjection at Maple Road, or identifying another discharge alternative) is met by their plan.

Response:

a) The City has not abandoned the Northwest Water Supply well and it must be considered until it has been officially abandoned.
b) The groundwater from the Northwest Water Supply well has been used as a small percentage of the City's drinking water supply. The relevant arsenic compliance point is after mixing and treatment with other sources of water. The most recent arsenic sample from the plant tap was less than 1 ppb. Use of the Northwest Water Supply well at its previous volume would not cause an exceedance of the standard that will go into effect in 2006.
c) Containment of contamination in excess of 2,800 ppb is a reasonable performance objective, considering the uncertainty about the fate of the plume, as discussed in the Interoffice Memorandum from Richard Mandle dated August 26, 2004.
d) The necessary monitoring of residential wells is not adequately addressed in the FS. A provision for monitoring water supply wells east of the Huron River and a contingency for preventing unacceptable exposures must be included.
e) Until such a court order is in place and can be evaluated by the DEQ, this condition will not be met.
f) PLS has not established that the DEQ's alternative would create any negative environmental impact. Temporary impacts to the community due to installation of pipelines or extraction wells do not qualify as adverse environmental impacts.
g) PLS's alternative is based on an inadequate groundwater model that can not be relied upon to predict the fate of the plume. A specific provision to address the possibility of groundwater contamination under flowing the river must be included.
h) As discussed in the Interoffice Memorandum from Richard Mandle dated August 26, 2004, additional hydrogeological information is required to meet this condition.

PLS Comment 5: Weston's cost analysis is not accurate enough to be used as a basis for any remedial decision.

a) No capital or operation and maintenance (O&M) or pipeline costs were included for the Wagner Road portion of the DEQ's alternative.
b) Costs for treatment were grossly underestimated.

c) The cost of treatment at Maple Road did not include ten of the twenty years anticipated for the treatment of groundwater extracted from the Maple Road area.
d) No staff costs were included.
e) The estimate for the treatment system in the Maple Road area did not include a cost for access.

Response:

a) Capital costs were included in Weston's cost analysis (page 10, Appendix A to the August 31, 2004 letter from Weston). Regarding the cost of O&M, Weston has revised its July 2004 cost estimate to incorporate costs of O&M at the request of the DEQ, to address this comment.
b) Weston has provided documentation of their estimated cost of treatment as an attachment to Appendix A to their August 31, 2004 letter.
c) Weston has corrected this omission in its revised cost estimate, attached.
d) Weston has provided a revision of treatment costs that includes staff costs, attached.
e) Weston did include access fees in Tables 5 and 6 of their July 14, 2004 letter.

Comment 6: The DEQ's alternative is projected to take 20 years to achieve cleanup and is no more protective than other leading edge alternatives considered by PLS, which PLS projected to take 20 years to achieve cleanup.

Response: The DEQ has not done a detailed analysis of the length of time to achieve cleanup using its proposed remedial alternative, but believes that 20 years is a conservative length of time (i.e. it may take less than 20 years). If a detailed analysis were done of the DEQ's alternative 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.