Minnesota Pollution Control Agency

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February 19, 2016

Mr. Charles Pinter
Ford Motor Company
Environmental Quality Office
Fairlane Plaza North
290 Town Center Drive, Suite 800
Dearborn, MI 48126

RE: Ford Twin Cities Plant, 966 South Mississippi River Boulevard, St. Paul
MPCA VIC Project Number VP23530
MPCA PBP Site ID Number PB3682
PINs: 05-117-21-13-0015 & 05-117-21-13-0015
Comprehensive Phase II Site Investigation Report

Dear Mr. Pinter:

The Minnesota Pollution Control Agency (MPCA) staff in the Voluntary Investigation and Cleanup (VIC) Program and the Petroleum Brownfields Program (PBP) has completed review of the Comprehensive Phase II Site Investigation Report (Report) for the Ford Twin Cities Plant, located at the address referenced above (the Site). The Report, dated December 22, 2015, was prepared and submitted on behalf of Ford Motor Company (Ford) by Arcadis U.S., Inc. The Report focuses on the planned redevelopment parcel east of Mississippi River Boulevard and the northern portion of the river parcel, west of Mississippi River Boulevard. The Report excludes the former waste disposal site (Area C) located on the southern portion of the river parcel. A comprehensive investigation report for Area C is expected in the third quarter of 2016.

The Report presents the cumulative results of several environmental investigations carried out from 2007 through 2015, focusing, specifically, on soil and groundwater data collected from environmental boreholes and monitoring wells. While there are still a few remaining loose ends to wrap up with respect to the environmental investigation, the work completed to date has produced a very large volume of data by which to evaluate soil and groundwater contamination at the Site. The MPCA concurs with Ford's recommendations for additional investigation, as proposed in Section 7.2 of the Report. The MPCA has already approved work plans for additional investigation of historical disposal areas A and B, and for the installation and sampling of additional monitoring wells in the St. Peter aquifer. Prior to conducting the soil gas investigation or additional field work on the river parcel, please submit work plans for MPCA review and approval. It is not necessary to submit a work plan for the proposed additional delineation of petroleum impacts in the north parking lot. That scope of work should follow standard Petroleum Remediation Program guidance. Please submit the additional investigation results, when available, in one or more Site Investigation Report Addendums.

MPCA comments on the Report, provided in Attachment B, are largely focused on including additional detail in the text, to take full advantage of the data that has been collected to date. Similarly, the requested revisions to certain figures and inclusion of additional data summary tables are designed to make the large body of data more accessible to a wider audience. Please submit a revised Report which addresses the comments in Attachment B.

Finally, it would be worth noting in the Report that data obtained through drilling investigations – the focus of the Report – is supplemented by soil samples collected during removal of building slabs, foundations, buried utilities, and other subgrade structures. The supplementary data set, which represents soil samples collected during demolition activities, is not included in the Report, although a portion of it has been submitted to the MPCA under separate cover in a series of *Site Decommissioning Response Action Plan (SDRAP) Addendums*. Site decommissioning activities also provided several good opportunities to view the overburden and shallow bedrock firsthand, as excavation and removal of some subgrade features exposed the shallow bedrock. These firsthand observations could be cited in Section 2.2 as an additional source of hydrogeological information.

Please note that this letter is subject to the disclaimers in Attachment A. We look forward to receiving the revised Report. In the meantime, feel free to contact MPCA staff if you have any questions or concerns about the enclosed comments.

Sincerely,

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Enclosure

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ATTACHMENT A
DISCLAIMERS
Twin Cities Assembly Plant
MPCA VIC Project Number VP23530
MPCA PBP Site ID Number PB3682

1. Reservation of Authorities

The MPCA Commissioner reserves the authority to take any appropriate actions with respect to any release, threatened release, or other conditions at the Site. The MPCA Commissioner also reserves the authority to take such actions if the voluntary party does not proceed in the manner described in this letter or if actions taken or omitted by the voluntary party with respect to the Site contribute to any release or threatened release, or create an imminent and substantial danger to public health and welfare.

2. No MPCA Assumption of Liability

The MPCA, its Commissioner and staff do not assume any liability for any release, threatened release or other conditions at the Site or for any actions taken or omitted by the voluntary party with regard to the release, threatened release, or other conditions at the Site, whether the actions taken or omitted are in accordance with this letter or otherwise.

3. Letter Based on Current Information

All statements, conclusions and representations in this letter are based upon information known to the MPCA Commissioner and staff at the time this letter was issued. The MPCA Commissioner and staff reserve the authority to modify or rescind any such statement, conclusion or representation and to take any appropriate action under his authority if the MPCA Commissioner or staff acquires information after issuance of this letter that provides a basis for such modification or action.

4. Disclaimer Regarding Use or Development of the Property

The MPCA, its Commissioner and staff do not warrant that the Site is suitable or appropriate for any particular use.

5. Disclaimer Regarding Investigative or Response Action at the Property

Nothing in this letter is intended to authorize any response action under Minn. Stat. § 115B.17, subd. 12.

6. This approval does not supplant any applicable state or local stormwater permits, ordinances, or other regulatory documents.

ATTACHMENT B
MPCA COMMENTS ON COMPREHENSIVE SITE INVESTIGATION REPORT
Twin Cities Assembly Plant
MPCA VIC Project Number VP23530
MPCA PBP Site ID Number PB3682

1. General

a) Please do a word search for "solvent" and wherever that word is used in reference to hydrocarbon solvents, please add the word "hydrocarbon", or otherwise edit the sentence to make it clear that the "solvent" reference does not pertain to chlorinated solvents. This clarification is particularly pertinent to the "solvent tanks" associated with the former paint building. On the flip side, if there is a particular situation where chlorinated solvents are contaminants of concern, please specifically use the term "chlorinated solvents".
b) Provide Appendix H (laboratory reports) in a single PDF file with bookmarks.
c) Provide an updated Excel spreadsheet with the spatial data for the Site, or a copy of the GIS shapefile.
d) Remove the "confidential disclaimer" from the title page, as environmental reports submitted to the MPCA are public information.

2. Executive Summary *(add context)*

The 4th paragraph on page ES-1 lists the screening values to which the Phase II investigation data were compared. After the bulleted list, please include an explanation as to why the MPCA's Soil Leaching Values were not used, e.g. "As described in Section 5.0, Soil Leaching Values were not used as risk-based screening values in this Report, since Ford is conducting a full groundwater investigation at the Site."

3. Section 2.0 Site Background *(add detail)*

"Former operations at the Site consisted of the assembly and painting of ~~light-duty trucks (Ford Ranger)~~ cars and trucks, using parts manufactured off-site. During World War II, the plant was converted for a few years for the production of armored tanks and aircraft engines to support the war effort. From 1978 until plant closure in 2011, assembly operations were limited to light-duty trucks (Ford Ranger). Assembly processes included …."

4. Section 2.2.1 Geology *(add detail)*

a) "The unconsolidated overburden consists predominately of sandy clay and clayey sand, much of which has been disturbed or reworked over the years due to various construction and demolition activities at the Site. Weathered shale cobbles are common and 2 to 5 feet of peat was observed east of the former oil fill area. The total thickness of the unconsolidated overburden is variable but generally is between 5 and 15 feet, with the thinner deposits occurring in the eastern portion of the Site where the Decorah Shale subcrops."

b) "The Decorah Shale is the uppermost bedrock unit encountered at the Site. The upper portion of the Decorah Shale, at the contact with the unconsolidated overburden, is highly weathered, but transitions to be a more competent rock unit with depth. The thickness of the Decorah Shale is variable and it appears to be discontinuous across the Site. In general, the Decorah Shale is more prevalent in the eastern portion of the Site and has been eroded away in the western portion of the Site. Underlying the Decorah Shale (or the unconsolidated overburden where the Decorah Shale is absent) is the Platteville Formation. The Platteville Formation, which ranges in thickness from 20 to 30 feet on the main parcel, generally acts as an aquitard that limits vertical

flow, although it is known to exhibit secondary permeability due to the development of vertical and bedding plane fractures. The upper portion of the Platteville Formation is typically heavily fractured, the lower portion less so. Perched groundwater in the upper portion of the Platteville often emerges as seeps at the edge of the bluff. The Platteville Limestone/Dolostone lies on top of the Glenwood Shale formation and the contact appears to be gradational. The Glenwood Shale is composed of dark green to gray shale and sandy shale. The formation is thinly laminated and moderately fissile (cleavable) and is approximately 7 feet thick in the areas investigated. Beneath the Glenwood Shale is the St. Peter Sandstone, which is encountered at the Site at approximately 60 to 80 feet below ground surface on the main parcel. The St. Peter Sandstone outcrops along the bluffs of the Mississippi River and continues below the elevation of the riverbed. The sandstone is composed of medium-grained, well-sorted and well-rounded quartzite. It is white to buff in color and is medium to weakly indurated (hardened). The St. Peter formation is as much as 150 feet thick in the Twin Cities area."

5. ***Section 2.2.2 Hydrogeology*** *(add detail)*
"The uppermost groundwater aquifer is in the St. Peter Sandstone, which is a high-yielding aquifer. Perched groundwater in the overburden and the Platteville Formation is generally isolated from the St. Peter aquifer ~~bedrock groundwater~~ by the lower member of the Platteville and the Decorah and Glenwood Shale Formations. The upper portion of the St. Peter Sandstone is unsaturated; groundwater in the St. Peter Sandstone is encountered at approximately < > feet below ground surface on the main parcel of the Site. Groundwater flow direction is generally to the west towards the Mississippi River, which is the receptor for groundwater originating from the Site; however, based on site-wide monitoring well data, groundwater flow can be locally and seasonally variable particularly close to the river. A potentiometric surface map for the St. Peter ~~Sandstone~~ aquifer is included as Figure 8, based on monitoring wells in-place as of December 2015. A pending addendum to this Report will evaluate groundwater conditions in the St. Peter aquifer in greater detail, with additional data collected from monitoring wells installed and sampled in 2016."

6. ***Section 3.0 Summary of Investigation Activities*** *(add context)*
"The results of these investigations have not been included in this SIR, although information gained from these early investigations was used to develop of a scope of work for the field investigations conducted by Arcadis."

7. ***Section 3.2 2007 Baseball Fields Phase II*** *(add context)*
"A total of 30 soil borings, 48 surficial sample locations, and two temporary wells were installed and sampled to evaluate soil and groundwater conditions. No indications of battery disposal were identified during investigation of the baseball fields. Discussion of the analytical results for these investigations ~~are~~ is included in Section 6 below.

8. ***Section 3.11 2015 General Site-Wide Characterization*** *(add detail)*
Please provide more detail for this investigation, such as how many borings were sampled vs. just field screened, and what kind of impacts (if any) were observed during field screening.

9. ***Section 3.13 2014-2015 Site Decommissioning Sampling*** *(new section)*
This section is necessary to let folks know there is another large source of soil data over and above data obtained through drilling activities. Suggested text is below.

"Soil samples collected during site decommissioning activities supplement the data obtained during the drilling investigations described above. During removal of slabs and subsurface structures (pits,

sumps, utilities, etc.), soil samples for laboratory analysis were collected based on field screening observations. This data is not included in the Report, although a portion of it has been submitted to the MPCA under separate cover in a series of *Site Decommissioning Response Action Plan (SDRAP) Addendums*. The complete set of soil data collected during site decommissioning activities will be presented in a future submittal. As a placeholder, <new Figure > shows areas of soil contamination identified during site decommissioning."

10. Section 4.3.1 Permanent Groundwater Monitoring Well Installation *(errata)*

"As of December 2015, ~~T~~twenty~~-five~~ three permanent groundwater monitoring wells have been ~~were~~ installed across the Site.

11. Section 5.0 Risk-Based Screening Levels *(clarifications)*

a) Since Soil Leaching Values (SLVs) are not mentioned in the Report, it may appear to some as an omission, since SLVs are often used by the VIC Program to evaluate potential risk to groundwater from the leaching of volatile organic compounds (VOCs). To circumvent questions about this, it would be helpful to include a short paragraph in Section 5.0 on why the Report does not include SLVs as risk-based screening values for the site. Suggested text below.

"Soil Leaching Values (SLVs) are commonly used by the VIC Program to evaluate potential risk to groundwater from the leaching of VOC-impacted soil. However, for older soil releases, such as those at the Ford site, the presence or absence of VOCs in groundwater at concentrations of concern is the most telling evidence of whether the soil leaching pathway is significant (or not). Actual groundwater data always trumps a soil leaching screening value. Since Ford is conducting a complete groundwater investigation at the Site, SLVs are not pertinent risk-based screening values at the Ford site."

b) MPCA WQS for exposure to surface water (human health via recreational use and aquatic life).

c) MPCA GW_{ISVs} will actually be going away in our pending revised guidance. It's OK to keep the bullet and discussion about GW_{ISVs} in this Report, but Section 5.5 should clearly convey that GW_{ISVs} are just a placeholder, and a comprehensive soil vapor investigation is planned for the Site at a later date.

12. Section 5.3 Minnesota Health-Based Guidance Values *(clarifications)*

a) Suggested change to subtitle: MDH Guidance Values for Groundwater
b) The perched groundwater present in the unconsolidated overburden and in the Platteville Limestone/Dolostone ~~are not potable groundwater sources~~ would not be used as a water supply due to its discontinuous nature and/or low yield; therefore…";
c) The St. Peter ~~Sandstone is a potential potable water supply~~ aquifer could potentially be used as a drinking water source; however…"

13. Section 5.5 Groundwater Intrusion Screening Values *(clarification)*

"GW_{ISVs} are screening values developed by the MPCA as a tool for identifying areas where concentrations of volatile compounds in shallow or perched groundwater have the potential to create vapor intrusion concerns in overlying or nearby structures. GW_{ISVs} are not meant to take the place of a soil vapor investigation, but rather to help focus data collection efforts on areas that are most likely to represent a worst-case scenario. ~~There are currently no existing permanent structures on-site; however, in anticipation of site redevelopment, GWISVs will be used as the primary criteria for screening groundwater concentrations detected in the shallow overburden. Areas where~~

~~groundwater concentrations exceed the GWISVs will be evaluated for additional~~ Ford intends to conduct a soil gas investigation at the Site ~~prior to or concurrent with any remediation and/or redevelopment activities,~~ prior to site redevelopment, in accordance with an MPCA-approved work plan. In the interim, GW_{ISVs} are used in this Report for a preliminary evaluation of potential soil vapor impacts."

14. Section 6.1.1 Chlorinated VOCs in Soils *(add detail)*

Please add more detail about the scope of the investigation and the type, concentration, and distribution of chlorinated solvents in soil:

- How many soil samples were analyzed for VOCs?
- Of those, how many soil samples had *detections* of chlorinated VOCs?
- Are chlorinated VOCs ubiquitous in soil or generally detected only in discrete areas or isolated scattered samples?
- Are they generally present at trace concentrations or at concentrations approaching the SRV? Given that the SRVs for chlorinated VOCs are quite high, saying "less than their respective residential SRV" isn't very descriptive of what has been identified at the site.
- Provide a brief description of any chlorinated VOC-impacted area identified during site decommissioning (areas with significant impacts, e.g. Worker Pit #1 and MAB Railroad Spur; not areas with just trace detections).
- Can any impacted area be tied to a particular source? It's not necessary or even possible to correlate every occurrence with a source, but in certain cases where the source is known or deemed likely, that would be good information to include in the text.

15. Section 6.1.2 Chlorinated VOCs in Groundwater *(add detail)*

Please add more detail about the scope of the investigation and the occurrence, concentration, and distribution of chlorinated solvents in the groundwater.

- Within each unit (overburden, Platteville, St. Peter), how many monitoring points have had groundwater samples analyzed for VOCs to date?
- Are chlorinated solvents ubiquitous in the groundwater or generally detected only in scattered samples or a discrete area?
- Is there a spatial correlation between detections in overburden perched groundwater and corresponding soil data from that localized area?
- For any given permanent monitoring well in which chlorinated solvents were detected, was it an isolated occurrence (AMW-03B) or consistent pattern of detections (AMW-3A, AMW-07)?
- If a particular chlorinated solvent has been consistently detected in a permanent well, what was the range of concentrations?
- There should be some acknowledgement in the text of the high method detection levels for chlorinated VOCs in laboratory samples that required dilution due to high concentrations of certain non-chlorinated VOCs.

Example suggested text:

Overburden Perched Groundwater:

Eighty-four (84) locations of perched groundwater in the overburden have been sampled for VOCs, including 10 permanent wells and 74 temporary wells. Of the 84 locations sampled, chlorinated solvents were detected in 13 samples. Seven of those samples contained chlorinated VOCs at only trace concentrations (e.g. < 1 ug/l). Slightly higher concentrations of chlorinated VOCs were present in the remaining six perched groundwater samples. The maximum concentration to date of PCE

detected in overburden perched groundwater was 14 ug/l; all other PCE detections were at trace concentrations (< 1 ug/l). The maximum concentration of TCE detected to date in overburden perched groundwater was 26 ug/l, followed by 9.6 ug/l and 2.4 ug/l. All other TCE detections were at trace concentrations (< 1 ug/l). See below for a summary of detections and likely sources.

- *ASB-036, ASB-037, and AMW-18 were installed in close proximity to each other in a former drum/hazardous waste storage area (Features 49 and 143). Each of these samples contained a low concentration of **1,1-DCA** (0.39 ug/l, 0.59 ug/l, and 1.2 ug/l, respectively).*
- *ASB-095, located at a former Dell Park Pit (Feature 100), contained **PCE** (0.79 ug/l), **TCE** (0.45 ug/l), **cis-1,2-DCE** (2.4 ug/l), **trans-1,2-DCE** (0.10 ug/l).*
- *ASB-209, located near a former oil/water separator (Feature 89), contained **TCE** (2.4 ug/l).*
- *ASB-212 , located near a former used oil AST (Feature 50) and former oil/water separator (Feature 89) contained **TCE** (0.76 ug/l) and **cis-1,2-DCE** (0.31 ug/l).*
- *ASB-215, located near a former pit at the north end of the Main Assembly Building (Feature 97), contained **TCE** (0.28 ug/l).*
- *ASB-234, located in the central part of the site in an area where several features are in close proximity, contained **PCE** (0.64 ug/l).*
- *ASB-0326W was not located near any defined feature. This sample contained **PCE** (14 ug/l) and **TCE** (0.3 ug/l).*
- *ASB-0626, located near a former hazardous waste storage building (Feature _), contained **PCE** (0.37 ug/l);*
- *ASB-0904, located near a former pit (Feature 97), contained **TCE** (9.6 ug/l).*
- *ASB-0921 was not located near any defined feature. This sample contained **TCE** (26 ug/l), **cis-1,2-DCE** (2.3 ug/l) and **1,1-DCE** (1.3 ug/l).*
- *ASB-1110, located on the river parcel near a former tar decanter house (Feature 154), contained **cis-1,2-DCE** (0.5 ug/l).*

<Add a statement about any observed spatial correlation between chlorinated VOCs detected in soil and in overburden perched groundwater.>

It is worth noting that the laboratory's method detection limits (MDLs) for chlorinated VOCs were high in a number of overburden perched water samples, which might have masked the detection of chlorinated VOCs at those locations, if present. The high MDLs were associated with perched groundwater samples collected in areas where high concentrations of hydrocarbon solvents or petroleum-related VOCs required dilution of the laboratory sample. These samples were clustered in three general areas of the site: the north parking lot (petroleum release); a small area in the central portion of the site where a number of features converge, including but not limited to former petroleum USTs and ASTs; and near the former hydrocarbon solvent USTs just south of the former Paint Building."

Platteville Perched Groundwater

Eight permanent monitoring wells have been installed in the Platteville Formation. A trace concentration (<1 ug/l) of cis-1,2-DCE has been detected in AMW-03A during each of four sampling events. No chlorinated VOCs have been detected in the other seven Platteville monitoring wells.

St. Peter Sandstone

Four permanent monitoring wells have been installed through 2015 in the St. Peter Sandstone. One of these is on the main parcel (AMW-03B) and the other three wells are located on the river parcel. PCE has been detected in each well, although not consistently, and at low concentrations. The maximum concentration of PCE detected in a St. Peter monitoring well was 3.7

ug/l (AMW-05B), and this was an isolated occurrence; no PCE was detected in the other six groundwater samples collected from AMW-05B. Similarly, an isolated detection of PCE (3.2 ug/l) occurred in AMW-03B, with no PCE detected during the other four sampling events.

TCE has been consistently detected in AMW-07 at concentrations ranging from 0.43 ug/l to 2.9 ug/l. This well is located on the river parcel in the general area of the former coal gasification plant. TCE has also been detected in AMW-05 and AMW-05B, the northernmost monitoring wells on the river parcel. AMW-05, the shallower of the two nested wells, is often dry during sampling events; however, a temporarily higher water table after the June 2014 flood event allowed samples to be collected from this well in July, August, and September 2014. TCE was detected during the first two sampling events at 15 ug/l and 3.2 ug/l, respectively. TCE was not detected during the September sampling event. Of the seven samples collected from AMW-05B, a trace concentration (<1 ug/l) of TCE was detected during one sampling event.

In summary, chlorinated VOCs do not appear to be a significant contaminant of concern in groundwater at the Site. Of the 22 permanent monitoring wells which have been sampled to date for VOCs, chlorinated VOCs have been detected in six of the wells. Of the 74 temporary wells which have been sampled for VOCs, chlorinated solvents were detected in 12 wells. While a few groundwater samples have exceeded the HRL for PCE or TCE, such impacts appear to be isolated, and there are no drinking water receptors. No chlorinated VOCs detected to date in the St. Peter aquifer, which discharges to the Mississippi River, exceed the MPCA's Class 2B surface water criteria.

16. ***Section 6.2.1 Non-chlorinated VOCs in Soil*** *(add detail)*
    a) For context, mention that two of the impacted areas appear to be associated with a petroleum release (North Parking Area and, most likely, East of the Main Assembly Building) and two of the areas appear to be related to the storage or disposal of hydrocarbon solvents.

    b) Briefly mention any significant non-chlorinated VOC-impacted areas identified during site decommissioning.

17. ***Section 6.2.2 Non-chlorinated VOCs in Groundwater*** *(clarification)*
    Please use this section to compare and evaluate groundwater data relative to the MDH groundwater guidance values discussed in Section 5.3 and the MPCA Class 2B surface water standards discussed in Section 5.4. Refer to the discussion points noted above for Section 6.1.2 for format and certain details to be included in the discussion (some but not all of the questions are already addressed in the text).

18. ***Soil Vapor*** *(new section; move applicable text here from Section 6.2.2)*
    Mention that soil vapor samples have not yet been collected at the Site, but a soil vapor investigation will be conducted prior to redevelopment activities. In the interim, this report uses the MPCA's GW_{ISVs} for a preliminary evaluation of the areas most likely to have vapor impacts. Compare chlorinated and non-chlorinated VOCs to the GW_{ISVs}, identify likely culprits and anticipated worst-case areas. Mention that the pending soil vapor investigation will be broader than just the areas in which GW_{ISVs} are exceeded; GW_{ISVs} just help frame the issue.

19. ***Section 6.3.1 SVOCs in Soil*** *(add detail)*
    a) For those SVOCs that exceeded residential SRVs, what is the range in concentration within each impacted area? Is a particular contaminant present at a concentration just slightly or significantly above the residential SRV?

b) Please expand the evaluation of SVOC results in the vicinity of the former coal gasification plant. Were exceedences associated with a particular depth interval(s)? How do the soil sample depth(s) compare to the former at-grade elevation when the former coal gasification plant was present? Include a reference to filling activities that occurred in that area sometime after demolition of the coal gasification plant - at what depth below current grade would one expect to see impacts from the former coal gasification plant? Or are the soil samples collected to date more representative of the fill material than a release from the former plant?
c) Mention the field screening of rail spurs that occurred during site decommissioning and any significant SVOC-impacted area(s) identified during decommissioning (rail beds or other).

20. Section 6.3.2 SVOCs in Groundwater *(clarification)*

Please use this section to compare and evaluate groundwater data relative to the MDH groundwater guidance values discussed in Section 5.3 and the MPCA Class 2B surface water standards discussed in Section 5.4. Refer to the discussion points noted above for Section 6.1.2 for format and certain details to be included in the discussion. Any reference to GW_{ISVs} can be moved to the new soil vapor section.

21. Section 6.4.1 Metals in Soil *(add context and detail)*

a) Soil in the baseball field area was addressed and resolved several years ago. Please provide context for the flagged exceedences of residential SRVs to put the issue into perspective. A site-specific risk assessment was conducted several years ago; the MPCA has no outstanding concerns in this area.
b) For each area described, provide additional detail on the nature of the release: which metals are the main offenders, and what is the range of concentrations for those metals? Have Toxicity Characteristic Leaching Procedure (TCLP) tests been conducted on any samples, and what were the results? Comment on the vertical extent of observed impacts.
c) Briefly mention any significant metals-impacted areas discovered during decommissioning;
d) Although site-specific background levels are yet to be determined, it would be appropriate to include in the text a professional opinion as to whether any particular set of exceedences (e.g. vanadium, selenium, manganese, barium) may be due to natural background concentrations as opposed to a release of contaminants. For the purpose of this Report, a summary statement is sufficient, just to serve as a placeholder for the more detailed discussion that will occur under separate cover.

22. Section 6.4.2 Metals in Groundwater *(clarification)*

No discussion is needed with respect to $GW_{ISVs.}$ Please focus solely on the MDH groundwater guidance values and the MPCA Class 2B surface water standards.

23. Section 6.8.2 Cyanide in Groundwater *(add detail)*

a) Delete mention of GW_{ISVs}.
b) What were the range and distribution of cyanide in the overburden perched groundwater?
c) A more meaningful locational reference for AMW-07 would be the former coal gasification plant, as opposed to the wastewater treatment plant.

24. Section 7.1 Summary of Screening Value Exceedances. *(clarification)*

Column heading: Change "Soil" to "Soil > Res SRVs"
Column heading: Change "Groundwater" to "Groundwater > MDH values or WQS.

25. New Tables

Table 5 - Soil Data - is so large (more than 700 pages) that it is somewhat cumbersome to track down details pertaining to a particular contaminant. Keep Table 5 as is – it is important to have all of the data in a comprehensive table – but for ease of reference, please add a data summary table for each contaminant group that presents *detections only* for VOCs and *exceedences only (of Res SRVs or petroleum criteria)* for other contaminant groups.

26. Table 1 (Summary of Investigation Activities)

Add a footnote indicating that three other pre-existing wells (MW-4, MW-5, and MW-6) are not included in the table - just so the number of wells (23) is consistent in different parts of the report.

27. Table 7 (Groundwater Analytical Results – Permanent Monitoring Wells)

a) Please add a row to the table header which identifies whether the well is screened/open in the overburden, Platteville, or St. Peter.
b) In late 2015, MDH changed the 0.4 ug/l value for TCE from a HBV to a HRL; please update the "Basis" column accordingly.

28. Figure 2

Label the streets that are mentioned in Section 2.0, first paragraph.

29. Figures 3 through 7 (Cross Sections)

a) Please use only one color to represent the overburden. Distinguishing between coarse-grained and fine-grained areas implies a degree of specificity that is not entirely realistic, given the nature of the overburden and soil disturbance over the years.
b) Please show on the figures the soil borings and monitoring wells used to construct the cross sections, and the stratigraphic and groundwater data associated with those vertical data points.
c) Show the water table (perched and regional, where applicable)

30. Figure 8

a) Add groundwater elevation data to each monitoring point used to develop the potentiometric map, and indicate in the legend the date on which that data was collected.
b) Add typical/approximate elevation of Mississippi River for the time period covered by the sampling event.

31. Figure 10 (Chlorinated VOC Soil Results)

a) Please distinguish between detections < Res SRVs (green) and non-detects (another color). Without this distinction, the figure implies that chlorinated VOCs were detected in every soil sample that was analyzed for VOCs, albeit at concentrations < Res SRVs.
b) If relatively few soil samples had detections of chlorinated VOCs, and if the data could be presented on Figure 10 without undue clutter, please include the data on the map.

32. Figure 11 (Chlorinated VOC Groundwater Results)

a) Please indicate by a new color those groundwater sampling locations in which chlorinated solvents have not been detected.
b) For those sampling points where chlorinated solvents have been detected, please include the data on the figure.

33. Figures 12 through 24:

a) Please indicate by a new color those sampling locations in which the contaminants in question were not detected (does not apply to metals).
b) For those sampling points where the contaminants have been detected above a risk-based screening value, please include the data on the figure.

34. New Figure

As a placeholder, include a site map that shows impacted areas discovered during site decommissioning activities.