ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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August 28, 2015

Claudia Macholz
Nicor Gas
1844 Ferry Road
Naperville, Illinois 60563

Re: 0990555005/LaSalle County
Mendota/Black Brothers Company
Site Remediation/Technical Reports

Dear Ms. Macholz:

The Illinois Environmental Protection Agency (Illinois EPA) has completed a review of the following documents, which were received on July 22, 2015 (Log No. 15-59991):

- July 2015 *Site Investigation Report / Remediation Objectives Report / Remedial Action Plan* (Volume I and Volume II); and
- May 2013 *Site Investigation Sampling Data* (Volume I and Volume II).

NOTE: The following additional documents were received by the Illinois EPA on July 22, 2015 (Log No. 15-59991) related to adjacent off-site property: (1) April 2015 *Offsite Summary Report*; and (2) May 2013 *Supplemental Site Investigation Sampling Data*. The Illinois EPA will provide a separate response letter for these reports.

The subject documents, summited by Burns & McDonnell Engineering Company, Inc. on behalf of Nicor Gas, are approved with the following comments and conditions:

1. The boundaries of the remediation site have been enlarged based on the migration of manufactured gas plant (MGP)-related impacts from the former MGP footprint onto the adjacent Black Brothers Company property to the east and south. The revised remediation site boundaries are depicted on Figure 15. As a result, please address the following:

   - Please provide the size (acres) of the remediation site depicted on Figure 15.
   - Please provide a legal description of the remediation site depicted on Figure 15.
   - Please verify all PINs for the remediation site depicted on Figure 15.

2. Based on the information provided in the subject documents, the visual extent of MGP-related impacts has been adequately characterized to the east and south of the former MGP footprint for the purposes of remedial planning; the lateral extent of impact is defined by the revised remediation site boundaries, as stated above.

3. MGP-related impacts that have migrated off-site to the west and north will be addressed through separate investigation/reporting and remediation.

4. Page ES-2 states that based on the site's current conditions and industrial/commercial use, there is no current indoor inhalation exposure. The rationale for this conclusion is further discussed on Page 5-9 in Section 5.7.2.3. Although it is acknowledged that the on-site building (vehicle parking garage) does not appear to meet the definition of a habitable structure, the indoor inhalation exposure route cannot be excluded from further evaluation at this time based on information/data provided in the subject documents, as further discussed below.

5. Section 2.5.2: Analytical results from a few soil probes in addition to temporary wells were used to establish a reduced list of constituents to be analyzed in soil gas. However, based on impacts observed throughout the entire site, all of the focused chemicals of concern (COCs) identified on the "DRM-1" form that are also listed in 35 Illinois Administrative Code (35 IAC) 742, Appendix A, Table J (list of volatile chemicals for indoor inhalation exposure route) should be analyzed in each soil gas or groundwater sample - if post-remediation soil gas and/or groundwater samples are collected/used to evaluate the indoor inhalation exposure route. This list includes benzene, toluene, ethylbenzene, xylenes (BTEX); styrene; mercury; 2-methlynaphthalene; naphthalene; and phenol.

6. Section 2.5.4: Page 2-9 states that the subsurface soil gas probes installed beneath the building were screened from 3.25 to 3.75 feet below *ground surface* (bgs). However, soil gas samples should have been collected from a depth of at least three feet below the *building foundation* (including sub-base materials). As a result, the two samples are considered "sub-slab" soil gas samples; use of sub-slab soil gas sampling data to evaluate the indoor inhalation exposure route is considered a Tier 3 Evaluation.

7. Section 2.5.5: Two sub-slab soil gas probes were also installed beneath the subject building's concrete floor slab (offset locations). As stated above, use of sub-slab soil gas sampling data to evaluate the indoor inhalation exposure route is considered a Tier 3 Evaluation.

8. In summary, the indoor inhalation exposure route cannot be excluded from further evaluation based on the information provided in the subject documents. The Illinois EPA acknowledges that further evaluation of the indoor inhalation exposure route will be completed to establish remediation objectives for indoor inhalation constituents of concern prior to conducting post-remediation sampling. Comments 4-7 above should be considered as this pathway is further evaluated.

9. In regards to groundwater, the following comments were generated based on a review of Sections 3.2.2 and 3.2.3:

   a. Since the sand unit(s) beneath the site would serve as a preferential migration pathway, the following hydraulic conductivity value of the sand unit ("sand unit 2") should be used for fate/transport calculations and modeling: 1.70×10^{-3} cm/sec.

   b. Groundwater beneath the site is most appropriately categorized as a Class I resource based mainly on the presence of sand ("sand unit 3") that is five feet or more in thickness and also based on the above-referenced hydraulic conductivity value of 1.70×10^{-3} cm/sec for sand unit 2 (no hydraulic conductivity results are available for sand unit 3). In addition, there is no substantial evidence that shallow groundwater within more impermeable (upper) units is totally disconnected from deeper groundwater within the sand. As a result, groundwater within the upper and lower units is considered the same hydrogeologic unit. Although groundwater may be present within ten feet bgs, the hydrogeologic unit extends to a depth of greater than ten feet bgs. It is unrealistic to designate two distinct classes of groundwater within the same hydrogeologic unit.

   c. The Class II groundwater classification presented in Section 3.2.3 cannot be approved. Future reports should be developed based on Class I groundwater remediation objectives.

10. Sections 4.2.1.4 and 4.2.2.4: These sections state that *select* "SPLP" metals were analyzed in surface and subsurface samples. Please provide the rationale for the locations that were selected for the SPLP metals analyses. Similarly, "TCLP" metals were analyzed at various locations; please provide the rationale for the locations that were selected for the TCLP metals analyses. TCLP lead should have been analyzed at boring SB21 (maximum lead concentration of 23,000 mg/kg at 2.2-3.0 feet bgs). Regardless, excavation of contaminated soil is planned for the entire site from depths between 6-28 feet bgs. Confirmation soil sampling should include analysis of all RCRA metals (totals) in *each* confirmation sample; additional SPLP and/or TCLP analyses for metals may be warranted based on the results.

11. Sections 4.2.1.6 and 4.2.6: These sections state that *select* surface samples were tested for pH. Confirmation soil sampling should include pH analysis in *each* confirmation sample if pH-based remediation objectives for inorganic parameters are used for evaluation of the soil migration to groundwater exposure route. Average pH values or pH ranges (as discussed on Page 5-5 in Section 5.6.1) cannot be used for this comparison; discrete values are required.

12. Section 4.2.3.4: At this time, the Illinois EPA cannot verify that the groundwater plume is stable and not expanding based on the information provided in the subject documents.

13. Sections 4.3.1, 4.3.2, and 4.3.3: Based on chemical analysis (focused list of parameters identified on DRM-1 form) at soil gas sampling locations (including sub-slab locations) and temporary well locations, the indoor inhalation exposure route volatile chemicals have been reduced to three COCs. However, a reduced list cannot be approved. Please refer to Comments 4-8 above.

14. Section 5.6: As discussed in Comment 9 above, groundwater beneath the site is most appropriately categorized as a Class I resource, although it is unnecessary to revise the subject documents since post-remediation groundwater monitoring will be performed. However, future reports should be developed based on Class I groundwater remediation objectives. Additionally, a reduced list of COCs (Table 37) cannot be approved; *all* of the focused COCs identified on the DRM-1 form should be analyzed in each groundwater sample during post-remediation groundwater monitoring.

15. Sections 5.6: Average pH values or pH ranges (as discussed on Pages 5-5 and 5-6) cannot be used for this comparison; discrete values are required. The soil migration to groundwater ingestion exposure route should be re-evaluated based on post-remediation confirmation soil sampling results (revisions to the subject documents are unnecessary). Additionally, a reduced list of COCs (Table 36) cannot be approved; *all* of the focused COCs identified on the DRM-1 form should be analyzed in each post-remediation confirmation soil sample.

16. Section 5.7: In regards to the endangerment assessment provided for the indoor inhalation exposure route evaluation, please refer to Comments 4-8 and 13 above.

17. Section 6.0: The Illinois EPA agrees that the objectives of the focused site investigation activities have been achieved and that the extent of contamination is adequately characterized for remedial planning within the defined remediation site boundary depicted on Figure 15, which includes the footprint of the former MGP and additional Black Brothers property to the south and east. MGP-related impacts that have migrated off-site to the west and north will be addressed through separate investigation/reporting and remediation, as stated in Section 6.3.

18. Section 6.0: As discussed herein, the Illinois EPA does not concur with eliminating any COCs at this time for any exposure route. As a result, the reduced lists presented on Tables 36, 37, and 38 cannot be approved. *All* of the focused COCs identified on the DRM-1 form should be analyzed subsequent to remediation. It should be noted that constituents detected above applicable soil, groundwater, or soil gas remediation objectives are considered COCs, as opposed to *potential* COCs (refer to Section 6.2 and Tables 36, 37, 38, and Section 8.0).

19. Section 7.1: The site-specific values for fraction of organic carbon (f_{oc}) found on Page 7-2 have been verified by the Illinois EPA and are acceptable remediation objectives.

20. Section 7.2: The site-specific soil saturation limit (C_{sat}) values have also been verified by the Illinois EPA and are acceptable remediation objectives (refer to Appendix L and Tables 40 and 41).

21. Section 7.7: As stated, 33 source material locations were identified based on visual impacts and/or comparison of sampling results to the "TACO" criteria (site-specific values for f_{oc} and C_{sat}).

22. Section 8.0: It is acknowledged that residential remediation objectives are applicable for the site. This section of the report provides a summary of the COCs for each exposure route, excluding the soil indoor inhalation exposure route, based on depth intervals. In regards to Section 8.3 (groundwater ingestion exposure route), please refer to Comments 9, 12, and 14 above.

23. Section 9.0: The proposed Tier 3 remediation objective of 1.48 mg/kg for total mercury for evaluation of the construction worker (outdoor) inhalation route is acceptable.

24. Section 10.0: In regards to the soil migration to groundwater and groundwater ingestion exposure routes, please refer to Comments 9, 12, and 14 above. In addition, the approaches in Section 10.5.1 and 10.5.2 must be presented under Tier 3 (35 IAC 742.925) for further consideration. Finally, it has not been demonstrated that the Class I groundwater ingestion exposure route (including the soil migration to groundwater exposure route) or the groundwater to surface water exposure route can be excluded from further consideration at this time. These pathways should be re-evaluated subsequent to remediation.

25. Section 11.0: Specific measures to be taken to *achieve the remediation objectives* are listed in Section 11.0. However, the Illinois EPA does not agree with the reduced lists of COCs (i.e. proposed remediation objectives) presented on Tables 67 and 68. Revisions to the remedial approach and confirmation sampling plan are required.

26. Section 12.0: Remedial activities generally include excavation and off-site disposal of contaminated soil, backfilling and site restoration. However, throughout this section of the report, references are made to "applicable remediation objectives" and reduced lists of COCs (as related to confirmation sampling). Revisions to the remedial approach and confirmation sampling plan are required. Refer to Comment 18 above.

27. Section 12.6: If a statistical averaging approach is used, averages and upper confidence limits (UCLs) on the mean should also be calculated from the surface through the subsurface (below 10 feet bgs). For each data set, there must be a minimum of eight to ten samples for each chemical for which the UCL is being calculated. The number of non-detect values cannot exceed 15% in the data set for the chemical for which the UCL is being calculated. Averaging is not allowed for the construction worker exposure route.

28. Section 12.6: Post-remediation monitoring wells should be screened below the deepest excavation limits (i.e. below the backfill) in native materials - preferably in more permeable layers (sand). Refer to Comment 14 above for groundwater sampling requirements.

29. Imported soil must be clean; soil samples from each source location should be sampled for the Target Compound List (35 IAC 740, Appendix A, Tables A-D) at a rate of one sample per 500 cubic yards of imported soil. The results must be below residential remediation objectives. If the material to be used is from a quarry where there is no possible contamination of the backfill source (virgin material), then sampling is not required. However, documentation should be provided to the Illinois EPA on the source of the backfill.

Please provide a detailed response to this letter prior to implementation of the Remedial Action Plan.

All future submittals to the Site Remediation Program should include one original and one copy of each document and a DRM-2 form.

If you have questions, please contact me at (217) 785-8724 or by e-mail at Jeff.Guy@illinois.gov.

Sincerely,

Jeffrey J. Guy, Project Manager
Voluntary Site Remediation Unit
Remedial Project Management Section
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o and

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