



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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February 8, 2012

Mr. Matt Keiser
Director of Engineering and Development
Town of Porter
303 Franklin Street
Porter, Indiana 46304

Re: **Further Site Investigation Request**
Former Brickyard Property
Sexton Avenue and Lincoln Street
Porter, Porter County
State Cleanup Site # 0000-00-352

Dear Mr. Keiser:

The Indiana Department of Environmental Management (IDEM) has reviewed the file pertaining to a release of hazardous substances at the former Brickyard Property located at the corner of Sexton Avenue and Lincoln Street in Porter, Indiana (Site) in accordance with IDEM's *Risk Integrated System of Closure (RISC) Technical Resource Guidance Document*, February 2001. Specifically, the *Response to Request for Further Site Investigation (Response Letter)*, dated December 19, 2011 and prepared by Weaver Boos Consultants, LLC (Weaver Boos) was reviewed.

As a result of our review, IDEM has determined that additional Site investigation activities must be conducted in order to fully delineate the extent of soil and ground water contamination in accordance with Indiana Code (IC) 13-25-4. Guidance on how to characterize the nature and extent of the contamination can be found in IDEM's *RISC Technical Resource Guidance Document*. The RISC guidance documents are available online at www.in.gov/idem/4153.htm.

Listed below are General Comments which must be addressed in the Further Site Investigation (FSI) Report.

Site Review

The Site is currently an unimproved, forested 24-acre parcel located northwest of Sexton Avenue and Lincoln Street in Porter, Indiana. Chicago Hydraulic Press Brick Company developed and operated a brickyard on the Site from the late 1880's until 1925, when on-site and nearby clay sources were exhausted. During its operation, the plant used steam powered hydraulics to press the clay into bricks for baking in one of several on-site kilns. Historical maps show structures located across the central and southern portions of the Site. The earliest Sanborn Maps available for the property (1893) show a New York Central railroad line bordering to the south. A series of railroad spur lines are shown from the tracks at the southeast corner of the property leading from the main line to the manufacturing area north of the kilns in 1893; these spurs are not on the property in the 1991 aerial photograph.

Weaver Boos identified historical oil tanks on the property in two previous environmental assessments. Previous investigations found surface soil contamination of total petroleum hydrocarbons – extended range organics (TPH-ERO), carcinogenic polyaromatic hydrocarbons (PAHs) and metals (lead and arsenic) located along the south side of the property. The surface contamination found at soil boring WB-2 (0 to 1 feet) appears to be associated with a layer of fill (reportedly comprised of combustion products such as cinders/ash/soot) located along a historic railroad embankment. Weaver Boos noted that soil arsenic levels in northwest Indiana are reported to range from 1 to 13 milligrams per kilogram (mg/kg); therefore, elevated arsenic levels may be linked to the geology of the area, cinder fill, or possibly from lead-arsenic containing pesticides/herbicides that were historically used along the railroad right of way.

During the 2009 and July 7 and 8, 2011 investigations, subsurface (12 to 28 feet) soil and ground water (temporary wells based on reported regional ground water direction flow) were evaluated with a total of 26 soil borings at various locations. Weaver Boos states that soil up to a depth of five feet may be excavated during proposed construction of recreational facilities. Ground water was reportedly encountered at approximately 20 feet below the surface. With the exception of total lead from one boring located in the northwest corner of the property, the 2011 ground water samples did not contain significant levels of metals (total and dissolved arsenic and lead) or PAHs that were reportedly found in soil. Significant levels of dissolved lead and arsenic were not found in ground water. In addition, the ground water samples obtained in 2009 did not contain significant levels of volatile organic compounds (VOCs). Municipal water is supplied to the majority of the Town of Porter residents. Some areas are still served by private wells.

Based on a minimum number of soil samples containing indicator compounds [benzo(a) pyrene, total arsenic and total lead] and computer modeling contour intervals, contamination exceeding the RISC residential default closure levels (RDCLs) and RISC industrial default closure levels (IDCLs) appears to be confined mainly to the southern portion of the Site where historic transportation and industrial activities reportedly occurred.

The evaluation of several potential remedial alternatives indicates that the implementation of any remedial actions will depend on the future use(s) of the property; namely recreational, industrial/commercial and/or residential usage. Weaver Boos recommended additional sampling, specifically along the boundaries separating impacted and apparent non-impacted areas, in an effort to more accurately delineate the contamination present at the Site.

In the November 28, 2011 *Further Site Investigation Request* letter, IDEM requested that further site investigation activities be conducted as proposed by Weaver Boos. Further, IDEM requested that surface soil be analyzed, ground water monitoring wells be installed and a risk assessment be conducted.

General Comments

1. IDEM requested that additional soil samples be collected. The data collected by Weaver Boos relies on only 25 sample locations and a kriging analysis to characterize the 24-acre Site and to scope remediation plans and cost estimates. Weaver Boos agrees that additional soil sampling will be useful to characterize the Site and refine the kriging analysis, but that it is not practical until redevelopment plans are established. This seems reasonable; however, confidence in the results and projections presented in the Weaver Boos' *Phase II Environmental Site Assessment* report, September 2011, (Phase II) are limited due to the small sample size relative to the size of the property. The Town of Porter is relying on vertical and horizontal soil contamination estimations

and projected remedial cost estimates based on the kriging analysis. Therefore, it is valid to question whether the assumptions for kriging are met, and if there is sufficient statistical power in the analysis. Generally, the desired statistical power is set during the sampling design phase to determine the number of samples required so there is sufficient confidence to rely on the results. Refined contaminant delineation will result in better remedial cost projections and will aid in determining future land use decisions. Additional samples will also help in evaluating risk.

2. In Weaver Boos' opinion, extensive grade modifications will be necessary at the Site prior to any redevelopment and reuse. A reasonable case was presented for the use of a five foot "surface" sample interval during remediation and/or redevelopment. Screening and closure levels for residential uses are typically evaluated from surface soil (0 to 6 inches below grade). Historic mining of subsurface clay resources at the Site have resulted in a disturbed surface topography. Weaver Boos is not clear if planned grade modification will occur before future uses are determined. Soil that remains at or near the existing surface has the potential to result in direct exposure under current or future land use, and should be evaluated for direct contact exposure. Ultimately, it must be demonstrated that planned grade modifications will not result in a completed exposure pathway with unacceptable risk. Since future Site uses are not determined, default residential closure levels apply to the entire property.
3. In regards to the need for a risk assessment, Weaver Boos states that future land uses for the property have not been determined. However, newspaper articles from the Chesterton Tribune (Poparad, 2010 and 2011) report the town Redevelopment Commission purchased the former Brickyard to redevelop it as an extension of Porter's downtown, with new single-family, townhome and neighborhood commercial uses anchored by a central senior-living complex; a new town fire station and other possible municipal uses are also under consideration. Weaver Boos notes that an industrial usage and a trail head (for the Porter Brickyard Trail that connects the Site to the Indiana Dunes National Lakeshore) are under consideration. In other portions of the Response Letter (Comment # 6 and Conclusion), Weaver Boos states that future uses are unknown since current economic conditions make it difficult to predict how the land will be redeveloped. It is not possible to assess potential risks arising from unknown activities/land uses. Maintaining maximum flexibility in future land use options will require showing that the Site is acceptable for residential use.
4. Given the findings presented in the Phase II report, IDEM agreed that the contaminants of concern for the Site (arsenic, lead, benzo-a-pyrene and dibenzo(a,h)anthracene) appear to be concentrated in the southern third of the property and are related to the former Brickyard manufacturing activities. IDEM suggested that the Town of Porter prepare a development plan for the Site that considered these conditions when planning for future uses by sub-area. For example, single family residential use, while not precluded, may be more challenging to implement in the southern third of the property (footprint of the former brick manufacturing and rail spur), given the current understanding of Site conditions. Current default residential and commercial/industrial closure levels for arsenic in soil are 3.9 mg/kg and 5.8 mg/kg, respectively. Current default recreational residential and commercial/industrial closure levels for arsenic are 13 mg/kg and 20 mg/kg, respectively. Please note that the pending IDEM Remediation Closure Guide (RCG) does not publish closure levels. Pending RCG soil direct contact screening levels for residential and commercial/industrial use for arsenic are 5.5 mg/kg and 16 mg/kg, respectively. Pending recreational direct contact screening levels for arsenic for a paved trail, athletic field and community park are 300 mg/kg, 70 mg/kg and 30 mg/kg, respectively (IDEM, 2012). The Town of Porter could use a site-specific human health risk assessment to derive closure levels that are

protective of human health and the environment; alternately, the default closure levels can be applied. Until future land use is determined, it is premature to evaluate and calculate risk.

5. Weaver Boos opposes the installation of permanent ground water monitoring wells based on the claim that the PAHs detected in the soil samples (benzo(a)pyrene and dibenz(a,h)anthracene) only “marginally” exceed the “relevant” background levels calculated by the Illinois Environmental Protection Agency (EPA) for metropolitan areas. Illinois calculated numbers are not relevant to Indiana sites. Use of these must cease immediately; they do not apply. Further, the Illinois values for benzo(a)pyrene are over four times the RISC RDCL for soil direct contact. The arguments made by Weaver Boos in opposition to the installation of permanent ground water monitoring wells are not acceptable to IDEM.
6. Grab ground water samples were previously collected and analyzed for arsenic (total and dissolved), lead (total and dissolved) and PAHs. Total lead in one sample exceeded the RISC RDCL, however, permanent ground water monitoring wells have not been installed at the Site. Ground water monitoring wells must still be installed based on the high levels of PAHs observed in the soil samples and to account for possible seasonal variations in contaminant concentrations. Ground water analytical data collected from permanent monitoring wells will be more accurate and more reliable than analytical data from grab ground water samples.
7. Weaver Boos proposes the use of an environmental restrictive covenant (ERC) as a more cost effective way of mitigating concerns about ground water contamination at the Site. Please note that an ERC does not negate the need for proper Site investigation and characterization. An ERC cannot be appropriately written without a full understanding of the contamination present at the Site. Permanent ground water monitoring wells still need to be installed and sampled for a minimum of four consecutive quarters to gain more accurate ground water data and account for possible seasonal variations in contaminant concentrations.

Conclusions

Weaver Boos states that it is not practical to conduct further Site investigation until future land uses are determined. Additional delineation is necessary to define contaminant boundaries and will also aid in the determination of projected remedial costs and future land use decisions. Permanent ground water monitoring wells must still be installed to obtain representative ground water samples and to account for possible seasonal variations in contaminant concentrations. Further, it must be demonstrated that planned grade modifications result in surface soil contaminant levels that are protective of human health for the intended use of a given area. Since future Site uses have not been determined, default residential screening and closure levels apply to the entire property. It may be beneficial to schedule a meeting or conference call between the Town of Porter, Weaver Boos and IDEM to further discuss how to proceed with additional Site investigation, risk assessment and potential Site redevelopment.

The FSI Report, including additional risk assessment information, should be submitted to IDEM within 60 days from the date of this correspondence to the address below. Reports should be submitted in accordance with the document submittal guidelines found online at: www.in.gov/idem/6578.htm. Additionally, IDEM should be provided a minimum of one week advance notice for field activities.

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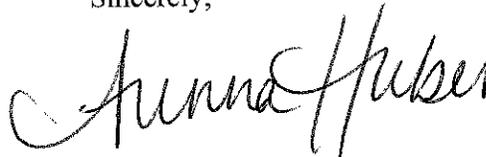
MC 66-30 (1370)
Indiana Department of Environmental Management
Office of Land Quality
State Cleanup Section, Attn: Aunna Huber
100 N. Senate Ave., IGCN, Room 1101
Indianapolis, IN 46204-2251

Failure to provide this information in a timely and complete manner may subject you to civil penalties, pursuant to IC 13-30-4-1.

Please note that under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Indiana Hazardous Substances Response Trust Fund (HSRTF) law, an owner, operator or responsible person is liable to reimburse IDEM for costs of response or remediation incurred by the State during this project (IC 13-25-4-8). Personnel costs that IDEM will seek to recover may include reimbursement for time spent on document reviews by technical and legal staff, site visits, meetings, telephone calls, the issuance of comment letters and validation of quality assurance/quality control documentation.

If you have any questions or comments concerning this matter, please contact me at (317) 234-5310 or ahuber@idem.in.gov. If you would like to provide feedback on our job performance, please go to www.in.gov/idem/5681.htm and complete our "Remediation Program Customer Satisfaction Survey". Your responses are anonymous and we appreciate the feedback on what we are doing well, and what we need to improve.

Sincerely,



Aunna Huber, Project Manager
State Cleanup Section
Office of Land Quality

AH:sb

cc: State Cleanup File # 0000-00-352
Steve Stanford, Weaver Boos, via electronic mail
Aaron Aldred, IDEM Geological Services, via electronic mail
Allyn DeLong, IDEM Chemistry Services, via electronic mail
Eileen Hack, IDEM Risk Services, via electronic mail

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References

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http://www.chestertontribune.com/Town%20of%20Porter/1124103%20state_picks_contractor_for_po rte.htm