

April 23, 2014

Ms. Lynn Dittmer  
Metropolitan Area Planning Agency  
2222 Cuming Street  
Omaha, NE 68102

**Re: South Omaha Brownfields Coalition Assessment Grant  
Phase II ESA Report  
Former Omaha Cold Storage Facility  
5025 South 33<sup>rd</sup> Street, Omaha, NE**

Attention Ms. Dittmer:

The purpose of this letter is to summarize the Phase II Environmental Site Assessment (ESA) sampling activities that were performed by Alfred Benesch & Company (Benesch) at the Former Omaha Cold Storage Facility redevelopment site located at 5025 South 33<sup>rd</sup> Street, Omaha. The site encompasses approximately 5.53 acres and includes a former cold storage building, guard shack, industrial equipment, electrical substation, parking, and other undeveloped areas. This Phase II ESA is being prepared for the Metropolitan Area Planning Agency (MAPA) and was conducted as part of the South Omaha Brownfields Coalition Assessment Grant being administered by MAPA. A Phase I ESA (Benesch, August 2013) was previously prepared for this redevelopment site. The Phase I ESA report identified *recognized environmental conditions* associated with the historical use of the property parcel as a meat packing and cold storage facility.

The activities conducted as part of the Phase II ESA included sub-surface soil, soil vapor and groundwater sampling, an asbestos survey and a lead based paint survey of all structures at the project site, and a wetland study. Field work was performed in general conformance with ASTM Standard E1903-11 for Phase II Environmental Site Assessments, the *Phase II Investigation Work Plan for the Former Omaha Cold Storage Facility at 5025 South 33<sup>rd</sup> Street, Omaha* (Benesch, 8/27/2013), the project and site specific QAPP, soil, soil vapor, groundwater, asbestos containing materials (ACM) SOPs, and Nebraska Department of Human Services (NDHHS) Title 178 Chapter 23 for lead based paint (LBP) sampling. A wetland study was not performed at the site.

Field work for the soil, soil vapor, and groundwater sampling was conducted from March 5 to 7, 2014 and March 18, 2014. Field work for the ACM survey was conducted on December 20, 2013 and December 30, 2013 while the LBP survey was conducted on January 7, 2014. Prior to field work, Benesch notified the Nebraska One Call System for utility locates and kept record of responses. The Phase II assessment project area is depicted on the attached Site Location Map (Figures 1 and 2).

## Field Activities

### *Soil Sampling*

Benesch advanced seventeen (17) borings, B-1 through B-17, around the main building, including the waste oil drum storage area along the rear loading dock, the surface staining observed near the compressors by the engine room entrance, the equipment area at the northeast corner of the main building, and near suspected waste water vaults or USTs; along the northern boundary of the facility; and the undeveloped portion of the property to the east including the abandoned rail lines and the area where the former waste water treatment plant was located. The boring locations are depicted on the attached Boring Location Diagram Map (Figure 3).

The project site borings were advanced in conformance with the Phase II Work Plan based on historic source areas, estimated contaminant migration, and parcel boundaries. All borings were generally placed in the location proposed in the IWP; however, B-13 was moved to assess the drum storage area, B-15 was moved to an area that could be easily accessed by the rig, and B-17 was moved further west to also assess the loading dock area at the end of the drive on the north side of the building. The objective of advancing borings at the project site is to assess the potential presence of soil, soil vapor and groundwater impacts resulting from the historic uses of the site and assist with redevelopment planning. The project site is slated for redevelopment as a commercial/industrial property.

The borings were installed using a track mounted Geoprobe unit operated by Detech, Inc. of Lawrence, KS. The samples were collected using Macro-Core samplers fitted with polyvinyl chloride (PVC) liners. With the exception of B-9, B-13, B-16, B-17, borings were advanced to a depth of 15' below ground surface (bgs). Borings B-9 and B-17 were advanced to approximately 7' bgs and 8' bgs, respectively before refusal was encountered. The Phase II Work Plan called for advancing boring B-13, former drum storage area where soil staining was observed, down to 30' bgs and collecting groundwater samples at this location. Two (2) additional groundwater samples were collected from borings B-6 and B-16. Boring B-16 was advanced to 20' bgs while groundwater was encountered at a depth of 15' bgs at B-6.

Composite samples were collected for field screening purposes from the 0-3', 3-7', 7-11' and 11-15' intervals. The composite soil samples were split into two aliquots with one aliquot placed in a glass jar, covered with aluminum foil and allowed to equilibrate at ambient temperature (minimum of 65 deg. F) for a minimum of 15 minutes. A headspace analysis of each equilibrated sample was conducted using a field photoionization detector (PID) equipped with a 10.7 eV bulb. The remaining aliquot was placed into one 4-ounce jar, sealed and packed on ice. Soil samples not selected for laboratory analysis were discarded.

Eight (8) soil samples with the highest PID responses – B-1 (11'-15'), B-2 (3'-7'), B-4 (2'-4'), B-7 (3'-7'), B-8 (3'-7'), B-14 (3'-7'), B-13 (0'-3'), and B-16 (3'-7') – were submitted for laboratory analysis of VOCs and TEH with EPA Method SW8250B and Iowa Method OA-2, respectively. Surface soil samples were also collected from the 0-6" interval from borings B-1, B-4, B-7, and B-8 for total lead analysis by EPA method 6010C. Two (2) additional samples, from the 0'-3' interval of B-2 and B-8, were submitted for Total RCRA metals plus mercury analysis with EPA Method 6010C/7471B. All samples were labeled, packed on ice, and submitted under chain of custody to Test America Laboratories in Cedar Falls, Iowa. The laboratory reports and chain of custody documentation is provided as an attachment to this report.

Fill material, including a mixture of crushed rock, sand, clay, gravel, brick, concrete and rubble was observed within the upper 1 to 4 feet of the project site borings. Some cinders or coal pieces were also observed within the upper 1 to 2 feet of the project site borings. Discolored soils (black and green) or slight odors indicative of petroleum contamination were only observed in B-10; however, PID readings were generally low in all of the soil samples. Boring logs for all project site borings advanced during field work are provided as an attachment to this report. All borings advanced at the project site were backfilled with hydrated bentonite chips upon completion, and the surface was generally restored to its original condition. Because low PID readings were observed at all borings, soil cuttings were not containerized and were left at the project site.

#### *Groundwater Sampling*

Groundwater samples were collected from borings B-6, B-13, and B-16. The holes would not stay open and the soils would not yield enough water to sample through the drill rods; therefore, pvc piping and screen was placed in the holes to collect the samples. Piping was set at 20' bgs in B-6, 30' bgs in B-13, and 15' bgs in B-16. Static groundwater levels were measured at 11.05', 12.6', and 6.7', respectively. The groundwater samples from borings B-6 and B-16 were analyzed for Total RCRA metals plus mercury using EPA Method 6010C/7471B, VOCs using EPA Method SW8260B, and total extractable hydrocarbons (TEH) using Iowa Method OA-2. The groundwater sample from boring B-13 was only analyzed for VOCs and TEH because the boring could not yield enough groundwater for all three analyses. All groundwater samples were labeled, packed on ice, and submitted under chain of custody to Test America Laboratories in Cedar Falls, Iowa. The laboratory reports and chain of custody documentation for groundwater sampling is provided as an attachment to this report.

#### *Soil Vapor Sampling*

Based on field screening results and field conditions, soil vapor points were installed in borings B-13, B-14 and B-16 to assess the soil vapor to enclosed space pathway. The vapor points were set at 6' bgs and vapor samples were collected using 1L SUMMA® canisters. Soil vapor samples were collected according to *Environmental Standard Operating Procedures for Soil Vapor Sampling* (Benesch). Once the samples were collected, the tubing was removed from the boring and the surface was restored to its original condition.

The vapor samples were labeled and submitted under chain of custody to Test America Laboratories in Knoxville, TN for full VOC analysis by EPA method TO-15. The rationale for vapor sampling locations is as follows: Boring B-13 is situated in the drum storage area, B-14 is located near the garage, and SB-16 is located along the north side of the building, near the sub-grade vault.

#### *Asbestos Survey*

Twenty three (23) suspect Asbestos Containing Material (ACM) were identified in the main building on site during the asbestos survey. A total of fifty three (53) samples were collected from these locations and submitted to SanAir Technologies Laboratory for ACM analysis to determine if any of these materials contain asbestos.

### Lead Based Paint Survey

Lead testing was performed on interior and exterior surfaces throughout the building utilizing a portable Innov-X Systems Alpha model (Serial #8829) X-ray Fluorescence (XRF) spectrum analyzer. Lead content of paint materials from walls, columns, beams, doors, door frame, piping, mechanical equipment, lockers, window frames, railings, and shelves were measured with the XRF. A total of one hundred seventy (171) measurements were taken during the lead based paint survey.

### Wetland Study

A small man-made potential wetland area exist in the southeast portion of the site. The Phase II work plan proposed that a wetland study be performed on this area and that a Jurisdictional Determination be secured from the U.S. Army Corps of Engineers. However, the wetland study was not completed during the Phase II investigation as the potential wetland is located away from the main building and traffic areas and wetland delineations are not covered by the EPA brownfield grant funding this project.

### Findings

The constituents detected in the soil, groundwater, and soil vapor samples are summarized in tables 1 – 3 together with their respective Nebraska Department of Environmental Quality (NDEQ) Remedial Goals (RGs) for residential and Industrial standards.

<b>TABLE 1</b> <b>Laboratory Detections for Soil Sampling</b> <b>&amp;</b> <b>NDEQ VCP Remedial Goals (RGs)</b>				
Boring	Constituent	Result	VCP Residential Standard	VCP Industrial Standard
B-2 (0-3')	Barium	264 mg/kg	3,800 mg/kg	100,000 mg/kg
B-2 (0-3')	Chromium	<b>15 mg/kg</b>	0.29 mg/kg	55 mg/kg
B-2 (0-3')	Lead	44.3 mg/kg	400 mg/kg	750 mg/kg
B-2 (0-3')	Mercury	0.0832 mg/kg	3.1 mg/kg	160 mg/kg
B-4 (2-4')	Methylene Chloride	<b>12.9 mg/kg</b>	12 mg/kg	620 mg/kg
B-4 (2-4')	TEH as gasoline	30.1 mg/kg	*	*
B-4 (2-4')	TEH as diesel	100 mg/kg	*	*
B-4 (2-4')	TEH as waste oil	268 mg/kg	*	*
B-7 (0-6")	Lead	81.7 mg/kg	400 mg/kg	750 mg/kg
B-8 (2-4')	Barium	249 mg/kg	3,800 mg/kg	100,000 mg/kg
B-8 (2-4')	Chromium	<b>15.6 mg/kg</b>	0.29 mg/kg	55 mg/kg
B-8 (2-4')	Mercury	0.0321 mg/kg	3.1 mg/kg	160 mg/kg
B-8 (3-7')	Methylene Chloride	<b>186 mg/kg</b>	12 mg/kg	620 mg/kg
B-8 (3-7')	TEH as gasoline	11.7 mg/kg	*	*
B-8 (3-7')	TEH as diesel	66.8 mg/kg	*	*

**Note:** Soil results and standards are in mg/kg.

\*The NDEQ has not established VCP standards for this constituent.

Items in bold denote VCP exceedance.

<b>TABLE 1 (cont'd)</b> <b>Laboratory Detections for Soil Sampling</b> <b>&amp;</b> <b>NDEQ VCP Remedial Goals (RGs)</b>				
Boring	Constituent	Result	VCP Residential Standard	VCP Industrial Standard
B-8 (3-7')	TEH as waste oil	443 mg/kg	*	*
B-13 (0-3')	TEH as gasoline	40.9 mg/kg	*	*
B-13 (0-3')	TEH as diesel	122 mg/kg	*	*
B-13 (0-3')	TEH as waste oil	231 mg/kg	*	*
B-16 (3-7')	TEH as diesel	17.9 mg/kg	*	*
B-16 (3-7')	TEH as waste oil	117 mg/kg	*	*

**Note:** Soil results and standards are in mg/kg.

\*The NDEQ has not established VCP standards for this constituent.

Items in bold denote VCP exceedance.

<b>TABLE 2</b> <b>Laboratory Detections for Groundwater Sampling</b> <b>&amp;</b> <b>NDEQ VCP Remedial Goals (RGs)</b>			
Boring	Constituent	Results	Direct Contact RG
B-6	Barium	77.9 µg/L	2,000 µg/L
B-6	Cadmium	<b>6.69 µg/L</b>	5 µg/L
B-6	Lead	5.12 µg/L	15 µg/L
B-6	TEH, total	691 µg/L	*
B-6	TEH as gasoline	367 µg/L	*
B-6	TEH as waste oil	324 µg/L	*
B-13	TEH, total	576 µg/L	*
B-13	TEH as waste oil	576 µg/L	*
B-16	Arsenic	5.92 µg/L	50 µg/L
B-16	Barium	154 µg/L	2,000 µg/L
B-16	Cadmium	0.908 µg/L	5 µg/L
B-16	Lead	11.5 µg/L	15 µg/L
B-16	TEH, total	480 µg/L	*
B-16	TEH as waste oil	480 µg/L	*

**Note:** Groundwater results and standards are in µg/L.

\*The NDEQ has not established VCP standards for this constituent.

Items in bold denote VCP exceedance.

<b>TABLE 3</b> <b>Laboratory Detections for Soil Vapor Sampling</b> <b>&amp;</b> <b>NDEQ VCP Remedial Goals (RGs)</b>				
Boring	Constituent	Result	VCP Residential Standard	VCP Industrial Standard
B-13	2,2,4-Trimethylpentane	4,500 µg/m <sup>3</sup>	*	*
B-13	Carbon Disulfide	8.9 µg/m <sup>3</sup>	9,040 µg/m <sup>3</sup>	708,000 µg/m <sup>3</sup>
B-13	n-Hexane	68 µg/m <sup>3</sup>	6,980 µg/m <sup>3</sup>	596,000 µg/m <sup>3</sup>
B-14	1,4-Dichlorobenzene	20 µg/m <sup>3</sup>	128 µg/m <sup>3</sup>	25,740 µg/m <sup>3</sup>
B-14	2,2,4-Trimethylpentane	5.1 µg/m <sup>3</sup>	*	*
B-14	2-Butanone (MEK)	15 µg/m <sup>3</sup>	49,900 µg/m <sup>3</sup>	4,260,000 µg/m <sup>3</sup>
B-14	Acetone	66 µg/m <sup>3</sup>	309,000 µg/m <sup>3</sup>	26,400,000 µg/m <sup>3</sup>
B-14	Benzene	8.7 µg/m <sup>3</sup>	139 µg/m <sup>3</sup>	25,600 µg/m <sup>3</sup>
B-14	Carbon Disulfide	14 µg/m <sup>3</sup>	6,980 µg/m <sup>3</sup>	596,000 µg/m <sup>3</sup>
B-14	Dichlorodifluoromethane	120 µg/m <sup>3</sup>	2,580 µg/m <sup>3</sup>	202,000 µg/m <sup>3</sup>
B-14	n-Hexane	13 µg/m <sup>3</sup>	6,980 µg/m <sup>3</sup>	596,000 µg/m <sup>3</sup>
B-14	Toluene	12 µg/m <sup>3</sup>	49,900 µg/m <sup>3</sup>	4,260,000 µg/m <sup>3</sup>
B-14	Trichlorofluoromethane	5 µg/m <sup>3</sup>	6,980 µg/m <sup>3</sup>	596,000 µg/m <sup>3</sup>
B-14	Methylene Chloride	4.3 µg/m <sup>3</sup>	2,300 µg/m <sup>3</sup>	508,000 µg/m <sup>3</sup>
B-16	1,4-Dichlorobenzene	30 µg/m <sup>3</sup>	128 µg/m <sup>3</sup>	25,740 µg/m <sup>3</sup>
B-16	2,2,4-Trimethylpentane	160 µg/m <sup>3</sup>	*	*
B-16	2-Butanone (MEK)	12 µg/m <sup>3</sup>	49,900 µg/m <sup>3</sup>	4,260,000 µg/m <sup>3</sup>
B-16	Acetone	64 µg/m <sup>3</sup>	309,000 µg/m <sup>3</sup>	26,400,000 µg/m <sup>3</sup>
B-16	Benzene	2.7 µg/m <sup>3</sup>	139 µg/m <sup>3</sup>	25,600 µg/m <sup>3</sup>
B-16	Carbon Disulfide	2 µg/m <sup>3</sup>	6,980 µg/m <sup>3</sup>	596,000 µg/m <sup>3</sup>
B-16	n-Hexane	4.3 µg/m <sup>3</sup>	6,980 µg/m <sup>3</sup>	596,000 µg/m <sup>3</sup>
B-16	Toluene	25 µg/m <sup>3</sup>	49,900 µg/m <sup>3</sup>	4,260,000 µg/m <sup>3</sup>
B-16	Trichlorofluoromethane	1.3 µg/m <sup>3</sup>	6,980 µg/m <sup>3</sup>	596,000 µg/m <sup>3</sup>

**Note:** Soil vapor results and standards are in µg/m<sup>3</sup>.

\*The NDEQ has not established VCP standards for this constituent.

Items in bold denote VCP exceedance.

### Soil

Barium and mercury were detected in soil borings B-2 and B-8. However, all of the barium and mercury concentrations were below their respective NDEQ RGs. Chromium was also detected in soil boring B-2 and B-8 at 15 mg/kg and 15.6 mg/kg, respectively. The chromium concentrations exceeded the residential RG of 0.29 mg/kg but was below the industrial standard of 55 mg/kg. One volatile organic compound – methylene chloride – was detected in soil borings B-4 and B-8 at 12.9 mg/kg and 186 mg/kg, respectively. The methylene chloride concentrations exceeded the residential RG of 12 mg/kg but was significantly lower than the industrial standard of 620 mg/kg. Observed concentrations of barium, chromium, mercury, and methylene chloride in project site soils are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Lead was detected in soil boring B-2 with a concentration of 44.3 mg/kg. The lead concentration was below the residential RG of 400 mg/kg. The low to non-detect lead concentrations in the soil samples indicate that the project site has not been impacted by contamination from the Omaha Lead Site (OLS), a USEPA NPL site related to the former Asarco lead smelting operation in downtown Omaha. Therefore, observed lead concentration in project site soils is not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Total extractable hydrocarbons (TEH) as gasoline, diesel, and waste oil were detected at low levels in soil borings B-4, B-8, and B-13. Note however that the NDEQ has not established residential or industrial standards for TEH in soils at VCP sites. In addition, the NDEQ standards for RBCA Tier I Site Assessments for petroleum sites in Nebraska do not include look up tables and values for TEH in soils at remedial action class three (RAC-3) sites, where there is no industrial or potable water use in the area. In summary, the presence of TEH in soils at B-4, B-8, and B-13 are generally considered of insignificant concentrations, and are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

The laboratory reports and chain of custody documentation for soil sampling is provided as an attachment to this report.

#### *Groundwater Sampling*

Arsenic, barium, cadmium, and lead were detected in groundwater samples B-6 and B-16. All of the concentrations of the metals detected in the groundwater were below their respective NDEQ RGs except for cadmium that was detected in B-6. The cadmium concentration detected in B-6 was 6.69 µg/L, slightly above the NDEQ RG for direct contact of 5 µg/L. Concentrations of cadmium above the NDEQ RG at B-6 and other metals detected in B-6 and B-16 are considered isolated and not widespread. Therefore, observed metal concentrations in project site's groundwater are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Total extractable hydrocarbons (TEH) as gasoline and waste oil were detected in all of the groundwater samples (B-6, B-13, and B-16). Note however that the NDEQ has not established residential or industrial direct contact or vapor intrusion (VI) standards for TEH in groundwater at VCP sites. In addition, the NDEQ standards for RBCA Tier I Site Assessments for petroleum sites in Nebraska do not include look up tables and values for TEH in groundwater at RAC-3 sites, where there is no industrial or potable water use in the area. In summary, the presence of TEH in groundwater at B-6, B-13, and B-16 is considered a generally minimal concentration and is not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

#### *Soil Vapor*

Three (3), eleven (11), and nine (9) VOC constituents were detected in the soil vapor samples collected from the project site at B-13, B-14, and B-16, respectively. Other than 2,2,4-trimethylpentane, where no RG was established by NDEQ, the laboratory concentrations of the rest of the VOC constituents detected were minimal and considerably lower than the NDEQ soil vapor VCP RGs for residential use and are not considered a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site. The laboratory reports and chain of custody documentation for soil vapor sampling is provided as an attachment to this report.

*Quality Assurance/Quality Control*

Duplicate samples for soil, soil vapor, and rinsate samples were collected for quality assurance and quality control (QA/QC) purposes and were submitted for the same analysis as the parent samples. These duplicate samples were submitted for analysis to assess the precision of the analysis and the variability of the media. Based on review of the duplicate sample data, all data can be relied upon for its intended purpose. Data validation sets are included as an attachment to this report.

*Summary of Laboratory Results for Constituents Exceeding the NDEQ VCP Remedial Goals*

Based on laboratory results, the following table provides information for the locations where soil samples exceeded the NDEQ VCP RGs.

<b>TABLE 4</b> <b>Laboratory Results for Soil, Groundwater, and Soil Vapor Sampling</b> <b>Sample Locations Exceeding NDEQ VCP Remediation Goals (RGs)</b>						
Boring	Media	Constituent	Result	Direct Contact RG	VCP Residential Standard	VCP Industrial Standard
B-2 (0-3')	Soil	Chromium	15.0 mg/kg	-	0.39 mg/kg	16 mg/kg
B-4 (2-4')	Soil	Methylene Chloride	12.9 mg/kg	-	12 mg/kg	620 mg/kg
B-8 (0-3')	Soil	Chromium	15.6 mg/kg	-	0.29 mg/kg	55 mg/kg
B-8 (3-7')	Soil	Methylene Chloride	186 mg/kg	-	12 mg/kg	620 mg/kg
B-6	Ground Water	Cadmium	6.69 µg/L	5 µ/L	-	-

*Asbestos Survey*

An asbestos survey was conducted to determine the presence of Asbestos Containing Material (ACM) within the project site structures. An asbestos containing material is defined by the State of Nebraska, EPA, and OSHA regulations as any material or product that contains more than 1% asbestos. ACM was found to be present in seven (7) locations within the structure. Please refer to the attached Asbestos Surveys for 5025 South 33<sup>rd</sup> Street, Omaha, Nebraska for additional details regarding the ACM survey.

Note that all the above described ACM, with the exception of the straight run piping insulation and pipe fitting insulation noted in the report, were observed to be non-friable and in generally good condition, and therefore, do not pose an immediate threat to human health. The friable ACM was observed to be in generally good condition, however, there were several areas along the overhead piping runs where the insulation had been disturbed and pieces of the insulation had fallen onto the floor. The friable ACM, specifically the material laying on the floor is considered an immediate threat to human health.

*Lead Based Paint Survey*

A lead based paint (LBP) survey was conducted to determine the presence of lead in the paints on the project site structures. A LBP is defined by the United States Department of Housing and Urban



Development (HUD) as a paint that contains lead in the amount of 5,000 parts per million (ppm) and/or 0.5% by weight. LBP was identified on the surface of eight areas from within the structure. If the painted site structures will be disturbed as part of the redevelopment of this site, a LBP abatement would be required. The LBP abatement shall be conducted as per Title 178 of the Nebraska Health and Human Services regulations and applicable Occupation Safety and Health Administration (OSHA) standards. Please refer to the attached Lead Based Paint Survey for *Omaha Cold Storage, 5025 South 33<sup>rd</sup> Street, Omaha, Nebraska* for additional details regarding the LBP survey.

#### *Wetland Study*

The Phase II work plan proposed that a wetland study be performed in accordance with 1987 Corps of Engineers (COE) Wetland Delineation Manual and the Midwest Region Regional Supplement to the COE Wetland Delineation Manual for wetland study. However, the wetland study was not completed during the Phase II investigation as the potential wetland on this site is located away from the main building and traffic areas and wetland delineations are not covered by the EPA brownfield grant funding this project.

A wetland study should be completed if any future development will be done in this area or if the area will be disturbed during building renovation or construction activities.

#### **Analysis and Recommendations**

Observed concentrations of barium and mercury in two locations were below the residential RG and concentrations of chromium and methylene chloride above the residential RG at two locations are considered isolated and not widespread. Therefore, observed concentrations of barium, chromium, mercury, and methylene chloride in project site soils are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Concentrations of lead were below the residential RG. Therefore, observed lead concentrations in project site soils are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Total extractable hydrocarbons (TEH) as gasoline, diesel, and waste oil diesel were detected in soil borings SB-4, SB-8, and SB-13. Note however that the NDEQ has not established residential or industrial standards for TEH in soils at VCP sites. In addition, the NDEQ standards for RBCA Tier I Site Assessments for petroleum sites in Nebraska do not include look up tables and values for TEH in soils at remedial action class three (RAC-3) sites, where there is no industrial or potable water use in the area. In summary, the presence of TEH in soils at B-4, B-8, and SB-13 are of generally insignificant concentrations, and not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Observed arsenic, barium, and lead concentrations in the groundwater were below the NDEQ RG for direct contact and the cadmium concentration that slightly exceeded the NDEQ RG is considered isolated and not widespread. Therefore, observed metal concentrations in project site's groundwater are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Total extractable hydrocarbons (TEH) as gasoline and waste oil were detected in all of the groundwater sample (B-6, B-13, and B-16). Note however that the NDEQ has not established residential or industrial

direct contact or vapor intrusion (VI) standards for TEH in groundwater at VCP sites. In addition, the NDEQ standards for RBCA Tier I Site Assessments for petroleum sites in Nebraska do not include look up tables and values for TEH in groundwater at RAC-3 sites, where there is no industrial or potable water use in the area. In summary, the presence of TEH in groundwater at B-6, B-13, and B-16 is considered a generally minimal concentration and is not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Concentrations of VOC constituents in the soil vapor were considerably lower than the residential RGs. Therefore, observed VOC concentrations in project site soil vapors are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Observed ACM in project structures is currently non-friable and in generally good condition, with the exception of the straight run piping insulation and pipe fitting insulation, and therefore, do not pose an immediate threat to human health. However, the friable materials are considered an immediate threat to human health, specifically the material that has fallen from the overhead piping runs onto the floor. It is recommended that prior to occupying the building, that the friable ACM be removed and disposed of according to Nebraska Asbestos Control Program Regulations and with proper notification provided to NDHHS and the City of Omaha. If the non-friable ACM materials will be disturbed during construction, renovation, or the structure demolition, such ACM should be removed and disposed of prior to such activities according to Nebraska Asbestos Control Program Regulations and with proper notification provided to NDHHS and the City of Omaha.

LBP on the project structures will need to be abated if the site structures will be renovated. If the LBP abatement is required, it should be removed in accordance with NDHHS Title 178 Chapter 23. In addition, all workers interacting with and/or disturbing materials in the building should be notified of the presence of lead and its locations.

With the exception of the ACM and LBP at the site as noted above, there are no concerns with respect to property liability and/or constructability concerns with redevelopment of the project site as a result of the findings of this Phase II ESA; therefore, no further assessment of this site is recommended. However, the condition of the soils encountered for this assessment may not be representative of the soils across the site. The potential exists that impacted soils or buried tanks or other waste may be encountered during excavation or redevelopment activities, and if encountered should be properly handled in accordance with all local, state and/or federal requirements.

If you have any questions regarding the conduct or conclusions of this assessment, please do not hesitate to contact either of the undersigned at (402) 333-5792.

Respectfully Submitted,



Chin Lim, P.E.  
Project Manager



Brian Fetti  
Project Scientist II

## Attachments:

- Figures
- Boring Logs
- Field Notes
- Lab Data
- Data Validation Sets
- ACM Survey
- LBP Survey

## Sources (not provided as an attachment; previously submitted or referenced in report):

ASTM International, *ASTM Standard E1903-11, Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process.*

Benesch, *Phase I ESA, Former Omaha Cold Storage Facility, 5025 S. 33<sup>rd</sup> Street, Omaha, NE, August 2013.*

Benesch, *Phase II Investigation Work Plan for the Former Omaha Cold Storage Facility, 5025 S. 33<sup>rd</sup> Street, 1, 8/27/13.*

Benesch, *QAPP Version 0, Brownfields Coalition Assessment Grant, MAPA, SORA, Omaha, NE, 5/21/12.*

Benesch, *QAPP Supplement 3, Brownfields Coalition Assessment Grant, MAPA, SORA, Omaha, NE, 8/27/2013.*

NDEQ, *Nebraska Voluntary Cleanup Program, VCP Remediation Goals (RGs), residential and industrial values (2012).*

USEPA Environmental Response Team, *Standard Operating Procedures, Soil Sampling, SOP 4230.03.*

USEPA Environmental Response Team, *Standard Operating Procedures, Groundwater Sampling, SOP 4230.07.*

Benesch, *Environmental Standard for Soil Vapor Sampling.*

NDHHS Title 178 Chapter 22- ACM Sampling.

NDHHS Title 178 Chapter 23- LBP Sampling.

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