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Our ref: HEM-11-25
Date: March 10, 2011

Subject: Response to Request for Additional Information on Decommissioning Plan Chapter 3, Site Description (License No. SNM-00033, Docket No. 070-00036)

Reference: 1) NRC (J. J. Hayes) letter to Westinghouse (E. K. Hackmann), dated February 9, 2011, "NRC Request for Additional Information From Westinghouse on Hematite Decommission Plan Chapter 3"

In Reference 1, the Nuclear Regulatory Commission (NRC) issued requests for additional information (RAIs) concerning Chapter 3 of the Westinghouse Electric Company LLC (Westinghouse) Hematite Decommissioning Plan. Responses to those RAIs are provided in Attachment 1 to the letter. The responses include an explanation of planned changes to the DP based on the responses. The actual changes to the DP will be provided under separate cover.

Please contact Mark Michelsen, Acting Licensing Manager of my staff at 314-810-3376 should you have questions or need any additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'E. Kurt Hackmann'.

E. Kurt Hackmann
Director, Hematite Decommissioning Project

Attachment: 1) Response to Request for Additional Information on Decommissioning Plan Chapter 3

cc: J. J. Hayes, NRC/FSME/DWMEP/DURLD
J. W. Smetanka, Westinghouse, w/o attachment
J. E. Tapp, NRC Region III/DNMS/MCID, w/o attachment

ATTACHMENT 1

Response to Request for Additional Information on Decommissioning Plan Chapter 3

**Westinghouse Electric Company LLC,
Hematite Decommissioning Project**

Docket No. 070-00036

Response to Request for Additional Information on Decommissioning Plan Chapter 3

NRC letter dated February 9, 2011, issued requests for additional information (RAIs) concerning the Westinghouse Hematite Decommissioning Plan (DP) that was submitted by Westinghouse letter dated August 12, 2009. Responses to those RAIs are provided below. Some of the responses will result in changes, as noted, to the DP. Those changes will be provided under separate cover.

These RAI responses are organized in the same manner as the RAIs of NRC letter dated February 9, 2011. For each RAI, the NRC's Comment and Path Forward is reiterated, followed by the Westinghouse Response.

Hematite Decommissioning Plan Chapter 3 - Site Description

1. (HDP-3-Q1) Comment: Figures 3-10 and 3-11 of the Decommissioning Plan (DP) provide the locations of monitoring wells. What type of well is RMC-9 in Figure 3-11 as the designation is not contained on pages 3-9 or 3-10?

Path Forward: Provide the well type associated with designation RMC-9.

Westinghouse Response

Monitoring well RMC-9 is a shallow overburden well and was installed in 1982 to a total depth of 25.8 feet below ground surface. The screen in the well extended from 15.8 to 25.8 feet below ground surface into the silty clay overburden. This information was provided in Westinghouse report EO-09-003, "Supplemental Analysis of Hydrogeologic Conditions in Overburden at Westinghouse Hematite Facility, Hematite, Missouri," dated July 2009, as submitted to NRC via Westinghouse letter HEM-09-133, dated November 10, 2009, "Hematite Decommissioning Plan References." Well RMC-9 was abandoned in accordance with Missouri Well Construction Rules (10 CSR 23-4.080) on August 28, 2009 to provide access for installation and future use of the rail car loading pad. The designation "RMC" is from the contractor that installed the well, Radiation Management Corporation. The well designations at Hematite (shown on DP pages 3-8 and 3-9) will be updated to include RMC, Radiation Management Corporation, for completeness.

2. (HDP-3-Q2) Comment: It has been observed that, in the vicinity the Hematite site, the hydraulic heads in the shallow clay overburden are the highest, with hydraulic head differences of 10 feet or more with respect to that in the deep overburden (including sand and sand gravel). Westinghouse postulates that "...the shallow groundwater represents a perched water table," and that the recharge at the Hematite site is from leaking pipes associated with the storm water, domestic and process water and waste transfer systems and this leakage could have contributed the anomalously high water table. If this is the case, it may have important implications on the understanding the radionuclide distribution in the groundwater and transport in the subsurface environment at the Hematite facility. Further information is needed to support this postulate.

(Pg 3-24)

Path Forward: Provide a detailed analysis to support the presence of a perched aquifer at the Hematite facility. To demonstrate the existence of an unsaturated soil between a perched aquifer and a deep water table aquifer below, an evaluation which includes analysis of water level data from group(s) of monitoring wells that are closely spaced and completed at various depths in the shallow and deep overburden would be appropriate.

Westinghouse Response

Summary: The hypothetical reasons that a perched water table or leaking pipes result in increased hydraulic head will be removed from the 8th paragraph of Section 3.7.2 on page 3-24. Taken as a whole, the evidence is that the saturated aquitard presented by the silty clay overburden results in the increased hydraulic heads. There is no other evidence to support a perched water table and underground pipes are either not in the area of elevated hydraulic heads or have not been in use since 2002.

Discussion: The conceptual model for the hydrology of the saturated aquitard underlying the facility area is based on further assessment of stratigraphy and water levels obtained since the 2004 remedial investigation. Hydraulic heads in the silty clay overburden reflect measurements obtained in shallow wells that monitor the saturated aquitard and do not reflect a perched groundwater condition. As a result of the more deliberate movement of water through the clay aquitard, the observed hydraulic head in the saturated clay is a result of variability in the available recharge and in the movement of infiltrating precipitation. Sand and gravel deposits underlying the aquitard convey groundwater laterally from the facility. This conceptual model of vertical groundwater movement through the clay is consistent with the observed distribution of radionuclides in groundwater underlying the facility. The stratigraphy and distribution of hydraulic heads in the overburden underlying the facility area are shown in Figures 1, 2a, 2b, and 2c.

Speculation (2004 RI report and DP) as to the nature and causes of elevated hydraulic heads in the shallow undifferentiated overburden suggested “a possible source of increased recharge in this area might be related to operation of the site. Leaks in storm water, domestic and process water, and waste transfer piping could be a factor in these observations.” However, because significant leakage from the pipelines was not substantiated and pipelines from the process buildings no longer carry water or wastes, the evidence is that the overburden is naturally recharged by precipitation.

The text in the Decommissioning Plan will be modified as follows (shown by strikeout of deleted text and underline of new text):

8th paragraph of Section 3.7.2 on page 3-24:

Comparison of the hydraulic heads in shallow (Figure 3-28) and deep (Figure 3-29) overburden underlying the Hematite Site illustrates a downward vertical gradient (details are discussed in Section 3.7.3). Head differences of 10 ft or more are common in this region. ~~This fact suggests that the shallow groundwater represents a perched water table. The fact that the hydraulic heads are highest in the vicinity of the Hematite Site could result from several different mechanisms. For example, a possible source of increased recharge in this area might be related~~

~~to operation of the site. Leaks in storm water, domestic and process water, and waste transfer piping could be a factor in these observations. Alternatively, shallow subsurface groundwater flow from the topographically elevated region northwest of the site might be important. Likewise, storm runoff from the adjacent State Road P could contribute to this observation.~~ A conceptual model has been developed for the hydrology of the saturated aquitard based on the stratigraphy and water levels obtained during quarterly monitoring conducted since the 2004 remedial investigation. The conceptual model acknowledges a more appropriate source of recharge (precipitation) to the overburden. As a result of the more deliberate movement of water through the clay aquitard, the variability of hydraulic heads measured in the saturated clay reflects the variability observed in the recharge rate and in the movement of infiltrating precipitation. Sand and gravel deposits underlying the aquitard convey groundwater laterally from the facility. This conceptual model of vertical groundwater movement through the clay is consistent with the observed distribution of radionuclides in groundwater underlying the facility. The stratigraphy and distribution of hydraulic heads in the overburden underlying the facility area are shown in Figures 3-42, 3-43, 3-44, and 3-45.

Figures 1, 2a, 2b and 2c will be inserted as DP Figures 3-42, 3-43, 3-44, and 3-45.

Paragraph following the bullets in Section 8.6 on page 8-24:

Groundwater sources, incidental to site remediation activities, ~~include perched zones and continuous flows~~ that entering active excavations.

3. (HDP-3.7-Q3) Comment: In Figure 3-39 and Figure 3-40 of the DP, contours covering large areas of the map are extrapolations that are not supported by field water level measurements.

Path Forward: Provide new figures trimming extraneous unlikely portions of the contours, adding monitoring well locations and water level elevation data.

Westinghouse Response

Figures 3 and 4 (attached) provide revised groundwater flow maps for the Jefferson City Formation for September 2008 and March 2009. The groundwater contour lines in the revised figures have been truncated at the limits of well coverage so that extrapolations are not shown beyond the extent of the established well network. The monitoring well IDs and groundwater elevations are provided on the revised figures. Figures 3 and 4 will replace DP Figures 3-39 and 3-40, respectively.

4. (HDP-3.7-Q4) Comment: DP Figure 3-41, Post-Remediation Groundwater Wells, lacks sufficient details. In addition, the rationales for the proposed groundwater monitoring network were not discussed in the text.

Path Forward: Provide a revised map showing all the monitoring wells in all hydrogeologic units using different symbols. Also include a detailed justification on the selection of the monitoring network as required by the NRC license. Include the wells associated with the

Interim Groundwater Monitoring Program and include information on the sampling frequency and radionuclides to be analyzed.

Westinghouse Response

Updated maps showing the existing monitoring wells are provided as Figures 5 (Central Site Tract Wells) and 6 (Outlying Area Wells). Differing symbols are used to distinguish between wells screened in the silty clay, sand/gravel, hybrid (screened across silty clay and sand/gravel), Jefferson City bedrock, and Roubidoux bedrock hydrogeologic units. Table 1 provides a summary of the existing monitoring wells, including the wells for the Interim Groundwater Monitoring Program, the sampling frequency, and the radionuclides analyzed. Table 2 provides a summary of the existing and planned post-remediation monitoring wells, the sampling frequency, and the radionuclides to be analyzed. The justification for the post-remediation monitoring network is provided below.

Consistent with the monitoring program for volatile organics (VOCs) in groundwater, the post-remediation sampling and analysis strategy for radionuclides will focus on monitoring lateral migration in the Sand/Gravel Hydrostratigraphic Unit (HSU) at the base of the silty clay overburden and vertical seepage to the Jefferson City-Cotter and Roubidoux HSUs.

The radionuclides of concern for ground water will continue to be total uranium (U-234, U-235, and U-238) and Tc-99, consistent with the radionuclides of concern during the site characterization. These radionuclides will be monitored quarterly during post-remediation ground water sampling and analysis. The selection of existing wells and proposed new wells for post-remediation monitoring was based on the potential source regions (remediated areas) for uranium and/or Tc-99 contamination in soil, the general direction of groundwater flow in the Sand/Gravel, Jefferson City-Cotter, and Roubidoux HSUs (southeast, and locations that also serve to provide necessary data for VOCs. The potential source regions are:

- Burial Pits;
- Southeast of process buildings;
- Beneath buildings to be demolished;
- Evaporation Ponds and Former Leach Field; and,
- Red Room Roof Burial Area and Cistern/Burn Pit.

Seven new wells and eight existing wells have been proposed for the post-remediation monitoring well network in the Sand/Gravel HSU, as listed in Table 2. Seven new wells and two existing wells have been proposed for the post remediation monitoring of the Jefferson City HSU. Four existing wells have been selected for post remediation monitoring of the Roubidoux HSU. The existing and proposed locations for the post-remediation monitoring program wells are shown on Figure 7. The locations of the new wells are tentative and may change depending on the findings during soil remediation.

In general, the monitoring wells shown on Figure 7 are located down gradient (i.e., southeast) of the related source area with a goal of intercepting contamination released from the source areas. The primary post-remediation well network is composed of 12 monitoring wells screened in the Sand/Gravel HSU, seven monitoring wells screened in the Jefferson City-Cotter HSU, and four monitoring wells screened in the Roubidoux HSU. A Mann-Kendall analysis will be performed

quarterly on each of the wells to evaluate trends in sample results. The justification for well selection is contained in the DP text provided below.

Since the monitoring program is more appropriately documented in DP Section 14.5.1, the following text from DP Section 3.5.4.1 (which addresses overburden geology) at the bottom of page 3-12 and the top of page 3-13 will be deleted: “HDP has planned to install additional wells to in order to continue monitoring the absence of contamination in the sand/gravel aquifer.” and “Well sample frequencies and analysis parameters are described in Chapter 11. Post-remediation groundwater well locations are shown in Figure 3-41.” Also, Figure 3-41 will be deleted.

Replace DP Section 14.5.1 with the following text:

Following remediation, ground water will be monitored to assure that removal of the source term in the soil and burial areas is effective in protecting groundwater sources in the Sand/Gravel, Jefferson City-Cotter, and Roubidoux Hydrostratigraphic Unit (HSUs). This post-remediation monitoring will be performed at wells identified in Table 14-23 and Figure 14-13.

In general, the monitoring wells shown on Figure 14-13 are located down gradient (i.e., southeast) of the related source area with a goal of intercepting contamination released from the source areas. The primary post-remediation well network is composed of 12 monitoring wells screened in the Sand/Gravel HSU. A Mann-Kendall analysis will be performed quarterly on each of the wells to evaluate trends in sample results.

Primary wells GW-DD, GW-EE, GW-FF, and GW-GG are positioned down gradient (southeast) of the burial pits to assess ground water quality following removal of contaminated soil/materials from this area. A positive detection (concentration above the MDA + Error) from a primary well sample will indicate potential down gradient migration. If this occurs, secondary wells GW-BB, GW-II, and GW-W, which are positioned further down gradient of the burial pits, will be monitored.

Primary wells GW-D, GW-S, GW-T, and GW-Z are positioned down gradient (southeast) of the process buildings to assess groundwater quality following building demolition and removal of contaminated soil from this area. A positive detection (concentration above the MDA + Error) from a primary well sample will indicate potential down gradient migration. If this occurs, secondary wells GW-V and GW-W, which are positioned further down gradient of the process buildings, will be monitored

Primary wells GW-CC, GW-U, and GW-X are positioned down gradient (southeast) of the evaporation ponds and former leach field to assess groundwater quality following removal of contaminated soil from these areas. A positive detection (concentration above the MDA + Error) from a primary well sample will indicate potential down gradient migration. If this occurs, secondary wells

GW-HH, GW-Y, and GW-V, which are positioned further down gradient of the evaporation ponds and former leach field, will be monitored.

Primary well GW-AA is positioned down gradient (southeast) of the red room roof burial area and cistern/burn pit to assess groundwater quality following removal of contaminated soil and materials from these areas. A positive detection (concentration above the MDA + Error) from a primary well sample will indicate potential down gradient migration. A positive detection in this well will prompt the installation of a secondary well further down gradient.

Three new monitoring wells (BR-13-JC, BR-14-JC, and BR-15-JC) will be installed in the Jefferson City-Cotter HSU down gradient of burial pit and Tc-99 source areas. The exact location of the sources areas will be determined during remediation. The wells are anticipated to be placed at locations to the south and east of the burial pit and ring storage area. These wells will be located closer to the central tract than currently monitored wells and are located in areas that, if contaminant migration occurs, will identify the degradation of the water within the post remediation monitoring timeframe.

Post remediation monitoring of the Jefferson City-Cotter HSU in the vicinity of the former process building will be through the installation of three new monitoring wells (BR-16-JC, BR-17-JC, and BR-18-JC) within the source and down gradient of the areas beneath the former process buildings where the highest levels of contamination were removed. These wells will be used to evaluate the potential for contaminant migration from the overburden into the shallow bedrock.

Post remediation monitoring of the Jefferson City-Cotter HSU in the vicinity of the former evaporation ponds will be through the installation of a new monitoring well (BR-19-JC) at a location down gradient of the primary (deep) evaporation pond.

Post remediation monitoring of the Roubidoux HSU will be conducted using the current sentry wells designated as BR-03-RB, BR-04-RB, BR-08-RB, and BR-10-RB.

Table 2 will be added as DP Table 14-23. Figure 5 will replace DP Figure 3-11. Figure 6 will replace DP Figure 3-10. Figure 7 will replace DP Figure 14-13.

5. (HDP-1.3-Q5) Comment: On page 3-31 of the DP, there is a discussion about groundwater flow and contaminant migration prior to 2003 when conditions in the Roubidoux Formation were under significant hydraulic stress due to groundwater withdrawn from the City of Festus' production wells and the private wells near the Hematite site. It is acknowledged that the natural flow system had been altered by the groundwater extraction. Westinghouse seems to imply that, for the future, the pattern of pre-2003 need not be considered. Since the

site is intended for unrestricted release, the use of groundwater in the vicinity of the Hematite site is not restricted. There is nothing to preclude the Festus standby wells from being brought back into circulation. Should this occur, it could again change the hydraulic conditions in the Roubidoux aquifer. The Jefferson City-Cotter aquifer (including the sand/gravel aquifer) and Roubidoux aquifer appear to be the local groundwater flow system and the intermediate flow system, respectively. Hydraulic stress in the Roubidoux aquifer will affect the flow in the Jefferson City-Cotter aquifer.

Path Forward: Westinghouse should revise the relevant test in the DP to reflect the statements stated above.

Westinghouse Response

Summary: Full production operation of the Festus municipal wells only affects the Roubidoux HSU, the effects are: flow direction alters from northeast to east, and lowered water levels. Full production operation of the Festus municipal wells has no appreciable affect on the Jefferson City-Cotter or Sand/Gravel HSUs.

Discussion: For the Jefferson City-Cotter HSU, the series of groundwater flow maps provided in Westinghouse letter HEM-10-132, dated 12/21/2010, do not show a meaningful change in the direction of ground water flow in the Jefferson City-Cotter HSU before and after the Festus municipal wells were in full production. For the Roubidoux HSU, HEM-10-132 also states that “Since the Festus municipal wells were put on standby, the ground water levels in the Roubidoux wells at the site have risen and the groundwater flow direction in the Roubidoux formation has changed from east to northeast.” The text in the second paragraph, page 3-31 of Section 3.7.4 of the DP will be revised as follows:

This observation is important because ground water flow and chemical contaminant migration in the vicinity of the Hematite Site probably occurred over a period of years prior to 2003 during which hydraulic conditions in the Roubidoux Formation were different than today because of the pumping of municipal water supply wells for Festus, Missouri. The distribution of chemical contamination currently observed in the private wells located in the Roubidoux Formation southeast of the site appears to be related to the lowered heads that prevailed in that formation prior to 2003. The Festus municipal wells were put on standby in the summer of 2003 when a “collector” well located in the floodplain of the Mississippi River was brought online. The Festus municipal wells are now used intermittently to supplement the “collector” well, and pumping rates from the Roubidoux HSU are reduced. Since the Festus municipal wells were put on standby, the groundwater levels in the Roubidoux wells at Hematite have risen and the groundwater flow direction in the Roubidoux HSU is predominantly to the northeast across the site area. Contrary to the Roubidoux HSU, no appreciable change in the direction of ground water flow or in the water level of the Jefferson City-Cotter HSU was seen after the Festus municipal wells were only used intermittently.

While use of the Festus municipal wells is presently intermittent, future full-scale use of these wells is possible. Future use of the municipal wells at the pre-2003 pumping rates may add to the hydraulic stress on the Roubidoux aquifer and may affect the direction of flow in this aquifer from the northeast to the east. The distribution of radionuclides in the overburden underlying the source areas at Hematite was not influenced during the period of active pumping of the Festus municipal wells. In addition, the direction of flow and water level of the Jefferson City-Cotter HSU was not influenced by production operation Festus municipal wells. Therefore, if the Festus municipal wells were once again used for production, there is very limited hydrogeological connectivity between the Hematite source areas in the silt clay overburden and the Roubidoux HSU. Also, the Roubidoux HSU has not been impacted by radionuclides from the Hematite Site. In conclusion, following removal of the Hematite source areas, a resumption of production from the Festus wells would not affect the distribution of radionuclides at Hematite.

6. (HDP-3.1-Q6) Comment: The data provided on domestic and industrial wells in the vicinity of Hematite facility is based on a 2004 Missouri Department of Natural Resources (MDNR) document. Information on the unregistered private wells in the vicinity of the Hematite site is not included in the DP.

Path Forward: Provide an update of the domestic and industrial wells' information in the vicinity of the Hematite site. Information should include water usage, well depth, and the hydrogeologic unit where wells were completed. Provide a map showing all well locations. Since Wells #3 and #5 are the closest water sources for the Public Water Supply District No. 5 system, provide the monitoring status for these two wells. Also provide information such as water use, well depth, and aquifer type if possible for all unregistered private wells with three miles of the Hematite site.

Westinghouse Response

Westinghouse requested and the Missouri Department of Natural Resources provided updated information from their database for the wells within a 3-mile radius of the Hematite Site. The information is included in Table 3 and Figures 8a and 8b. Westinghouse contacted Public Water Supply District No. 5 and requested the monitoring status and results for Wells 3 and 5, but that information has not been provided. If information regarding these wells is received, it will be forwarded to NRC. Westinghouse is unaware of any unregistered private wells near the site.

7. (HDP-3.7-Q7) Comment: The groundwater elevation data (Wells PZ-04 and BR-12_JC) shown in Figure 3-30 of the DP indicates groundwater flow in the Jefferson City-Cotter aquifer to the west/northwest may also possibly exist in the area just north of the Hematite buildings. In a report by Westinghouse's consultant, the consultant recommended that three additional monitoring wells (BR-13-JC, BR-14-JC, and BR-15- JC) be installed in the Jefferson City formation southeast of the facility buildings to further define potential impact by radionuclides (SAIC, 2009, Radionuclide Activity in Bedrock Groundwater at

Westinghouse Hematite Facility, Hematite, Missouri). However, there is no evidence that such wells were ever added.

Path Forward: Provide a rationale as to why the additional monitoring wells recommended by Westinghouse's consultant were not installed in the area just north of the Hematite buildings and why Westinghouse's present characterization of the groundwater is sufficient. Additionally, provide an update on the recommended bedrock wells and related monitoring data.

Westinghouse Response

The 'comment' and 'path forward' raise three points that will be addressed individually. The points involve (a) plans for installing three new wells, (b) explanation why groundwater is sufficiently characterized, and (c) explanation of the direction of groundwater flow in the Jefferson City-Cotter HSU in the area just north of the Central Tract:

- (a) The three monitoring wells recommended in the July 2009 report "Radionuclide Activity in Bedrock Groundwater at Westinghouse Hematite Facility, Hematite, Missouri" continue to be planned for installation after remediation and the rationale for the timing is described in 'Discussion (a)' below. Note that Figure 7 in the report "Radionuclide Activity in Bedrock Groundwater at Westinghouse Hematite Facility, Hematite, Missouri" shows these three wells east and southeast of the burial pit area and not north of the Hematite buildings, as mentioned in the 'path forward' section above.
- (b) The basis for characterization of ground water and updates on ground water monitoring data were provided in the DP and subsequently augmented by Westinghouse letters HEM-09-133, HEM-10-126, HEM-10-132, HEM-11-12, dated 11/10/2009, 12/10/2010, 12/21/2010 and 1/21/2011, respectively. This collection of data and the explanation in 'Discussion (b)' are the rationale for why characterization of the groundwater is sufficient.
- (c) Based on the boring logs, the top of the Jefferson City-Cotter bedrock at BR-12-JC is 13 feet higher than the top of the Jefferson City-Cotter bedrock at well PZ-04. The PZ-04 top of the bedrock is consistent with the top of the bedrock measured at wells WS-22 and WS-23; WS-22 and WS-23 extend to the top of the Jefferson City-Cotter bedrock and are screened in the Sand/Gravel HSU. The increasing height of the bedrock to the north and northwest would preclude general flow direction of north or northwest. Bedrock topography is shown in Figure 3 of the report Westinghouse report EO-09-003, "Supplemental Analysis of Hydrogeologic Conditions in Overburden at Westinghouse Hematite Facility, Hematite, Missouri," dated July 2009.

Discussion:

- (a) The three additional bedrock wells recommended in "Radionuclide Activity in Bedrock Groundwater at Westinghouse Hematite Facility, Hematite, Missouri" are to be installed east and southeast of the burial pits. These wells are not needed for characterization and current monitoring of the Jefferson City-Cotter HSU. With a geometric mean hydraulic conductivity of 2.6 ft/day (949 ft/year) in the Jefferson City-Cotter HSU, characterization sampling of the down gradient wells provide data to show that the Jefferson City-Cotter HSU is not being impacted by radionuclides from the Site.

The intent of these three additional wells is to identify at shorter migration times whether the Jefferson City-Cotter HSU remains non-impacted after remediation. They will be installed after remediation in order to have refined, based on data gathered during remediation work, the location of the source area for radionuclides. This future remediation data may suggest installing these new wells at locations closer to or within the burial pit area depending upon where source material is encountered.

- (b) The objectives against which to measure a sufficient groundwater characterization are: 1) have the contaminants in the groundwater been identified, 2) have the potential sources of contamination in the groundwater been identified, 3) has the extent and the magnitude of contaminants in the groundwater been determined, and 4) has the extent of impact to the health and the environment from contaminants in the groundwater been determined. The characterization performed to date has met these objectives in the following manner:
- 1) Based on the site's history of handling uranium, including uranium tainted by recycled uranium, groundwater samples were initially analyzed for Tc-99, Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, U-235, U-238, Am-241, and Np-237, Pu-238, Pu-239/240. Based on those initial results, the radionuclides of concern for groundwater were refined to be total uranium (U-234, U-235, U-238) and Tc-99.
 - 2) Potential sources of groundwater contamination were examined by using data from approximately 150 total monitoring wells at varying depths and various locations across an area of about 250 acres. The data demonstrated that the sources are within the shallow silty/clay overburden associated with the burial pits, the process building soils, the evaporation ponds and former leach field, and the former limestone storage areas, and the Red Room roof burial and cistern/burn pit area. Each of these areas has been targeted for remedial action in the Decommissioning Plan. These areas will be excavated until sampling shows that the source term (as defined by DCGLs) is removed.
 - 3) The sampling data were also used to determine the extent and magnitude of contaminants in the groundwater. Sampling has been conducted within each of the potential source areas, as well as down gradient and within the deeper hydrostratigraphic units (HSUs). Quarterly data has been collected from about 80 wells since June 2007 to provide temporal understanding in conjunction with extensive sampling in 2004. These data demonstrated that the extent of contamination is within the source areas (the impacted silty/clay overburden), which will be remediated as discussed in paragraph 2) above. In addition, the sample results demonstrate that results with significant magnitude are from water within the pore space of the silty/clay soil in the source areas.
 - 4) The data demonstrate that the extent of impact is limited to the water in the pore space of the silty clay overburden. Groundwater at the Site in the three hydrostratigraphic units (HSUs) immediately below the Silty Clay Aquitard HSU at the site are not impacted by radionuclides in a manner that affect human health or the environment. Radiological sample results in the Sand/Gravel HSU show limited contamination with a maximum that is 1/6th of the EPA drinking water standard. Radiological sample results in the Jefferson City-Cotter HSU show inconsistent contamination detection just above the minimum

detection concentration at a few locations. Radiological sample results in the Roubidoux HSU did not detect contamination.

8. (HDP-3.1-Q8) Comment: It is indicated that two on-site residences on the north side of state Road P obtain drinking water from a single private well. No information on this private well was included in the DP.

Path Forward: Provide information on the present water quality status of the private well serving the two residences on the Hematite site along with an assessment of the impact upon water quality as a result of decommissioning and post-decommissioning activities at the Hematite facility.

Westinghouse Response

Summary: The private well serving the two on-site residences at 3181 State Road P on the north side of State Road P is identified as PW-2. The private well is located approximately 1,500 feet northeast of the Central Site Tract. Construction data for PW-2 is not known, but the well is presumed to be drawing from the Jefferson City-Cotter and/or Roubidoux HSUs since those are the standard water-bearing formations accessed by local wells.

Well PW-2 has not been part of HDP's routine well monitoring since other wells are located between the Site and well PW-2. In order to provide additional negative data for PW-2, sampling at this location will be sampled. The limited sampling results obtained from well PW-2 have not shown Site contamination.

Discussion: Private well PW-2 is not directly down gradient of the site. Figure 9 indicates the location of the private well PW-02 as well as the groundwater contours for the Jefferson City-Cotter HSU from the third quarter of 2010. Wells monitoring the Jefferson City-Cotter HSU and Roubidoux HSU that are closer to the facility (PW-03-JC and PW-03-RB) as well as cross-gradient (BR-05RB), have recently served as sentry wells. Since September 2010, these wells have been added to the quarterly groundwater monitoring. The monitoring results for these wells are shown in the table below:

| Well | Date | Tc-99 | | | Uranium 233/234 | | | Uranium 235/236 | | | Uranium 238 | | |
|----------|------------|-------|-----|-------|-----------------|------|-------|-----------------|-------|-------|-------------|------|-------|
| | | pCi/l | MDC | Error | pCi/l | MDC | Error | pCi/l | MDC | Error | pCi/l | MDC | Error |
| PW-03-JC | 9/20/2010 | 0.22 | 1.5 | 0.91 | 0.52 | 0.12 | 0.2 | -0.011 | 0.12 | 0.015 | 0.44 | 0.11 | 0.18 |
| PW-03-JC | 12/16/2010 | 0.15 | 1.6 | 0.93 | 0.68 | 0.09 | 0.21 | 0.051 | 0.084 | 0.065 | 0.2 | 0.07 | 0.11 |
| PW-03-RB | 9/20/2010 | 0.59 | 1.5 | 0.91 | 2.65 | 0.05 | 0.5 | 0 | 0.063 | 0.023 | 0.2 | 0.1 | 0.13 |
| PW-03-RB | 12/16/2010 | -0.42 | 1.6 | 0.94 | 3.21 | 0.05 | 0.58 | 0.025 | 0.068 | 0.05 | 0.19 | 0.11 | 0.13 |
| BR-05-RB | 9/28/2010 | 1.02 | 1.6 | 0.99 | 4.5 | 0.1 | 0.64 | 0.019 | 0.051 | 0.038 | 0.31 | 0.08 | 0.14 |
| BR-05-RB | 12/16/2010 | 0.27 | 1.6 | 0.96 | 4.43 | 0.05 | 0.67 | -0.006 | 0.1 | 0.011 | 0.33 | 0.09 | 0.16 |

The monitoring results for these wells do not indicate migration of radionuclides eastward from the facility to this location. These results, combined with the groundwater flow directions in the Jefferson City-Cotter HSU and Roubidoux HSU indicate that the well PW-2 is not being impacted by the Hematite facility.

Water from well PW-2 was included in a recent public service sampling program by the Missouri Department of Health and Human Services (MDHHS). The single sample result from this program for PW-2 was from sampling on April 14, 2010. The gross alpha radioactivity was reported at 1.6 +/- 0.4 pCi/L and gross beta radioactivity was reported at 2.5 +/- 0.8 pCi/L. Both of these results are well below the Drinking Water Standard of 15 and 50 pCi/L respectively.

9. (HDP-3-Q9) Comment: Significant concentrations of radionuclides, especially Tc-99 and uranium, are found in the groundwater in the clay overburden (“leachate”) in the vicinity of source areas. These areas include the process buildings, evaporation ponds, southeast of Building 256 and the spent limestone storage, and the burial pit. Low levels of Tc-99 have also been detected in the underlain sand/gravel aquifer downgradient from the site. It is indicated that the contaminated “leachates” in the source areas will be removed along with the contaminated soil to reduce future risk to groundwater. However, it is unclear as to extent of the leachate removal that will occur in each of the source areas.

Path Forward: Provide the criteria that will be utilized to determine the areal and vertical extents/degree of the impacted overburden (i.e., clay) and “leachate” removal in each of the source areas. Provide justification that these criteria are protective of groundwater and meet the ALARA requirement as well.

Westinghouse Response

Summary: Westinghouse considers there to be an inconsistency between Westinghouse’s intent concerning its statement in RAI HDP-C5-Q11 regarding “leachate removal” and the NRC’s reading of this statement, as expressed in this RAI’s ‘comment’ and ‘path forward.’ is addressed in the ‘Discussion’ below. Westinghouse was not intending to imply creation of a distinct leachate removal program with its own criteria.

The criteria used for assessing remediation of the overburden are based on the soil since that is the source of radioactivity in the leachate. For soil, the estimate of areal and vertical extent impacted overburden soil is provided in the HRCR, and summarized in DP Chapter 4; DP Chapter 5 provides the basis for the release criteria for soil removal; and DP Chapter 14 describes the process for evaluating the adequacy of remediation, including a comparison to the release criteria defined in DP Chapter 5. The inputs to this evaluation include data obtained through radiological surveys and laboratory analysis of soil samples.

Coincident with soil excavation, the portion of the leachate entrained in soil that exceeds the DCGL will be removed. Similarly, a portion of the leachate will be entrained in the soil samples analyzed by the laboratory, thereby accounting for that contribution to residual radioactivity. The RESRAD modeling described in DP Chapter 5 accounts for the residual radioactivity (i.e., whether in soil or leachate), so meeting the DCGLs is protective of the ground water. DP Chapter 7 addresses the ALARA aspects of DCGLs.

Discussion: Westinghouse letter HEM-10-89, dated September 15, 2010, contained a response to RAI HDP-C5-Q11 that included the sentence “Most importantly, the leachate (pore space water) source term will be removed during the remediation of the contaminated soil in the burial pits.” Westinghouse regrets that this sentence may have led to misunderstanding that leachate

removal would be distinct from soil removal. The intent of the statement was to emphasize that when soil exceeding the DCGLs is removed, then liquid that is entrained within that soil will also be removed. Liquid that is entrained in soil that meets the DCGLs will not be removed as part of remediation. Standing liquid remaining within the excavation (e.g., either draining from the contaminated soil during excavation, or from infiltration into the excavation) will be pumped from the excavation and treated and/or sampled prior to its release in accordance with NRC and MDNR effluent discharge requirements.

When a sample of the remaining, post-excavation soil is taken for analysis and comparison to the DCGLs, the sample will include Tc-99 that was in the pore space of the soil. Thus, the total amount of Tc-99 in the remaining soil, both on the soil itself and in liquid in the soil's pore space, will be compared against the DCGL. Since radioactivity in both liquid and solid portions of the soil is sampled and accounted for, attempting to separately develop criteria for water in the pore space would amount to double accounting of the same radioactivity.

Relying on soil remediation to protect ground water is justified by the silty clay soil having a high affinity for Tc-99. In effect, the silty clay soil is a "collection filter" for Tc-99, removing it from the water that moves vertically through the silty clay soil. Removal of buried materials and soil that has been acting as a "collection filter" will remove a large portion of the source term.

There is a circumstance where the silty clay soil "collection filter" could be bypassed. The circumstance involves monitoring wells that are screened across both the Silty Clay Aquitard HSU and the Sand/Gravel HSU (hybrid wells). Such well screens across these two HSUs may have created preferential pathways for localized downward migration. In such circumstances, silty clay along the sides of the hybrid well may exceed the DCGLs, even though the general excavation surface at shallower depths met the DCGLs.

In the near-term to address this potential preferential pathway, Westinghouse letter HEM-11-17, dated 2/10/2011 requested Missouri Department of Natural Resources approval to abandon hybrid wells BD-14, DM-02, EP-20, NB-31, NB-33, NB-81, PL-06, WS-13 and WS-17B, which are in areas with soil contamination; approval and abandonment are expected spring 2011. These wells will be abandoned by over-boring with hollow stem augers of sufficient outside diameter to remove approximately two inches of soil surrounding the well riser, well screen, screened filter pack. The soil cuttings that are removed during the boring process will be surveyed for indications of elevated radioactivity as a qualitative measure and sampled for laboratory analysis (given the nature of removal over drilling, the soil cuttings will end up being somewhat composited).

In the long-term, in the event that a well screen of an abandoned hybrid well extends beyond the depth of soil excavation, analytical data obtained from the well samples will be used to assess whether the water concentration was sufficient to potentially contaminate the adjacent soil to a level that exceeds the DCGLs. If any sample result (before abandonment) for water from such a well exceeds the MDC+Error for Tc-99 or the Background Threshold Value for total uranium, soil samples will be collected using a geoprobe, or equivalent, in the close vicinity to the well. A minimum of two borings will be collected at each well, one upgradient and one down gradient of the monitoring well, extending down the length of the well. Samples will be collected at five foot intervals and from a depth that is approximately equivalent to the screened interval. Since

these samples will be obtained at greater than 1.5 meter below the ground surface, the concentrations in the samples will be compared to the Excavation scenario limits.

A new second paragraph will be added to DP Section 14.4.3.5 as follows:

The following actions shall be taken to investigate the potential for a preferential pathway of Tc-99 and total uranium along a monitoring well screen that is across both the Silty Clay Aquitard HSU and the Sand/Gravel HSU (hybrid well):

- When wells are abandoned they will be over drilled using hollow stem augers of sufficient outside diameter to remove approximately two inches of surrounding soil, the well riser, well screen, and screened filter pack. The soil cuttings that are removed during the boring process will be surveyed for indications of elevated radioactivity as a qualitative measure and sampled for laboratory analysis.
- When completing remediation actions in the area of a hybrid well screen that extends beyond the depth of soil excavation, any water sample taken over the history of that well will be assessed for results that exceed the MDC+Error for Tc-99 or the Background Threshold Value for total uranium. For such an exceedance, a minimum of two borings will be collected at the well, one upgradient and one down gradient of the monitoring well. The borings shall extend down the length of the well. Samples will be collected from the borings at five foot intervals and from a depth that is approximately equivalent to the screened interval. Since these samples will be obtained at greater than 1.5 meter below the ground surface, the concentrations in the samples will be compared to the Excavation scenario limits.

| Table 1. Groundwater Monitoring Wells, Parameters, and Sampling Frequencies | | | | |
|---|---------------------|------------------------------------|------------------|--|
| Well ID No. | HSU | Current Protocols (including IGMP) | | Proposed for Well Abandonment - March 2011 |
| | | Parameters | Sample Frequency | |
| BD-02 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| BD-03 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| BD-04 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| BD-06 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| BD-08 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| BD-13 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| BD-14 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| BP-17 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| BP-20A | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| BP-20B | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| BP-21 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| BP-22A | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| BP-22B | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| BR-01-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-01-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-02-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-02-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-03-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-03-OB | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-03-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-04-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-04-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-05-JC | JC | GW Elevation Only | | |
| BR-05-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-06-OB | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-06-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-07-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-07-RB | RB | GW Elevation Only | | |
| BR-08-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |

| Table 1. Groundwater Monitoring Wells, Parameters, and Sampling Frequencies | | | | |
|---|---------------------|------------------------------------|------------------|--|
| Well ID No. | HSU | Current Protocols (including IGMP) | | Proposed for Well Abandonment - March 2011 |
| | | Parameters | Sample Frequency | |
| BR-08-OB | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-08-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-09-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-10-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-10-OB | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-10-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-11-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-12-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| BR-12-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| DM-02 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| EP-14 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| EP-16 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| EP-20 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| GW-AA | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-BB | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-D | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-S | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-T | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-U | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-V | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-W | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-X | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-Y | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| GW-Z | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| LF-09 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| NB-31 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| NB-33 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| NB-34 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| NB-35 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| NB-44 | Sand/Gravel | VOCs, Tc-99, Isotopic U | Semi-Annual | |

| Well ID No. | HSU | Current Protocols (including IGMP) | | Proposed for Well Abandonment - March 2011 |
|-------------|---------------------|------------------------------------|------------------|--|
| | | Parameters | Sample Frequency | |
| NB-50 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| NB-54 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| NB-57A | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| NB-64 | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| NB-71 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| NB-72 | Sand/Gravel | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| NB-73 | Sand/Gravel | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| NB-80 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| NB-81 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| NB-82 | Sand/Gravel | VOCs, Tc-99, Isotopic U | Quarterly | |
| NB-84 | Sand/Gravel | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| NB-85 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| OB-01 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | |
| OB-02 | Silty Clay Aquitard | GW Elevation Only | | |
| PL-06 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| PW-03-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| PW-03-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| PW-05 | BR | GW Elevation Only | | |
| PW-06-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| PW-06-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| PW-10 | BR | GW Elevation Only | | |
| PW-16-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| PW-16-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| PW-19-JC | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| PW-19-RB | RB | VOCs, Tc-99, Isotopic U | Quarterly | |
| PW-23 | BR | GW Elevation Only | | |
| PW-24 | BR | GW Elevation Only | | |
| PW-25 | BR | GW Elevation Only | | |
| PZ-01 | Silty Clay Aquitard | GW Elevation Only | | |
| PZ-02 | Silty Clay Aquitard | GW Elevation Only | | |

| Table 1. Groundwater Monitoring Wells, Parameters, and Sampling Frequencies | | | | |
|---|---------------------|------------------------------------|------------------|--|
| Well ID No. | HSU | Current Protocols (including IGMP) | | Proposed for Well Abandonment - March 2011 |
| | | Parameters | Sample Frequency | |
| WS-07 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-08 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-09 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-13 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| WS-14 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-15 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-16 | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Semi-Annual | |
| WS-17B | Silty Clay Aquitard | VOCs, Tc-99, Isotopic U | Quarterly | X |
| WS-24 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-25 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-26 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-27 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-28 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-29 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-30 | JC | GW Elevation Only | | |
| WS-31 | JC | VOCs, Tc-99, Isotopic U | Quarterly | |
| WS-33 | Silty Clay Aquitard | GW Elevation Only | | |
| WS-34 | Silty Clay Aquitard | GW Elevation Only | | |

| Well ID No. | HSU | Post-Remediation Protocol | | | Existing or Proposed |
|-------------|-----------------------|---------------------------|-------------------|------------------|----------------------|
| | | Purpose | Parameters | Sample Frequency | |
| GW-AA | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-D | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-S | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-T | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-U | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-X | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-Z | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-CC | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| GW-DD | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| GW-EE | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| GW-FF | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| GW-GG | Sand/Gravel | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| GW-BB | Sand/Gravel | Secondary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-V | Sand/Gravel | Secondary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-W | Sand/Gravel | Secondary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-Y | Sand/Gravel | Secondary | Tc-99, Isotopic U | Quarterly | Existing |
| GW-HH | Sand/Gravel | Secondary | Tc-99, Isotopic U | Quarterly | Proposed |
| GW-II | Sand/Gravel | Secondary | Tc-99, Isotopic U | Quarterly | Proposed |
| BR-13-JC | Jefferson City Cotter | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| BR-14-JC | Jefferson City Cotter | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| BR-15-JC | Jefferson City Cotter | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| BR-16-JC | Jefferson City Cotter | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| BR-17-JC | Jefferson City Cotter | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| BR-18-JC | Jefferson City Cotter | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| BR-19-JC | Jefferson City Cotter | Primary | Tc-99, Isotopic U | Quarterly | Proposed |
| BR-04-RB | Roubidoux | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| BR-08-RB | Roubidoux | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| BR-10-RB | Roubidoux | Primary | Tc-99, Isotopic U | Quarterly | Existing |
| BR-03-RB | Roubidoux | Primary | Tc-99, Isotopic U | Quarterly | Existing |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|-------------|-----------------------|-----------|-------|------------|-------|------|-------|
| 1 | 137308 | Heat Pump | 3349 EQUESTRIAN | Festus | MO | Vertical | 150 | | 0 |
| 2 | 342544 | Well | 8847 HELUJON ACRES DR | Hillsboro | MO | Domestic | 900 | 126 | 20 |
| 3 | 364514 | Well | 3820 VICTORIA RD | Festus | MO | Domestic | 225 | 80 | 75 |
| 4 | 347538 | Pump | 5316 AUTUMN WINDS | St Louis | MO | Domestic | 0 | | 0 |
| 5 | 301956 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 50 | 60 | 0 |
| 6 | 301957 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 25 | | 0 |
| 7 | 49361 | Reconstruct | 2139 SUNNYSIDE RD. | Festus | MO | Domestic | 270 | | 0 |
| 8 | 158615 | Well | 1533 WESTVALE | Festus | MO | Domestic | 372 | 80 | 30 |
| 9 | 279605 | Well | 2180 SUNNYSIDE RD | Festus | MO | Domestic | 295 | 80 | 30 |
| 10 | 337047 | Well | 2077 SUNNYSIDE RD | Festus | MO | Domestic | 250 | 80 | 60 |
| 11 | 53384 | Well | 2232 SUNNY SIDE | Festus | MO | Domestic | 292 | 80 | 12 |
| 12 | 89325 | Well | 2001 SUNNYSIDE DR. | Festus | MO | Domestic | 240 | 80 | 15 |
| 13 | 44947 | Well | ROUTE 2 BOX 239A | Festus | MO | Domestic | 250 | 82 | 45 |
| 14 | 155697 | Well | 2283 HWY 67 S | Festus | MO | Domestic | 145 | 80 | 42 |
| 15 | 44916 | Well | 2015 SUNNYSIDE RD | Festus | MO | Domestic | 229 | 82 | 60 |
| 16 | 135585 | Well | 4757 HWY P | Festus | MO | Domestic | 190 | 81 | 100 |
| 17 | 21814 | Heat Pump | 12052 ARGONNE | Festus | MO | Vertical | 200 | | 0 |
| 18 | 396968 | Well | 12052 ARGONNE | Festus | MO | Domestic | 266 | 80 | 50 |
| 19 | 155919 | Well | WATSON FARMS | Festus | MO | Domestic | 346 | 80 | 25 |
| 20 | 419088 | Well | 12000 ARGONNE RD | Hillsboro | MO | Domestic | 240 | 80 | 40 |
| 21 | 364836 | Well | 9230 PARSHALL RD | Bourbon | MO | Domestic | 225 | 160 | 60 |
| 22 | 7407 | Well | ROUTE 4 BOX 117 | Desoto | MO | Domestic | 276 | 80 | 30 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|-------------------------|--------------|-------|------------|-------|------|-------|
| 23 | 8556 | Well | RT 2 BOX 323 C | Festus | MO | Domestic | 271 | 80 | 70 |
| 24 | 15349 | Well | 11625 HARRISON LAKE RD. | Festus | MO | Domestic | 333 | 82 | 20 |
| 25 | 2372 | Well | 140 WHEELHOUSE MANOR | Fenton | MO | Domestic | 350 | 82 | 18 |
| 26 | 118025 | Heat Pump | FESTUS | Festus | MO | Vertical | 195 | | 0 |
| 27 | 399194 | Heat Pump | 4471 STATE RD P | Festus | MO | Vertical | 200 | | 0 |
| 28 | 168727 | Well | STONEGATE | Festus | MO | Domestic | 433 | 80 | 15 |
| 29 | 104848 | Recnstruct | 502 CHURCH ST. | Hematite | MO | Unknown | 0 | | 0 |
| 30 | 198451 | Well | 3420 KATHLEEN DRIVE | Festus | MO | Domestic | 335 | 100 | 40 |
| 31 | 232920 | Well | 4951 GREEN HILLS RD | Festus | MO | Domestic | 365 | 80 | 30 |
| 32 | 232922 | Well | 3200 LEE RD | Festus | MO | Domestic | 325 | 80 | 30 |
| 33 | 226629 | Well | 11607 ARGONNE RD | Fenton | MO | Domestic | 357 | 80 | 45 |
| 34 | 33314 | Well | 4733 PIONEER RD. | Hillsboro | MO | Domestic | 292 | 81 | 20 |
| 35 | 150674 | Well | 1112 CRYSTAL HEIGHTS RD | Crystal City | MO | Domestic | 291 | 82 | 30 |
| 36 | 245909 | Abandoned | 3300 STATE RD P | Hematite | MO | Soilboring | 38 | | 0 |
| 37 | 280413 | Well | 3534 LEE RD | Hematite | MO | Domestic | 334 | 80 | 30 |
| 38 | 179098 | Well | 3232 HACKMORE DRIVE | Festus | MO | Domestic | 295 | 80 | 45 |
| 39 | 2226 | Well | RT 2 | Festus | MO | Domestic | 271 | 81 | 15 |
| 40 | 364857 | Well | 3832 CONNECTICUT | St Louis | MO | Domestic | 305 | 80 | 40 |
| 41 | 31068 | Well | ROUTE 2 BOX 318 | Festus | MO | Unknown | 345 | 80 | 18 |
| 42 | 89278 | Well | 9509 MEADOW DR | Hillsboro | MO | Unknown | 292 | 80 | 25 |
| 43 | 90659 | Well | C/O KEN SMITH | St Louis | MO | Unknown | 457 | 80 | 35 |
| 44 | 96694 | Well | 13360 WAGGONER RD. | Festus | MO | Unknown | 518 | 80 | 30 |
| 45 | 181565 | Well | 5090 GREENHILLS RD | Festus | MO | Domestic | 333 | 80 | 30 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|---------------------------|-----------|-------|------------|-------|------|-------|
| 46 | 186272 | Well | 5076 GREEN HILLS RD | Festus | MO | Domestic | 345 | 80 | 35 |
| 47 | 232882 | Well | 4951 GREEN HILLS RD | Festus | MO | Domestic | 365 | 80 | 30 |
| 48 | 280422 | Well | 5031 KYPE VIEW AVE | Festus | MO | Domestic | 560 | 80 | 30 |
| 49 | 198479 | Well | 1530 SADDLE DRIVE | Festus | MO | Domestic | 335 | 80 | 25 |
| 50 | 255150 | Well | LOT 7 BRIDLE PATH ESTATES | Festus | MO | Domestic | 375 | 80 | 20 |
| 51 | 194015 | Abandoned | 4011 ST HWY P | Festus | MO | Domestic | 128 | 42 | 0 |
| 52 | 395595 | Well | 4011 ST HWY P | Festus | MO | Domestic | 255 | 80 | 45 |
| 53 | 349882 | Well | 590 MEYERWOOD | Festus | MO | Domestic | 225 | 80 | 75 |
| 54 | 413781 | Well | 5021 GREEN HILLS RD | Festus | MO | Domestic | 520 | 80 | 40 |
| 55 | 404699 | Well | 1596 SADDLE DR | Festus | MO | Domestic | 385 | 80 | 60 |
| 56 | 77625 | Well | C/O CLEARY HOMES | St Louis | MO | Domestic | 250 | 82 | 0 |
| 57 | 253095 | Well | 98 LOWRY LN | Hillsboro | MO | Domestic | 365 | 80 | 60 |
| 58 | 279594 | Well | 5000 GREEN HILLS | Festus | MO | Domestic | 375 | 80 | 45 |
| 59 | 312468 | Abandoned | 11207 CAROL ANN | Festus | MO | Domestic | 0 | | 0 |
| 60 | 432754 | Well | 3839 HWY P | Festus | MO | Domestic | 205 | 80 | 75 |
| 61 | 112476 | Abandoned | 3300 ST RT P | Festus | MO | Monitoring | 36 | | 0 |
| 62 | 4981 | Well | P O BOX 147 | Hematite | MO | Domestic | 280 | 80 | 15 |
| 63 | 4166 | Well | 1147 WESTHILL | Festus | MO | Domestic | 531 | | 45 |
| 64 | 12021 | Recnstruct | 11412 HARRISON LAKE RD | Festus | MO | Domestic | 199 | | 0 |
| 65 | 312461 | Abandoned | 11292 JO ANN DR | Festus | MO | Domestic | 0 | | 0 |
| 66 | 378522 | Well | 530 CEDAR LN | Festus | MO | Domestic | 427 | 80 | 60 |
| 67 | 307741 | Well | 4319 ST RD P | Festus | MO | Domestic | 310 | 80 | 45 |
| 68 | 240045 | Well | 180 DIETRICK LN | Festus | MO | Domestic | 477 | 80 | 30 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|----------------------------|--------------|-------|------------|-------|------|-------|
| 69 | 41794 | Well | 601 WARNE ST | Festus | MO | Domestic | 355 | 80 | 30 |
| 70 | 92507 | Well | 11488 ARGONNE RD | Festus | MO | Domestic | 355 | 81 | 18 |
| 71 | 96260 | Well | 108 DUBLIN LANE | Festus | MO | Domestic | 556 | 82 | 60 |
| 72 | 301259 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 90.6 | 60 | 0 |
| 73 | 301260 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 178.5 | 60 | 0 |
| 74 | 311423 | Abandoned | 11653 ARGONNE RD | Festus | MO | Domestic | 78 | | 0 |
| 75 | 378568 | Well | 11653 ARGONNE RD | Festus | MO | Domestic | 265 | 120 | 45 |
| 76 | 312460 | Well | 11263 JO ANN DR | Festus | MO | Domestic | 332 | | 0 |
| 77 | 312462 | Well | 11291 JO ANN DR | Festus | MO | Domestic | 311 | | 0 |
| 78 | 312463 | Abandoned | 3201 LEE RD | Festus | MO | Domestic | 0 | | 0 |
| 79 | 104847 | Abandoned | C/O BEV HENRY | Hillsboro | MO | Unknown | 116 | | 0 |
| 80 | 52011 | Well | 4000 HILLSBORO-HEMATITE RD | Festus | MO | Domestic | 363 | 83 | 20 |
| 81 | 211956 | Well | 3751 HILLSBORO HEMATITE RD | Festus | MO | Domestic | 285 | 80 | 30 |
| 82 | 211947 | Well | P O BOX 266 | Festus | MO | Domestic | 185 | 80 | 30 |
| 83 | 33312 | Well | 1232-B CRUSTAL HEIGHTS RD. | Crystal City | MO | Domestic | 253 | 80 | 40 |
| 84 | 64740 | Well | 3951 HWY P | Festus | MO | Domestic | 320 | 80 | 20 |
| 85 | 53376 | Well | PO BOX 79 | Hematite | MO | Domestic | 294 | 81 | 40 |
| 86 | 406739 | Pump | 11550 HARRISON LAKE RD | Hematite | MO | Domestic | 427 | | 0 |
| 87 | 419873 | Well | 11550 HARRISON LAKE RD | Hematite | MO | Domestic | 427 | 100 | 75 |
| 88 | 244504 | Abandoned | 105 MAIN STREET | Hematite | MO | Domestic | 0 | 12 | 0 |
| 89 | 434186 | Abandoned | 2331 SCHEUTZ RD | Hematite | MO | Monitoring | 20 | 20 | 0 |
| 90 | 301949 | Monitoring | 3300 HWY P | Hematite | MO | Monitoring | 79 | 60 | 0 |
| 91 | 301951 | Monitoring | 3300 HWY P | Hematite | MO | Monitoring | 24.8 | 60 | 0 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|--------------------------|------------|-------|------------|-------|------|-------|
| 92 | 285289 | Monitoring | 3300 HWY P | Hematite | MO | Monitoring | 26 | 5 | 0 |
| 93 | 53349 | Well | 2360 MARILYN LANE | Festus | MO | Domestic | 515 | 80 | 20 |
| 94 | 312458 | Abandoned | 11212 JO ANN DR | Festus | MO | Domestic | 0 | | 0 |
| 95 | 312459 | Abandoned | 11250 JO ANN DR | Festus | MO | Domestic | 0 | | 0 |
| 96 | 86665 | Well | #6 WALNUT PARK | Cedar Hill | MO | Unknown | 335 | 80 | 12 |
| 97 | 52055 | Well | HWYS A&P | Festus | MO | Unknown | 291 | | 0 |
| 98 | 105861 | Recnstruct | 2731 LUCAS LANE | Festus | MO | Unknown | 0 | | 0 |
| 99 | 150075 | Well | RIVERSBEND LOT4&5,FESTUS | Festus | MO | Domestic | 313 | 84 | 12 |
| 100 | 167702 | Well | 502A SOUTH TRUMAN BLVD | Festus | MO | Domestic | 325 | 80 | 33 |
| 101 | 150651 | Well | 2971 HWY P | Festus | MO | Domestic | 210 | 84 | 45 |
| 102 | 55493 | Well | | Festus | MO | Public | 440 | 350 | 75 |
| 103 | 198456 | Well | 1010 RIDGE RD | Desoto | MO | Domestic | 505 | 100 | 25 |
| 104 | 294806 | Well | 2751 STATE RD P | Festus | MO | Domestic | 250 | 80 | 35 |
| 105 | 323123 | Abandoned | 3300 STATE ROAD P | Hematite | MO | Soilboring | 33 | | 0 |
| 106 | 301256 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 49.5 | | 0 |
| 107 | 181566 | Well | 3688 DOROTHY DRIVE | Festus | MO | Domestic | 265 | 80 | 20 |
| 108 | 380684 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 33 | 4.2 | 0 |
| 109 | 52066 | Well | 11408 WESTHILL | Festus | MO | Domestic | 568 | 86 | 50 |
| 110 | 150695 | Well | 506 WALNUT LA | Festus | MO | Domestic | 556 | 82 | 75 |
| 111 | 302101 | Monitoring | 3400 KATHLEEN DR | Festus | MO | Monitoring | 128 | 720 | 0 |
| 112 | 284981 | Monitoring | 3300 HWY P | Hematite | MO | Monitoring | 24 | 5 | 0 |
| 113 | 373490 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 20 | 4.2 | 0 |
| 114 | 8906 | Well | 2441 BUCK CREEK | Festus | MO | Domestic | 373 | 82 | 30 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|-------------------------|----------|-------|------------|-------|------|-------|
| 115 | 170440 | Well | 13500 DAVIS LANE | Festus | MO | Domestic | 410 | 80 | 10 |
| 116 | 44990 | Well | 419TUCKHOE | St Louis | MO | Domestic | 250 | 82 | 15 |
| 117 | 373498 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 24 | 4.2 | 0 |
| 118 | 301950 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 150 | | 0 |
| 119 | 2367 | Well | PO BOX 71 | Hematite | MO | Domestic | 371 | 82 | 20 |
| 120 | 364387 | Abandoned | 3300 ST RT P | Festus | MO | Monitoring | 31.5 | | 0 |
| 121 | 380683 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 34 | 4.2 | 0 |
| 122 | 97380 | Well | 11408 HARRISON LAKE RD. | Festus | MO | Domestic | 291 | 82 | 30 |
| 123 | 61578 | Well | 11412 HARRISON LAKE RD | Festus | MO | Unknown | 352 | 145 | 15 |
| 124 | 382429 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 34 | 5 | 0 |
| 125 | 301955 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 89.2 | | 0 |
| 126 | 373489 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 32 | 4.2 | 0 |
| 127 | 403694 | Well | LOT 4 SALIDARITY FARMS | St Clair | MO | Domestic | 320 | 80 | 25 |
| 128 | 373482 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 34 | 4.2 | 0 |
| 129 | 373497 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 22.5 | 4.2 | 0 |
| 130 | 1474 | Well | 2354 MARILYN LANE | Festus | MO | Domestic | 332 | 85 | 12 |
| 131 | 153055 | Recnstruct | 2189 BUCK CREEK RD | Festus | MO | Unknown | 0 | | 0 |
| 132 | 89524 | Well | 1502 WESTRALE APT K | Festus | MO | Domestic | 385 | 80 | 12 |
| 133 | 382427 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 35.5 | 5 | 0 |
| 134 | 373491 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 31 | 4.2 | 0 |
| 135 | 373496 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 18 | 4.2 | 0 |
| 136 | 373483 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 30 | 4.2 | 0 |
| 137 | 380681 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 35 | 9.6 | 0 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|--------------------------|----------|-------|------------|-------|------|-------|
| 138 | 89784 | Well | PO BOX 71 | Hematite | MO | Domestic | 351 | 82 | 25 |
| 139 | 382439 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 34 | 5 | 0 |
| 140 | 373486 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 32 | 4.2 | 0 |
| 141 | 373485 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 34 | 4.2 | 0 |
| 142 | 501923 | Abandoned | 3300 STATE RD P | Festus | MO | Monitoring | 34 | 34 | 0 |
| 143 | 373500 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 32 | 10 | 0 |
| 144 | 380685 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 31 | 4.2 | 0 |
| 145 | 385505 | Abandoned | 3300 ST RT P | Festus | MO | Monitoring | 33.5 | 33.5 | 0 |
| 146 | 382426 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 34 | 5 | 0 |
| 147 | 167705 | Well | 2244 BEREAN LN | Festus | MO | Domestic | 345 | 80 | 25 |
| 148 | 373493 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 32 | 4.2 | 0 |
| 149 | 382438 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 32 | 5 | 0 |
| 150 | 373495 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 21 | 4.2 | 0 |
| 151 | 380682 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 32 | 9.6 | 0 |
| 152 | 382437 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 34 | 5 | 0 |
| 153 | 315234 | Monitoring | 3300 HWY P | Hematite | MO | Monitoring | 23.7 | 60 | 0 |
| 154 | 315235 | Monitoring | 3300 HWY P | Hematite | MO | Monitoring | 54.9 | 60 | 0 |
| 155 | 315239 | Monitoring | 3300 HWY P | Hematite | MO | Monitoring | 153 | 60 | 0 |
| 156 | 167431 | Well | 11400 ARGON RD | Festus | MO | Domestic | 502 | 80 | 24 |
| 157 | 8961 | Well | 2201 BUCK CREEK RD. | Festus | MO | Domestic | 107 | 80 | 15 |
| 158 | 56604 | Well | P O BOX 484 | Festus | MO | Domestic | 210 | 80 | 20 |
| 159 | 7380 | Well | 1709 MILLER ROAD, APT. A | Imperial | MO | Domestic | 251 | 80 | 30 |
| 160 | 501924 | Abandoned | 3300 STATE RD P | Festus | MO | Monitoring | 60.3 | 60.3 | 0 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|--------------------|--------|-------|------------|-------|------|-------|
| 161 | 501925 | Abandoned | 3300 STATE RD P | Festus | MO | Monitoring | 36 | 36 | 0 |
| 162 | 382435 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 36.3 | 5 | 0 |
| 163 | 380687 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 34.5 | 9.6 | 0 |
| 164 | 501922 | Abandoned | 3300 STATE RD P | Festus | MO | Monitoring | 25.8 | 25.8 | 0 |
| 165 | 380689 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 34 | 9.6 | 0 |
| 166 | 380688 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 33 | 9.6 | 0 |
| 167 | 382346 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 33.7 | 5 | 0 |
| 168 | 373494 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 33.5 | 4.2 | 0 |
| 169 | 373479 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 34 | 4.2 | 0 |
| 170 | 373480 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 15 | 4.2 | 0 |
| 171 | 373499 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 35 | 9.6 | 0 |
| 172 | 373481 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 33 | 4.2 | 0 |
| 173 | 364389 | Abandoned | 3300 ST RT P | Festus | MO | Monitoring | 35 | | 0 |
| 174 | 373478 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 35 | 4.2 | 0 |
| 175 | 382436 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 37.8 | 5 | 0 |
| 176 | 381518 | Monitoring | 3300 ST RD P | Festus | MO | Monitoring | 30 | 5 | 0 |
| 177 | 359021 | Abandoned | 3300 STATE ROAD P | Festus | MO | Unknown | 600 | 220 | 0 |
| 178 | 380690 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 35.5 | 9.6 | 0 |
| 179 | 382428 | Monitoring | 3300 STATE RD P | Festus | MO | Monitoring | 29.5 | 5 | 0 |
| 180 | 2213 | Well | 5 PINE RIDGE | Festus | MO | Domestic | 353 | 84 | 30 |
| 181 | 4904 | Well | RT 2 ARGONNE WOODS | Festus | MO | Domestic | 312 | 80 | 15 |
| 182 | 44982 | Recnstruct | 1954 BOOTH RD | Festus | MO | Unknown | 0 | | 0 |
| 183 | 373477 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 15 | 4.2 | 0 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|----------------------------|----------|-------|------------|-------|------|-------|
| 184 | 373476 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 28 | 4.2 | 0 |
| 185 | 380686 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 32 | 9.6 | 0 |
| 186 | 373474 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 38 | 4.2 | 0 |
| 187 | 319959 | Well | 4949 HILLSBORO | Hematite | MO | Domestic | 447 | 80 | 30 |
| 188 | 367112 | Well | 13000 DAVIS LN | Festus | MO | Domestic | 455 | 80 | 129 |
| 189 | 373475 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 32 | 4.2 | 0 |
| 190 | 338439 | Well | 4259 HILLSBORO HEMATITE RD | Festus | MO | Domestic | 540 | 80 | 50 |
| 191 | 89793 | Well | 5193 QUEEN DR. | Imperial | MO | Domestic | 330 | 82 | 20 |
| 192 | 381520 | Monitoring | 3300 ST RD P | Festus | MO | Monitoring | 30 | 5 | 0 |
| 193 | 387358 | Abandoned | 3300 STATE RD P | Festus | MO | Soilboring | 16 | | 0 |
| 194 | 373487 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 28 | 4.2 | 0 |
| 195 | 452345 | Abandoned | 3300 STATE HWY P | Festus | MO | Monitoring | 59 | 61.9 | 0 |
| 196 | 443481 | Well | 927 MEREMAC LANE | Festus | MO | Domestic | 460 | 80 | 25 |
| 197 | 381519 | Monitoring | 3300 ST RD P | Festus | MO | Monitoring | 30 | 5 | 0 |
| 198 | 452346 | Abandoned | 3300 STATE HWY P | Festus | MO | Monitoring | 18 | 19.2 | 0 |
| 199 | 452347 | Abandoned | 3300 STATE HWY P | Festus | MO | Monitoring | 38.5 | 41.2 | 0 |
| 200 | 373488 | Monitoring | 3300 ST RT P | Festus | MO | Monitoring | 27.5 | 4.2 | 0 |
| 201 | 301258 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 151.4 | 60 | 0 |
| 202 | 8049 | Well | RT 4 BOX 176 | De Soto | MO | Domestic | 456 | 80 | 15 |
| 203 | 10950 | Well | RR 4 BOX 176A | Desoto | MO | Domestic | 456 | | 0 |
| 204 | 33305 | Well | 1015 RIDGE RD. | Desoto | MO | Domestic | 402 | 80 | 50 |
| 205 | 113246 | Monitoring | 300 HWY P | Hematite | MO | Monitoring | 14.5 | 60 | 0 |
| 206 | 113346 | Abandoned | 3300 HIGHWAY P | Hematite | MO | Soilboring | 20 | 20 | 0 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|-----------------------------|-----------|-------|------------|-------|------|-------|
| 207 | 113244 | Monitoring | 300 HWY P | Hematite | MO | Monitoring | 14 | 60 | 0 |
| 208 | 113245 | Monitoring | 300 HWY P | Hematite | MO | Monitoring | 10 | 60 | 0 |
| 209 | 406733 | Pump | 11218 ARGONNE RD | Festus | MO | Domestic | 488 | | 0 |
| 210 | 419870 | Well | 11218 ARGONNE RD | Festus | MO | Domestic | 488 | 80 | 40 |
| 211 | 113243 | Monitoring | 300 HWY P | Hematite | MO | Monitoring | 12 | 60 | 0 |
| 212 | 8342 | Well | #47 OAKLAND MANOR | Festus | MO | Domestic | 435 | 82 | 80 |
| 213 | 364388 | Abandoned | 3300 ST RT P | Festus | MO | Monitoring | 30 | | 0 |
| 214 | 297 | Well | PINE RIDGE LOT 13 | Hillsboro | MO | Domestic | 316 | 82 | 10 |
| 215 | 31078 | Well | 4324 HERMATITE | Festus | MO | Unknown | 345 | 80 | 26 |
| 216 | 104845 | Recnstruct | 4414 HILLSBORO HEMATITE RD. | Festus | MO | Unknown | 0 | | 0 |
| 217 | 217933 | Well | 10 PINE RIDGE | Festus | MO | Domestic | 365 | 80 | 30 |
| 218 | 244699 | Abandoned | 5078 HILLSBORO HEMITITE RD | Hillsboro | MO | Domestic | 0 | 19 | 0 |
| 219 | 383529 | Monitoring | 3220 ST RT P | Festus | MO | Monitoring | 210 | 3.5 | 0 |
| 220 | 2748 | Well | RT 2 | Festus | MO | Domestic | 251 | 80 | 30 |
| 221 | 7379 | Well | PO BOX 162 | Hematite | MO | Domestic | 395 | 80 | 30 |
| 222 | 284980 | Monitoring | 3300 HWY P | Hematite | MO | Monitoring | 37 | 5 | 0 |
| 223 | 5367 | Well | PINE RIDGE TRACT 9 | Hillsboro | MO | Domestic | 500 | 85 | 35 |
| 224 | 9821 | Well | 4211 AMY CLARK RD. | Hillsboro | MO | Domestic | 455 | 82 | 20 |
| 225 | 11635 | Well | 4209 AMY CLARK | Hillsboro | MO | Domestic | 355 | 82 | 20 |
| 226 | 78869 | Well | FOXFIRE HILL | Hillsboro | MO | Unknown | 545 | 126 | 25 |
| 227 | 78886 | Well | 10400 BUCKEYE RD | Hillsboro | MO | Unknown | 360 | 80 | 25 |
| 228 | 89277 | Well | 5101 ERIC DR. | Imperial | MO | Unknown | 445 | 81 | 30 |
| 229 | 217934 | Well | 11 PINE RIDGE RD | Festus | MO | Domestic | 365 | 80 | 30 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|-----------|-----------------------------|-----------|-------|----------|-------|------|-------|
| 230 | 253358 | Well | 11410 ARGONNE | Festus | MO | Domestic | 565 | 80 | 40 |
| 231 | 10464 | Well | 2 BOURBEUSE MOBILE HM PK #A | Union | MO | Domestic | 300 | 82 | 10 |
| 232 | 16127 | Well | 4981 HILLSBORO-HEMATITE RD | Festus | MO | Domestic | 396 | 84 | 20 |
| 233 | 53211 | Well | LOT #748 DREAM VALLEY SUB. | Hillsboro | MO | Unknown | 502 | 80 | 20 |
| 234 | 63509 | Well | 1001 RIDGE RD | Desoto | MO | Domestic | 478 | 80 | 15 |
| 235 | 78893 | Well | PO BOX 7 | Hillsboro | MO | Unknown | 385 | 80 | 25 |
| 236 | 78901 | Well | HILLSBORO HEMATITE RD | Hillsboro | MO | Unknown | 345 | 80 | 25 |
| 237 | 89288 | Well | THERESA LINDEMANN | Festus | MO | Unknown | 420 | 82 | 15 |
| 238 | 92492 | Well | 1031 RIDGE ROAD | De Soto | MO | Domestic | 435 | 81 | 30 |
| 239 | 154972 | Well | | Festus | MO | Domestic | 334 | 80 | 25 |
| 240 | 227895 | Well | 10995 PINECREST | Desoto | MO | Domestic | 580 | 80 | 50 |
| 241 | 236212 | Well | 1000 VALLEY RD | Desoto | MO | Domestic | 354 | 80 | 15 |
| 242 | 252178 | Well | 5078 HILLSBORO HEMITTE RD | Hillsboro | MO | Domestic | 426 | 80 | 30 |
| 243 | 297860 | Well | 5177 HILSBORO HEMITITE | Hillsboro | MO | Domestic | 446 | 80 | 20 |
| 244 | 312469 | Abandoned | 11202 CAROL ANN | Festus | MO | Domestic | 0 | | 0 |
| 245 | 312470 | Abandoned | 11242 KATHY | Festus | MO | Domestic | 0 | | 0 |
| 246 | 312471 | Abandoned | 11230 KATHY | Festus | MO | Domestic | 0 | | 0 |
| 247 | 312473 | Abandoned | 11224 CATHY | Festus | MO | Domestic | 0 | | 0 |
| 248 | 312474 | Abandoned | 3425 KATHLEEN | Festus | MO | Domestic | 0 | | 0 |
| 249 | 312475 | Abandoned | 3420 KATHLEEN | Festus | MO | Domestic | 0 | | 0 |
| 250 | 312476 | Abandoned | 3413 KATHLEEN | Festus | MO | Domestic | 0 | | 0 |
| 251 | 312477 | Abandoned | 3419 KATHLEEN | Festus | MO | Domestic | 0 | | 0 |
| 252 | 32654 | Well | LOT 18 RIVER BEND ESTATES | Hematite | MO | Domestic | 309 | 82 | 50 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|-----------------|----------|-------|------------|-------|------|-------|
| 253 | 63507 | Well | 314 RUSSELL | Festus | MO | Domestic | 292 | 80 | 25 |
| 254 | 312472 | Abandoned | 11201 CATHY | Festus | MO | Domestic | 0 | | 0 |
| 255 | 301953 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 356 | | 0 |
| 256 | 301954 | Monitoring | 3300 HIGHWAY P | Hematite | MO | Monitoring | 137.9 | | 0 |
| 257 | 179079 | Well | PO BOX 108 | Hematite | MO | Domestic | 315 | 105 | 20 |
| 258 | 15641 | Well | BOX 33 CATHY DR | Festus | MO | Domestic | 332 | 80 | 30 |
| 259 | 4173 | Well | RT 2 BOX 312 | Festus | MO | Domestic | 351 | 82 | 14 |
| 260 | 313269 | Monitoring | 3300 STATE RD P | Hematite | MO | Monitoring | 35 | | 0 |
| 261 | 313224 | Monitoring | 3300 STATE RD P | Hematite | MO | Monitoring | 34 | | 0 |
| 262 | 313264 | Monitoring | 3300 STATE RD P | Hematite | MO | Monitoring | 34 | | 0 |
| 263 | 313265 | Monitoring | 3300 STATE RD P | Hematite | MO | Monitoring | 33 | | 0 |
| 264 | 313266 | Monitoring | 3300 STATE RD P | Hematite | MO | Monitoring | 34.5 | | 0 |
| 265 | 313267 | Monitoring | 3300 STATE RD P | Hematite | MO | Monitoring | 34 | | 0 |
| 266 | 313268 | Monitoring | 3300 STATE RD P | Hematite | MO | Monitoring | 32 | | 0 |
| 267 | 387943 | Abandoned | 2740 HWY P | | MO | Public | 440 | 350 | 0 |
| 268 | 145001 | Monitoring | 3300 STATE RD P | Hematite | MO | Monitoring | 20 | 60 | 0 |
| 269 | 152444 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 19 | 0 |
| 270 | 152445 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 20 | 0 |
| 271 | 152446 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 19 | 0 |
| 272 | 152447 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 20 | 0 |
| 273 | 152448 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 24 | 0 |
| 274 | 152449 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 19 | 0 |
| 275 | 152450 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 19 | 0 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|-----------|-----------------------------|----------|-------|------------|-------|------|-------|
| 276 | 152451 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 21 | 0 |
| 277 | 152459 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 15 | 0 |
| 278 | 152464 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 0 | 21 | 0 |
| 279 | 152465 | Abandoned | 3300 STATE RD P | Hematite | MO | Unknown | 24 | 24 | 0 |
| 280 | 364392 | Abandoned | 3300 ST RT P | Festus | MO | Monitoring | 33.6 | | 0 |
| 281 | 109110 | Well | 3540 SUSAN DRIVE | Imperial | MO | Domestic | 373 | 82 | 20 |
| 282 | 179060 | Well | 3542 PAM DRIVE | Festus | MO | Domestic | 375 | 80 | 20 |
| 283 | 16202 | Well | DEBBIE DR | Festus | MO | Domestic | 396 | 81 | 25 |
| 284 | 272864 | Well | 2770 VICTORIA DR | Festus | MO | Domestic | 508 | 80 | 30 |
| 285 | 406 | Well | 10965 MAPAVILLE-HEATITE | Festus | MO | Domestic | 386 | 82 | 13 |
| 286 | 17237 | Well | #4 ARGONNE RD | Festus | MO | Domestic | 315 | 81 | 20 |
| 287 | 63470 | Well | 5078 GRANVUE TERRACE | Festus | MO | Domestic | 455 | 80 | 30 |
| 288 | 432707 | Well | 2716 STATE RD P | Hematite | MO | Domestic | 285 | 80 | 30 |
| 289 | 53223 | Well | 10936 BUCKEYE RD. | Festus | MO | Unknown | 315 | 80 | 25 |
| 290 | 320003 | Well | 3706 MAJESTIC DR | Festus | MO | Domestic | 447 | 80 | 45 |
| 291 | 197402 | Well | 10870 BUCKEYE RD | Festus | MO | Domestic | 300 | 80 | 35 |
| 292 | 307725 | Well | 5046 KYPEVIEW AVE | Festus | MO | Domestic | 560 | 80 | 20 |
| 293 | 297790 | Well | 3443 LINDA DR | Festus | MO | Domestic | 447 | 200 | 0 |
| 294 | 336217 | Pump | 3443 LINDA DR | Festus | MO | Domestic | 0 | | 0 |
| 295 | 7411 | Well | 10966 MAPAVILLE ROAD | Festus | MO | Domestic | 394 | 82 | 12 |
| 296 | 319963 | Well | 10770 MAPAVILLE-HEMITITE RD | Festus | MO | Domestic | 426 | 80 | 45 |
| 297 | 332397 | Well | 3737 MAJESTIC DR | Festus | MO | Domestic | 500 | 80 | 75 |
| 298 | 126114 | Well | 520 MAPLE ST. | Festus | MO | Domestic | 332 | 82 | 40 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|------------------------|--------------|-------|----------|-------|------|-------|
| 299 | 16089 | Well | 3418 DEBBIE RD | Festus | MO | Domestic | 520 | 80 | 15 |
| 300 | 306304 | Well | 4938 BENT CREEK RD | Festus | MO | Domestic | 500 | 80 | 50 |
| 301 | 52057 | Well | 4475 BUCKEYE SCHOOL RD | Festus | MO | Domestic | 395 | 84 | 10 |
| 302 | 88636 | Well | 34 DEBBIE DRIVE | Festus | MO | Domestic | 472 | 80 | 20 |
| 303 | 168923 | Well | 10575 HEM-MAP RD | Festus | MO | Domestic | 392 | 80 | 22 |
| 304 | 32658 | Well | 11143 FOREST HAVEN RD | Festus | MO | Domestic | 471 | 82 | 10 |
| 305 | 396685 | Well | 3742 MAJESTIC | Festus | MO | Domestic | 540 | 80 | 30 |
| 306 | 99165 | Well | 10600 ST. ANDREWS CT. | Festus | MO | Domestic | 300 | 80 | 15 |
| 307 | 69262 | Well | PO BOX 79 | Crystal City | MO | Domestic | 285 | 84 | 22 |
| 308 | 141000 | Well | 2975 HWY 67 | Festus | MO | Domestic | 535 | 82 | 30 |
| 309 | 61621 | Well | 4318 FOREST DALE | St Louis | MO | Domestic | 330 | 82 | 25 |
| 310 | 198497 | Well | 10629 ST ANDREWS CT | Festus | MO | Domestic | 540 | 80 | 25 |
| 311 | 61603 | Well | 10549 TURNBERRY | Festus | MO | Domestic | 353 | 82 | 25 |
| 312 | 89783 | Well | 15 NELIA DR | Festus | MO | Domestic | 311 | 82 | 40 |
| 313 | 97358 | Well | PO BOX 401 | Pevely | MO | Domestic | 330 | 84 | 25 |
| 314 | 109069 | Well | 3424 DEBBIE DR. | Festus | MO | Domestic | 515 | 82 | 100 |
| 315 | 142688 | Well | 10517 TURNBERRY | Festus | MO | Domestic | 320 | 80 | 20 |
| 316 | 246433 | Recnstruct | 3152 PEBBLE CREEK | Festus | MO | Domestic | 260 | | 0 |
| 317 | 332367 | Well | 3749 MAJESTIC | Festus | MO | Domestic | 509 | | 0 |
| 318 | 141001 | Well | 1416 WALNUT CT | Festus | MO | Domestic | 390 | 82 | 25 |
| 319 | 142665 | Well | 4391 BUCKEYE SCHOOL RD | Festus | MO | Domestic | 506 | 80 | 30 |
| 320 | 179089 | Well | 4505 BUCKEYE SCHOOL RD | Festus | MO | Domestic | 500 | 100 | 18 |
| 321 | 33316 | Well | PO BOX 1253 | Festus | MO | Domestic | 332 | 80 | 20 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|-----------|------------------------|--------------|-------|----------|-------|------|-------|
| 322 | 56607 | Well | 107 BONNIE LANE | Festus | MO | Domestic | 272 | 80 | 30 |
| 323 | 126054 | Well | 836 WARNE ST. | Festus | MO | Domestic | 495 | 82 | 45 |
| 324 | 19195 | Well | BOX 100 | Hillsboro | MO | Unknown | 312 | 80 | 30 |
| 325 | 52059 | Well | 2730 ST ANDREWS | Festus | MO | Domestic | 347 | 85 | 25 |
| 326 | 153062 | Abandoned | BOX 100 | Hillsboro | MO | Unknown | 0 | 60 | 0 |
| 327 | 168933 | Well | 3225 HWY P | Festus | MO | Domestic | 511 | 80 | 50 |
| 328 | 77576 | Well | 11465 ARGONNE | Festus | MO | Domestic | 490 | 82 | 45 |
| 329 | 198467 | Well | 10533 TURNBERRY CT | Festus | MO | Domestic | 440 | 80 | 30 |
| 330 | 198498 | Well | 10541 TURNBERRY CT | Festus | MO | Domestic | 455 | 100 | 20 |
| 331 | 69261 | Well | 1249 WESTCHESTER DR. | Herculaneum | MO | Domestic | 405 | 80 | 28 |
| 332 | 49404 | Well | 11121 FOREST HAVEN | Festus | MO | Domestic | 361 | 102 | 25 |
| 333 | 135556 | Well | PO BOX 79 | Crystal City | MO | Domestic | 465 | 80 | 22 |
| 334 | 69302 | Well | P.O. BOX 79 | Crystal City | MO | Domestic | 405 | 80 | 18 |
| 335 | 89313 | Well | 10648 ST. ANDREWS | Festus | MO | Domestic | 385 | 81 | 13 |
| 336 | 63077 | Well | 400 S TRUMAN BLVD. | Crystal City | MO | Domestic | 185 | 80 | 19 |
| 337 | 69245 | Well | PO BOX 79 | Crystal | MO | Domestic | 305 | 82 | 27 |
| 338 | 61468 | Well | 5755 HUNT SPORT | St Louis | MO | Domestic | 534 | 82 | 100 |
| 339 | 53357 | Well | 3245 BURNING TREELARE | Festus | MO | Domestic | 400 | 81 | 16 |
| 340 | 63515 | Well | 3246 BURNING TREE LANE | Festus | MO | Domestic | 538 | 80 | 20 |
| 341 | 286266 | Well | 3761 MAJESTIC | Festus | MO | Domestic | 520 | 80 | 75 |
| 342 | 279582 | Well | 10500 TUYRNBERRY CT | Festus | MO | Domestic | 500 | 80 | 25 |
| 343 | 279580 | Well | 10525 TURNBERRY CT | Festus | MO | Domestic | 315 | 80 | 20 |
| 344 | 306308 | Well | 401 SUNFIELD | Festus | MO | Domestic | 500 | 80 | 60 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|-----------|-----------------------------|--------------|-------|----------|-------|------|-------|
| 345 | 53381 | Well | 3260 BURNING TREE LANE | Festus | MO | Domestic | 416 | 81 | 15 |
| 346 | 89188 | Well | PO BOX 510373 | St. Louis | MO | Unknown | 334 | 81 | 95 |
| 347 | 142662 | Well | 712 RICHARD AVENUE | Festus | MO | Domestic | 380 | 80 | 25 |
| 348 | 10726 | Well | 10700 HEMATITE MAPAVILLE RD | Festus | MO | Domestic | 435 | 80 | 40 |
| 349 | 10727 | Well | 10700 HEMATITE MAPAVILLE RD | Festus | MO | Domestic | 394 | 80 | 15 |
| 350 | 96719 | Well | 10904 BUCKEYE RD | Hillsboro | MO | Unknown | 337 | 80 | 30 |
| 351 | 154981 | Well | 10732 STROUP | Festus | MO | Unknown | 375 | 80 | 25 |
| 352 | 237061 | Well | HIGHWAY B | Hillsboro | MO | Domestic | 566 | 120 | 60 |
| 353 | 66096 | Well | BUCKEYE SCHOOL RD | Hillsboro | MO | Unknown | 205 | 80 | 25 |
| 354 | 135604 | Well | 10600 OLD STROUP RD | Festus | MO | Domestic | 190 | 81 | 40 |
| 355 | 196980 | Well | 104 MEADOW LANE | Festus | MO | Domestic | 354 | 80 | 20 |
| 356 | 209495 | Well | 4755 BUCKEYE SCHOOL RD | Festus | MO | Domestic | 272 | 81 | 15 |
| 357 | 227859 | Well | 6021 WESTMINSTER CT | Imperial | MO | Domestic | 290 | 80 | 35 |
| 358 | 227909 | Well | 1530 TIN HOUSE RD | Hillsboro | MO | Domestic | 560 | 80 | 60 |
| 359 | 294083 | Well | 3720 MAJESTIC | Festus | MO | Domestic | 505 | 80 | 15 |
| 360 | 69293 | Well | P O BOX 79 | Crystal City | MO | Domestic | 425 | 90 | 22 |
| 361 | 80711 | Well | 10542 TURNBERRY CT | Festus | MO | Domestic | 385 | 80 | 15 |
| 362 | 44918 | Well | P O BOX 703 | Festus | MO | Domestic | 329 | 82 | 20 |
| 363 | 49434 | Well | 2390 COOK ROAD | Imperial | MO | Domestic | 350 | 105 | 30 |
| 364 | 61626 | Well | 9870 GERALD DR | St Louis | MO | Domestic | 473 | 82 | 30 |
| 365 | 69246 | Well | PO BOX 79 | Crystal | MO | Domestic | 285 | 84 | 19 |
| 366 | 69292 | Well | P O BOX 79 | Crystal City | MO | Domestic | 245 | 80 | 18 |
| 367 | 61529 | Well | 33 TURNBERRY CT | Festus | MO | Domestic | 473 | 82 | 30 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|-------------------------------|--------|-------|----------|-------|------|-------|
| 368 | 89538 | Well | 10516 TURNBERRY CT. | Festus | MO | Domestic | 360 | 80 | 20 |
| 369 | 5360 | Well | 10575 HEMATITE MAPAVILLE RD. | Festus | MO | Domestic | 147 | 81 | 40 |
| 370 | 15460 | Well | 1024 SADDLE DR | Festus | MO | Domestic | 374 | 80 | 30 |
| 371 | 49407 | Recnstruct | 11054 BUCKEYE | Festus | MO | Domestic | 0 | | 0 |
| 372 | 53380 | Well | 14350 STATE RD E | Desoto | MO | Domestic | 456 | 81 | 18 |
| 373 | 154996 | Well | 4475 HILLSBORO HEMITITE | Festus | MO | Domestic | 477 | 80 | 25 |
| 374 | 179066 | Well | 1950 W MAIN | Festus | MO | Domestic | 310 | 80 | 12 |
| 375 | 253023 | Well | 10633 BUCKEYE ROAD | Festus | MO | Domestic | 325 | 80 | 45 |
| 376 | 1761 | Well | RT 5 BOX 404 | Desoto | MO | Domestic | 160 | 80 | 40 |
| 377 | 140984 | Well | 15 MADISON OAKS | Festus | MO | Domestic | 352 | 82 | 15 |
| 378 | 141011 | Well | 3146 HWY A | Festus | MO | Domestic | 307 | 80 | 25 |
| 379 | 104264 | Recnstruct | 10534 BUCKEYE RD | Festus | MO | Domestic | 0 | | 0 |
| 380 | 168721 | Well | 10594 STROUP RD | Festus | MO | Domestic | 230 | 80 | 25 |
| 381 | 53379 | Well | 3112 LAKEWOOD CRT | Festus | MO | Domestic | 295 | 80 | 0 |
| 382 | 96282 | Well | 820 EDGEWOOD DR | Arnold | MO | Domestic | 332 | 82 | 40 |
| 383 | 226252 | Well | 10980 BAILEY SCHOOL RD | Festus | MO | Domestic | 310 | 80 | 12 |
| 384 | 391 | Well | 11131 FOREST HAVEN | Festus | MO | Domestic | 365 | 82 | 12 |
| 385 | 279604 | Well | 10520 MAPAVILLE - HEMATITE RD | Festus | MO | Domestic | 335 | 80 | 30 |
| 386 | 441674 | Well | 10576 LANNELL WOODS | Festus | MO | Domestic | 460 | 80 | 25 |
| 387 | 272859 | Well | 4210 LADONNA DR | Festus | MO | Domestic | 365 | 80 | 40 |
| 388 | 445011 | Pump | 4211 LADONDA | Festus | MO | Domestic | 0 | | 0 |
| 389 | 6992 | Well | 10 DEAR TRAIL | Festus | MO | Domestic | 434 | 82 | 0 |
| 390 | 126096 | Well | 101 MAIN ST. | Festus | MO | Public | 895 | 412 | 600 |

Table 3. MDNR Database of Wells within 3-mile radius of the Hematite Site

| Fig. No. | Ref. Num | Well Type | Site Address | City | State | Usage | Depth | Case | Yield |
|----------|----------|------------|-----------------------------|-----------|-------|----------|-------|------|-------|
| 391 | 253391 | Well | 10496 STROUP ROAD | Festus | MO | Domestic | 165 | 80 | 30 |
| 392 | 446568 | Well | 10442 CRAIG DR | Festus | MO | Domestic | 560 | 80 | 25 |
| 393 | 97395 | Well | 4635 AMY CLARK ROAD | Hillsboro | MO | Domestic | 456 | 82 | 15 |
| 394 | 89785 | Well | 452 APPLESTONE | Ballwin | MO | Domestic | 412 | 82 | 25 |
| 395 | 92523 | Well | 3112 LAKEWOOD CT. | Festus | MO | Domestic | 456 | 81 | 50 |
| 396 | 307744 | Well | 10427 CRAIG DR | Festus | MO | Domestic | 580 | 80 | 30 |
| 397 | 307745 | Well | 10439 CRAIG DR | Festus | MO | Domestic | 560 | 80 | 45 |
| 398 | 286230 | Well | 112 KROECK | Arnold | MO | Domestic | 411 | 80 | 60 |
| 399 | 52020 | Well | 11165 BUCKEYE RD | Festus | MO | Domestic | 405 | 84 | 12 |
| 400 | 3179 | Well | 166 BARBERRY | Festus | MO | Domestic | 270 | 82 | 20 |
| 401 | 970 | Well | 1700 SCENIC DR | Festus | MO | Domestic | 245 | 133 | 18 |
| 402 | 1566 | Well | 10400 STROUP | Festus | MO | Domestic | 449 | 78 | 22 |
| 403 | 53221 | Well | 3148 HWY. A | Festus | MO | Unknown | 315 | 80 | 25 |
| 404 | 92484 | Well | 104909 LANELL WOODS | Festus | MO | Domestic | 313 | 80 | 12 |
| 405 | 395602 | Well | 5170 JEREMIAH BLVD | Hillsboro | MO | Domestic | 520 | 80 | 25 |
| 406 | 93344 | Well | LOT 5 MADISON OAK | Hillsboro | MO | Domestic | 360 | 80 | 26 |
| 407 | 124945 | Recnstruct | 101 S LAKE DR | Hillsboro | MO | Unknown | 0 | | 0 |
| 408 | 198463 | Well | 10206 MADISON OAKS RD | Festus | MO | Domestic | 420 | 80 | 35 |
| 409 | 142649 | Well | 324 LEE | Festus | MO | Domestic | 240 | 80 | 15 |
| 410 | 367103 | Well | 10240 MAPAVILLE HEMATITE RD | Festus | MO | Domestic | 545 | 80 | 45 |
| 411 | 307773 | Well | 10290 MAPAVILLE HEMATITE RD | Festus | MO | Domestic | 435 | 80 | 4 |
| 412 | 61707 | Well | 5517 WINDMILL RD | Imperial | MO | Domestic | 280 | 80 | 20 |
| 413 | 8907 | Well | 10 SANDY BROOK | Festus | MO | Domestic | 291 | 82 | 20 |