FDA U.S. FOOD & DRUG ADMINISTRATION

K-6

May 22, 2018

SUBJECT: Docket No. 030-04675; License No. 20-08361-01; Request for Additional Information for Decommissioning Plan, Environmental Report and Statement of Intent for the U.S. Food and Drug Administration Winchester Engineering and Analytical Center; Mail control No. 592468

03004675

Stephen Hammann, Senior Health Physicist
Decommissioning, ISFSI, and Reactor HP Branch
Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission Region I
2100 Renaissance Blvd.
King of Prussia, PA 19406-2713

REC RG1 05 24 '18 AM 09 59

Dear Mr. Hammann:

This is in reference to your letter of December 5, 2017 regarding the request for additional information (RAI) for the Decommissioning Plan (DP), Environmental Report (ER) and the Statement of Intent (SOI) that we submitted in our letter dated July 21, 2017.

The attached Groundwater Evaluation Characterization report prepared by our third party environmental firm, Mabbett & Associates, Inc. provides our supplementary response to RAI No.7 adding to prior response letters dated February 2, 2018; February 22, 2018; and April 4, 2018. The enclosed Mabbett & Associates report concludes that any precipitation received by the pervious surfaces within the contaminated soil decommissioning area is unlikely to result in the transport of contamination to either the underlying bedrock or surrounding overburden aquifers; and also provides a detailed analysis of the potential groundwater impact of the soil contamination.

WEAC and North Wind Solutions look forward to hosting meetings to answer any questions to expedite the review process. Please contact Elon Malkin, Assistant RSO and Decommissioning Project Manager, with any questions or comments regarding this submittal. He can be contacted at 781-756-9814 or by email at Elon.Malkin@fda.hhs.gov.

Sincerely,

Brian L. Baker -S

Digitally signed by Brian L. Baker -S
DN: c=US, o=U.S. Government, ou=HHS, ou=FDA, ou=People, cn=Brian L. Baker -S, 0.9.2342.19200300.100.1.1=2000359907
Date: 2018.05.22 17:30:15 -04'00'

Brian L. Baker P.E.
Director

Enclosure 1 Groundwater Evaluation Characterization Report

U.S. Food and Drug Administration
Winchester Engineering & Analytical Center
109 Holton Street
Winchester, MA 01890
www.fda.gov

592468

NMSS/RGN1 MATERIALS-002

Mabbett®

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GROUNDWATER CHARACTERIZATION EVALUATION
WINCHESTER ENGINEERING AND ANALYTICAL CENTER
WINCHESTER, MASSACHUSETTS

DATE: May 21, 2018

SUBJECT: Groundwater Characterization Evaluation
109 Holton Street
Winchester, Massachusetts

TO: Elon Malkin (U.S. Food and Drug Administration)

FROM: Stephen Vetere, PE, LSP, LEP (Mabbett & Associates, Inc.)
Michael Bloom (Mabbett & Associates, Inc.)

Mabbett & Associates, Inc. (Mabbett®) is pleased to provide this Groundwater Characterization Evaluation documenting the hydrogeological conditions at the Food and Drug Administration (FDA) Winchester Engineering and Analytical Center (WEAC) facility located at 109 Holton Street on the border of Winchester and Woburn, Massachusetts (the Site). This groundwater evaluation is based on Mabbett®'s review of available subsurface exploration reports (GEI, 2003 and Sanborn Head, 2016) prepared for the WEAC facility, environmental reports obtained from the Massachusetts Department of Environmental Protection's (MassDEP's) Waste Site/Reportable Release File Viewer for surrounding properties, and observations made by Mabbett® personnel during the March 6, 2018 soil chemical characterization sampling event. The hydrogeological evaluation narrative is supported by attached boring logs, figures, and reports submitted to the MassDEP for abutting disposal sites located at 35 and 65 Holton Street.

PROJECT BACKGROUND

North Wind Site Services, LLC (North Wind) submitted the *Decommissioning Plan (DP) for Soil Areas* and *Environmental Report for the Partial Decommissioning Activities* for WEAC facility on behalf of the FDA in June 2017. After review of these documents, the U.S. Nuclear Regulatory Commission (NRC) issued a Request for Additional Information (RAI) dated December 5, 2017 which stated:

> *"As required by 10 CFR 40.42 (g)(4)(i), the licensee needs to provide sufficient site groundwater characterization data to allow NRC staff to determine the radiological status of the groundwater at the facility. The status of groundwater presence beneath the site appears confusing. The DP states that the depth to groundwater in this region is greater than 6 feet below ground surface (bgs), and the groundwater was not measured in overburden soil or in soil investigative borings advanced to depths of up to 26 feet bgs at the site based on an environmental site assessment report (Sanborn Head, 2016) (Sec. 3.5.2). The statement above provides the impression that groundwater was observed at the site. However, Sect. 4.4 states that groundwater has not been encountered in historical borings down to 26 feet bgs.*
>
> *Please clarify the groundwater status at the site, which may be found in the following two references, along with the associated boring logs and field notes:*
>
> 1) *Sanborn Head. 2016.* Phase I Environmental Site Assessment with Limited Subsurface Investigation 109 Holton Street Woburn and Winchester, Massachusetts*; Sanborn Head; April 6, 2016.*

2) *GW A. 1994.* Environmental Assessment: US FDA WEAC; *Groundwater Associates, November 1994".*

FDA's response to the RAI, included as RAI 7 with attached soil boring completion logs from GEI and Sanborn Head, stated:

> *"Groundwater in this region is generally reported to be at or near 6-ft bgs; however, extensive (37) site specific investigative borings and test pits have shown no evidence of groundwater in soils above bedrock. Included are boring logs from Sanborn Head 2016 and an investigation conducted by GEI in 2003 (Attachment D). No boring logs available from GW. A, 1994. No groundwater was encountered during any of these investigations."*

Based on telephone conversations between the FDA (Mr. Elon Malkin) and the NRC, including Region 1 and Headquarters, the FDA inquired with the NRC Headquarters hydrologist to further clarify RAI 7 and received the following response:

> *"The geotechnical borings were installed at the WEAC site (Sanborn, Head & Associates). Wet conditions were observed in the unconsolidated materials at boring SH-4, and multiple depths at boring SH-2 and SH-3. As indicated in the boring logs, however, the depths to water were not measured (as no monitoring wells were installed). It is reasonable to assume that a perched water within the unconsolidated materials and/or at the contact with the bedrock below may be present at the site. This perched water may exhibit strong spatial variability, in addition to its temporal nature. The statement by FDA that there is no groundwater at the site is not accurate. My point is that FDA's discussion and description of the site groundwater in the current DP is not sufficient. A more detailed discussion about the site groundwater condition is needed based on the site geotechnical borings/test pit logs, and other publicly available reports. In addition, FDA needs to provide discussion/analysis of the soil contamination found at the site to show that the site groundwater would not likely be impacted in the groundwater section of the DP."*

To address the issues raised by NRC in the response above, and respond to their request for additional analysis, Mabbett® has provided a detailed discussion of the geologic and hydrogeologic setting of the WEAC facility, as well as an evaluation of the likelihood that chemical contaminants identified during the characterization sampling could impact groundwater underlying the Site or surrounding areas.

EVALUATION OF REGIONAL TOPOGRAPHY

Mabbett® evaluated the topography of the WEAC facility and surrounding properties to determine whether the absence of groundwater in the overburden can be explained by the elevation of the WEAC facility relative to the adjacent land. The WEAC facility is topographically elevated relative to the area surrounding the facility to the east, west, and south. The northern portion of the facility, which is subject to the radiation-contaminated soil decommissioning, and where the polycyclic aromatic hydrocarbons (PAHs) and arsenic were detected in soil samples associated with MassDEP RTN 3-34878, is located at an elevation of 71 to 77 feet (NAVD 88) based on the Exploration Location Plan included in the Sanborn Head Phase I Environmental Site Assessment (2016), and slopes gradually from north to south. Descriptions of the relative elevation of the decommissioning area to the surrounding properties is presented below:

- The undeveloped area north of the decommissioning area is located at a higher elevation than the decommissioning area, and slopes from north to south toward the WEAC facility. Bedrock outcrops are visible looking north beyond the northern fence line of the WEAC facility, suggesting shallow bedrock within the decommissioning area.

- To the east, the bordering properties are approximately 15 feet lower in elevation than the decommissioning area.
- To the south, beyond the roadway which provides access to the Site from Holton Street, the bordering properties are approximately 27 feet lower in elevation than the decommissioning area.
- To the west, abutting properties are located approximately 16 feet lower in elevation than the decommissioning area, beyond a concrete retaining wall.

Based on the elevation differences between the decommissioning area and topographically downslope sides (east, west, and south) of the WEAC facility, where the ground surface on the adjacent properties is at a lower elevation than the bedrock surface throughout the decommissioning area, overburden groundwater would not be expected to be present within the decommissioning area.

As evidenced by exposed bedrock outcrops, portions of which are visible at the ground surface on the northern portion of the WEAC facility, and as confirmed by the bedrock encountered during the subsurface investigations conducted by Sanborn Head and GEI, the WEAC facility appears to have been constructed on a raised section of bedrock outcrop, with local fill soils placed to level the terrain during construction of the facility. This observation provides an additional line of evidence in support of the conclusion that groundwater is not present in the overburden materials within the decommissioning area.

EVALUATION OF SOIL BORING LOGS

During previously conducted Site characterization activities, 16 test pits were excavated by GEI (2003) and 49 geotechnical and Geoprobe borings were advanced by Sanborn Head (2015). As noted in these reports, groundwater was not encountered during either of the subsurface investigations, with the depth of exploration between 2 and 22.5 feet below ground surface. Mabbett®'s review of test pit and soil boring logs verified the conclusion that groundwater is not present in the overburden within the decommissioning area.

The NRC's clarification statement regarding RAI 7 makes reference to "wet conditions" observed by Sanborn Head during advancement of soil borings SH-2 and SH-3, suggesting these observations indicate the presence of perched water or potentially groundwater. However, the presence of wet soils in the samples collected from these borings can be explained by the drilling methodology utilized by Sanborn Head's drilling contractor (Crawford Drilling Services of Westminster, Massachusetts). Both boring SH-2 and SH-3 were installed utilizing drive-and-wash methodologies. The drive-and-wash method entails driving a 4-inch casing into the ground with a heavy hammer. After the top of each sampling interval is reached, the soil cuttings are washed out of the casing with a tri-cone or roller bit using water. Mabbett® believes that the "wet" description of soils from these boring logs is more than likely due to the introduction of water into the borehole during the advancement of the casing. The presence of "wet" soils in the ensuing split-spoon samples is a result of the permeability of the underlying soils (not representative of natural soil saturation), as the casing is "washed out" to remove soils prior the collection of the next split-spoon sample from the base of the cased borehole. The drive-and-wash method is a common geotechnical drilling practice frequently employed when obstructions within the overburden are anticipated, particularly when water will be introduced into the borehole during confirmatory bedrock coring.

The soil wetness documented at soil boring SH-4 cannot be attributed to the drilling method, since this boring was advanced using hollow stem augers. However, it is likely due to the surficial nature of the soil boring, which was completed to refusal at 2.5 feet bgs, in conjunction with the 2.46-inch precipitation

event which occurred in the area on the date of the soil boring installation (September 30, 2015). A copy of the National Oceanic and Atmospheric Administration (NOAA) Record of Climatological Observations for September 2015 is included as Attachment 1 for reference.

EVALUATION OF GROUNDWATER ELEVATION AT SURROUNDING PROPERTIES

In order to determine the depth to groundwater in the topographically depressed areas surrounding the WEAC facility, Mabbett® personnel reviewed Response Action Outcome (RAO) Completion documents submitted to the MassDEP associated with releases of oil and/or hazardous materials (OHM) at abutting properties. Specifically, documents were reviewed for the 35 and 65 Holton Street properties, which abut the WEAC facility to the northwest and south, respectively.

Based on the groundwater elevation measurements provided in the *LSP Evaluation and Opinion* for RTN 3-2439 (65 Holton Street), groundwater was encountered at depths ranging from 15 to 24 feet bgs during site assessment activities, which spanned a timeframe long enough to account for seasonal variability in the elevation of the groundwater table. Three monitoring wells were installed on the 65 Holton Street property, only one of which was screened in the overburden (MW-1, total depth 20 feet below ground surface). Based on the elevation difference between the WEAC soil decommissioning area and the 65 Holton Street property (approximately 16 feet lower), the expected overburden groundwater elevation in the decommissioning area would be approximately 31 feet below the ground surface of the WEAC decommissioning area, which is well below the observed top of bedrock within the decommissioning area. The *LSP Evaluation and Opinion* report for this site can be reviewed at: http://eeaonline.eea.state.ma.us/EEA/fileviewer/Scanned.aspx?id=193063.

Mabbett® also evaluated the available groundwater elevation data associated with RTN 3-1269 for the 35 Holton Street property, which is located hydraulically downgradient of and abutting the WEAC facility to the south. There were six monitoring wells installed at this site extending to depths ranging from 17 to 29 feet bgs. Over the 12-year monitoring period prior to the RAO submittal in 1999, the depth to groundwater ranged from 9.89 to 23.60 feet bgs in monitoring wells that were screened within the overburden aquifer. Based on the difference in elevation between the WEAC decommissioning area and the 35 Holton Street property (approximately 27 feet lower), the expected overburden groundwater elevation in the decommissioning area would be approximately 37 to 50 feet below the ground surface of the WEAC decommissioning area, which is well below the observed top of bedrock within the decommissioning area. A copy of the 1994 RAO Statement for the Keystone Battery Facility at 35 Holton Street can be reviewed at: http://eeaonline.eea.state.ma.us/EEA/fileviewer/Scanned.aspx?id=190549.

Mabbett® provides this evaluation of the groundwater elevation on adjacent properties to demonstrate that the overburden within the decommissioning area is unlikely to be saturated due to its elevation relative to the surrounding area. Any moisture observed in the overburden materials within the decommissioning area is likely to be a result of perched water at the bedrock interface resulting from a precipitation event or water introduced to the overburden during investigative activities.

Although no information is available to evaluate the actual depth to groundwater within the bedrock aquifer underlying the WEAC facility, the elevation of the Aberjona River, located approximately 800 feet to the southeast of the Site, is approximately 53-59 feet lower than the WEAC decommissioning area. This elevation can be used to approximate the expected depth to groundwater within the bedrock interval underlying the WEAC radiation decommissioning area.

LEACHABILITY EVALUATION OF IDENTIFIED CHEMICAL CONTAMINANTS

Based on the chemical soil characterization soil sampling performed on March 6, 2018, concentrations of arsenic and benzo(a)pyrene were detected at concentrations exceeding Massachusetts Contingency Plan (MCP) Reportable Concentrations for Category S-2 Soil (RCS-2). The RCS-2 exceedances are summarized in the following bullets:

- Arsenic was detected in soil sample WEAC-SO-04 at a concentration of 21.3 mg/Kg, which exceeds the RCS-2 standard of 20 mg/Kg.
- Arsenic was detected in soil sample WEAS-SO-03 at a concentration of 44.4 mg/Kg, which exceeds the RCS-2 standard of 20 mg/Kg.
- Benzo(a)pyrene was detected in soil sample WEAC-SO-02 at a concentration of 11 mg/Kg, which exceeds the RCS-2 standard of 7 mg/Kg (the duplicate soil sample for WEAC-SO-02 contained benzo(a)pyrene at a concentration of 5.971 mg/kg, which is below RCS-2).

The presence of these contaminants in shallow soils within the decommissioning area is being evaluated and addressed under the MCP through a Release Abatement Measure (RAM).

Arsenic and benzo(a)pyrene are contaminants commonly associated with soils containing historical or urban fill. Microscopic analysis of soil sample WEAC-SO-02 confirmed the presence of coal and fly ash within soil sample WEAC-SO-02, which is considered the likely source of elevated arsenic and benzo(a)pyrene. Given the physical and chemical properties of arsenic and benzo(a)pyrene, and the following lines of evidence, the detected concentrations of the contaminants identified are not anticipated to pose a risk of leaching to Site groundwater:

- Toxicity characteristic leaching procedure (TCLP) results of the chemical characterization sampling for arsenic (WEAC-SO-03) were below the laboratory reporting limit for TCLP of 0.050 milligrams per liter (mg/L), indicating a low potential for leachability of arsenic;
- Benzo(a)pyrene has a very low water solubility, at less than 1 mg/ml at 63°F (NTP, 1992), indicating a low potential for leachability of benzo(a)pyrene; and
- The absence of an overburden aquifer within the area where the exceedances were identified provides limited contact between impacted soil and Site groundwater.

Mabbett® does not anticipate performing any monitoring well installation or groundwater sampling as part of the RAM.

TRANSPORT OF RADIONUCLIDES TO GROUNDWATER

The transport of WEAC-specific radionuclides of concern (ROCs) within the environmental water pathway is determined by several characteristics which include the local soil/water pH, the chemical nature of the ROCs, the gravity-gradient soil chemistry, the annual water infiltration rate, and the hydrogeological characteristics of the Site. Generally speaking, as soil and water pH approach neutrality, the lower the solubility of the ROCs. Additionally, these variables are directly influenced by the maximum quantity and concentration of residual contamination available for environmental transport.

It is also important to note that natural, ambient, groundwater contains background levels of uranium, thorium, radium, and radon. The ability to measure the residual additional contribution of these naturally occurring radionuclides from a specific anthropogenic source term becomes increasingly difficult with distance from the source term (due to dispersion and dilution) and the size of the source term itself in relation to the size of total natural source term transited by water. The ambient source term increasingly dominates with distance from the anthropogenic source term.

Specific to WEAC, current on-site characterization has found that the source term lies within an unsaturated soil zone. This has been demonstrated by extensive sampling of former Atomic Energy Commission burial areas which has involved the excavation of loose soils to bedrock. During this process no water or saturated soil has been encountered. While this zone has been subject to precipitation infiltration and flow-through, it is apparent that it has not been under continuous submersion within a saturated zone.

However, the WEAC source term has been subject to over 60 years of precipitation. Thus, it is reasonable to assume that the local soil pH has been largely neutralized over the years thus limiting current leachability into potential perched water. Stated differently, the readily leachable quantity of residual material has already been removed over the last 60 years leaving the uranium, thorium, and radium in a relatively stable and non-soluble chemical state. Certain decay progeny, notably radon, does flow readily within the water pathway, however given the 3-day half-life of radon it is difficult to conceive a migration path where by it would present a public dose contributor.

SUMMARY OF SITE HYDROGEOLOGY AND RECOMMENDATIONS

Based on the evaluation of available subsurface data from the Site and adjacent areas, Mabbett® offers the following conclusions regarding the Site hydrogeology:

- Groundwater has not been observed in the overburden during previous subsurface investigations of the decommissioning area at the WEAC facility.
- "Wet" soil conditions observed at Sanborn Head soil borings SH-2 and SH-3 were likely the result of the drive-and-wash methodology utilized to advance the soil borings, which involved the introduction of water into the casing of the borings to "wash out" soil cuttings from the boring.
- Soil moisture observed at Sanborn Head soil boring SH-4 was likely present due to infiltration from a recent severe storm event.
- Soil moisture identified at the overburden soil/bedrock interface is likely associated with precipitation falling onto pervious surfaces at the Site, infiltrating through the overburden soils, and dispersing across the bedrock surface before ultimately discharging to the overburden aquifer to the east, west, and south of the Site.
- The WEAC facility, including the radiation-contaminated soil decommissioning area, is located on a topographically elevated area constructed by placing fill soils atop a bedrock outcrop. Properties abutting the WEAC facility are topographically lower than the decommissioning area by approximately 15 to 16 feet to the east and west, and 27 feet to the south.
- Bedrock was encountered at depths ranging from 2.0 to 22.5 feet bgs during subsurface investigations performed by GEI (2003) and Sanborn Head (2015).
- Even assuming bedrock is 22.5 feet bgs throughout the decommissioning area, the elevation of bedrock would still be higher than the overburden groundwater surface at the abutting 35 Holton Street and 65 Holton Street disposal sites. This difference in topography may account for the absence of groundwater in the overburden within the decommissioning area.
- While the depth to groundwater within the bedrock aquifer has not been confirmed at the WEAC facility, a depth to bedrock groundwater of approximately 53-59 feet below the ground surface of the WEAC decommissioning area can reasonably be assumed based on the elevation of the Aberjona River, located approximately 800 feet to the southeast of the Site.
- Based on the hydrogeologic characterization summarized above, the measured leachability of the arsenic in soils, and the solubility of PAHs, the chemical contaminants identified in soil are

not expected to pose a risk to bedrock groundwater underlying the Site, or to groundwater in the overburden aquifer identified at the topographically lower properties to the east, west, and south of the WEAC facility.

- Similarly, the precipitation received by the pervious surfaces within the radiation-contaminated soil decommissioning area is unlikely to result in the transport of ROCs to either the underlying bedrock or surrounding overburden aquifers.
- Even if groundwater within the decommissioning area were to be impacted by these contaminants, there is no completed exposure pathway since groundwater at the Site is not used as a source of drinking water. The Site and vicinity are serviced by public water provided by the Massachusetts Water Resources Authority (MWRA) water system and a series of local reservoirs.

We appreciate the opportunity to support the FDA WEAC on this project. If you have any questions, comments, or require additional information, please do not hesitate contact either of the undersigned.

Very truly yours,

MABBETT & ASSOCIATES, INC.
By:

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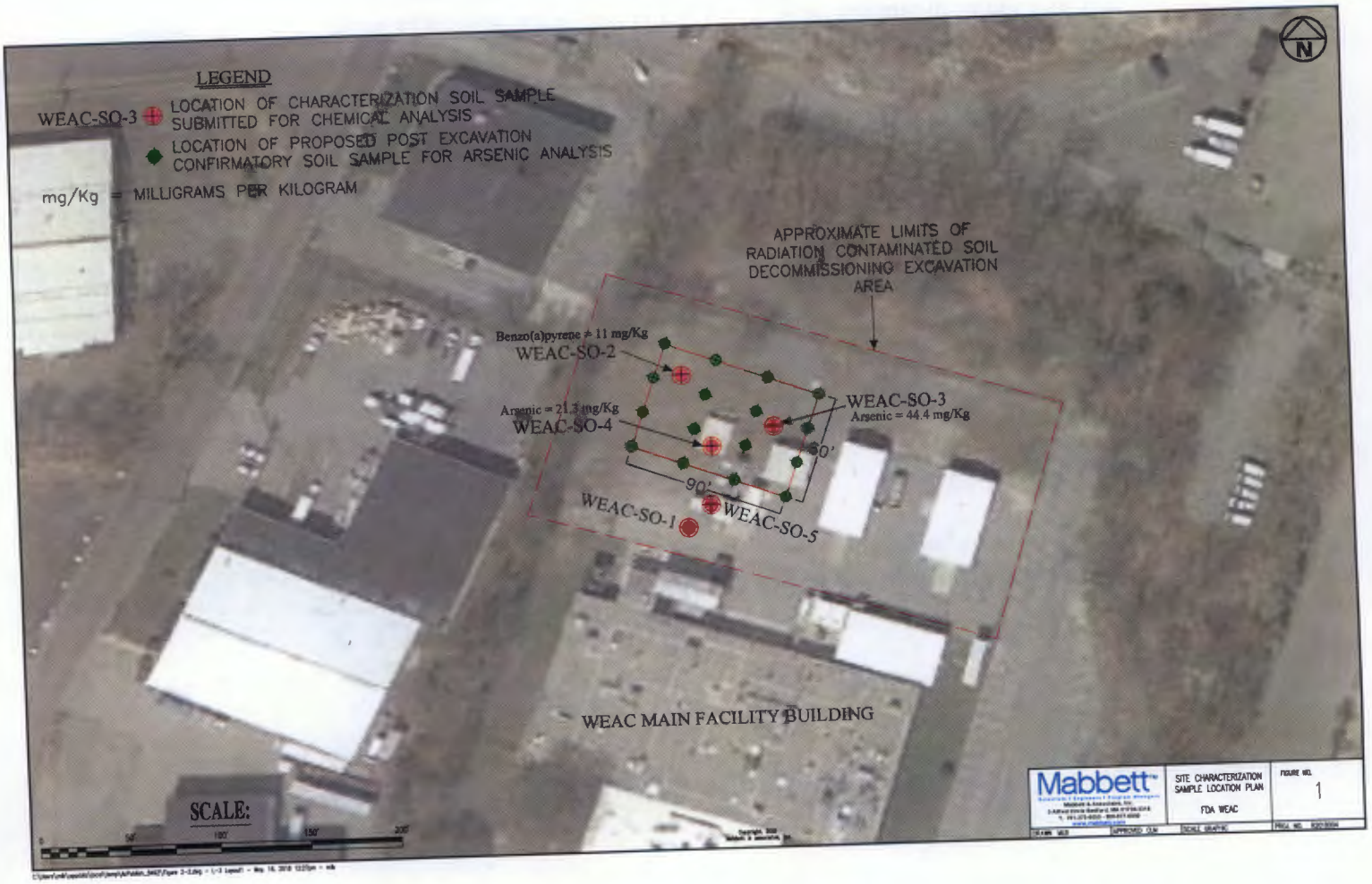
Enclosures: Figure 1 – Site Characterization Sample Locations Plan
Attachment 1 – NOAA Record of Climatological Observation


LEGEND
WEAC-SO-3 LOCATION OF CHARACTERIZATION SOIL SAMPLE SUBMITTED FOR CHEMICAL ANALYSIS
LOCATION OF PROPOSED POST EXCAVATION CONFIRMATORY SOIL SAMPLE FOR ARSENIC ANALYSIS
mg/Kg = MILLIGRAMS PER KILOGRAM
APPROXIMATE LIMITS OF RADIATION CONTAMINATED SOIL DECOMMISSIONING EXCAVATION AREA
Benzo(a)pyrene = 11 mg/Kg
WEAC-SO-2
Arsenic = 21.3 mg/Kg
WEAC-SO-4
WEAC-SO-3
Arsenic = 44.4 mg/Kg
60'
90'
WEAC-SO-1
WEAC-SO-5
WEAC MAIN FACILITY BUILDING
SCALE:
0
50'
100'
150'
200'
N
Mabbett
SITE CHARACTERIZATION SAMPLE LOCATION PLAN
FDA WEAC
FIGURE NO.
1

ATTACHMENT 1
NOAA Record of Climatological Observation

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service
Current Location: Elev: 12 ft. Lat: 42.3606° N Lon: -71.0097° W
Station: **BOSTON, MA US USW00014739**

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.
Generated on 05/15/2018

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Observation Time Temperature: Unknown Observation Time Precipitation: 2400

Year	Month	Day	Temperature (F)			Precipitation					Evaporation		Soil Temperature (F)					
			24 Hrs. Ending at Observation Time		At Observation	24 Hour Amounts Ending at Observation Time				At Obs. Time			4 in. Depth			8 in. Depth		
			Max.	Min.		Rain, Melted Snow, Etc. (in)	Flag	Snow, Ice Pellets, Hail (in)	Flag	Snow, Ice Pellets, Hail, Ice on Ground (in)	24 Hour Wind Movement (mi)	Amount of Evap. (in)	Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
2015	09	01	79	69		0.00		0.0										
2015	09	02	91	66		0.00		0.0										
2015	09	03	82	70		0.01		0.0										
2015	09	04	72	62		T		0.0										
2015	09	05	73	58		0.00		0.0										
2015	09	06	82	61		0.00		0.0										
2015	09	07	93	66		0.00		0.0										
2015	09	08	96	72		0.20		0.0										
2015	09	09	93	72		0.00		0.0										
2015	09	10	77	64		0.17		0.0										
2015	09	11	73	63		0.66		0.0										
2015	09	12	71	60		0.01		0.0										
2015	09	13	66	63		0.38		0.0										
2015	09	14	72	57		0.00		0.0										
2015	09	15	84	62		0.00		0.0										
2015	09	16	81	65		0.00		0.0										
2015	09	17	89	64		0.00		0.0										
2015	09	18	85	65		0.00		0.0										
2015	09	19	79	62		0.00		0.0										
2015	09	20	75	57		T		0.0										
2015	09	21	66	53		0.00		0.0										
2015	09	22	68	56		0.00		0.0										
2015	09	23	68	54		0.00		0.0										
2015	09	24	74	58		0.00		0.0										
2015	09	25	66	55		0.00		0.0										
2015	09	26	63	50		0.00		0.0										
2015	09	27	64	48		0.00		0.0										
2015	09	28	78	56		0.00		0.0										
2015	09	29	84	65		0.04		0.0										
2015	09	30	78	57		2.46		0.0										
Summary			77	61		3.93		0.0										

Empty, or blank, cells indicate that a data observation was not reported.
*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown
"s" This data value failed one of NCDC's quality control tests.
"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.
"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.
Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.