



New Jersey Department of Environmental Protection
Site Remediation Program

Report Certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites

These certifications are to be used for reports submitted for RCRA GPRA 2020, CERCLA, and Federal Facility Sites. The Department has developed guidance for report certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites under traditional oversight. The "Person Responsible for Conducting the Remediation Information and Certification" is required to be submitted with each report. For those sites that are required or opt to use a Licensed Site Remediation Professional (LSRP) the report must also be certified by the LSRP using the "Licensed Site Remediation Professional Information and Statement". For additional guidance regarding the requirement for LSRPs at RCRA GPRA 2020, CERCLA and Federal Facility Sites see http://www.nj.gov/dep/srp/srra/training/matrix/quick_ref/rcra_cercla_fed_facility_sites.pdf.

Documents:

"Proposed Plan for Landfill Sites FTMM-02 and FTMM-08 (March 2017)"

PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: William R. Colvin

Representative First Name: William Representative Last Name: Colvin

Title: Fort Monmouth BRAC Environmental Coordinator (BEC)

Phone Number: (732) 380-7064

Ext: _____

Fax: _____

Mailing Address: P.O. Box 148

City/Town: Oceanport

State: NJ

Zip Code: 07757

Email Address: william.r.colvin18.civ@mail.mil

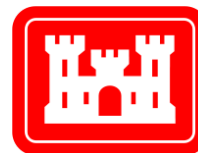
This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____

Date: 3/23/17

Name/Title: William R. Colvin, PMP, CHMM, PG
BRAC Environmental Coordinator



PROPOSED PLAN FOR LANDFILL SITES FTMM-02 AND FTMM-08

Fort Monmouth, Oceanport, Monmouth County, New Jersey

March 2017

INTRODUCTION

1 The U.S. Army is presenting this **Proposed Plan***
2 for the public to review and comment regarding
3 the **preferred alternative** proposed for two former
4 landfills at Fort Monmouth (FTMM) in Ocean-
5 port, Monmouth County, New Jersey: FTMM-02
6 and FTMM-08. The U.S. Army (Army) is the lead
7 agency for FTMM in accordance with **Compre-**
8 **hensive Environmental Response, Compen-**
9 **sation, and Liability Act (CERCLA)** and Execu-
10 tive Order 12580. New Jersey Department of En-
11 vironmental Protection (NJDEP) is the state sup-
12 port agency under the **National Contingency**
13 **Plan (NCP)** for FTMM. The Army, in consultation
14 with NJDEP, shall make the final selection of the
15 response action for sites FTMM-02 and FTMM-
16 08.

17 **Remedial investigations (RIs)** were performed
18 at FTMM-02 and FTMM-08 for soil from 1998
19 through 2000 and for groundwater from 1997
20 through 2013. Results from the RIs for FTMM-02
21 concluded that risks to human health and the en-
22 vironment from soil and **groundwater** at the land-
23 fill are within acceptable ranges for the current
24 and future intended land use which consists of
25 passive open space, and therefore, no further ac-
26 tion (NFA) is required under CERCLA. However,
27 to provide safety protection for future non-resi-
28 dential use, a vegetated soil cover will be placed
29 over the FTMM-02 landfill area. **A Feasibility**
30 **Study (FS)** was conducted at FTMM-08, since
31 there were unacceptable risks and hazards to hu-
32 man health associated with direct contact with
33 **constituents of potential concern (COPC)** in
34 soil.

35 Since there are areas where **polychlorinated bi-**
36 **phenyl (PCBs)** were detected in soil at both
37 sites, the Army considered both the NJDEP Guid-
38 ance on Coordination of NJDEP and U.S. Envi-
39 ronmental Protection Agency (USEPA) PCB Re-
40 mediation Policies (NJDEP, 2013) in evaluating
41 the remedial alternatives. The USEPA considers
42 sites to be remediated if PCB concentrations in
43 soil do not exceed 1 milligram per kilogram

44 (mg/kg) or if the final remedial levels are greater
45 than 1 mg/kg and less than or equal to 25 mg/kg
46 and the site is covered with an appropriate cap.
47 Therefore, limited soil excavations of isolated ar-
48 eas will be conducted at FTMM-02 and FTMM-08
49 to remove soils with PCB concentrations in ex-
50 cess of the Toxic Substance and Control Act
51 (TSCA) self-implementing cleanup level pf 25
52

* Words or phrases shown in **BOLD** are defined in the glossary
at the end of this document.

Dates to Remember: PLEASE MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD: **March 28, 2017 – April 27, 2017**

The Army will accept written comments on the
Proposed Plan during the public comment period.
Written comments may be postmarked or
emailed by April 27, 2017 and sent to:

BRAC Environmental Coordinator
OACSIM - U.S. Army Fort Monmouth
Attn: Mr. William Colvin
P.O. Box 148
Oceanport, NJ 08641
Email: william.r.colvin18.civ@mail.mil

PUBLIC MEETING: **April 12, 2017**

The Army will hold a public meeting to explain the
Proposed Plan and the proposed remedial alter-
native. Oral and written comments will also be ac-
cepted at the meeting. The meeting will be held
at Eatontown Public Library, 33 Broad Street,
Eatontown, New Jersey 07724.

The Proposed Plan can be found at
<http://www.pica.army.mil/ftmonmouth/> or the Fort
Monmouth Environmental Restoration Public In-
formation Repository (the Administrative Record)
at the following location:

Monmouth County Library, Eastern Branch
1001 Route 35, Shrewsbury, NJ
Phone: (732) 683-8980
Hours: Mon-Thurs, 9am-9pm; Fri-Sat, 9am-
5pm; and Sun, 1pm-5pm

1 mg/kg. Excavated soil will be disposed of off-site
2 at an approved facility. A **pre-design investiga-**
3 **tion (PDI)** was conducted at each site in Septem-
4 ber 2016 to support the limited PCB hotspot re-
5 moval to determine lateral and vertical extent of
6 PCB concentrations greater than of 25 mg/kg.

7 Soils containing PCB concentrations greater than
8 25 mg/kg and less than 50 mg/kg will be disposed
9 of at an off-site TSCA approved non-hazardous
10 landfill disposal facility (Subtitle D). Soils contain-
11 ing PCB concentrations greater than 50 mg/kg
12 will be disposed of at an off-site TSCA approved
13 hazardous disposal facility (Subtitle C). After re-
14 moval and off-site disposal of isolated soil areas
15 with concentrations of PCBs exceeding 25 mg/kg,
16 a vegetated soil cover or functional equivalent
17 (e.g., such as open field with porous pavement)
18 will be placed over each landfill. At FTMM-02, the
19 soil cover will be installed to provide safety pro-
20 tection for non-residential use from future expo-
21 sure to solid waste at the landfill. At FTMM-08,
22 the soil cover or functional equivalent will be in-
23 stalled to provide public health protection due to
24 potential direct contact with COPCs in soils. The
25 vegetated soil covers or functional equivalent will
26 also be used to control surface water runoff and
27 erosion and will be installed to be consistent with
28 the NJDEP Solid Waste requirements. **Institu-**
29 **tional controls (ICs)** to maintain the soil cover
30 and prevent residential land use will be placed on
31 each landfill.

32 This Proposed Plan describes the preferred alter-
33 native as removal of isolated soil areas with con-
34 centrations of PCBs exceeding 25 mg/kg followed
35 by the installation of a vegetated soil cover at
36 FTMM-02 and at FTMM-08 a vegetated soil cover
37 or functional equivalent. ICs and **engineering**
38 **controls (ECs)** will be installed to control expo-
39 sure to solid waste at the landfills for future non-
40 residential users, and provides the rationale for
41 this preference. In addition, **land use controls**
42 **(LUCs)** to maintain the vegetated soil cover and
43 prevent residential land use will be implemented
44 at the landfills through a **LUC Implementation**
45 **Plan (LUCIP)** to document the ICs, location of the
46 ECs, and identify procedural responsibilities in-
47 cluding landfill cover inspections, monitoring and
48 reporting, and long-term management require-
49 ments. As part of the LUCs, the existing **Classifi-**
50 **cation Exception Area (CEA)** at FTMM-02
51 would be revised and would remain in place until

52 NJDEP **Ground Water Quality Standard**
53 **(GWQS)** are achieved at the site. At FTMM-08, a
54 CEA would be established to address those com-
55 pounds (benzene and tetrachloroethene [PCE]),
56 which exceed the NJDEP GWQS, and would re-
57 main in place until NJDEP GWQS are achieved
58 at the site.

59 PUBLIC INVOLVEMENT PROCESS

60 As the lead agency for implementing the environ-
61 mental response program at FTMM, the Army
62 has prepared this Proposed Plan in accordance
63 with CERCLA Section 117(a) and Section
64 300.430(f)(2) of the NCP to continue its commu-
65 nity awareness efforts and to encourage public
66 participation. After the public has the opportunity
67 to review and comment on this Proposed Plan,
68 the Army will summarize and respond to the com-
69 ments received during the public comment period
70 at a public meeting. Information on the times and
71 places for public comment and the public meeting
72 are shown in the box on Page 1.

73 Local community members and other interested
74 parties are encouraged to review this Proposed
75 Plan and submit comments. The Army will care-
76 fully consider all comments received from the
77 public and provide responses which will be com-
78 piled into a **Responsiveness Summary**. The de-
79 cision on which action is appropriate for the land-
80 fills will be detailed in a **Decision Document**,
81 which will include the Responsiveness Summary.

82 This Proposed Plan summarizes information that
83 can be found in greater detail in the Final RI Re-
84 port for FTMM-02 (Parsons, 2016) and the Final
85 RI/FS Report for FTMM-08 (Parsons, 2016) and
86 other documents contained in the **Administra-**
87 **tive Record** file for FTMM and on the website
88 listed in the box on Page 1. The Army encourages
89 the public to review these documents to gain a
90 more comprehensive understanding of the land-
91 fills and all associated activities.

92 SITE BACKGROUND

93 FTMM is located in the central-eastern portion of
94 New Jersey in Monmouth County, approximately
95 45 miles south of New York City, New York, 70
96 miles northeast of Philadelphia, Pennsylvania,
97 and 40 miles east of Trenton, New Jersey. The
98 Atlantic Ocean is approximately 3 miles to the
99 east. FTMM was comprised of three areas: the
100 Main Post (MP), the Charles Wood Area (CWA),

1 shown on Figure 1, and the Evans Area (EA) (not
2 shown). FTMM's MP and CWA were selected for
3 closure by the Base Realignment and Closure
4 (BRAC) Commission in 2005, and officially closed
5 on September 15, 2011. (The EA was closed un-
6 der BRAC in 1998 and has since been transferred
7 from FTMM.)



8
9 **Figure 1: Fort Monmouth Location**

10 Suspected hazardous waste sites were initially
11 identified at FTMM in a report prepared in May
12 1980 (U.S. Army Toxic and Hazardous Materials
13 Agency [USATHAMA]). Thirty-seven sites at the
14 MP, CWA, and EA were identified as having
15 known or suspected waste material. It was
16 recommended that FTMM perform surface water
17 and groundwater sampling at the Installation's
18 landfills.

19 A study was conducted in 1980 at locations that
20 were considered to be major landfill areas. The
21 locations of the landfills covered under this
22 Proposed Plan are shown on Figure 2. A timeline
23 of significant events including the years of
24 operation since FTMM opened nearly 100 years
25 ago is provided on Figure 3 for FTMM-02 and
26 FTMM-08. During the 1980 study, groundwater
27 and surface water samples were collected and
28 analyzed for compliance with National **Primary**
29 **and Secondary Drinking Water Standards**.
30 The study concluded that the targeted chemicals
31 were not found at high enough concentrations to
32 cause degradation to ground or surface water,
33 but it was recommended that FTMM submit a
34 landfill registration statement to the NJDEP
35 (USATHAMA, 1988).

36 A follow-up evaluation was completed in 1988 to
37 determine if environmental/hazardous waste
38 disposal conditions at FTMM (including the
39 landfills) had changed since the assessment in

40 1980. Based on an assessment of available
41 data, it was recommended that USATHAMA not
42 conduct a site investigation (SI), but that surface
43 water and groundwater sampling at the landfills
44 continue (USATHAMA, 1988). Numerous
45 investigations were conducted at FTMM
46 including the landfills over the past 30 years. The
47 most recent RI report for each landfill is a
48 compilation of previous investigations, and an
49 evaluation of available analytical data collected
50 from each site.

51 **SITE CHARACTERIZATION**

52 Major vegetation zones at FTMM consist of
53 landscaped areas, wetlands, **riparian** areas,
54 upland forests, and old field habitats. Much of the
55 upland areas of the MP consist of extensive areas
56 of regularly mowed lawns and landscaped areas.
57 Detailed vegetation information can be found in
58 the Baseline Ecological Evaluation (BEE) Report
59 (Shaw, 2012).

60 FTMM is situated on Coastal Plain deposits which
61 are unconsolidated material that has not been
62 cemented or compacted. Soil encountered at
63 FTMM is comprised of brown, fine to coarse sand
64 with fine gravel and root fragments and
65 green/gray/black sandy silt and clay with varying
66 amounts of sand and gravel.

67 Groundwater is typically encountered at the MP
68 and in the surrounding areas at shallow depths 2
69 to 9 feet below ground surface (bgs).
70 Groundwater elevations fluctuate with the tidal
71 action in area creeks (AECOM, 2013). New
72 Jersey GWQS classify groundwater for FTMM as
73 Class II-A: **potable water** with secondary uses
74 including agricultural and industrial (NJDEP,
75 2010).

76 Since the landfills at FTMM-02 and FTMM-08
77 have been inactive since 1968 and 1981,
78 respectively (see Figure 3), there has been
79 steady growth and stabilization of vegetation
80 (grass, trees, and bushes) at each site. The
81 anticipated future land use for the two landfill sites
82 included in this Proposed Plan is passive open
83 space (Edaw, Inc., 2008) or possibly an open
84 field with porous parking lots. Land planned for
85 use as "open space" is expected to remain
86 undeveloped, with only occasional maintenance
87 activities (e.g., grounds keeping), utility work
88 associated with underground or overhead utilities
89 that may be present within the site boundary, and

Figure 2 - Main Post Landfill Locations

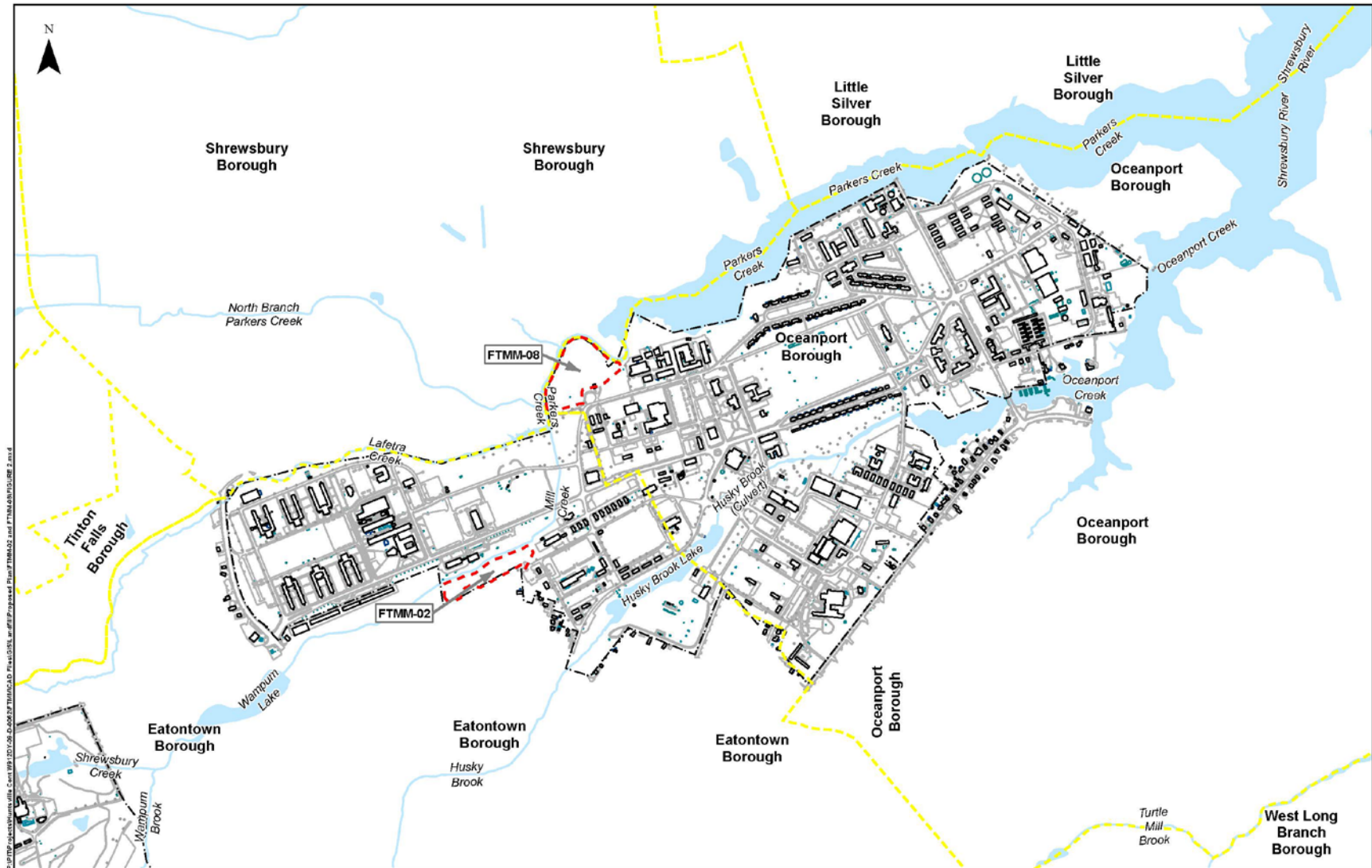
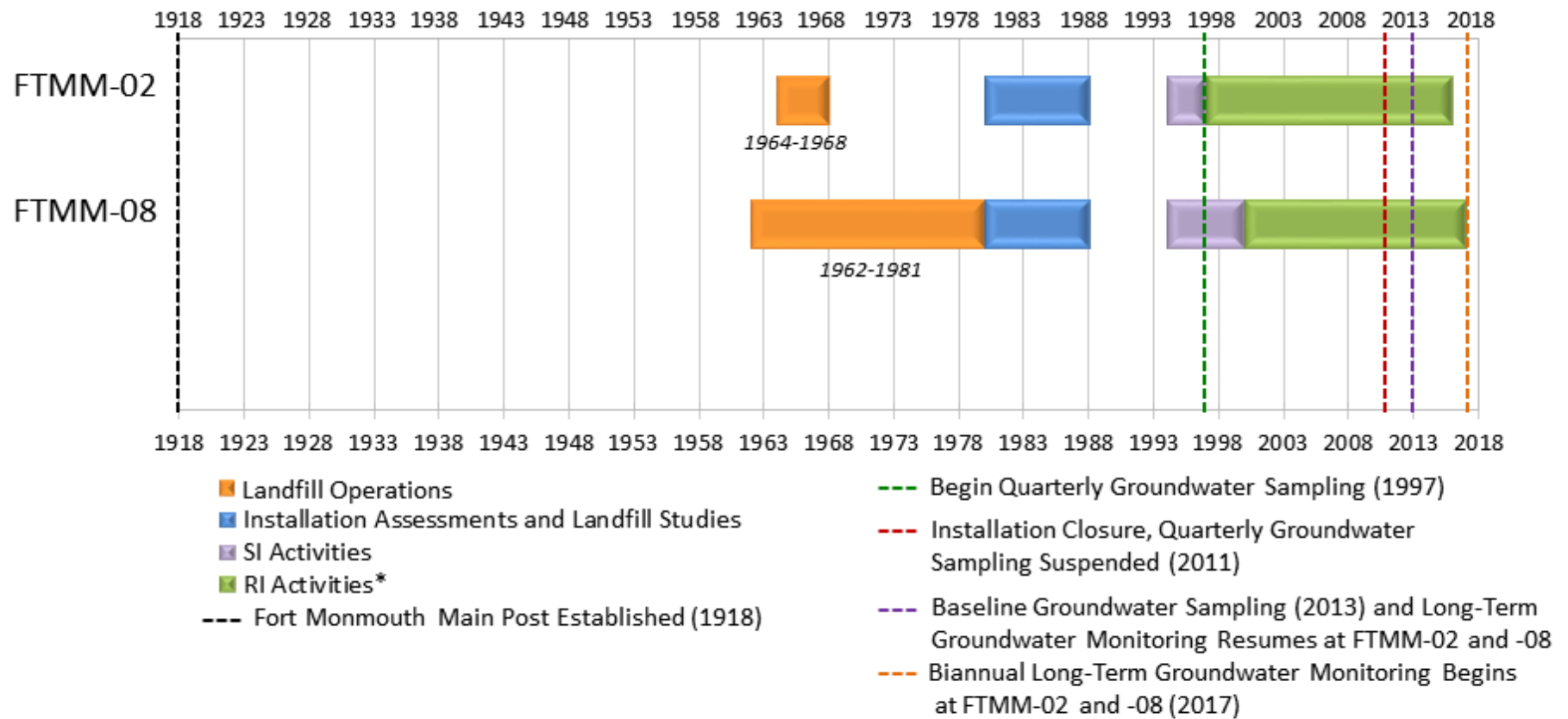


Figure 3 – Timeline of Significant Events



*End date denotes NJDEP acceptance or anticipated acceptance of Final RI Report for FTMM-02 and Final RI/FS Report for FTMM-08.

1 recreational activity (e.g., hiking and biking on
2 established trails).

3 To determine the nature and extent of
4 contamination at each landfill site, chemical
5 concentrations measured during SIs and RIs
6 were compared to Federal (USEPA) and State
7 (NJDEP) residential, non-residential, and
8 **Impact to Groundwater (IGW)** screening
9 criteria as well as FTMM-specific background
10 concentrations for metals. NJDEP comparison
11 criteria included:

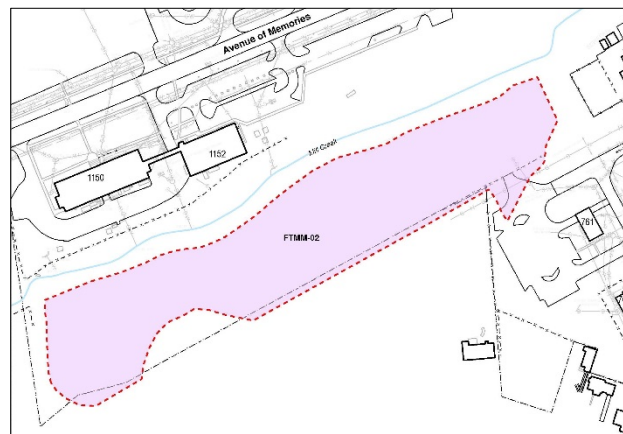
- 12 • Residential Direct Contact Soil Remediation
13 Standards (RDCSRS), Non-Residential Di-
14 rect Contact Soil Remediation Standards
15 (NRDCSRS), and IGW screening levels
16 (SLs) for soils and sediments;
- 17 • GWQS for groundwater;
- 18 • Surface Water Quality Standards (SWQS)
19 for surface water; and
- 20 • USEPA TSCA self-implementing cleanup
21 level of 25 mg/kg were used for PCBs in low
22 occupancy areas.

23 USEPA **Regional Screening Levels (RSLs)** for
24 soil and groundwater were used for comparison
25 purposes because the Army is required to
26 complete a CERCLA-compliant RI (including
27 **human health risk assessment [HHRA]**).
28 Therefore, RSLs were used to identify those
29 chemicals that are COPCs. COPCs were then
30 evaluated in a HHRA. No COPCs were
31 determined to be **constituents of concern**
32 **(COCs)** at FTMM-02 and only eight were
33 determined to be COCs in soil at FTMM-08.

34 The following subsections describe site
35 characterization activities for soil, groundwater,
36 surface water, and sediments for each landfill
37 site covered by this Proposed Plan. The results
38 of the HHRAs for each site are presented
39 following site characterization.

40 **FTMM-02**

41 FTMM-02 landfill is located in the southwest
42 corner of the MP and has an area of
43 approximately 6.5 acres. The site is bordered by
44 Mill Creek to the north, Building 1122 to the east,
45 an open grassed area to the west, and an
46 abandoned railroad track bed to the south
47 (Figure 4).



48
49

Figure 4 – FTMM-02 Site Boundary and Layout

50 FTMM-02 was in operation from approximately
51 1964 to 1968 and was reportedly used for the
52 general disposal of domestic and industrial
53 wastes. The landfill soil cover material ranges in
54 thickness from 0 to 10 feet and averages 2.4 feet
55 thick. Previous investigations at FTMM-02 are
56 summarized below, and the Final RI Report was
57 submitted to NJDEP in January 2016 (Parsons,
58 2016) and subsequently approved by NJDEP
59 (September, 2016).

60 Soil

61 A total of 390 near-surface soil samples were
62 collected from 193 borings from November 1998
63 to June 1999. The samples were collected be-
64 tween 6 and 12 inches bgs except for the **vola-**
65 **tile organic compound (VOC)** samples, which
66 were collected at approximately 24 inches bgs.

67 A total of 622 soil samples were collected and
68 analyzed for total PCBs from 73 Geoprobe® bor-
69 ings in the eastern and western portions of
70 FTMM-02 in February 1999 for a focused PCB
71 soil investigation. Samples were collected con-
72 tinuously every six inches from the ground sur-
73 face to the groundwater table, approximately 8
74 feet bgs.

75 A total of 208 soil samples were collected from
76 Geoprobe® borings from March 1999 through
77 January 2000 to delineate VOC (benzene and
78 chlorobenzene) concentrations in the soil and
79 shallow groundwater. Samples were collected
80 continuously from the ground surface (1 foot
81 bgs) to just below the groundwater table to 9 feet
82 bgs.

83 Concentrations of one VOC, six **semi-volatile**
84 **organic compounds (SVOCs)**, three pesti-
85 cides, five PCBs plus total PCBs, and 14 metals
86 exceeded their current NJDEP RDCSRS and/or

1 USEPA RSL in at least one soil sample. VOCs,
2 SVOCs, metals, pesticides, and PCBs were
3 evaluated as COPCs in soil in the HHRA, and
4 none were identified as COCs. However, the
5 presence of PCBs in soil requires further
6 consideration based on the NJDEP Guidance on
7 Coordination of NJDEP and USEPA PCB
8 Remediation Policies (NJDEP, 2013).

9 A total of 37 soil samples were collected from 18
10 borings in September 2016 for the PDI. Samples
11 were collected in two areas (central-west and
12 central-east) at depths ranging from 3.3 to 8.5
13 feet bgs depending on historical concentrations
14 and were analyzed for PCBs. Soil samples were
15 collected until PCB concentrations were less
16 than 25 mg/kg to determine the horizontal and
17 vertical extent of the excavation areas.

18 Groundwater

19 Between 1995 and 2000, 24 groundwater
20 monitoring wells were installed at FTMM-02 to
21 investigate and monitor contaminants in
22 groundwater. Groundwater sampling was
23 conducted quarterly from May 1997 through
24 2013. Groundwater samples were analyzed for
25 metals, VOCs, pesticides, PCBs, and SVOCs
26 until June 2004 when the groundwater long-term
27 monitoring (LTM) program was reduced to 16
28 wells and samples were analyzed only for VOCs
29 based upon approval from the NJDEP. The
30 sampling data from the most recent eight
31 quarters (November 2009 to August 2011), the
32 August 2013 Baseline Sampling Event (BSE)
33 (Parsons, 2013), and the 2014 Annual Sampling
34 Event (ASE) were evaluated as being
35 representative of recent conditions. Following
36 the recommendations in the August 2013 BSE
37 report (Parsons, 2014), NJDEP subsequently
38 agreed to the continuation of annual
39 groundwater sampling for VOCs at select
40 monitoring wells (NJDEP, 2014).

41 Injections of **Oxygen Release Compounds**
42 **(ORC)** were performed at six distinct areas in
43 and around FTMM-02 where elevated
44 concentrations of VOCs (benzene and
45 chlorobenzene) were detected in shallow
46 groundwater. The NJDEP approved the
47 implementation of an Enzyme-Enhanced
48 Bioremediation program, supplemented by
49 ORC. Four ORC injections events were
50 performed at the landfill from March 2001
51 through July 2005 (U.S. Army, 2012).

52 Surface Water

53 Surface water samples were collected from
54 upstream and downstream sampling locations
55 during the SI and analyzed for VOCs, SVOCs,
56 pesticides, PCBs, total target analyte list metals,
57 soluble metals, and cyanide. Between October
58 1996 and September 2010, quarterly sampling
59 events were conducted that included three
60 surface water samples in the vicinity of the site.
61 Surface water samples were analyzed for VOCs
62 only until 2000, when pesticides and PCBs were
63 added at two locations and in November 2004,
64 metals were added at one location. Pesticides
65 and PCBs were dropped from the program in
66 March 2009.

67 During the eight most recent sampling events
68 (December 2008 through September 2010), two
69 VOCs (PCE and trichloroethene [TCE]) were
70 detected adjacent to the site at concentrations
71 exceeding the NJDEP Fresh Water SWQS.
72 Downstream concentrations were similar to or
73 lower than concentrations detected upstream. If
74 detected analytes that exceeded the USEPA
75 **National Recommended Water Quality**
76 **Standard (NRWQC)** in surface water samples
77 were also detected upstream of the site at a
78 similar or greater concentration, then it was not
79 considered a COPC. Since the detected
80 concentrations in downstream were similar to or
81 lower than concentrations detected upstream of
82 the site, it was determined that the VOC
83 concentrations exceeding the SWQS originated
84 from an offsite source and upstream of FTMM-
85 02. Only the upstream surface water location
86 had samples collected for metals. Four metals
87 were detected at concentrations that exceeded
88 their respective NJDEP Fresh Water SWQS
89 and/or USEPA Human Health criterion. Since
90 the sample was collected upstream of the site, it
91 was determined that the metals concentrations
92 exceeding the SWQS originated from an offsite
93 source and upstream of FTMM-02. Therefore,
94 no COPCs were retained for surface water.

95 Sediment

96 Sediment sampling was conducted in April 2000
97 along Mill Creek adjacent to FTMM-02 to
98 determine if there were PCB-related impacts to
99 stream sediments. 26 sediment samples were
100 analyzed for total PCBs and compared to both
101 NJDEP and USEPA criteria. The April 2000
102 sediment sampling resulted in no detections
103 above the NJDEP NRDCSRS or USEPA
104 Industrial Soil RSL.

1 A total of 13 sediment samples were also
2 collected from Mill Creek, adjacent to FTMM-02
3 as part of the 2010 BEE (Shaw, 2012). The
4 samples were analyzed for VOCs, SVOCs,
5 pesticides, PCBs, and metals. The BEE
6 concluded that constituents in sediment at
7 FTMM-02 were unlikely to have a deleterious
8 effect on sensitive ecological receptors or
9 habitats, and additional ecological assessments
10 were not warranted or recommended.

11 FTMM-08

12 FTMM-08 is located in the northern portion of the
13 MP and is bounded by Parkers Creek to the
14 north, west, and east, and by Sherrill Avenue to
15 the south (Figure 5). FTMM-08 has an area of
16 approximately 6.5 acres. It was in use as a landfill
17 between 1962 and 1981, and was reportedly
18 used for the disposal of domestic and industrial
19 waste.



20
21 **Figure 5 – FTMM-08 Site Boundary and Layout**

22 The landfill soil cover material ranges in
23 thickness from 0 to 4 feet with an average of 2.4
24 feet thick. Previous investigations at FTMM-08
25 are summarized below, and the Final RI/FS
26 Report was submitted to NJDEP in April 2016
27 (Parsons, 2016).

28 Soil

29 A total of 614 near-surface soil samples were
30 collected from 291 borings from November 1998
31 through June 1999. Samples collected at
32 approximately 2 feet bgs were analyzed for
33 VOCs, and samples collected between 0.5 and
34 1 foot bgs were analyzed for metals, SVOCs,
35 pesticides, and PCBs. Concentrations of one
36 VOC, 18 SVOCs, eight pesticides, three PCBs,
37 and 17 metals exceeded their current NJDEP

38 RDCSRS and/or USEPA Residential Soil RSL in
39 at least one near-surface soil sample (0-2 feet
40 bgs). Concentrations of 14 SVOCs, six
41 pesticides, three PCBs, and eight metals
42 exceeded their NJDEP NRDCSRS and/or
43 USEPA Industrial Soil RSL in at least one near-
44 surface soil sample. Concentrations of 11 VOCs,
45 30 SVOCs, 10 pesticides, four PCBs, and 18
46 metals exceeded their NJDEP IGW SL and/or
47 USEPA Protection of Groundwater RSL in at
48 least one near-surface soil sample. The
49 maximum-detected concentrations of all of the
50 metals targeted for analysis exceeded their
51 maximum background concentrations for the
52 MP. PCB concentrations exceeding NJDEP and
53 USEPA screening criteria were also detected to
54 a depth of 15.5 feet bgs in deeper borings.
55 VOCs, SVOCs, metals, and PCBs were
56 evaluated as COPCs in soil in the HHRA, and 6
57 SVOCs, one PCB, and one metal were identified
58 as COCs.

59 Supplemental soil samples were collected from
60 22 soil borings in August and October 1999 near
61 a well located in the center of the landfill for PCB-
62 impacted soil delineation and to confirm that site
63 soil was the source of PCB groundwater
64 contamination. A total of 293 samples were
65 collected from the surface to 0.5 feet bgs and
66 then at alternating half foot intervals (1 to 1.5
67 feet, 2 to 2.5 feet, etc.) to depths of 7.5 to 16.5
68 feet bgs.

69 A total of 50 soil samples were collected from 27
70 borings in September 2016 for the PDI. Samples
71 were collected in three areas (northeast,
72 northwest, and central) at depths ranging from 1
73 to 15.5 feet bgs depending on historical
74 concentrations and were analyzed for
75 PCBs. Soil samples were collected until PCB
76 concentrations were less than 25 mg/kg to
77 determine the horizontal and vertical extent of
78 the excavation areas.

79 Groundwater

80 In 1994, 1995, 1998, 1999, and in 2010, 16
81 groundwater monitoring wells were installed at
82 FTMM-08 to investigate and monitor
83 contaminants in groundwater and to determine if
84 leachate from the landfill was impacting
85 groundwater quality. Quarterly groundwater
86 monitoring occurred from June 1997 to August
87 2011, using a network of up to 15 monitoring
88 wells. The sampling data from the most recent
89 eight quarters (December 2009 to August 2011),

1 the August 2013 BSE, and the 2014 ASE were
2 evaluated as being representative of recent
3 conditions. Following the recommendations in
4 the August 2013 BSE report (Parsons, 2014),
5 NJDEP subsequently agreed to the continuation
6 of annual groundwater sampling for VOCs at
7 select monitoring wells (NJDEP, 2014).

8 Injections of **Hydrogen Releasing Compound**
9 **(HRC®)** were performed at two areas at FTMM-
10 08 to enhance the degradation of PCE
11 concentrations detected in shallow groundwater
12 at adjacent landfill site FTMM-05 using naturally
13 occurring microorganisms already present in the
14 subsurface. The injections were performed over
15 multiple 3- to 6-month time periods in 2000,
16 2002, 2003, 2004, and 2005 to facilitate the
17 enhanced anaerobic degradation of PCE in
18 groundwater.

19 Detected analyte concentrations were compared
20 to Federal and State screening criteria for
21 potable water, as well as MP-specific
22 background concentrations for metals to identify
23 COPCs. During this period, concentrations of 11
24 VOCs, one pesticide, and 19 metals exceeded
25 their NJDEP GWQS and/or the USEPA
26 Tapwater RSL in at least one sample.
27 Concentrations of 13 of these 19 metals also
28 exceeded the maximum background
29 concentration for the MP.

30 Surface Water

31 To determine whether site-related contamination
32 had impacted nearby surface waters, surface
33 water samples were collected at four to five
34 locations in Mill Creek, Lafetra Creek, and
35 Parkers Creek from October 1996 to September
36 2010. These sampling stations have historically
37 been associated with FTMM-08 and are located
38 upstream, adjacent to, and downstream of the
39 landfill.

40 During the eight quarters of surface water
41 monitoring data (December 2008 to September
42 2010), two VOCs and four metals were detected
43 at concentrations exceeding the NJDEP SWQS
44 and/or USEPA Human Health criterion.
45 Concentrations of two VOCs (PCE and cis-1,2-
46 dichloroethene [cis-1,2-DCE]) and three of the
47 four metals (arsenic, mercury, thallium) detected
48 downstream of FTMM-08 were similar to or less
49 than concentrations detected upstream of the
50 site. PCE and cis-1,2-DCE exceedances were
51 detected at two sampling locations located up-
52 stream of FTMM-08 along Mill Creek beyond

53 FTMM's MP boundary. The single exceedance
54 of the USEPA criterion for the fourth metal (lead)
55 in downstream surface water was anomalous
56 and unrepresentative. Therefore, based on the
57 assessment of surface water quality data for the
58 most recent eight quarterly sampling events,
59 there are no surface water COPCs associated
60 with FTMM-08.

61 Sediment

62 Sediment sampling was conducted in April 2000
63 in Parkers Creek to evaluate potential PCB-
64 related impacts to stream sediments associated
65 with FTMM-08. One PCB (Aroclor 1254) was
66 detected in two of 21 samples at concentrations
67 that exceed the NJDEP RDCSRS, NRDCSRS,
68 and the USEPA Residential and Non-
69 Residential Soil RSLs. Although PCBs were
70 detected in near-surface soils at isolated
71 locations at FTMM-08, Aroclor 1254 was not
72 detected in the soil samples. Therefore, it is
73 likely that one or more sources upstream or
74 otherwise outside of FTMM-08 have contributed
75 PCBs to the sediments in Parkers Creek and
76 therefore there are no sediment COPCs.

77 A total of 10 sediment samples were also
78 collected from Parkers Creek adjacent to FTMM-
79 08 as part of the 2010 BEE (Shaw, 2012).
80 Samples were analyzed for VOCs, SVOCs,
81 pesticides, PCBs and metals. The BEE
82 concluded that constituents in sediment at
83 FTMM-08 were unlikely to have a deleterious
84 effect on sensitive ecological receptors or
85 habitats and additional assessments are not
86 warranted or recommended.

87 **SCOPE AND ROLE OF** 88 **RESPONSE ACTION**

89 As part of the preferred remedy, soils with PCB
90 concentrations in excess of 25 mg/kg will be ex-
91 cavated from both FTMM-02 and FTMM-08,
92 consistent with the coordination of NJDEP and
93 USEPA PCB Remediation Policies. Excavated
94 soils containing PCB concentrations less than
95 25 mg/kg will remain onsite and will be used to
96 backfill the excavated areas at the landfills; and
97 the excavated soils with concentrations greater
98 than 25 mg/kg will be disposed of off-site at an
99 approved TSCA facility.

100 Following the excavation, the preferred
101 alternative is to place a vegetated soil cover or
102 functional equivalent (such as an open field with

1 porous pavement) over the landfill areas at
2 FTMM-02 and FTMM-08. At FTMM-02, the soil
3 cover will be installed to provide safety protec-
4 tion for non-residential users from future expo-
5 sure to solid waste at the landfill. At FTMM-08,
6 the soil cover or functional equivalent will be in-
7 stalled to provide protection against contact with
8 COCs in soils. The vegetated soil covers will
9 also be used to control surface water runoff and
10 erosion. LUCs to maintain the vegetated soil co-
11 vers and prevent residential land use will be im-
12 plemented for the sites at the time of property
13 transfer.

14 Containment is considered by USEPA to be a
15 highly effective way to remediate historic landfills
16 in many cases. USEPA has identified
17 containment as a presumptive remedy for
18 historic landfills because it repeatedly has been
19 shown to be effective at treating similar wastes
20 at other CERCLA sites. USEPA developed
21 presumptive remedies to streamline the
22 selection of cleanup methods for certain
23 categories of sites by narrowing the
24 consideration of cleanup methods to treatment
25 technologies or remediation approaches that
26 have a proven track record in the Superfund
27 program. The Army, as lead agency, has
28 determined that it is appropriate to apply the
29 presumptive remedy of capping for these two
30 landfills based on the soil and contaminant
31 characteristics found at the site, and the
32 guidance provided in the directive, *Presumptive
33 Remedy for CERCLA Municipal Landfill Sites,
34 EPA OSWER Directive No. 9355.0-49FS*
35 (September 1993). Further information on the
36 selection of presumptive remedies for landfills at
37 military installations is presented in the directive,
38 *Application of the CERCLA Municipal Landfill
39 Presumptive Remedy to Military Landfills, EPA
40 OSWER Directive No. 9355.0-67FS*.

41 **SUMMARY OF SITE RISKS**

42 A HHRA evaluation of the potential risk from
43 exposure to contaminants in soil and
44 groundwater was conducted as part of the RI at
45 each landfill. No COPCs were identified in
46 surface water or sediment at either of the landfill
47 sites. Therefore, further evaluation of surface
48 water and sediments in the HHRA was not
49 conducted and no unacceptable risks are
50 expected from human exposure to surface water
51 or sediments.

52 The HHRA evaluated exposure of
53 current/future outdoor workers, future utility
54 workers, and future recreational users to COPCs
55 in soil and groundwater through dermal contact,
56 incidental ingestion, and inhalation of
57 particulates. The HHRA used an exposure point
58 concentration based on the analytical results
59 from soil and groundwater samples at both
60 landfill sites.

61 Site groundwater is not used as a drinking water
62 source by current outdoor workers or indoor
63 workers, because municipal water is provided
64 for use. Therefore, there are no current
65 exposures to groundwater.

WHAT IS RISK AND HOW IS IT CALCULATED?

Human Health Risk Assessment:

A Superfund baseline HHRA is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current- and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the COPCs at the site in various media (i.e., soil, groundwater, surface water, and sediment) are identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants in water, soil, etc. identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a “reasonable maximum exposure” (RME) scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated. The USEPA has established standard RME exposure scenarios for residents and commercial/industrial receptors that are used to calculate the RSLs.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or non-cancer health hazards, such as changes in the normal functions of organs within the body (e.g., changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and non-cancer health hazards.

Risk Evaluation: The final step provides a quantitative assessment of site risks for all COPCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards. Concentrations of COPCs at the site are compared to the concentrations that are protective of the standard RME scenarios established by the USEPA to quantify the risk or hazard that may be expected. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a “one-in-ten-thousand excess cancer risk”; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6} , corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk. For non-cancer health effects, a “hazard index” (HI) is calculated. The key concept for a non-cancer HI is that a threshold (measured as an HI of less than or equal to 1) exists below which non-cancer health hazards are not expected to occur. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at the site and are referred to as COCs in the final remedial decision or Decision Document.

2

3 **Risks to Current/Future Outdoor Workers,**
4 **Utility Workers, or Future Recreational Users**
5 **Exposed to Soil.** At FTMM-02, no unacceptable
6 potential non-carcinogenic or carcinogenic
7 effects to current/future outdoor, utility workers,
8 or future recreational users are expected from
9 exposure to soil through dermal contact,
10 incidental ingestion, and inhalation of
11 particulates. At FTMM-08, there is an
12 unacceptable carcinogenic risk and an
13 unacceptable non-carcinogenic hazard to
14 current/future outdoor workers or future
15 recreational users from exposure to soil through
16 dermal contact, incidental ingestion, and
17 inhalation of particulates.

18 **Risks to Future Utility Workers Exposed**
19 **Groundwater for Non-Drinking Water**
20 **Purposes.** No unacceptable potential non-
21 carcinogenic or carcinogenic effects to
22 current/future utility workers are expected from
23 exposure to groundwater through dermal
24 contact or incidental ingestion.

1

1 In summary, the HHRAs concluded that the only
2 unacceptable risk to human health and the
3 environment for current and future intended land
4 use is soil at FTMM-08. Surface water,
5 groundwater, and sediment do not pose an
6 unacceptable risk to human health and the
7 environment at FTMM-02 or FTMM-08. In
8 addition, soil at FTMM-02 does not pose an
9 unacceptable risk to human health and the
10 environment. Detailed risk assessments are
11 included in each landfill site's respective RI
12 Report. Since FTMM-08 has unacceptable risk
13 to human health and the environment, an FS
14 was performed.

15 REMEDIAL ACTION 16 OBJECTIVES

17 This Proposed Plan recommends actions to
18 address near surface soil contamination at
19 FTMM-08 that poses risk to human health and
20 the environment. The **remedial action
21 objective (RAO)** is to protect public health by
22 preventing future workers and recreational us-
23 ers' exposure to COCs in soil that could pose an
24 excessive carcinogenic risk or non-carcinogenic
25 (non-cancer) hazard.

26 The cleanup levels and basis for cleanup for the
27 COCs at FTMM-08 are listed in Table 1.

28 **Table 1 – Cleanup Levels for COCs in Soil at**
29 **FTMM-08**

COC	Cleanup Level ^{1,2}	Basis
SVOC		
Benzidine	700 µg/kg	NJDEP NRDCSRS
Benzo(a)anthracene; Benzo(b)fluoranthene	2 mg/kg	NJDEP NRDCSRS
Benzo(k)fluoranthene	23 mg/kg	NJDEP NRDCSRS
Benzo(a)pyrene; Dibenz(a,h)anthracene	200 µg/kg	NJDEP NRDCSRS
PCB		
Aroclor 1242	25 mg/kg	TSCA
Metal		
Arsenic	19 mg/kg	NJDEP NRDCSRS

30 REMEDIAL ALTERNATIVES

31 The proposed remedial alternatives for FTMM-
32 08 were evaluated against USEPA's evaluation
33 criteria consisting of:

- 34 1. Overall protection of public health and
- 35 the environment;
- 36 2. Compliance with ARARs
- 37 3. Long-Term Effectiveness and Perma-
- 38 nence
- 39 4. Reduction in Toxicity, Mobility, or Vol-
- 40 ume through Treatment
- 41 5. Short-Term Effectiveness
- 42 6. Implementability
- 43 7. Cost

44 USEPA's 8th and 9th criteria are state and com-
45 munity acceptance modifying criteria and will be
46 considered once comments are received on the
47 preferred remedial alternative.

48 Based on the Final RI/FS, remedial action is re-
49 quired for soils at FTMM-08. The no action alter-
50 native (Alternative 1) was used as a baseline
51 against which to compare the other alternative.
52 Under Alternative 1, no remedial action or moni-
53 toring would be conducted and contaminants
54 would remain in place. The estimated costs for
55 Alternative 1 is \$28,000, for costs associated
56 with abandonment of 16 existing groundwater
57 monitoring wells. Alternative 2 consists of the
58 presumptive remedy of a vegetated soil cover or
59 functional equivalent, limited removal of soils
60 with PCB concentrations greater than 25 mg/kg,
61 and implementing ICs/ECs to control exposure
62 to COCs and landfill debris. The estimated total
63 present value of remedial Alternative 2 is
64 \$2,858,000 based the initial capital costs for the
65 removal and off-site disposal of PCB-
66 contaminated soils over 25 mg/kg, design and
67 construction of the soil cover, and a 30-year life
68 cycle for ICs/ECs and CEA (Parsons, 2016).

69 SUMMARY OF PREFERRED 70 ALTERNATIVE

71 At FTMM-02, the preferred alternative includes
72 a limited excavation of PCB hotspots (isolated
73 areas with concentrations of PCBs exceeding
74 TSCA self -implementing cleanup level of 25
75 mg/kg) followed by the installation of a
76 vegetative soil cover to provide safety protection
77 for non-residential use from future exposure to
78 solid waste at the landfill.

79 The preferred alternative addressing conditions
80 at FTMM-08 is Alternative 2 – a limited soil
81 excavation of PCB hotspot isolated areas with
82 concentrations of PCBs exceeding 25 mg/kg, a
83 vegetative soil cover or functional equivalent to
84 provide public health protection from COCs in

1 soils, specifically polynuclear aromatic hydrocar-
2 bons (PAHs) and arsenic, and ICs/ECs. Based
3 on the USEPA evaluation criteria, the rationale
4 for selecting Alternative 2 for FTMM-08 include
5 the ability to meet cleanup goals in a short time-
6 frame, high overall protection of human health
7 and the environment, high long-term
8 effectiveness, high short-term effectiveness,
9 compliance with ARARs, high implementability,
10 and moderate cost. Since PCB hotspot removal
11 would be followed by a vegetated soil cover to
12 provide public health protection from COCs in
13 soils, specifically PAHs and arsenic, and
14 protection for non-residential use from future
15 exposure to solid waste at the landfill, state and
16 community acceptance is anticipated.

17 A PCB hotspot removal will be performed to
18 address the PCB remediation policies at FTMM-
19 02 and to address unacceptable risk at FTMM-
20 08. A limited excavation will be conducted at
21 FTMM-02 in two areas (central-east and central-
22 west) and at FTMM-08 in three areas (northeast,
23 northwest, and central) to remove soils with PCB
24 concentrations in excess of 25 mg/kg to be
25 disposed of off-site at applicable TSCA
26 approved landfills. A PDI was conducted at each
27 site to determine lateral and vertical extent of
28 PCB concentrations greater than TSCA cleanup
29 level of 25 mg/kg. Based on historical data and
30 the PDI results, areas to be excavated and
31 disposed of off-site have been estimated. At
32 FTMM-02, a total of 210 cubic yards of soil is
33 expected to be excavated and at FTMM-08, a
34 total of 60 cubic yards of soil is to be excavated.

35 Following the PCB hotspot removal, a vegetated
36 soil cover will be installed at FTMM-02 and
37 FTMM-08 will either have a vegetated cover or
38 functional equivalent (porous parking with open
39 field). A soil cover, will be placed over the landfill
40 area after the landfill is regraded. The
41 conceptual design for the vegetated soil cover is
42 shown on Figure 6. The vegetated soil cover will
43 be placed consistent with the NJDEP Solid
44 Waste regulations (**New Jersey Administrative**
45 **Code [N.J.A.C.] 7:26-2A**). Additional soil will be
46 added to the existing soil cover where needed to
47 provide a minimum “two” feet of soil between the
48 existing ground surface and landfilled debris.
49 The use of a vegetated soil cover will offer safety
50 protection to non-residents from future exposure
51 to solid waste at the landfill and will also control
52 surface water runoff and erosion.

53 LUCs to maintain the soil cover and prevent
54 residential land use will also be implemented at
55 the landfills. In addition, the Army will install a
56 passive methane venting system at the landfills
57 if necessary to address NJDEP concerns. The
58 Army will prepare a LUCIP to implement the ICs,
59 document the location of the ECs, and identify
60 the procedural responsibilities including landfill
61 cover inspections, monitoring and reporting, and
62 long-term management requirements, etc.

63 The Army will be responsible for documenting
64 and implementing the LUCs, which is expected
65 to occur through the filing of a deed notice at the
66 time of property transfer, and would also be re-
67 sponsible to conduct reviews to ensure that the
68 LUCs remain protective of human health and the
69 environment. When the property is transferred
70 out of federal control, the LUCs would be incor-
71 porated into the title and the new owner would
72 be responsible for complying with the LUCs. Alt-
73 though the Army may later transfer its procedural
74 responsibilities to another party by contract,
75 property transfer agreement, or through other
76 means, the Army would retain ultimate responsi-
77 bility for remedy integrity.

78 In addition, CEAs will be in effect at both landfill
79 sites pursuant to NJDEP’s Technical
80 Requirements for Site Remediation (TRSR)
81 (N.J.A.C. 7:26E) and Administrative
82 Requirements for the Remediation of
83 Contaminated Sites (N.J.A.C. 7:26C). The CEAs
84 will remain in place until NJDEP GWQS are
85 achieved.

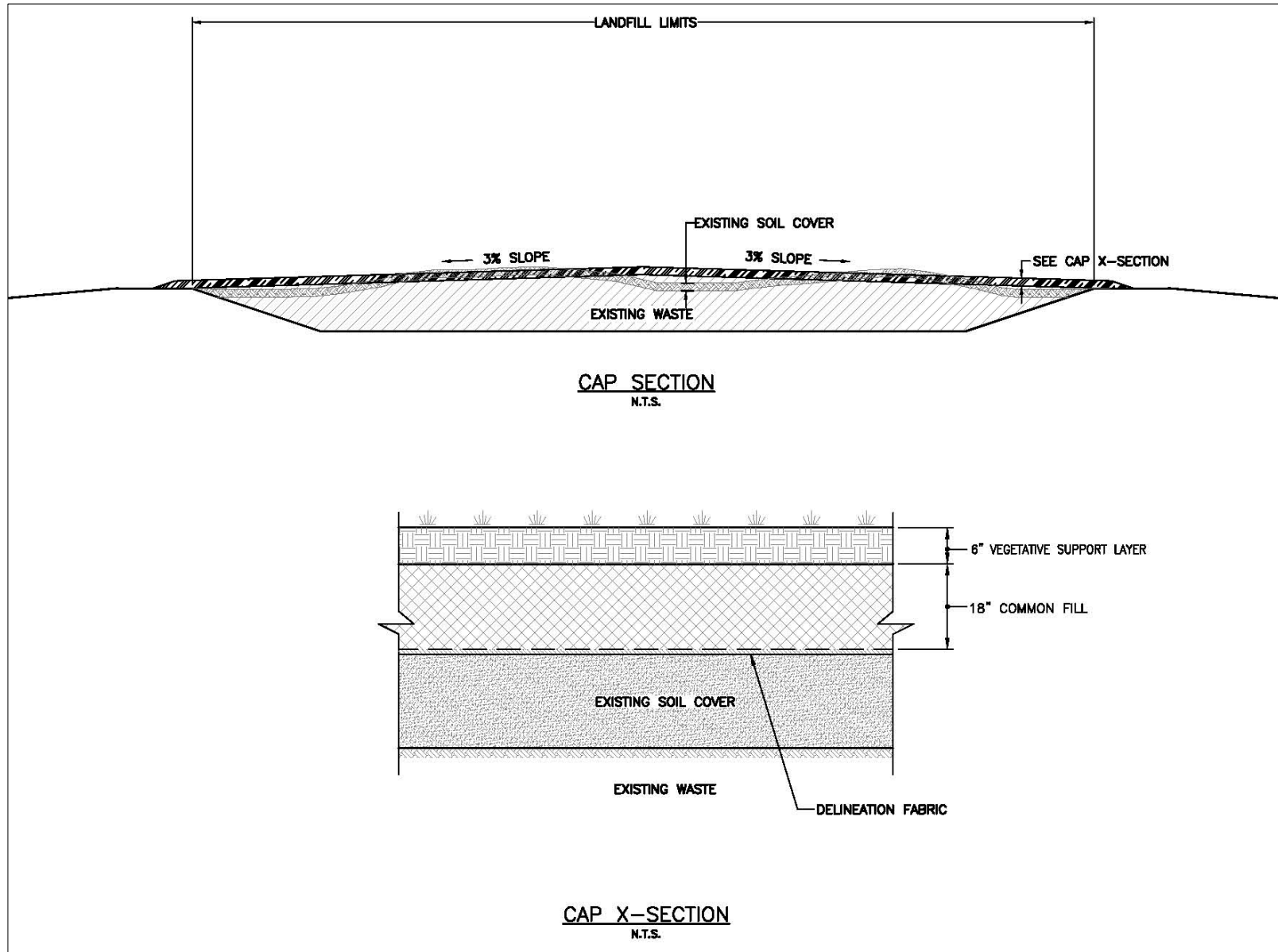
86 **COMMUNITY PARTICIPATION**

87 Public participation is an important component of
88 remedy selection. The Army is soliciting input
89 from the community on the preferred alternative
90 identified for the landfills. The comment period
91 includes a public meeting at which the Army will
92 present this Proposed Plan. Both oral and writ-
93 ten comments will be accepted at this meeting.
94 The Army and the NJDEP encourage the public
95 to gain a more comprehensive understanding of
96 the sites and the remedial activities that have
97 been conducted at the landfills. The dates for the
98 public comment period; the date, location, and
99 time of the public meeting; and the locations of
100 the Administrative Record files are provided on
101 the front page of this Proposed Plan.

102 Comments made at the meeting will be tran-
103 scribed. A copy of the transcript will be included

1 in the Decision Document and will be added to
2 the FTMM Administrative Record file and infor-
3 mation repositories.

Figure 6 - Landfill Cover System Design



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1 GLOSSARY OF TERMS

2 **Administrative Record** – A file that contains all information used by the lead agency to make its decision
3 on the selection of a response action under CERCLA. A copy of this file is to be available for public review
4 at or near the site, usually at the information repository.

5 **Classification Exception Area (CEA)** – A NJDEP designation established whenever groundwater stand-
6 ards in a particular area are not met. It ensures the use of the groundwater in that area is restricted until
7 standards are achieved.

8 **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, otherwise**
9 **known as Superfund)** – A federal law that addresses the funding for and remediation of abandoned or
10 uncontrolled hazardous waste sites. This law also establishes criteria for the creation of key documents
11 such as the Remedial Investigation, Feasibility Study, Proposed Plan, and Decision Document.

12 **Constituent of Concern (COC)** – COCs are defined as the COPCs (see below) that are present at suffi-
13 cient concentrations to pose a risk to human health or the environment.

14 **Constituent of Potential Concern (COPC)** – A chemical that is identified as a potential threat to human
15 health or the environment and is evaluated further in the baseline risk assessment.

16 **Decision Document** – A report documenting the final action, approved by the regulatory agencies, that is
17 required at CERCLA sites.

18 **Engineering Control (EC)** – Methods used to restrict site access to provide human protection at a con-
19 taminated site, such as containment, fences, and informational devices such as warning signs. Land use
20 controls consists of both institutional controls and engineering controls.

21 **Feasibility Study (FS)** – A study performed to identify, develop, and perform a detailed analysis of poten-
22 tial remedial alternatives that meet remedial action objectives to provide adequate information to support
23 decision-makers in selection of the most appropriate remedial alternative.

24 **Groundwater** – Water found beneath the earth's surface that fills pores between materials such as sand,
25 soil, or gravel. In aquifers, groundwater occurs in sufficient quantities that it may be used for drinking water,
26 irrigation, and other purposes.

27 **Ground Water Quality Standards (GWQS)** – NJDEP GWQS, N.J.A.C 7:9C, establish the designated
28 uses of the State's groundwater and specify the water quality (criteria) necessary to attain those designated
29 uses. The ground water quality criteria are numerical values assigned to each constituent (pollutant) dis-
30 charged to groundwater of the State. The GWQS also contain technical and general policies to ensure that
31 the designated uses can be adequately protected. Groundwater is classified according to its hydrogeologic
32 characteristics and designated uses.

33 **Human Health Risk Assessment (HHRA)** – An evaluation of the potential threat to human health due to
34 environmental COPCs.

35 **Hydrogen Releasing Compound (HRC®)** – A proprietary technology from Regenes Bioremediation
36 Products, Inc. HRC® is a chemical which, upon hydration, undergoes chemical reactions to ultimately gen-
37 erate hydrogen, which is used by microorganisms to degrade chlorinated compounds in groundwater.

38 **Impact to Groundwater (IGW)** – A NJDEP soil cleanup standard that is applied in soil above the ground-
39 water table that is designed to be protective of groundwater quality.

40 **Institutional Control (IC)** – A mechanism used to provide notice of residual contamination and the need
41 to limit human activities at or near a contaminated site. This may include land use restrictions, well re-
42 striction areas, deed notices, and declarations of environmental restrictions. Land use controls consists of
43 both institutional controls and engineering controls.

Land Use Control (LUC) – Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property to manage risks to human health and the environment. Physical mechanisms include physical barriers to limit access to real property, such as fences or signs, providing potable water, as well as a variety of engineered remedies to contain or reduce contamination. Legal mechanisms include zoning, permits, and deed restrictions on property; for example, allowing only commercial or industrial use of a property where contaminants have not been remediated to residential levels.

Land Use Control Implementation Plan (LUCIP) – Documents the LUCs required during and after implementation of the preferred alternative.

National Contingency Plan (NCP) – National Oil and Hazardous Substances Pollution Contingency Plan, “National Contingency Plan” (40 CFR 300). Provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants.

National Recommended Water Quality Standard (NRWQS) - USEPA's compilation of national recommended water quality criteria is presented as a summary table containing recommended water quality criteria for the protection of aquatic life and human health in surface water for approximately 150 pollutants.

New Jersey Administrative Code (N.J.A.C.) – The collection of all rules and regulations made by the executive branch agencies of the State of New Jersey.

Old Field Habitats – Old field habitats include formerly mowed areas where the vegetation includes grasses, forbes and often immature trees. Old field habitats at the MP include grasses, many forbes including Queen Ann’s lace (*Daucus carota*), pokeweed (*Phytolacca americana*), goldenrod (*Solidago sp.*), milkweed (*Asclepias syriaca*), and sparse saplings of tree species including eastern red cedar (*Juniperus virginiana*) and winged sumac (*Rhus copallinum*).

Oxygen Release Compounds (ORC) – A technology that degrades (reduces) contaminants in soil and groundwater to water or hydroxides, therein releasing free oxygen to the system.

Polychlorinated Biphenyls (PCB) – A group of persistent chemicals used in transformers and capacitors for insulating purposes and in gas pipeline systems as a lubricant.

Potable Water – Water of a quality suitable for drinking

Pre-Design Investigation (PDI) - A pre-design investigation would be conducted prior to excavation to further delineate and better determine the lateral and vertical extent of impacted soil requiring excavation.

Preferred Alternative(s) – The alternative(s) that, when compared to other potential alternatives, was/were determined to best meet the CERCLA evaluation criteria and is proposed for implementation at the site.

Primary and Secondary Drinking Water Standards – Primary Drinking Water Standards limit the allowable concentrations of contaminants which may affect consumer health. Secondary Drinking Water Standards were developed to address the aesthetic qualities of drinking water (e.g., color, taste, odor).

Proposed Plan – A plan that identifies the preferred remedial alternative(s) for a site, and is made available to the public for comment.

Regional Screening Level (RSL) – USEPA Screening levels are risk-based concentrations derived from standardized equations combining information assumptions with EPA toxicity data. RSLs are considered by the EPA to be protective for humans over a lifetime.

Remedial Action Objective (RAO) – Cleanup objective that specify the level or area of cleanup or attainment.

Remedial Investigation (RI) – Exploratory inspection conducted at a site to define the nature and extent of contamination present, and to assess potential related hazards and risks

- 1 **Responsiveness Summary** - A component of the Record of Decision that summarizes information about
2 the comments and views of the public and support agency regarding both the remedial alternatives and
3 general concerns about the site submitted during the public comment period. It also documents in the
4 record how public comments were integrated into the decision-making process.
- 5 **Riparian** – Riparian areas are ecosystems adjacent to a river or waterway that, in an undisturbed state,
6 provide habitat for wildlife and help improve water quality. Riparian areas are usually transitional zones
7 between wetland and upland areas and are generally comprised of grasses, shrubs, trees, or a mix of
8 vegetation types that exist within a variety of landscapes (e.g., natural, agricultural, forested, suburban,
9 and urban).
- 10 **Semivolatile Organic Compounds (SVOC)** – An organic compound which has a boiling point higher than
11 water and which may vaporize when exposed to temperatures above room temperature. SVOCs include
12 phenols and PAH.
- 13 **Volatile Organic Compound (VOC)** – Organic chemical compound whose composition makes it possible
14 for it to evaporate under normal indoor atmospheric conditions of temperature and pressure.
- 15

1 ACRONYMS AND ABBREVIATIONS

ACRONYM	DEFINITION
µg/kg	micrograms per kilogram
Army	U.S. Army
ASE	Annual Sampling Event
BEE	Baseline Ecological Evaluation
bgs	below ground surface
BRAC	Base Realignment and Closure
BSE	Baseline Sampling Event
CEA	Classification Exception Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cis-1,2-DCE	cis-1,2-dichloroethene
COCs	constituent of concern
COPC	constituent of potential concern
the Corps	Corps of Engineers New York District
CWA	Charles Wood Area
EA	Evans Area
EC	engineering control
FS	Feasibility Study
FTMM	Fort Monmouth
GWQS	Ground Water Quality Standard(s)
HHRA	human health risk assessment
HI	Hazard Index
HRC	Hydrogen Releasing Compound
IC	institutional control
IGW	Impact to Groundwater
LTM	long-term monitoring
LUC	land use controls
LUCIP	Land Use Controls Implementation Plan
mg/kg	milligram per kilogram
MP	Main Post
NCP	National Contingency Plan
NFA	no further action
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NRDCSRS	Non-Residential Direct Contact Soil Remediation Standard
NRWQC	National Recommended Water Quality Standard
ORC	Oxygen Release Compound
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PDI	pre-design investigation
RAO	remedial action objective
RDCSRS	Residential Direct Contact Soil Remediation Standard

ACRONYM	DEFINITION
RI	remedial investigation
RME	Reasonable Maximum Exposure
RSL	Regional Screening Level
SI	site investigation
SL	screening level
SVOC	semivolatile organic compound
SWQS	Surface Water Quality Standard
TCE	trichloroethene
TRSR	Technical Requirements for Site Remediation
TSCA	Toxic Substance Control Act
USAESCH	U.S. Army Engineering and Support Center, Huntsville
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1 **USE THIS SPACE TO WRITE YOUR COMMENTS**

2 Your input on the Proposed Plan for the Sites FTMM-02 and FTMM-08 is important to the Army. Comments provided
3 by the public are valuable in helping the Army select a remedy for the FTMM landfills.

4 You may use the space below to write your comments. Comments must be postmarked by April 27, 2017. Mailed
5 comments should be sent to Mr. William Colvin at the address listed on Page 1. If you have any questions about the
6 comment period, please contact Mr. Colvin at (732) 380-7064. Those with electronic communications capabilities
7 may submit their comments to the Army by April 27, 2017 via Internet at the following e-mail address:
8 william.r.colvin18.civ@mail.mil

9 Name: _____

10 Address: _____

11 City: _____

12 State and Zip: _____

13

14 **Comments:**