PUBLIC MEETING
PROPOSED PLAN FOR LANDFILL SITES FTMM-02 AND FTMM-08 FORT MONMOUTH, OCEANPORT NJ

APRIL 12, 2017 AT 7 P.M.
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AGENDA

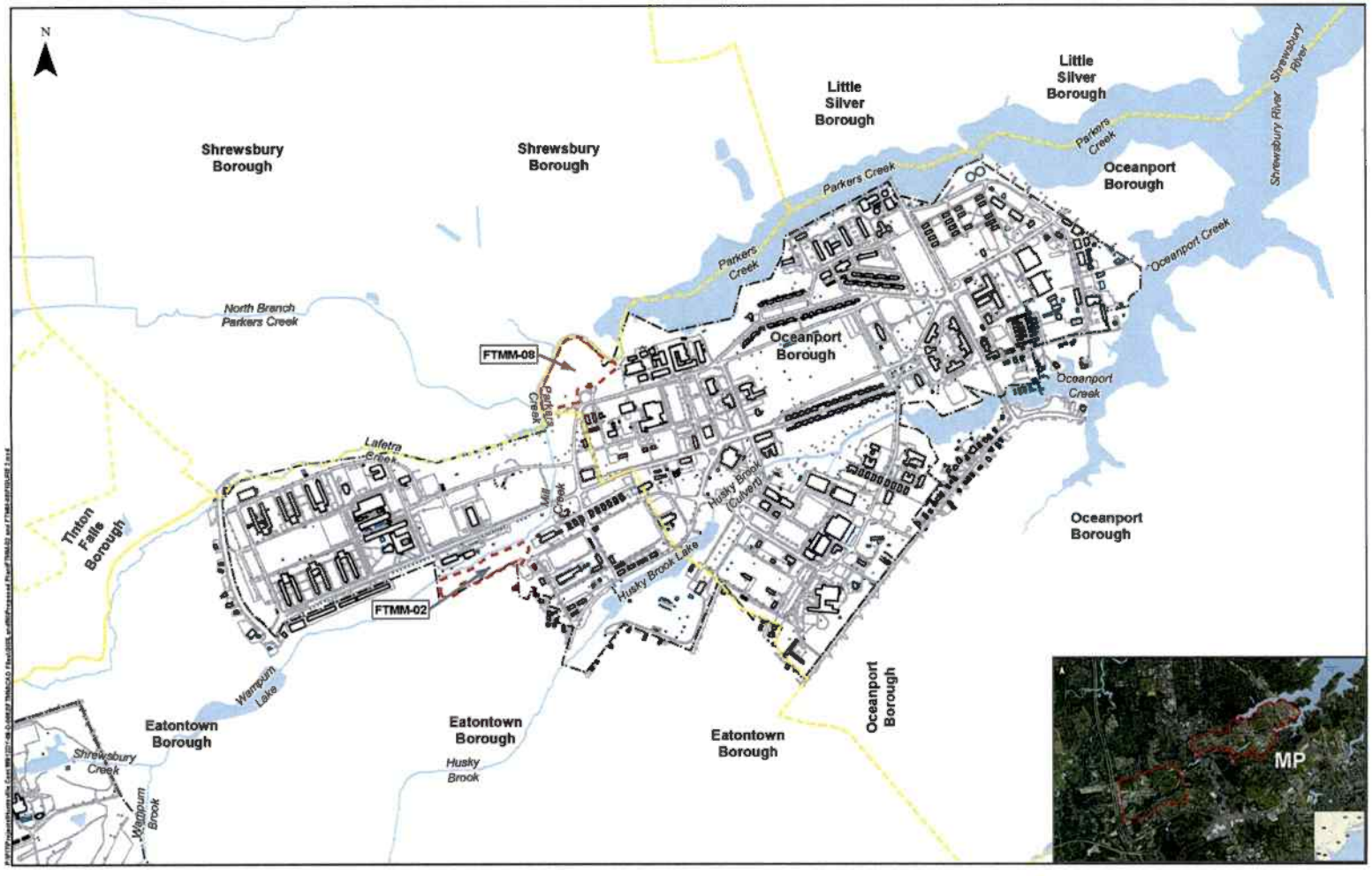
- Proposed Plan & Project Team Overview
- Site Background
- Remedial Investigation Results
- Summary of Risks
- Feasibility Study
- Preferred Remedial Alternative
- Public Participation
- Questions and Public Comments

PROPOSED PLAN OVERVIEW

- The Proposed Plan presents the preferred remedial alternative for two former landfills (LF) at Fort Monmouth (FTMM): FTMM-02 and FTMM-08
- The U.S. Army is the lead agency under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- New Jersey Department of Environmental Protection (NJDEP) is the state support agency for FTMM

PROPOSED PLAN OVERVIEW

LANDFILL LOCATIONS – MAIN POST



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PROPOSED PLAN OVERVIEW

- Remedial investigations (RIs) conducted from 2014 thru 2016 at the LFs included:
  - Review of previous investigations and sampling results
  - Comparison of contaminant concentrations to NJDEP criteria for soil, groundwater, surface water, and sediment
  - Conducted human health risk assessments (HHRAs)
- HHRA is an evaluation of the potential adverse health effects caused by exposure to contaminants in the soil, groundwater, surface water, and sediment
- No unacceptable risk to human health and the environment was found at FTMM-02 for the current and future intended land use (passive open space)
- Unacceptable risk to human health and the environment from soil was found at FTMM-08 and therefore a Feasibility Study (FS) was conducted for the LF wherein remedial alternatives were evaluated

PROPOSED PLAN OVERVIEW

- Since polychlorinated biphenyls (PCBs) were detected in soil at both LFs the NJDEP Guidance on Coordination of NJDEP and U.S. Environmental Protection Agency (USEPA) PCB Remediation Policies were both considered where a site is remediated if:
  - PCB concentrations in soil do not exceed 1 milligram per kilogram (mg/kg); or
  - PCB levels are > 1 mg/kg and $\leq$ to 25 mg/kg (Toxic Substance and Control Act [TSCA] self-implementing cleanup level) and site is covered with an appropriate cap
- Limited soil excavations of isolated areas to remove soils where PCB concentrations exceed self – implementing clean up level of 25 mg/kg will be conducted

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PROPOSED PLAN OVERVIEW

- Vegetated soil cover will be installed at FTMM-02 to provide safety protection from potential exposure to solid waste for future non-residential use and at FTMM-08 a functional equivalent (e.g., open field with porous pavement) or vegetated soil cover to provide protection against contact with constituents of concern (COCs) in soil
- Land use controls (LUCs) to maintain the soil cover and prevent residential land use will be implemented through a Land Use Control Implementation Plan (LUCIP)

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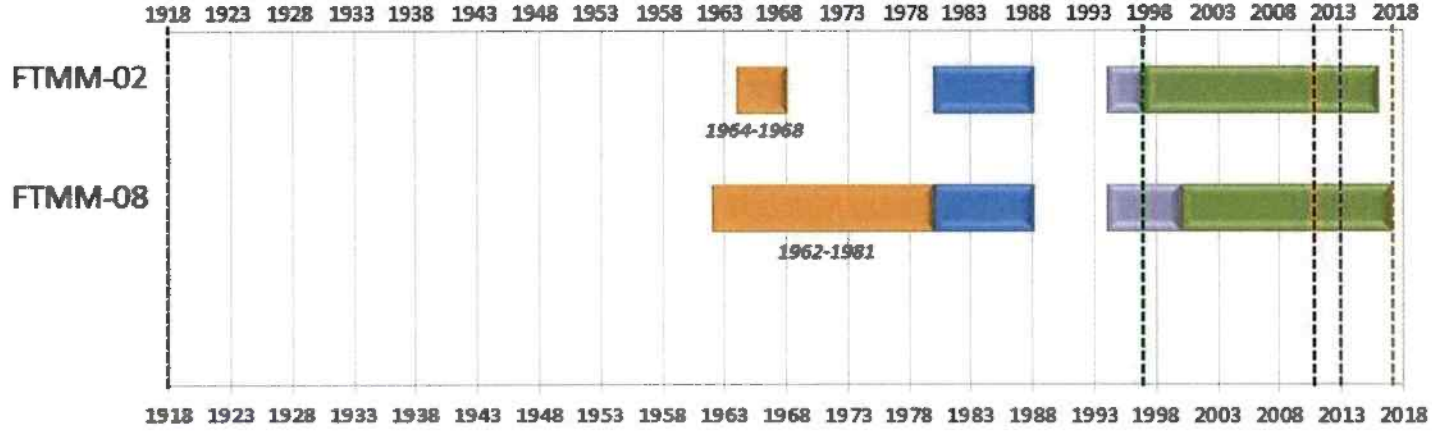
SITE BACKGROUND

Timeline of Significant Events



- Landfill Operations
- Installation Assessments and Landfill Studies
- SI Activities
- RI Activities*
- --- Fort Monmouth Main Post Established (1918)
- --- Begin Quarterly Groundwater Sampling (1997)
- --- Installation Closure, Quarterly Groundwater Sampling Suspended (2011)
- --- Baseline Groundwater Sampling (2013) and Long-Term Groundwater Monitoring Resumes at FTMM-02 and -08
- --- Biannual Long-Term Groundwater Monitoring Begins at FTMM-02 and -08 (2017)

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

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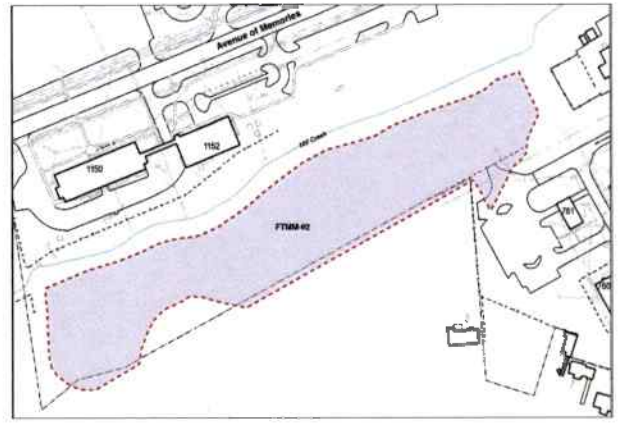
SITE BACKGROUND

Sample Collection History

	Soil	Groundwater	Surface Water	Sediment
FTMM-02	390 near-surface samples collected from 193 borings from November 1998 to June 1999 622 samples collected from 73 borings in February 1999 208 samples collected from March 1999 to January 2000 Pre-design investigation to determine PCB hotspots: 37 samples collected from 18 borings in September 2016	Sampled quarterly from 1997-2011 Sampled annually from 2013 to present Biannual sampling to begin in 2017	Sampled quarterly from 1996-2010	26 samples collected in April 2000 13 samples collected in 2010
FTMM-08	614 near-surface samples collected from 291 borings from November 1998 to June 1999 293 samples collected from 22 borings in August and October 1999 Pre-design investigation to determine PCB hotspots: 50 samples collected from 27 borings in September 2016	Sampled quarterly from 1997-2011 Sampled annually from 2013 to present Biannual sampling to begin in 2017	Sampled quarterly from 1996-2010	21 samples collected in April 2000 10 samples collected in 2010

REMEDIAL INVESTIGATION RESULTS

- FTMM-02
  - LF operated from 1964 to 1968
  - Final RI Report submitted to NJDEP in January 2016 and approved in September 2016



  - Soil: 1 volatile organic compound (VOC), 6 semi-volatile organic compounds (SVOCs), 13 metals, 3 pesticides, and 6 PCBs evaluated in the HHRA
  - Groundwater: Last eight sampling rounds evaluated as representative of recent conditions for HHRA and included 4 VOCs and 3 metals. VOCs remain above NJDEP criteria; sampling of select wells for VOCs conducted annually
  - Surface water: No contamination originating from FTMM-02
  - Sediment: No VOCs, SVOCs, pesticides, PCBs, or metals detected in samples above NJDEP criteria

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REMEDIAL INVESTIGATION RESULTS

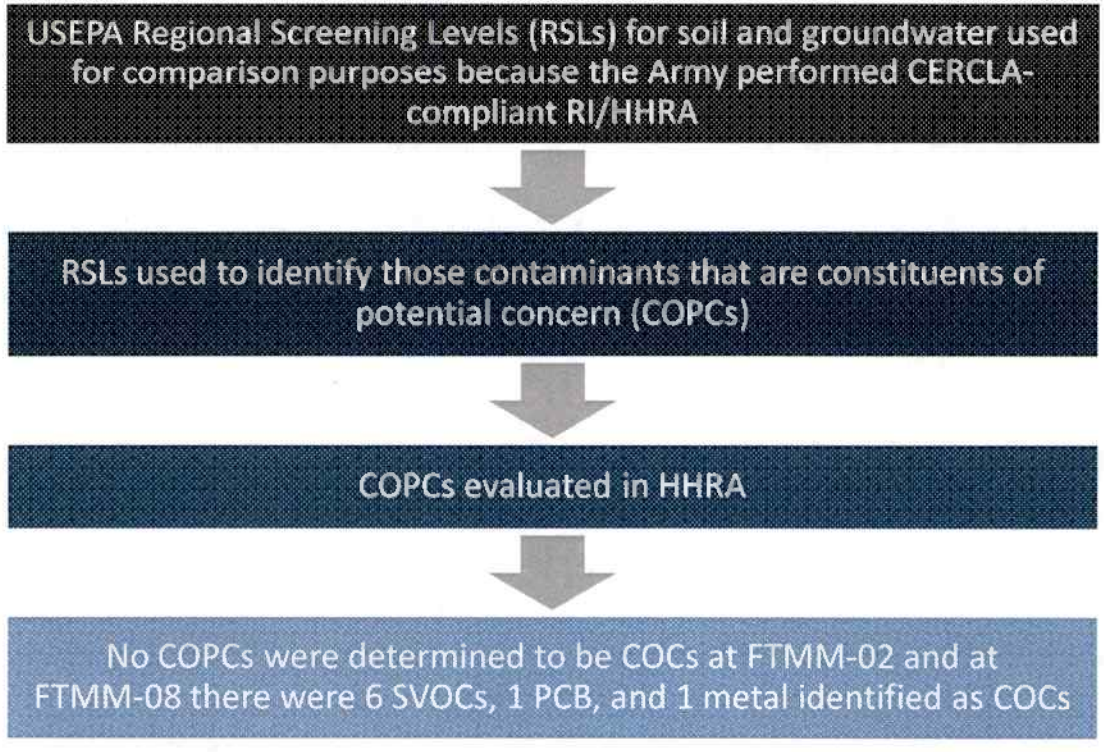
- FTMM-08
  - LF operated from 1962 to 1981
  - Final RI Report submitted to NJDEP in April 2016
  - Soil: 1 VOC, 18 SVOCs, 3 PCBs, 16 metals, and 8 pesticides evaluated in the HHRA
  - Groundwater: Last eight sampling rounds evaluated as representative of recent conditions for HHRA and included 3 VOCs and 6 metals. VOCs remain above NJDEP criteria; sampling of select wells for VOCs conducted annually
  - Surface water: No contamination originating from FTMM-08
  - Sediment: No VOCs, SVOCs, pesticides, PCBs, or metals detected in samples above NJDEP criteria

SUMMARY OF RISKS

- A Baseline Ecological Evaluation (BEE) (Shaw, May 2012) was conducted at FTMM to assess whether the presence of COCs in sediments, surface water, soil, and groundwater has the potential for adverse effects to wildlife
- It was concluded that constituents at FTMM are unlikely to have adverse effects on the wildlife or their habitats and additional ecological assessment are not warranted
- In an August 2012 letter, the NJDEP accepted the 2012 BEE report's recommendations and conclusions and concurred that no further evaluation of ecological risk is required

SUMMARY OF RISKS

- HHRAs evaluated risks from human exposure to contaminants in soil, groundwater, surface water, and sediment at each LF



SUMMARY OF RISKS

- HHRAs identified no COPCs in surface water or sediment at both LFs; therefore no unacceptable risks expected from human exposure to surface water or sediments
- HHRAs evaluated exposure of current/future outdoor workers, future utility workers, and future recreational users to COPCs in soil and groundwater through dermal contact, incidental ingestion, and/or inhalation of particulates
- Groundwater at FTMM is not used as a source of drinking water since municipal water is provided

SUMMARY OF RISKS AT FTMM

- FTMM-02 - No unacceptable potential risks to:
  - Current/future outdoor or utility workers or future recreational users from exposure to soil (through dermal contact, incidental ingestion, and inhalation of particulates)
  - Current/future utility workers from exposure to groundwater (through dermal contact or incidental ingestion)
- Risk to human health and the environment from the soil, groundwater, surface water, and sediment are within the CERCLA risk range for the current and future intended land use (passive open spaces)

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SUMMARY OF RISKS

- FTMM-08 -Unacceptable potential risks to:
  - Current/future outdoor or utility workers or future recreational users from exposure to soil (through dermal contact, incidental ingestion, and inhalation of particulates)
- No unacceptable potential risks to:
  - Current/future utility workers from exposure to groundwater (through dermal contact or incidental ingestion)
- Soil presents the only unacceptable risk to human health and the environment; no risks from the groundwater, surface water, and sediment as they are within the CERCLA risk range for the current and future intended land use (passive open spaces)

FEASIBILITY STUDY

- FTMM-08 FS conducted to identify, develop, and perform a detailed analysis of potential technologies and remedial alternatives that meet the remedial action objective (RAO) and select the most appropriate alternative
- RAO – to protect public health by preventing future workers and recreational users from exposures to COCs in soil that could pose an excessive carcinogenic risk or non-carcinogenic (non-cancer) hazard

FEASIBILITY STUDY AT FTMM-08

- Cleanup levels for COCs in Soil

COC	Cleanup Level	Basis
SVOC		
Benzidine	700 micrograms per kilogram (µg/kg)	NJDEP Non-Residential Direct Contact Soil Remediation Standard (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

- USEPA Evaluation Criteria
  1. Overall protection of public health and the environment
  2. Compliance with Applicable or Relevant and Appropriate requirements (ARARs)
  3. Long-Term Effectiveness and Permanence
  4. Reduction in Toxicity, Mobility, or Volume through Treatment
  5. Short-Term Effectiveness
  6. Implementability
  7. Cost

FEASIBILITY STUDY AT FTMM-08

- Alternative 1: No Action
  - Used as a baseline, no remedial action or monitoring conducted and contaminants remain in place
  - Minimal cost for abandonment of existing monitoring wells ($28,000)
- Alternative 2: Institutional/engineering controls, limited removal of isolated areas with PCBs concentrations exceeding 25 mg/kg, and vegetative soil cover or functional equivalent
  - Would meet cleanup goals in a short timeframe, high overall protection of human health and the environment, high long-term effectiveness, high short-term effectiveness, high implementability, and moderate cost ($2.86M)
  - Preferred Alternative

PREFERRED REMEDIAL ALTERNATIVE

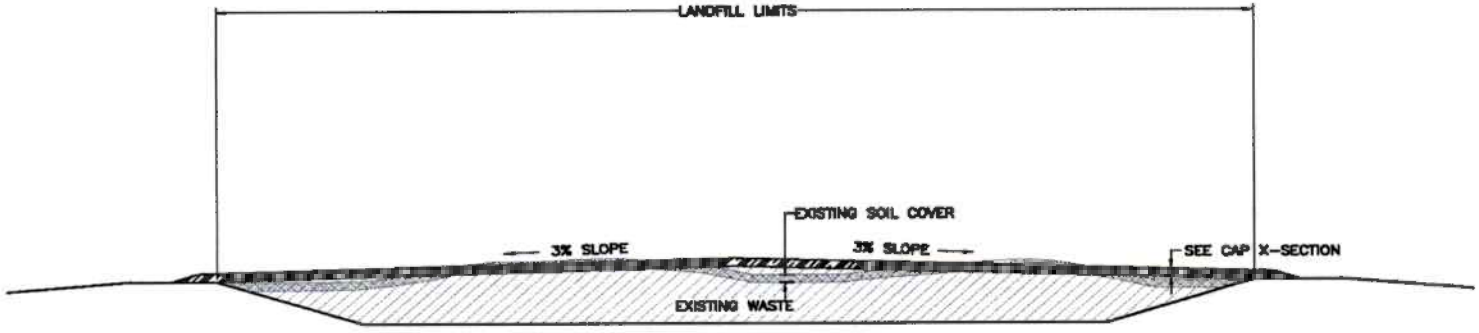
- Limited excavation of PCB hotspot soils at isolated areas where concentrations exceed 25 mg/kg:
  - FTMM-02: two hotspot areas/estimated volume = 210 cubic yards (cy)
  - FTMM-08: three hotspot areas/estimated volume = 60 cy
  - Concentrations > 25mg/kg and < 50mg/kg will be disposed off-site at TSCA approved non-hazardous disposal facility
  - Concentrations > 50mg/kg will be disposed off-site at TSCA approved hazardous disposal facility
- Vegetated soil cover will be installed at FTMM-02 and FTMM-08 will either have a vegetated soil cover or functional equivalent (open field with porous parking lot)

PREFERRED REMEDIAL ALTERNATIVE

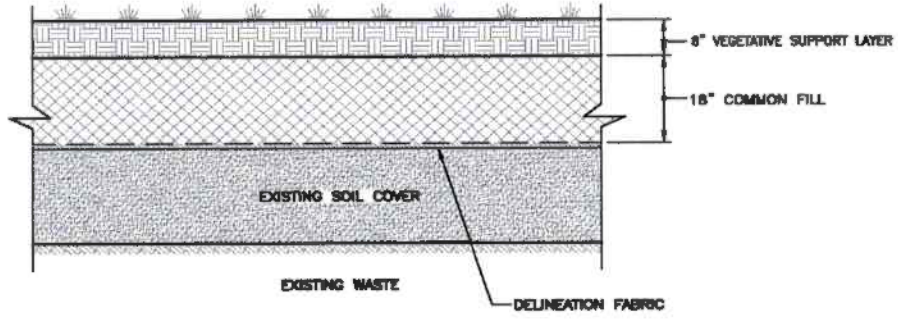
- Vegetated soil cover will be placed consistent with the NJDEP Solid Waste regulations
- Additional soil will be added to existing soil cover to have a minimum "two feet" of soil between the ground surface and landfilled debris
- Vegetated soil cover to offer safety protection to non-residents from potential future exposure to solid waste at FTMM-02, and protection against contact with COCs in soil at FTMM-08 and also control surface water runoff and erosion

PREFERRED REMEDIAL ALTERNATIVE

Landfill Cover System Design



CAP SECTION
N.T.S.



CAP X-SECTION
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PREFERRED REMEDIAL ALTERNATIVE

- LUCIP will be prepared to:
  - Implement the LUC (e.g., maintain soil cover and prevent residential land use)
  - Document the location of engineering control (e.g., soil cover)
  - Identify procedural responsibilities including cover inspections and maintenance, monitoring and reporting and long term management requirements
- The Army will be responsible for documenting and implementing the LUCs through filing of a deed notice at the time of property transfer
- New owner will be responsible for complying with the LUCs, however the Army will retain ultimate responsibility for remedy integrity

PREFERRED REMEDIAL ALTERNATIVE

- Institutional Controls in the form a Classification Exception Area (CEA) for groundwater at FTMM-02 will be revised and a CEA for FTMM-08 will be established; CEAs will remain in place until NJDEP Groundwater Quality Standards are achieved

- Possible components of remedial measures may also include:
  - Passive methane gas venting and mitigation system
  - Walking paths and access roads

PUBLIC PARTICIPATION

- Public participation is an important component of remedy selection
- The Army is soliciting input from the community on the preferred alternative identified for FTMM-02 and FTMM-08
- Public comments will be included in the Decision Document and will be added to the FTMM Information Repository at the Monmouth Eastern Branch Library
- Comments accepted from March 28 through April 27, 2017

QUESTIONS AND PUBLIC COMMENTS

Comments can be submitted verbally tonight (in meeting transcript) or in writing (forms are available)

By mail:

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Written comments must be postmarked or emailed by the comment period close on April 27, 2017.

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