

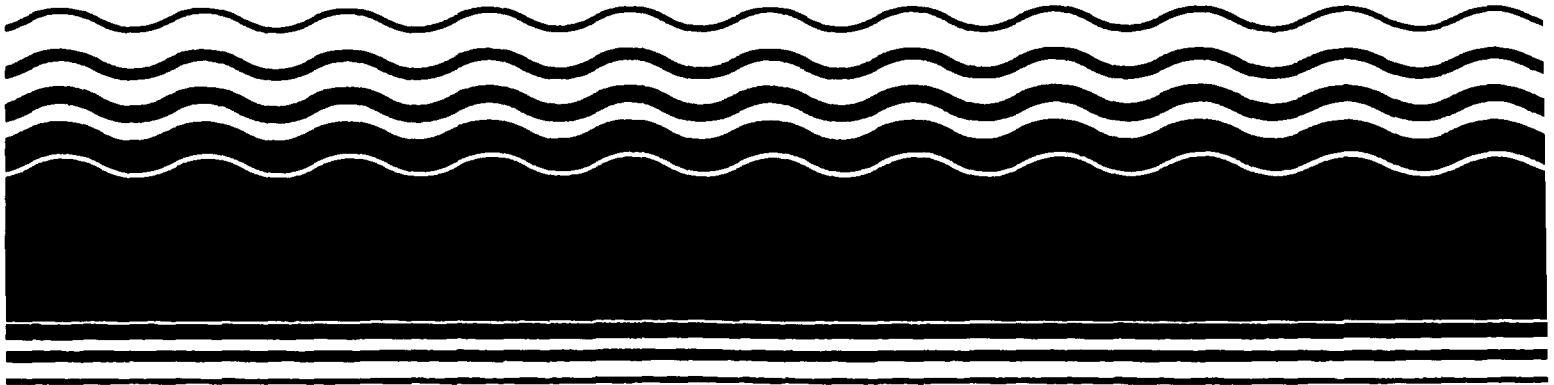
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EPA 541-R98-120

March 1999

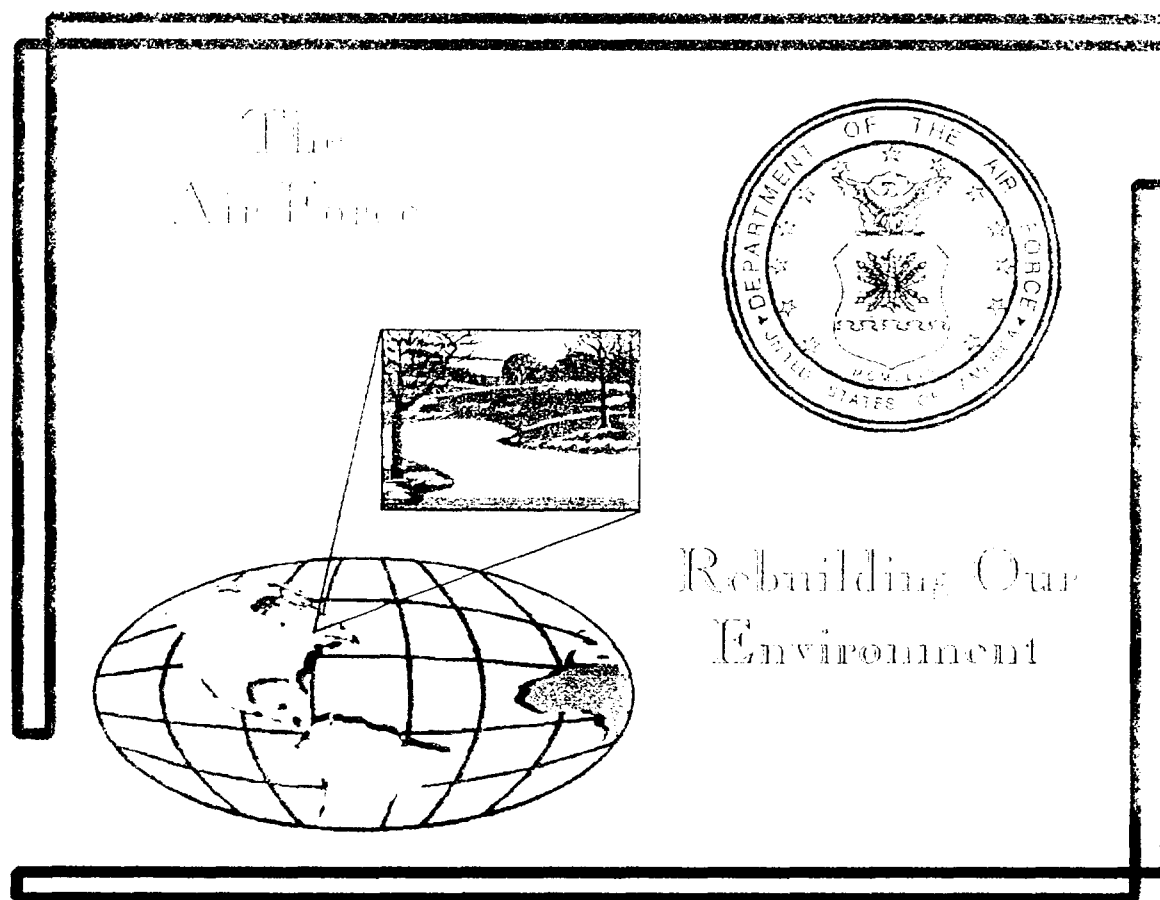
EPA Superfund
Explanation of Significant Difference
for the Record of Decision:

Loring Air Force Base OU 2
Limestone, ME
9/30/1998



FINAL
LANDFILL 3
OPERABLE UNIT 2
EXPLANATION OF SIGNIFICANT DIFFERENCES

September 1998



Installation Restoration Program
Loring Air Force Base, Maine

DECLARATION FOR THE EXPLANATION OF SIGNIFICANT DIFFERENCES

SITE NAME AND LOCATION

Landfill 3, Operable Unit 2
Loring Air Force Base (LAFB)
Limestone, Maine

STATEMENT OF PURPOSE

This Explanation of Significant Differences (ESD) sets forth the basis for certain significant changes to the remedy selected in the Operable Unit (OU) 2 Record of Decision (ROD) at the Loring Air Force Base National Priorities List site (Site) in Limestone, Maine.

STATUTORY BASIS FOR ISSUANCE OF THE ESD

Under Section 117 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), if the lead agency determines that the remedial action at a Site differs significantly from the ROD for that Site, the lead agency shall publish an explanation of the significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made. The National Contingency Plan (NCP) (40 CFR 300.435 (c) (2)), and EPA guidance (OSWER Directive 9355.3-02), indicate that an ESD, rather than a ROD amendment, is appropriate where the changes in issue do not fundamentally alter the overall remedy with respect to scope, performance, or cost. Because the adjustments to the remedial action do not fundamentally alter the overall remedy for Landfill 3 in OU 2 with respect to scope, performance, or cost, this ESD is being issued properly.

In accordance with the NCP (40 CFR 300.435 (c) (2) (i) (A)), this ESD will become part of the Administrative Record which is available for public review at the LAFB Base Conversion Agency Office, in Limestone, Maine. In addition, a notice that briefly summarizes this ESD will be published in the Aroostook Republican and the Bangor Daily News.

OVERVIEW OF THE ESD

OU 2 consists of two sites: Landfill 2 and Landfill 3. The OU 2 CERCLA ROD issued in September 1994 declared there would be a CERCLA source control and soil remedial action at Landfill 2 and Landfill 3. This ESD relates to the CERCLA remedial action at Landfill 3.

Landfill 3 is located approximately one-half mile from the West Gate on the Sawyer Road. The landfill covers approximately 17 acres and received waste from 1974 to 1991. The selected remedial action for Landfill 3 is containment with a cover system. It includes the following key components:

- Site preparation;
- Consolidation of Site soils for subgrade and grading to minimize erosion and manage runoff;
- Multi-layer cover system installation which will comply with Resource Conservation and Recovery Act (RCRA) Subtitle C and Maine hazardous waste requirements including landfill gas assessment and controls, and assessment of adjacent wetlands;
- Gates and warning signs installation;
- Deed restrictions on land in the vicinity of the landfills;
- Post closure monitoring and maintenance; and
- Five-year site reviews.

In accordance with the ROD, excavated material from other areas at the Site will be used at Landfill 3 as fill material to meet the subgrade design specifications for the Landfill 3 cover system. Before material from such other areas can be used as subgrade material at Landfill 3, the Air Force must comply with CERCLA and the NCP for any areas which are CERCLA sites. The Air Force also must demonstrate that it has complied with the procedures set forth in the "Technical Memorandum - A Land Disposal Restriction Evaluation of Soils Proposed as Landfill Subgrade Materials, July 1994" (USAF, July 1994).

By this ESD, the Air Force is presenting its explanation of its decision, with concurrence from EPA and MEDEP, to use soils excavated during an OU 8 removal action and sediments excavated during the OU 13 remedial action as subgrade fill beneath the Landfill 3 cover system.

The Toxic Substances Control Act (TSCA) and 40 CFR Part 761 specify that non-liquid wastes containing PCB concentrations greater than 50 parts per million (ppm) must be incinerated, placed in a chemical waste landfill that meets certain technical requirements, or disposed of by some alternative disposal method that will provide adequate protection to human health and the environment. The OU 8 soils and OU 13 sediments in question contain PCBs at concentrations greater than 50 ppm. Therefore, the Air Force, as lead agency, has proposed construction of two cells within the subgrade fill beneath the Landfill 3 cover system for the containment of these soils and sediments. The cells provide a more cost-effective means of disposing of OU 8 soils and OU 13 sediments contaminated with PCBs at concentrations greater than 50 ppm than off-site treatment or disposal, while providing subgrade fill for the Landfill 3 cover system from the Site.

The Air Force has requested waivers from certain of the TSCA technical requirements for chemical waste landfills, which are specified at 40 CFR § 761.75(b), for both cells. In accordance with 40 CFR § 761.75(c)(4), the Air Force has submitted evidence to the Regional Administrator of USEPA Region 1 that operation of the cells will not present an unreasonable

risk of injury to human health or the environment from PCBs when those technical requirements that the Air Force has requested be waived are not met. No disposal of PCB waste will occur until the requested waiver is finalized.

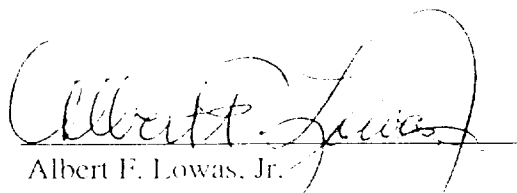
The use of the cells described herein within the subgrade fill beneath the Landfill 3 cover system, while a significant difference in the remedy selected in the OU 2 ROD for Landfill 3, does not fundamentally alter the overall remedy for Landfill 3 with respect to scope, performance, or cost. In fact, construction of the special cells at Landfill 3 will cost less than off-site treatment or disposal of the waste material that is contaminated with PCBs at concentrations greater than 50 ppm.

DECLARATION

For the foregoing reasons, by my signature below, I concur and recommend the issuance of an Explanation of Significant Differences for Operable Unit 2 at Loring Air Force Base, in Limestone, Maine and the changes stated therein.

Department of the Air Force

By:



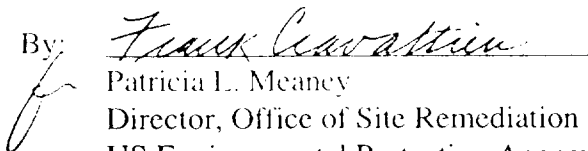
Albert F. Lowas, Jr.
Director, Air Force Base Conversion Agency

Date:

September 25, 1998

United States Environmental Protection Agency

By:



Patricia L. Meaney
Director, Office of Site Remediation and Restoration
US Environmental Protection Agency, Region 1

Date:

9-30-98

EXPLANATION OF SIGNIFICANT DIFFERENCES
Operable Unit 2
LORING AIR FORCE BASE
LIMESTONE, MAINE

I. INTRODUCTION

A. Site Name and Location

Site Name: Landfill 3
Operable Unit 2
Loring Air Force Base (LAFB)

Site Location: Limestone, Maine

B. Lead and Support Agencies

Lead Agency: United States Department of the Air Force (Air Force)

Support Agencies: United States Environmental Protection Agency (EPA)

Maine Department of Environmental Protection (MEDEP)

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §120 (e) [42 USC § 9620 (e)], the Air Force, EPA and MEDEP entered into a Federal Facility Agreement (FFA), dated January 30, 1991, amended December 1993 and January 1995, regarding the cleanup of the LAFB National Priorities List (NPL) site (Site). The FFA sets forth the roles and responsibilities of each of the parties.

C. Legal Authority

Under CERCLA §117 (c) [42 USC § 9617 (c)], the National Contingency Plan (NCP) [40 CFR §300.435 (c)], and EPA guidance (OSWER Directive 9355.3-02), if the lead agency determines that differences in the remedial action significantly change but do not fundamentally alter the remedy selected in the Record of Decision (ROD) with respect to scope, performance, or cost, the lead agency shall publish an explanation of the significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made.

D. Summary of this Explanation of Significant Differences

The 1994 ROD for OU 2 selected a remedial action for Landfill 3 which included a multi-layer cover system. Excavated material from other areas at the Site may be used at Landfill 3 as fill material to meet the subgrade design specifications for the cover system. Before material from

such other material can be used as a subgrade material at Landfill 3. The Air Force must comply with CERCLA and the NCP for any areas which are CERCLA sites. The Air Force also must demonstrate that it has complied with the procedures set forth in the "Technical Memorandum: A Land Disposal Restriction Evaluation of Soils Proposed as Landfill Subgrade Materials, July 1994" (USAF, July 1994).

By this ESD, the Air Force is presenting its explanation of its decision, with concurrence from EPA and MEDDP, to use soils excavated during an OU8 removal action and sediments excavated during the OU13 remedial action as subgrade fill beneath the Landfill 3 cover system.

The Toxic Substances Control Act (TSCA) and 40 CFR Part 761 specify that non-liquid wastes containing PCB concentrations greater than 50 parts per million (ppm) must be incinerated, placed in a chemical waste landfill that meets certain technical requirements, or disposed of by some alternative disposal method that will provide adequate protection to human health and the environment. The OU8 soils and OU13 sediments in question contain PCBs at concentrations greater than 50 ppm. Therefore, the Air Force, as lead agency, has proposed construction of two cells within the subgrade fill beneath the Landfill 3 cover system for the containment of these soils and sediments. The cells provide a more cost-effective means of disposing of OU8 soils and OU13 sediments contaminated with PCBs at concentrations greater than 50 ppm than off-site treatment or disposal, while providing subgrade fill for the Landfill 3 cover system from the Site.

The Air Force has requested waivers from certain of the TSCA technical requirements for chemical waste landfills, which are specified at 40 CFR § 761.75(b), for both cells. In accordance with 40 CFR § 761.75(c)(4), the Air Force has submitted evidence to the Regional Administrator of USEPA Region 1 that operation of the cells will not present an unreasonable risk of injury to human health or the environment from PCBs when those technical requirements that the Air Force has requested be waived are not met. No disposal of PCB waste will occur until the requested waiver is finalized.

E. Availability of Documents

This ESD will become part of the Administrative Record File for OU2. This ESD, along with the supplemental documentation included in the Administrative Record File, are available for review at the:

Air Force Base Conversion Agency
5100 Texas Road
Limestone, Maine 04750-9743
Phone: (207) 328-7109, Fax: (207) 328-7131
Hours: 7:30 a.m. to 4:30 p.m., Monday through Friday

II. SUMMARY OF SITE HISTORY, RESPONSE ACTIVITIES AND SELECTED REMEDY

A. Site History

The former LAFB, in northeastern Maine, is bordered on the south and east by the Town of Limestone, on the north by the towns of Caswell and Connor, and on the west by the City of Caribou. The base is approximately three miles west of the United States/Canadian border and covers approximately 9,000 acres.

As noted above, the Site is a NPL site. There are currently several areas of concern under investigation within the Site, which have been organized into Operable Units (OUs) for investigation and remediation purposes. This ESD relates to the remedial action at Landfill 3 in OU 2.

Because of the base's primary mission, LAFB personnel were engaged in various operations, a number of which required the use, handling, storage, or disposal of hazardous substances. In the past, these hazardous substances entered the environment through accidental spills, leaks in supply piping, landfilling operations, burning of liquid wastes during fire-training exercises, and the cumulative effects of operations conducted at the base's flightline and industrial areas. As part of the Department of Defense's Installation Restoration Program (IRP), the Air Force initiated activities to identify, evaluate, and remediate former disposal or spill sites containing hazardous substances. After initiation of these activities, the base was placed on the NPL, and the Air Force, USEPA and MEDEP agreed to its remediation in accordance with the FFA. Following the signing of the FFA, LAFB was placed on the U.S. Congress Base Closure List and was closed in September 1994.

The topography of LAFB is gently rolling, with several brooks cutting through the terrain. The main base elevations range from 746 feet above mean sea level (MSL) on the main runway to approximately 570 feet above MSL in the southwest portion of the base.

Landfill 3 is located approximately one-half mile from the West Gate on Sawyer Road and covers approximately 17 acres. During parts of the year, groundwater contacts the landfilled wastes. Several small wet areas (i.e., less than one acre in size) have been identified on the periphery of Landfill 3. An approximately five-acre wetland is located west of Landfill 3. This wetland is at a higher elevation than Landfill 3.

The area occupied by Landfill 3 was mined extensively for gravel during construction of the base runway and flightline areas. Landfill 3 received waste from 1974 to 1991. Hazardous wastes are not known to have been placed at Landfill 3. However, small quantities of wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA) (42 USC § 6901) (i.e., waste oil/fuels, solvents, paints, thinners, hydraulic fluids) may have been buried in the landfill prior to enactment of RCRA. Landfill 3 was closed in 1991 and covered with a 6-inch layer of native soil. Since 1994, Landfill 3 has received non-hazardous waste material (primarily petroleum-contaminated soil) from various soil removals across the Site. The waste material provides subgrade fill for the cover system planned for completion in 1999.

For example, approximately 80,000 cubic yards (cy) of sediment contaminated with PCBs at concentrations less than 50 ppm were placed at Landfill 3 in 1997 in accordance with the OU 13

ROD. A major portion of PCB contamination consists of concentrations less than 10 ppm and planned for placement at Landfill 3 in 1998. The majority of the sediments from the OU 1-3 remedial action have PCB concentrations less than 10 ppm.

B. Investigation History

The investigation history of Landfill 3 is summarized as follows:

- In 1984, a Preliminary Assessment was completed detailing historical hazardous material usage and waste disposal practices at LAFB (Ch. VII, Hill, 1984).
- Initial Site Investigation fieldwork to determine if contaminants were present at Landfill 3 was conducted in 1985 (Weston, 1988).
- An RI process commenced in 1988 and continued into 1993.
- LAFB was added to the NPL in February 1990.
- The USAF entered into a Federal Facility Agreement (FFA, 1991) in 1991 with the US EPA and MEDEP regarding the cleanup of environmental contamination at LAFB. The FFA was revised in December 1993 to address base closure related issues, such as real property transfer and a revised schedule. The FFA was further modified in January 1995 to allow the Remedial Project Managers to make minor modifications, such as schedule adjustments and removal of petroleum contaminated sites from the agreement.
- A Focused Feasibility Study was completed in 1994 for Landfill 3 to determine alternatives for remediation of contamination based on information presented in the RI report, and a Proposed Plan was submitted for public review in July 1994.
- The Air Force and the EPA signed the OU2 ROD September 30, 1994. The Maine DEP provided a letter of concurrence on this ROD.

C. Selected Remedy

The selected remedy for OU2 is containment using a cover system. The major components of the remedy for Landfill 3 include:

- Site preparation;
- Consolidation of Site soils for subgrade and grading to minimize erosion and manage runoff;
- Multi-layer cover system installation which will comply with RCRA Subtitle C and Maine hazardous waste requirements including landfill gas assessment and controls, and assessment of adjacent wetlands;

- Gates and warning signs installation;
- Deed restrictions on land in the vicinity of the landfills;
- Post closure monitoring and maintenance; and
- Five-year site reviews.

III. DESCRIPTION OF SIGNIFICANT DIFFERENCES AND BASIS FOR THOSE DIFFERENCES

A. Summary and Basis of Significant Differences

The selected remedy for Landfill 3, as outlined in Section II.C and set forth in the OU 2 ROD, includes the consolidation of soils and sediments excavated from other locations at the Site for use as subgrade fill under the Landfill 3 cover system. The difference between the remedy selected in the OU 2 ROD and the remedy to be taken at Landfill 3 is the construction within the subgrade fill beneath this cover system of two cells that are designed to meet the 40 CFR § 761.75(b) technical requirements for chemical waste landfills (except those requirements specifically waived by the EPA Regional Administrator).

These cells allow for the use of soils and sediments from other locations at the Site as subgrade fill, as provided for in the OU 2 ROD, while providing a cost-effective alternative disposal method for such soils and sediments that contain PCBs at concentrations greater than 50 ppm. Approximately 400 cy of soil from the Underground Transformer Site at OU 8 and 2,150 cy of sediments from OU 13 contain PCBs at concentrations greater than 50 ppm. One of the cells has a capacity of about 2,000 cy and contains sediments excavated during the OU 13 remedial action; the other cell has a capacity of about 600 cy and will contain soils excavated during an OU 8 removal action as well as OU 13 sediments. Off-site treatment or disposal of this approximately 2,550 cy of PCB-contaminated soils and sediments has an estimated cost of \$765,000, or roughly \$300/cy. Disposal of these soils and sediments in the two cells has an estimated cost of \$86,000.

The Air Force has asked for waiver of certain of the 40 CFR § 761.75(b) technical requirements for each cell. It also has submitted evidence that operation of the cells would not present an unreasonable risk of injury to health or the environment from PCBs if the requested waivers were granted in the Technical Memorandum, *Polychlorinated Biphenyl (PCB) Waste Cell at Landfill 3* (USAF 1997). The specific technical requirements for which the Air Force requested waivers for each cell, and the justifications for such waivers, are discussed below. In accordance with 40 CFR § 761.75(c)(4), the Regional Administrator of EPA Region 1 has found that operation of the cells will not present an unreasonable risk of injury to human health or the environment from PCBs if those technical requirements that the Air Force has requested be waived are not met. On the basis of this finding, the Regional Administrator has waived those specific requirements. See Attachment.

B. Description of Significant Differences

The following sections present the regulatory requirements for a chemical waste landfill and describe how disposal of soils and sediment from OUs 8 and OU 13 containing PCB concentrations greater than 50 ppm in the specially designed and constructed waste cells at Landfill 3 does not present an unreasonable risk of injury to health or the environment from PCBs.

The requirements listed in 40 CFR 761.75 for a chemical waste landfill used for the disposal of PCB waste are summarized in the following paragraphs.

- **Soils or Synthetic Membrane Liners:** The landfill site must be located on relatively impermeable soils with the following parameters: at least 5 feet of clay or silt with a maximum permeability of 1×10^{-7} cm/sec. A synthetic membrane liner shall be used when the hydrologic or geologic conditions require such a liner to provide equivalent permeability. The liner must have a minimum thickness of 30 mils, with adequate soil underlining and soil cover to prevent damage to the liner.
- **Hydrologic Conditions:** The bottom of the landfill liner system must be 50 feet above the historical high groundwater table. Floodplains, shorelands and groundwater recharge areas must be avoided, and there must be no hydraulic connection between the landfill site and standing or flowing surface water.
- **Surface Water Protection:** The landfill site must be protected from a 100-year flood, and drainage diversion structures must be able to accommodate runoff from a 25-year, 24-hour storm.
- **Topography:** The landfill must be sited in an area of low to moderate relief to minimize erosion and prevent landslides.
- **Surface Water Monitoring:** Surface water samples must be collected from designated areas prior to commencing operations, monthly during disposal operations, and semi-annually after disposal operations are complete. Surface water samples should be analyzed for PCBs, pH, specific conductance, and chlorinated organics.
- **Groundwater Monitoring:** A minimum of 3 monitoring wells is required. Groundwater samples must be analyzed for PCBs, pH, specific conductance, and chlorinated organics. Sampling frequency is not specified in the regulations.
- **Leachate Collection System:** A leachate collection system must be provided when semi-solid or leachable solid wastes are to be disposed of in the landfill. The system must be monitored monthly for quantity and physicochemical characteristics of leachate produced.

- **Supporting Facilities and Operations:** A fence of woven plastic fencing with a gate and a device should be placed around the site to prevent unauthorized persons and animals from entering.

According to 40 CFR 761.75 (e)(4), one or more of the requirements may be waived as long as operation of the landfill will not present an unreasonable risk of injury to health or the environment from PCBs. PCBs pose health risks due to direct contact, inhalation or ingestion of PCBs as a result of leaching to groundwater, and environmental risks due to direct contact with animals and potential migration to surface water or sediments. A comparison of the design and operational features of the cells to the chemical waste landfill technical requirements regarding prevention of risk of injury to health or the environment from PCBs is given below.

The technical requirements for chemical waste landfills were written primarily to address operating landfills, including the management of rainfall and surface water infiltration at such landfills. The following sub-sections demonstrate how the small size of the specially designed and constructed cells at Landfill 3 and short duration of operation minimizes leachate generation and allows certain of these requirements to be waived while meeting the protectiveness standard.

There are two distinct cells of similar design included in this ESD. The first cell is designed to contain approximately 2,000 cy of PCB waste. It was constructed in 1997 according to the description contained in the Technical Memorandum, *PCB Waste Cell at Landfill 3* (USAF, 1997). The second cell is designed to contain approximately 600 cy of PCB waste. It will be constructed in 1998 according to the description included in the letter, *Proposed PCB Waste Cell Plans and Section* (USAF, 1998).

1. Soils or Synthetic Membrane Liners

The location of the two PCB waste cells does not meet the requirement for low permeability soils. In order to meet the alternative 30 mil synthetic membrane requirement, the liner of the larger cell was constructed of geosynthetic clay liner (GCL) panels. GCLs are more durable than 30 mil geomembranes and do not require specialized equipment for field seams and testing of field seams. In addition, GCLs are "self-healing" in the event of a puncture. The permeability of GCLs is typically on the order of 5×10^{-9} cm/sec, which exceeds the soil permeability requirement of 1×10^{-7} cm/sec.

The GCL panels were underlain and covered with geocomposite for additional puncture resistance. The geocomposite was leftover material from the Landfill 2 cover system, and is composed of a polyethylene net between a 16 oz/yd² and a 10 oz/yd² geotextile.

The soils or synthetic membrane liner requirement in 40 CFR § 761.75(b)(2) may be waived for the larger cell because use of the GCL presents no unreasonable risk of injury to health or the environment from PCBs.

The liner of the smaller cell will be constructed from a 40 mil geomembrane, which exceeds the permeability of the soils or synthetic membrane requirement in 40 CFR § 761.75(b)(2).

2. Hydrologic Conditions

The distance from the bottom of the cells to the historical high groundwater table is approximately 20 feet, which is less than the minimum requirement of 50 feet. The cells are not located in floodplains or shorelands. The cover system for Landfill 3 in combination with the PCB waste cell covers and liners will reduce infiltration from precipitation and prevent the cells from becoming an area of groundwater recharge. The forested wetlands adjacent to Landfill 3 have no hydraulic connection to any part of Landfill 3. There is no hydraulic connection between the cells and any other standing or flowing surface waters. The State has monitoring wells near the cell locations. The cells do not include a leachate collection system.

The distance between the bottom of the cells and the historical high groundwater table is sufficient to prevent unreasonable risk of injury to health or the environment from PCBs. The larger cell was covered with GCL panels immediately after placement of the PCB waste to exclude rainwater infiltration and minimize the formation of leachate. Placement of the PCB waste took less than a week. Moisture contained within the sediments will aid in hydrating the GCL, thereby activating the desirable low permeability properties. The smaller cell will be filled and covered with 40 mil geomembrane immediately after placement of the PCB waste. Leachate generation is expected to be minimal. The triple layer (RCRA-type) Landfill 3 cover system to be installed in 1999 will further minimize rainfall infiltration into the cells and leachate generation. The cell liners will prevent any leachate from migrating to groundwater.

The minimum depth to groundwater requirement in 40 CFR § 761.75(b)(3) may be waived for both cells because the specially designed cells, in conjunction with the multi-layer cover system, prevent migration of PCBs to groundwater and present no unreasonable risk of injury to health or the environment from PCBs.

3. Surface Water Protection

Landfill 3 is not located within a 100-year flood plain, therefore 40 CFR § 761.75(b)(4)(ii) requires that the cells be protected from surface water run-on due to a 24-hour, 25-year storm event. The cells are located on a high area within Landfill 3 and include a berm on the high side to prevent surface water run-on during the placement operation. In addition, the storm water diversion system associated with Landfill 3 is sufficient to divert runoff from a 24-hour, 25-year storm from reaching the cells.

4. Topography

The PCB cells are located in an area of low relief, where the potential for landslides or erosion is minimal or non-existent. The requirement in 40 CFR § 761.75(b)(5) is met for both cells.

5. Surface Water Monitoring

There are no stormwater surface water collection or storage facilities at Landfill 3. In addition, the cells have been coated on a high polyethylene liner and installed with berms on the high side of the cells during the short waste placement period. Surface water will not flow into or through the cells. The surface water monitoring requirement of 40 CFR § 761.75(b)(6)(ii)(A) is met for both cells.

6. Groundwater Monitoring

More than three groundwater monitoring wells within and surrounding Landfills 3 have been subject to annual monitoring since 1999. This monitoring program is required by the 1999 Landfills Groundwater ROD. The groundwater monitoring wells meet the design and construction requirements of 40 CFR § 761.75(b)(6)(ii)(A) and (B). The groundwater analyses under the monitoring program includes a list of metals as specified in 40 CFR § 761.75(b)(6)(iii).

7. Leachate Collection System

The two cells are not expected to generate leachate. The soils and sediment to be disposed of are dewatered prior to placement in the cells to minimize leachate generation. Surface water will be diverted from flowing into or through the cells for the short period of time they are open to further minimize leachate generation. After the soils and sediment are encapsulated, the cells will be covered with the multi-layer (RCRA Type) Landfill 3 cover system in 1999 to prevent future surface water infiltration. Thus, a leachate collection system is not necessary for either cell. For these reasons, the leachate collection system requirement in 40 CFR § 761.75(b)(7) may be waived for both cells without unreasonable risk of injury to health or the environment from PCBs.

8. Supporting Facilities and Operations

Access to Landfill 3 is controlled during working hours by traffic spotters and by a sign-in policy. During non-working hours, access by vehicles is controlled by the use of gates. Since the cells will be open for only a short period of time, further control measures will not be necessary.

A daily cover will be used to exclude rainfall. The soils and sediment will be placed into the cells by one or both of the following methods:

- An excavator working along the edge of the cells will place waste into the cells.
- An access ramp will be provided along the edge of the cells to allow trucks, dozers, compactors, or other equipment as necessary to enter the cells.

The requirements of 40 CFR § 761.75(b)(8) are met.

The significant differences to the 1994 OU-2 ROD for Landfill 3 with respect to scope, performance and cost are summarized in the following table.

	Original Remedial	Modified Remedial
Scope	<p>Containment of approximately 80,000 cy of soils and sediments with PCB concentrations less than 500 ppm (average concentration less than 60 ppm) in Landfill 3 in 1998, on a subgrade fill.</p> <p>Containment of approximately 80,000 cy of soils and sediments with PCB concentrations less than 500 ppm (average concentration less than 60 ppm) in Landfill 3 in 1998, on a subgrade fill.</p>	<p>Containment of approximately 80,000 cy of soils and sediments with PCB concentrations ranging from 50 to 900 ppm in GCL lined cell constructed under cover system to be installed at Landfill 3.</p> <p>Containment of approximately 550 cy of soils and sediments with PCB concentrations ranging from 50 to 1,400 ppm in 4 mil geomembrane lined cell constructed under cover system to be installed at Landfill 3.</p>
Performance		
Compliance with ARARs	Compliance with TSCA was not achievable.	The two cells in Landfill 3 must meet the TSCA chemical waste landfill requirements in 40 CFR 1.61, 750m.
Short Term Effectiveness	Workers must use personal protection equipment to prevent exposure to contaminants during placement of subgrade fill at Landfill 3.	Placement of OU 8 soils and OU 13 sediments in the special cells in Landfill 3 will not change the requirement for workers to use personal protection equipment.
	Short-term adverse ecological impacts are possible during the 4 years that subgrade fill is placed at Landfill 3 prior to installation of the final cover system.	Construction and operation of the special cells will not delay installation of the final cover system at Landfill 3 and will not affect the potential for short-term adverse ecological impacts of the remedy.
Long Term Effectiveness	The Landfill 3 cover system is based on well known, reliable technology designed to last more than 80 years.	The special cells will not affect the long-term reliability of the Landfill 3 cover system.
	No residual risks are anticipated. Direct contact with the contaminants in Landfill 3 is prevented by the cover system.	The special cells in Landfill 3 will not affect the residual risks.

	Original Remedy	Modified Remedy
Long Term Effectiveness (Continued)	The EHLF model shows migration through the Landfill 3 cover system will be 0.01% to 0.02 % of precipitation, minimizing leachate potential.	Leachate generation within the special cells in Landfill 3 is not expected. They will not change the leachate potential.
	Regular monitoring and maintenance of the Landfill 3 cover system is required to maintain the cover.	Subgrade material in the special cells will be placed to maintain differential settlement does not occur on the cover.
Cost	The 1994 Revised Feasibility Study for OU 2 estimated the capital cost for Landfill 3 would be \$14,459,000.	Proposed PCB treatment and containment estimated capital cost of \$86,000.

IV. SUPPORT AGENCY COMMENTS

EPA and MDEQ have communicated with the Air Force as lead agency to review and approve the 1994 ROD for OU 2 and support the changes in the ESD. The changes allow the Air Force to address contamination at the Site in a manner that addresses the concerns of the community, and protects human health and the environment.

V. STATUTORY DETERMINATIONS

Considering the above described adjustments to the selected remedy set forth in the 1994 ROD for OU 2, the Air Force believes the remedy remains protective of human health and the environment; complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action; and are cost effective. In fact, the remedy set forth in this ESD provides a more cost effective disposal alternative for PCB waste material from OU 13 and OU 8.

VI. PUBLIC PARTICIPATION

This ESD, as well as other material relating to the investigations and remedy selection, is available for public review at the location listed in Section I above.

The Air Force will publish a public notice of availability and a brief description of this ESD in the Aroostook Republican and the Bangor Daily News.

REFERENCES

- U.S. AFB, 1984. "IRP Record Search Form, Air Force Base, Limestone, Maine", January.
- Facilities Agreement (FFA) Under CERCLA Section 120, The Matter of Loring Air Force Base, by U.S. Environmental Protection Agency, Region I, State of Maine, and the U.S. Department of Air Force, 30 January 1991.
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MEMORANDUM

TO: John P. DeVillars, Regional Administrator

THROUGH: Patricia L. Meaney, Director, OSRR *Patricia L. Meaney*

FROM: Michael Nalipinski, OSRR Federal Facilities Superfund Section *Michael Nalipinski*
Betsy Mason, Office of Regional Counsel *Betsy Mason*

DATE: September 29, 1998

RE: Waiver of TSCA Chemical Waste Landfill Requirements for PCB Waste Cells at
Loring Air Force Base, Limestone, Maine

Action Requested

Please sign the attached Regional Administrator's Findings and Waivers Under Regulations of the Toxic Substances Control Act ("Waivers") to waive certain of the 40 CFR § 761.75(b) technical requirements for the construction and use of two cells for the disposal of soils/sediments containing polychlorinated biphenyls (PCBs) at concentrations over 50 parts per million (ppm) at the Loring Air Force Base National Priorities List site in Limestone, Maine ("Site").

Background

A. The OU2 ESD

The United States Air Force is issuing an Explanation of Significant Differences (ESD) with regard to the source control remedy selected for Landfill 3 in Operable Unit (OU) 2 at the Site in conjunction with these Waivers. The OU2 Record of Decision requires containment with a triple-layer cover system and allows the use of soils/sediments excavated from other locations at the Site as subgrade fill under the cover system. The modified remedy to be presented in the ESD includes the construction within the subgrade fill of two cells for the disposal of soils/sediments containing PCBs at concentrations over 50 ppm. The cells allow for the use of a greater volume of soils/sediments from the Site as subgrade fill while providing a cost-effective disposal method for such soils/sediments that contain over 50 ppm PCBs. One of the cells has a capacity of about 2,000 cubic yards and contains sediments excavated during the OU13 remedial action (the basewide sediment remedy); the other cell has a capacity of about 550 cubic yards and will contain soils excavated during an OU8 source removal action as well as OU13 sediments.

The two cells are subject to the Toxic Substances Control Act (TSCA) chemical waste landfill technical requirements specified at 40 CFR § 761.75(b). Under 40 CFR § 761.75(c)(4), however, the Regional Administrator has the discretion to waive one or more of these requirements if he

It is that compliance with them is not necessary to protect against an unreasonable risk of injury to health and the environment from PCBs. The Air Force has requested waiver of certain of these requirements for the cells.

B. The Larger Cell

The Air Force asked for waiver of the following technical requirements for the larger cell: (1) that chemical waste landfills be constructed only in low permeability clay conditions (40 CFR § 761.75(b)(1)), (2) that the bottom of such landfills be 50 feet above the historic high groundwater table (§ 761.75(b)(3)); and (3) that leachate collection systems be employed (§ 761.75(b)(7)). It also submitted evidence that operation of the cell would not present an unreasonable risk of injury to health or the environment from PCBs if the requested waivers were granted. EPA staff reviewed the request and determined that compliance with the technical requirements proposed for waiver was not necessary to protect against such a risk, and that therefore the waivers should be granted. The Air Force constructed the cell and placed PCB-contaminated sediments from OU 13 in it in 1997.

C. The Smaller Cell

The Air Force has asked for waiver of the § 761.75(b)(3) depth to historic high groundwater requirement and the § 761.75 (b)(7) leachate collection system requirement for the smaller cell. It has submitted evidence that operation of the cell will not present an unreasonable risk of injury to health or the environment from PCBs if the requested waivers are granted. EPA staff has reviewed this request and determined that, as with the larger cell, compliance with the technical requirements proposed for waiver is not necessary to protect against such a risk, and that therefore the waivers should be granted.

Basis for Findings and Waivers

EPA staff has determined that the following evidence submitted by the Air Force supports granting the requested waivers:

- The § 761.75(b)(1) requirement that chemical waste landfills be constructed only in low permeability clay conditions can be waived for the larger cell because the liner in that cell will be constructed of geosynthetic clay liner (GCL) panels. GCLs are more durable than the required 30 mil geomembrane and are "self-healing" in the event of a puncture. Moreover, the permeability of GCLs is typically on the order of 5×10^{-9} cm/sec, which exceeds the requirement of 1×10^{-7} cm/sec in 40 CFR § 761.75(b)(1).
- The § 761.75(b)(3) requirement that the bottom of such landfills be 50 feet above the historic high groundwater table can be waived for both cells for the following reasons: (1) neither cell is located in a floodplain or shoreland; (2) there is no hydraulic connection between either cell and any standing or flowing surface water; (3) there was little to no rainwater infiltration into the larger cell during disposal of the PCB-contaminated soils and sediments (and therefore minimal leachate generation) because of the short length of time

needed to complete such disposal (less than one week), and the same will be true for the smaller cell. (4) the larger cell was encapsulated with GCL panels, and the smaller cell will be covered with 40 mil geomembrane, immediately after disposal to exclude rainwater infiltration and thereby minimize leachate generation, (5) the installation of the triple-layer landfill cover system in 1999 will further exclude rainwater infiltration and minimize leachate generation, and (6) the cell liners would prevent the migration to groundwater of any leachate that is generated.

- The § 76.1-77 (b)(7) requirement that specific leachate collection systems be employed can be waived because: (1) the PCB-contaminated soils and sediments to be disposed of will be dewatered prior to placement into the cells; (2) the encapsulation of the larger cell with GCL panels immediately after disposal minimized rainwater infiltration and therefore leachate generation, and the covering of the smaller cell immediately after disposal will do the same, and (3) the installation of the triple-layer landfill cover system in 1999 will further exclude rainwater infiltration and minimize leachate generation.

**Loring Air Force Base National Priorities List Site
Operable Unit 2, Landfill 3**

**Regional Administrator's Findings and Waivers
Under Regulations of the Toxic Substances Control Act**

The United States Air Force (Air Force) is issuing an Explanation of Significant Differences (ESD) with regard to the source control/soil remedy selected for Landfill 3 in Operable Unit 2 (OU 2) at the Loring Air Force Base National Priorities List site in Limestone, Maine (Site). The original remedy selected for Landfill 3 in the OU 2 Record of Decision (ROD), dated September 30, 1994, requires containment with a triple-layer cover system and allows the use of soils and sediments excavated from other locations at the Site as subgrade fill under the cover system. The modified remedy presented in the ESD includes the construction within the subgrade fill of two cells for the disposal of soils and sediments containing polychlorinated biphenyls (PCBs) at concentrations greater than 50 parts per million. These cells, with respective capacities of approximately 2,000 and 550 cubic yards, are subject to the Toxic Substances Control Act (TSCA) chemical waste landfill technical requirements specified at 40 CFR § 761.75(c).

Under 40 CFR § 761.75(c)(4), the Regional Administrator has the discretion to waive one or more of these technical requirements if he finds that such requirements are not necessary to protect against an unreasonable risk of injury to health and the environment from PCBs.

The Air Force has requested waiver of the following technical requirements for the larger cell: (1) that chemical waste landfills be constructed only in certain low permeability clay conditions (40 CFR § 761.75(b)(1)); (2) that the bottom of such landfills be 50 feet above the historic high groundwater table (§ 761.75 (b)(3)); and (3) that leachate collection systems be employed (§ 761.75(b)(7)). It has submitted evidence that operation of the larger cell would not present an unreasonable risk of injury to health or the environment from PCBs if the requested waivers were granted.

The Air Force also has requested waiver of (1) the § 761.75(b)(3) depth to historic high groundwater requirement and (2) the § 761.75 (b)(7) leachate collection system requirement for the smaller cell. It has submitted evidence that operation of the smaller cell would not present an unreasonable risk of injury to health or the environment from PCBs if those waivers were granted.

On the basis of the evidence submitted by the Air Force, I find that (i) the Air Force has demonstrated that operation of the cells will not present an unreasonable risk of injury to human health or the environment from PCBs if the technical requirements for which it has requested waivers are not met, and (ii) these requirements are not necessary to protect against such a risk. In so finding, I adopt the grounds identified by the Air Force in the ESD for granting the requested waivers. On the basis of these findings, I hereby exercise the waiver authority provided under TSCA at 40 CFR § 761.75(c)(4) with respect to those technical requirements for which the

Air Force has rejected waivers. All 40 CFR 176.15(b) technical requirements are expressly waived herein apply to the cells.

John P. DeVillars
Regional Administrator
EPA - New England
United States Environmental Protection Agency
JFK Federal Building
Boston MA 02203

12/18/2012
Date

