

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

APPLICATION FOR A CONTAINED SOLID WASTE LANDFILL
TECHNICAL APPLICATION

A. GENERAL INFORMATION

1. Name U. S. Dept. of Energy, Paducah Gaseous Diffusion Plant
Address P.O. Box 1410
City Paducah State Kentucky Zip Code 42002-1410
Telephone Number (5 0 2) 4 4 1 - 6 8 0 0
2. County McCracken
3. Application Number 073-00045NWLC1
4. Fee Amount \$5,000.00
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B. DESIGN PLANS (401 KAR 47:190 Section 2)

Submit 3 copies of the plans showing the design of the site. Label as Attachment 1. Refer to the detailed administrative instructions for the engineering drawings.

Number the drawings as follows:

1. A drawing of the entire site on one sheet showing:
 - Current site conditions
 - Site development plan including buffer zones
 - Location of monitoring points for:
 - Surface Water
 - Groundwater

- Methane; and
 - Baselines.
2. Site plans drawn to 1 inch = 100 feet (*or Cabinet-approved alternative scale*) showing:
 - Development Plan
 - Location of monitoring points
 - Baseline or off-set baseline
 3. Cross-Sections at:
 - 100 Foot intervals
 - Vertical scale of 1 inch = 10 feet
 - Horizontal scale of 1 inch = 100 feet
 4. Drawing of the profile along each baseline.
 5. Proper site development including the sequence of filling (i.e. units, phases, working areas).
 6. Construction details
 7. Include typical details for the following features of the cell:
 - Lifts
 - Liners
 - Daily cover
 - Interim Cover
 - Long Term Cover
 - Final Cover

Show the applicable items on the appropriate drawings:

<u>ITEM</u>	<u>DRAWING NUMBER</u>	<u>REQUIREMENT</u>
Proposed & Final Surface Contours	1 & 2	48:070 Section 2(2)
Run-on Ditches	2 & 6	48:070 Section 2(3)
Run-Off Ditches	2 & 6	48:070 Section 2(3)
Sediment Basin	2 & 6	48:070 Section 2(4)
Separate Area to Unload Burning Wastes	2	48:070 Section 5(1)
Area to Unload Pick-Up Truck and Automobile Transported Waste	2	48:070 Section 5(2)
Area for Recycling or Salvageable Materials	2	48:070 Section 5(3)
Borrow Areas	2 & 5	48:070 Section 8
Personnel Facilities	2	48:070 Section 9(1)
Equipment Maintenance Building	2	48:070 Section 9(2)
Road from Publicly Maintained Highways	2	48:070 Section 11(1) & 11(6)
All - Weather Perimeter Road	1	48:070 Section 11 (2)
Location of Scales	2	48:070 Section 13
Leachate Storage Tank Design	2 & 6	48:070 Section 14
Access Control	2 & 6	48:090 Section 6
Temporary Diversion Ditch Around Working Face (Typical Detail)	6	48:090 Section 7(2)(c)
Sign(s) Location	2 & 6	48:090 Section 14

C. NARRATIVE (401 KAR 47:190 SECTION 3)

1. (a) Will waste be placed within 250 feet of an intermittent or perennial stream?
Yes ☐ No ☒
- (b) If yes, enclose the 401 Water quality certification that has been issued pursuant to 401 KAR 5:029 through 5:031. Label as Attachment 2. (401 KAR 48:050 Section 1(1))
2. Provide the information requested in 401 KAR 48:050 Section 1(2)-(7) by checking the appropriate box. Is the waste disposal area within:
 - (a) The zone of collapse of deep-mine workings or within the critical angle of draw? Yes ☐ No ☒
 - (b) 250 feet of a karst terrain feature? Yes ☐ No ☒
 - (c) 250 feet of the property line? Yes ☐ No ☒
 - (d) 250 feet of a residence? Yes ☐ No ☒
 - (e) 50 feet of a gas, sewer, or water line? Yes ☐ No ☒
 - (f) 250 feet of an unplugged well (other than monitoring)? Yes ☐ No ☒
3. Is the depth to the seasonal high groundwater table to the bottom of the liner system four feet or greater? Yes ☒ No ☐
4. (a) Is this proposed site located in the 100 year floodplain? Yes ☐ No ☒
5. (a) Would the waste boundary be within 5,000 feet of a runway used by only piston-type aircraft? Yes ☐ No ☒

- (c) If the answer to (a) is yes, would the waste boundary be within 10,000 feet of any airport runway used by turbo jet aircraft? Yes ☐ No ☐
6. Is any proposed waste cell within 200 feet of a fault that has had displacement in holocene time? Yes ☐ No ☒
7. Enclose as Attachment 4, a description of the surface water control items.

ITEM

REQUIREMENT

Typical Run-On and Run-Off
Ditch Design Calculations
passing a 100 year/24 hour storm

48:070 Section 2 (3)

Sediment Basin

48:070 Section 2 (4)

8. (a) Is the proposed site located within a seismic impact zone?
Yes ☒ No ☐
- (b) If the answer to 9(a) is yes, state the maximum anticipated horizontal acceleration in lithified material for the site: 12.88 ft/sec²
- (c) If the answer to 9(a) is yes, enclose a narrative describing how the design resists the acceleration above for the following items:
- Containment structures
 - Liners
 - Leachate collection systems
 - Surface water control systems
- Label as Attachment 5, Refer to 401 KAR 48:070 Section 3.
9. (a) Describe the proposed site area as stable or unstable based on the following factors:
- On site or local soil conditions that may result in significant differential settling;
 - On-site or local geologic or geomorphologic features;
 - On-site or local man-made features:
 - surface
 - sub-surface

- (c) If the site is described as unstable, describe the engineering measures to ensure the stability of:
 - liners
 - leachate collection systems
 - final cover
 - run-on and run-off systems
 - other components necessary for the protection of the human health and environment
- (d) Label as **Attachment 6**. (Refer to 401 KAR 48:070 Section 4.)

10. Describe, in **Attachment 7**, the following required separate areas and procedures to allow the safe handling of certain wastes:

AREA

REQUIREMENTS

Burning Wastes

48:070 Section 5(1)

Waste from Pick-Up Trucks and Automobiles

48:070 Section 5(2)

Salvageable or Recyclable Materials

48:070 Section 5(3)

- 11. Complete the tables in **Attachment 8**, regarding equipment information. The listed equipment must comply with 48:070 Section 6.
- 12. Enclose the proposed recordkeeping forms for operation and maintenance of the equipment. Label as **Attachment 9**. Refer to 401 KAR 48:070 Section 6(8).
- 13. Describe any changes to the amount of soil required for the proposed design liner, cap cover, and other cover design since the approval of the Administrative Application as required by 48:070 Section 8. Label as **Attachment 10**.

14. Describe, in **Attachment 11**, the following facilities required for the corresponding type of landfill:

FACILITY

REQUIREMENTS

Employee

48:070 Section 9(1)

Equipment Maintenance

48:070 Section 9(2)

15. Describe, in **Attachment 12**, the explosive gas monitoring program as required by 48:070 Section 10. Applicants must describe the potential for gas emissions and odors based on the waste characteristics and the proposed landfill design.

16. Describe, in **Attachment 13**, the following roads for the corresponding type of landfill:

ITEM

REQUIREMENTS

Internal Road Design

48:070 Section 11(3)

Traffic Loading & Storage

48:070 Section 11(5) & 11(6)

17. Describe, in **Attachment 14**, the landfill safety and communication plan as required by 48:070 Section 12.
18. Provide a description of scales to weigh all incoming wastes as required by 401 KAR 48:070 Section 13. Label as **Attachment 15**.
19. Include, in **Attachment 16**, a description of the leachate collection system, storage, treatment removal as required by 48:070 Section 14. Also, complete the information requested by Attachment 16A regarding the leachate collection system.
20. Provide in **Attachment 17**, the procedure to inspect and restrict the disposal of hazardous waste as required by 48:090 Section 2.
21. Describe in **Attachment 18**, the procedures to control access by the public as required by 48:090 Section 6.

22. Specify in Attachment 19, the following information for maintenance of surface water controls as required by 401 KAR 48:090 Section 7(2):

- Method and frequency to remove sediment, debris, wastes and soil from run-off control structures, to maintain design capacity
- Construction, maintenance and recording of temporary diversion ditches around the working face. Include:
 - typical design calculation
 - method of recording location on an engineering drawing
 - general placement instructions to operator

23. Describe in Attachment 20, how the applicant will comply with the working face requirements as required by 48:090 Section 9.

24. Complete the information requested below for placement on the landfill sign at the landfill entrance as required by 48:090 Section 14:

Landfill Name Paducah Gaseous Diffusion Plant, Solid Waste Landfill

Name of Owner United States Department of Energy

Name of Operator Martin Marietta Energy Systems Inc.

Hours to Receive Waste 7:30 a.m. to 2:30 p.m.

Days to Receive Waste Monday to Friday (or as needed)

Permit Number (To be assigned by Division upon Permit Issuance) 073-00045NWLC1

Emergency Telephone Number (5 0 2) 4 4 1 - 6 2 1 1

D. LINER DESIGN (401 KAR 47:190 SECTION 7)

1. Submit as Attachment 21, the design specifications for the bottom liner as required by 48:080 Sections 1-7, 10.

E. CONSTRUCTION QUALITY CONTROL PLAN (401 KAR 47:190 SECTION 6)

1. Describe in **Attachment 22**, the Construction Quality Control (CQC) Plan as required by 48:080 Section 3(3), 4(3), and 5(3).

F. RECORDKEEPING AND REPORTING (401 KAR 47:190 SECTION 8)

1. Enclose as **Attachment 23**, the landfill recordkeeping and reporting system as required by 401 KAR 47:190 Section 8. The applicant may use the record keeping forms provided by the Cabinet or submit a different form for review by the Cabinet.

**G. SURFACE WATER, GROUNDWATER, AND CORRECTIVE ACTION
(401 KAR 47:190 SECTION 5)**

1. Submit as **Attachment 24**, a Surface Water Monitoring Plan in accordance with 401 KAR 48:300 Section 2. At a minimum, the plan must include:
 - a. The proposed locations of the monitoring points shown on the site plans.
 - b. A written description of how the monitoring point locations ensure that sampling will characterize the quality of water unaffected by the landfill, as well as determining if water leaving the landfill as surface drainage is contaminated with leachate.
 - c. A description of sampling protocol and analytical methods to be used.
 - d. A monitoring schedule and list of analytical parameters as required in 401 KAR 48:300 Section 2(3).
 - e. A sample form for reporting results of the analyses to the Division.
 - f. Documentation that the applicant currently holds or has applied for a K.P.D.E.S. permit for all structures to be used to control stormwater runoff and all point source discharges.
 - g. Provide the information requested in **Attachment 24A** concerning location of the monitoring points.

2. Submit as **Attachment 25**, a **Groundwater Monitoring Plan** that meets the requirements of 401 KAR 48:300. At a minimum that plan must provide the following information:
- A list and description of the specific aquifer(s) proposed for monitoring.
 - The number, location, and depth of proposed monitoring points. Show the locations of the monitoring points on the site plans.
 - Provide a brief discussion of the groundwater quality that currently exists based on the Groundwater Quality Characterization required in 401 KAR 47:180.
 - Provide a Groundwater Sampling and Analysis Plan which describes the procedures and techniques designed to accurately measure groundwater quality upgradient and downgradient of the waste disposal area. Include a discussion regarding the chain of custody, as well as field and lab quality assurance and quality control. This plan must meet the requirements of 401 KAR 48:300 Section 4(3).
 - Provide a monitoring schedule and list of analytical parameters in accordance with 401 KAR 48:300 Section 11.
 - Provide monitoring well construction specifications which meet the requirements of 401 KAR 48:300 Section 6.
 - Is the proposed solid waste disposal site located in karst terrain?
_____ Yes ☒ No
If yes, the groundwater monitoring plan must meet the requirements of 401 KAR 48:300 Section 4(4), including dye trace studies to determine the nature and extent of karst drainage beneath the site and proposed monitoring locations.
 - Provide the information requested in **Attachment 25A** concerning proposed well location and depth.

H. CLOSURE, CLOSURE CARE AND PERFORMANCE BOND
(401 KAR 47:190 SECTION 4)

1. Submit as **Attachment 26**, the specifications of the closure cap as required by 48:080 Section 8, 9, 10 and 11.
3. Submit as **Attachment 27**, the closure plan narrative for 2 years as required by 48:070 Section 15(2) and 48:090 Section 13(1).

4. Describe in **Attachment 28**, the closure care maintenance for 30 years as required by 48:090 Section 13(2).
5. Describe in **Attachment 29**, the closure cost estimate based on the elements listed in 401 KAR 48:310 Section 2.
6. Describe in **Attachment 30**, the closure-care or post-closure cost estimate based on the elements listed in 401 KAR 48:310 Section 3.

I. PUBLIC NOTICE

1. Complete the public notice form in **Attachment 31A or 31B** which complies with 401 KAR 47:140 section 12(3)(a) and KRS 224.40-310. These mandates require public notice when the review of the technical portion of the application begins. Only those applicants notified by correspondence from the cabinet may publish the notice.
2. Complete the public notice form in **Attachment 32A or 32B** which complies with 401 KAR 47:140 section 12(4) and KRS 224.855. These mandates require public notice if the Cabinet makes a preliminary determination to issue the permit and has prepared a draft document. Only those applicants notified by correspondence from the cabinet may publish the public notice.

J. CERTIFICATION

"I certify, under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for such violations."

Robert C. Edwards

8/22/94

Original Signature of Responsible Official

Date

for Jimmie C. Hodges

Facility Manager

Typed Name of Responsible Official

Title

United States Department of Energy

Name of Applicant, i.e. Corporation or Unit of Government

Subscribed and sworn to before me by Department of Energy

this the 22 day of August, 1994.

Notary Public Signature Jeffrey D. Gainer

My commission expires 6/19/95