



**Conditions for the Preliminary Variance of the Thermal Reduction Plan,
Portugues Dam Flood Control Project**

1. You shall maintain a copy of this variance at all times. It shall be available for inspection by EQB's technical personnel.
2. During the given time, this variance will exempt the US Army Corps of Engineers (USACE or Corps) from complying with the prohibition included in Rule 402 of the Regulations for the Control of Atmospheric Pollution (RCAP). This variance shall be limited to the thermal reduction activities that are part of the Portugues River Dam Construction, as included in the application. This variance does not authorize the construction or operation of any emission units, other than the thermal pits and their blowers, without obtaining the corresponding permit from the appropriate authorities.
3. Previous to the initial operation of the thermal pits, you shall submit to EQB a detailed implementation itinerary for review and approval. The plan shall be submitted at least 30 days prior to the commencement of the jobs. Any change in the approved itinerary shall be submitted to EQB at least 5 working days prior to the change so EQB has the opportunity to have an observer present during the thermal reduction activities at the site.
4. The itinerary shall include a map of the current facility location, depicting the perimeter and point of entry. It can be any type of map that clearly shows the location. The map should include driving directions to the facility from the nearest state road, and the name, and telephone of the contact person at the site.
5. The thermal pits operations shall be done according to the Thermal Reduction Plan submitted by the USACE. Any change in the information included in the plan must be submitted to the EQB for review and approval.
6. The USACE is authorized to construct up to 3 thermal pits in the locations indicated in the application. Each thermal pit must be equipped at all times with a blower to produce an air curtain to control the emissions from the thermal pits. The blowers will be powered only by diesel engines, up to 56 hp, each one.

Thermal Pit Locations

7. The thermal pits shall be located at the locations indicated in the application. Any change in pit location must be notified to EQB at least 5 working days before operating the thermal pit in the new location, together with the coordinates of the new location.
8. The operation of the thermal pits shall only take place at a location which is not less than 300 feet from the boundary of any private dwelling or public road.
9. The thermal pits shall be located no less than 500 feet from any pipeline or fuel storage area.
10. Regardless of the minimum distances included in this variance, you shall always take precautionary measures, and observe the downwind area to determine if the distance from the thermal pits to objects should be increased, with increased wind speed.

Thermal Pit Design

11. The thermal pits' dimensions must follow manufacturer's recommendation.
12. Each thermal pit shall have four vertical stable walls. The thermal pits shall be constructed of a highly compacted material that retains its form and shall be reinforced, if necessary so that it can sustain the weight of the machinery.
13. The width, length, and side walls of each thermal pit shall be kept adequately so that the combustion of the material inside the thermal pit is maintained at an adequate temperature and with enough circulation of air to provide an adequate residence time, and mixing for a complete combustion and control of emissions.
14. The bottom of each thermal pit must be above water table and not collect groundwater seepage.

Thermal Pit Operating Hours

15. The operation of the thermal pits shall be limited to a maximum of 10 hours per day. The pit shall be ignited no earlier than 1 hour after sunrise and the fire shall be extinguished before sunset¹.

Thermal Pit Operation

16. The thermal pits shall be maintained and operated according to manufacturer's specifications.
17. The total amount of material that will be loaded to each thermal pit shall not exceed 26 tons total, in any single day. You are only authorized to use one thermal pit, per day.
18. Before operating the thermal pits, you shall perform a daily visual inspection to the thermal pit, the material and the equipment. Any unauthorized material shall be removed from the thermal pit before ignition.
19. You shall also observe for thermal pit erosion or partial collapse. After the thermal pit becomes wider than the manufacturer's recommendation and the walls are less than vertical, you shall either repair the thermal pit or relocate and construct a new thermal pit according to these variance requirements.
20. The type of material to be reduced inside the thermal pit shall be limited to vegetative material from land clearing operations for the construction of the Portugues Dam. Any other material shall be separated from the material to be burned and shall be disposed as solid waste, according to applicable laws and regulations.
21. You shall only use diesel to initiate the burn. The USACE shall obtain prior written authorization from EQB to use a different fuel. The use of highly combustible materials to light the pit is prohibited, such as gasoline, refined spirits, etc, to avoid the risk of injury or death. Likewise, the use of tires, hazardous waste, treated wood, asbestos-containing material, electric coated cables, or any other similar material is prohibited.

¹ Sunrise and Sunset is official sunrise and sunset as set forth by the US Naval Observatory.

22. You are only allowed to burn material inside each thermal pit.
23. You must load the vegetative material uniformly across the thermal pit.
24. The amount of soil in the vegetative material shall be minimized to increase combustion and reduce emissions.
25. The moisture content and the composition of the material to be reduced shall be favorable to good combustion, which minimizes air pollution. You shall allow to dry the recently cut material to reduce the natural occurring moisture. You shall provide an adequate drying time to the material before it is burned.
26. The thermal pit operator must be present at all times while the pit is in operation until the fire is completely extinguished and there are no visible smoke or flames present in the thermal pit.
27. The blowers shall have an adequate air velocity to provide a curtain effect to retain the smoke and to feed the fire that is inside the thermal pit. The blowers must be operating when and as long as any material in the air curtain incinerator is burning.
28. The material must not interfere in the path of the flow of air, except only when the material is loaded into the thermal pit.
29. The length of each thermal pit shall not be greater than the length of the air supply system. The pit configuration shall have the precise dimensions to complement the blowers.
30. You shall not place vegetative material to burn above the level of the air curtain in the thermal pit.
31. The blower must continue to operate until the end of the burning hours or until combustion is completed.
32. You shall continuously monitor wind speed and direction. Increased wind speed will affect the air curtain and will cause hot embers to travel farther from the pit.
33. You shall have no more than 1 startup period per day, which shall not exceed 30 minutes.

34. The thermal pits shall be attended at all times while burning and until combustion is complete.
35. You shall not allow the ash in the thermal pit to build up to the point where it impedes adequate combustion.
36. Burning shall not create or contribute to:
 - a. an air pollution problem
 - b. a nuisance, or
 - c. a fire hazard.
37. Adequate measures must be taken to assure that no emissions emanate from materials left in the thermal pit (i.e., overnight). All materials left in the thermal pit must be extinguished with water or covered with a minimum of 1 foot of mineral soil.
38. The thermal pit shall be extinguished at least two hours before removing the ashes from the pit. The ashes shall be wetted to reduce the particulate during its removal. The ashes shall be disposed according to applicable rules and regulations.
39. You shall have available all the necessary equipment, such as water supply, water hoses, shovels, sand, etc. to control the burn and shut down the thermal pits, if the need arises.
40. You shall use emission reduction techniques to minimize the emissions from fire, such as, but not limited to:
 - a. Minimize the material to be burned.
 - b. Allow the material to dry before burning.
 - c. Burn prior to precipitation.
41. After ceasing the loading of material in the thermal pit, the flow of air must be maintained until all the material inside the pit is reduced to carbon or ashes and the flames and smoke are no longer visible. In the event that the ashes or any other material removed from the pit continue to smolder or produces smoke,

you shall extinguish it with water or take other measures immediately to extinguish the burn.

42. The load of material in the thermal pit shall be discontinued at least two hours before the end of the designated burn hours and two hours before sunset. The fan must be operating until the end of the burn hours or while there is material burning inside the pit.

Meteorological Conditions

43. Each day, prior to operating the thermal pits, you shall verify the meteorological conditions to ensure that the conditions are favorable. The burning shall not be initiated if it is determined that there are no favorable conditions for the burning, such as strong winds (greater than 20 mph), temperature inversion, if there is an air stagnation advisory by the National Weather Service, or natural events (such as volcano ashes or dust from the Sahara). The burning shall cease immediately if it is determined that the favorable conditions for the burn have changed and that could cause possible violations to the National Ambient Air Quality Standards (NAAQS).
44. The burning shall not be started during an air pollution incident declared under Rule 107 of the RCAP. Likewise, according to Rule 107(B)(1) of the RCAP, when the Board declares an air pollution alert, warning or emergency, and determines that such condition requires immediate action for the protection of the health of human beings, the Board will order persons causing or contributing to the atmospheric pollution to reduce their emissions in order to eliminate such condition, or to immediately discontinue the emission of pollutants.
45. You shall only burn during wind conditions that: a) prevent the dispersion of smoke to populated areas, b) do not cause visibility problems in traveled roads or airports, c) do not cause a public safety or health problem, d) do not cause a public nuisance and, e) do not cause that the fire extends uncontrolled.
46. The Board may ask you to cease the operation of the thermal pits or to abstain to initiate its operation during periods of inadequate smoke dispersion, excessive visibility impairment or at any other times that the public health and safety could be adversely affected.

Opacity Limitations

47. The thermal pits in this variance comply with the Air Curtain Incinerator (ACI) definition in 40 CFR §60.2245². Air Curtains Incinerators that burn only the materials listed below are only required to meet the requirements under “Air Curtain Incinerators” (§§60.2245 through 60.2260 of the 40 CFR).
- a. 100% wood waste
 - b. 100% lumber
 - c. 100% of a mixture of only wood waste, and/or yard waste
48. Each thermal pit shall not exceed the opacity limitation of 10% (6-minute average), except during the startup period that is within the first 30 minutes of operation that the opacity shall not exceed 35 % (6-minute average).
49. Except during malfunctions, the opacity requirements of Subpart CCCC, Part 60 of the 40 CFR apply at all times, and each malfunction³ must not exceed 3 hours.
50. According to Rule 105 of the RCAP, in the event that any source, air pollution control equipment or related equipment breaks down, malfunctions, ruptures, leaks, or is rendered partially or totally inoperative the owner or operator of such equipment shall immediately report to the Board such failure or incident and provide all pertinent available facts, including the estimated duration of the incident. The Board shall be notified in writing not later than one (1) week after the incident. This report shall include specific data concerning the affected source, air pollution control equipment and other related equipment, date, hour and duration of the incident, causes of the incident, and corrective measures taken or to be taken. In the event the malfunction has been corrected within

² According to §60.2245 of the 40 CFR, an air curtain incinerator operates by forcefully projecting a curtain of air across an open chamber or open pit in which combustion occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor.

³ Malfunction, as defined in 40 CFR §60.2 as any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

this period of time, the information requested in paragraph E of Rule 105 of the RCAP shall also be submitted with the written report.

51. You will use Method 9 of Appendix A, 40 CFR Part 60 to determine compliance with the opacity limitation.
52. You shall have available on the facility personnel trained in Method 9 of Appendix A, 40 CFR Part 60 to perform daily thermal pit opacity observations, while they are operating, including normal operations and startups and determine if they are in compliance with the opacity limitations of the 40 CFR Part 60 Subpart CCCC.
53. You shall conduct an initial opacity test as specified in §60.8 of the 40 CFR.
54. After the initial opacity test, you shall conduct annual tests no later than 12 calendar months following the date of the previous test.
55. Prior to conducting the opacity tests, you shall submit to the Board a testing protocol at least 30 days before conducting the test for approval by the EQB. This protocol shall contain the information described in Rule 106(C) of the RCAP.
56. You shall provide the EQB a written notification with the date of the tests at least 15 days before, to afford EQB the opportunity to have an observer present.
57. Prior to commencing construction on your air curtain incinerator, you must submit to the EPA, with a copy to EQB, the information described next:
 - a. Notification of your intent to construct the air curtain incinerators
 - b. Your planned initial startup date.
 - c. Types of materials you plan to burn in your air curtain incinerator.
58. You shall keep records of results of all initial and annual opacity tests onsite in either paper copy or electronic format, unless the Administrator approves another format, for at least 5 years.

59. You shall make all records of the opacity tests and the visible emissions readings available for submittal to the EPA or EQB or for an inspector's onsite review.
60. You shall submit two copies with the results (each 6 minute average) of the initial opacity test and any subsequent test no later than 60 days after the test.
61. You shall keep copies of the initial and annual reports onsite for a period of 5 years.
62. The Board reserves the right to require additional visible emissions readings in order to demonstrate compliance with the opacity limit.
63. In case of conflict, you shall comply with the most stringent limitations or with the most stringent monitoring, recordkeeping and reporting contained herein or any other subsequent applicable requirement. This variance only exempts the USACE from complying with Rule 402 of the RCAP for the construction activities of the Portugues Dam, as included in the application.

Air Monitoring

64. You shall perform real time air monitoring for particulates (PM₁₀ and PM_{2.5}), sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen oxides (NO_x) and volatile organic compounds (VOC). The air monitoring time shall coincide with the operating time of the thermal pits.
65. You shall perform a monthly air monitoring to determine the concentration of mercury, hydrogen sulfide, phosgene concentration in ambient air, resulting from the thermal pit operations.

Pollutant	Action Level (Based on TWA⁴)
Mercury (Hg)	0.05 mg/m ³
Phosgene (COCL ₂)	0.1 ppm (0.4 mg/m ³)
Hydrogen Sulfide (H ₂ S)	10 ppm ⁵

⁴ TWA – Time weighted average concentration for up to a 10-hour workday during a 40-hour workweek.

⁵ ACGHI – American Conference of Governmental Industrial Hygienists.

66. You shall review continually the results of your monitoring network to ensure that the National Ambient Air Quality Standards are not exceeded for any of the pollutants whose concentration was detected by modeling, especially in populated areas. The USACE shall verify that the emissions concentrations obtained in the populated areas do not exceed the values considered as unhealthy and very unhealthy established in the Air Quality Index. In case that the concentrations reach or exceed these levels, the USACE shall begin to implement the Contingency Plan.
67. The air monitoring stations shall be configured in such a way as to obtain the best representative sample of the concentration of the pollutants coming from the thermal pits in the ambient air. The air meteorological station and the air monitors will be located and shall be operated according to guides published or endorsed by EPA.
68. The measuring and monitoring instruments must be located at a significant location from any obstacle, such as trees, buildings, etc., that could influence the flow of air and the measurements in the site.
69. You shall develop and implement a quality control program for the monitoring that will be performed. It shall consist of policies, procedures, specifications, standards and documentation necessary to:
 - a. Meet the monitoring objectives and quality assurance requirements.
 - b. Minimize loss of air quality data due to malfunctions or out of control conditions.
70. The quality control program must be described in detail, suitably documented and must be approved by the Board.
71. The quality control procedures, as a minimum, shall include those specified in the operating manuals and the instructions of the instruments.
72. You shall have available for the review of the technical personnel of the Board the quality control records performed during the period where the data is collected. These quality control records include the calibrations and the zero and span checks.

Additional Requirements

73. The USACE shall maintain daily records of hours of operation including pit number, pit location, start and stop times, quantity and type of material burned in the air curtain incinerator, quantity and type of fuel burned, if any. These records shall be made available to EQB personnel upon request.
74. You shall notify the Puerto Rico Fire Department prior to beginning the initial operation of the thermal reduction plan. You shall have onsite evidence of the notification, available for inspection by EQB personnel.
75. You shall coordinate the burn with the Board to ensure that the project remains under the conditions specified in the plan, or if there are additional contingency measures required.
76. You shall prepare and implement a detailed Operation and Maintenance Plan, which shall be available to the thermal pit operator at all times. The plan shall contain procedures to minimize the adverse impact to the air quality from the operation of the thermal pit. You shall provide training to all personnel in charge of the operation of the thermal pit of its correct operation prior to working in the facility. You shall maintain a copy of the operation and maintenance plan, and evidence of the operators trainings available for inspection by the technical personnel of EQB.
77. You shall prepare an accidental fire suppression and prevention plan and obtain the approval by the appropriate authorities before the initial operation of the thermal pits. You shall maintain onsite a copy of the plan and approval documentation from the concerning authorities available for inspection by EQB's technical personnel.
78. You shall inform immediately to the Board if, during the monitoring there are elevated levels of the monitored pollutants, which violate or have the potential to violate the National Air Quality Standards caused by the thermal reduction. You shall notify the Board in writing no later than 24 hours after the incident. This notification shall include a specific description of the incident, value of the monitored parameters, date and time of the incident, causes of the incident and corrective measures taken or to be taken. You shall also indicate which are the measures to be taken to ensure that this incident does not occur again.

79. No later than 30 days of the following month for which is representative, you shall send a monthly report to the Board with the following information:
 - a. Date and time in which the thermal pits were operating.
 - b. Amount of material burned per day, and
 - c. Summary with the daily air monitoring results performed at the site.
80. All notifications and reports required by this variance shall be sent to the following address:

Environmental Quality Board
Air Quality Area
Inspection and Compliance Division
P.O. Box 11488, San Juan, PR 00910

Alternatively, you may send them by fax to (787) 756-5906.

81. This variance shall be valid for 3 years from the approval date. For extension of the variance, the USACE shall, at least 90 days before its expiration, file an application for a new variance. The Board shall thereafter take action on such application, applying the rules and regulations applicable at such time.

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