DOCKET NO. 61

AN APPLICATION OF APPLIED ENERGY SERVICES, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF THE THAMES COGENERATION PLANT IN MONTVILLE, CONNECTICUT.	:	CONNECTICUT SITING COUNCIL
	:	October 20, 1986

FINDINGS OF FACT

1. AES Thames, Inc. (AES), in accordance with provisions of section 16-50k and 16-50l of the Connecticut General Statutes (CGS), applied to the Connecticut Siting Council (Council) on March 14, 1986, for a certificate of environmental compatibility and public need to construct a 180 MW cogeneration facility in Montville, Connecticut. The project is known as the Thames Cogeneration Plant. (Record)
2. The fee prescribed by section 16-50v-1a of the Regulations of Connecticut State Agencies (RSA) accompanied the application. (Record)
3. The application was accompanied by proof of service as required by section 16-50l(b) of the CGS. (Record)
4. Affidavits of newspaper notice as required by statute and section 16-50l-1 of the RSA were filed with the application. (Record)
5. Pursuant to section 16-50j of the CGS, the Connecticut Department of Environmental Protection (DEP) and the Connecticut Office of Policy and Management, Energy Division, filed written comments with the Council. (Record)
6. The Council and its staff inspected the proposed site on June 9, 1986. (Record)

7. Pursuant to section 16-50m of the CGS, the Council, after giving due notice thereof, held public hearings at 7:00 P.M., June 11, 1986; 10:00 A.M., July 29, 1986; and 10:00 A.M., August 7, 1986, in the Montville Town Hall, Montville, Connecticut. (Record)

8. The parties to the proceeding are the applicant and those persons and organizations whose names are listed in the Decision and Order which accompanies these findings. (Record)

9. The Council took administrative notice of the following documents:

   State of Connecticut Conservation and Development Policies Plan 1982-1985;

   Connecticut Siting Council Review of Connecticut Electric Utilities' 1985 Ten Year Forecasts of Loads and Resources (CSC Review);

   Connecticut Regulations: Abatement of Air Pollution;

   Cogeneration in Connecticut: Review of Obstacles, Forecasts, and Potential. A report to the Connecticut Siting Council from Energy and Resource Consultants, Inc., May 20, 1985;

   The Northeast Utilities System 1985 Forecast of Loads and Resources for 1985-1994;

   Northeast Utilities Customer Assistance Conservation Programs, March 1983; and

   DPUC Investigation into Cogeneration and Small Power Production, "Going Back to the Future," Docket 85-04-16, 12/11/85.

10. AES would own, control, and operate the facility as a qualifying cogeneration facility as defined in the Public Utility Regulatory Policies Act of 1978 (PURPA) and in Title 18, Code of Federal Regulations (CFR), Part 292, to simultaneously produce electricity and process steam. (Tr. 6/11/86, p. 49; Tr. 8/7/86, p. 76; AES-3, Q. 86; Electrical Purchase Agreement; AES-11)

11. The Department of Public Utility Control (DPUC) has approved a 25-year purchase and sale agreement between AES Thames, Inc., and Northeast Utilities (NU). The agreement provides for a low avoided cost which would be advantagous to NU and its ratepayers. (Tr. 7/29/86, p. 34, Exhibit 18)

12. Cogeneration is the simultaneous production of useful heat and electrical energy from the combustion of fuels. This technique offers both thermodynamic and economic advantages over conventional processes for efficiently producing both forms of energy. (AES-3, Q. 93; Cogeneration in Connecticut 1-1)

13. The project would use domestic coal, thus displacing the consumption of approximately two million barrels of oil per year when compared to the existing methods of producing electricity and process steam. (AES-1, p. B-5; Tr. 6/11/86, p. 74)

14. The project would serve the public by providing a small, incremental electrical supply that would help forestall the need for new baseload capacity facilities. (AES-1, p. B-2; AES-3, Q. 93, CSC Review, pp. iii, 16, 17)

15. In comparison with large, baseload generating stations, privately-owned electrical supply facilities involve reduced risks, costs, and lead times. (AES-1, p. B-2; AES-3, Q. 93, CSC Review, pp. iii, 16, 17, 21)

16. The project's use of coal would provide a diversification of energy resources, help replace the use of foreign oil subject to supply disruptions, help reduce the foreign trade deficit, and provide employment. (AES-1, p. B-1-B-8; Tr. 6/11/86, p. 74)

17. The proposed project includes two circulating fluidized bed (CFB) boilers and one 194 MW nameplated turbine generator. A 115 kV transmission line interconnection would be required for the project, but is not part of this application. (AES-1, A-1, ES-9; AES-3, Q. 6)

18. Fluidized bed combustion is an accepted practice in the industry and has been developing for about seventeen years with at least forty units under construction or in operation at this time. (Tr. 6/11/86, p. 90; AES-19, Q. 107)

19. The objective of the project would be to produce 100,000 lbs/hr of process steam for industrial use by the Stone Container Corporation and 180 MW of electricity for exclusive sale to NU. (AES-1, ES-1; AES-11)

20. The existing site consists of an old power plant building with two large stacks, two small brick open warehouse buildings, and a large metal warehouse building, all in a state of disrepair. These buildings and stacks would be removed and replaced with the proposed cogeneration facility. (AES-1, A-8)

21. The site is on the west bank of the Thames River, eight miles north of Long Island Sound. Within close proximity of the proposed facility is a large chemical plant, NU's Montville Power Station, and a large U.S. Navy submarine base. (AES-1, G-1-2)

22. The proposed facility would consist of a generation building, coal handling and storage areas, a limestone storage area, barge unloading facilities, an ash storage site, water intake and discharge structures, and a plant service building. (AES-1, G-4)

23. The site has been developed industrially since at least 1910 and is accessible by rail, barge, and truck. (AES-1, p. H-1)

24. The site meets the objectives of coastal area management policy by alleviating blighted or deteriorated conditions and developing the shorefront with a water dependent use. (AES-1, H-1)

25. AES expects initial plant operation by February 1, 1989, and a completed project by June 1, 1989. (AES-1, F-1)

26. AES Thames will lease the site for the project from the Stone Container Corporation for a 50-year term. (Exhibit 19, Q. 94)

27. The project would provide 180 MW of capacity or 1,292,976 Mwh/yr to NU for at least 25 years at an anticipated capacity factor of 82 percent. Approximately 614,034 Mwh (47.5 percent) and 678,942 Mwh (52.5 percent) would be provided on-peak and off-peak, respectively. (AES-3, Q. 1, Q. 7, Q. 86; AES-1, B-5; RF-Q. 31)

28. Under the electricity purchase agreement the applicant would have the option, at NU's request, to reduce its electric output to not less than 90 MW for 150 off-peak hours per year. (AES-3, Q. 86; Tr. 6/11/86, p. 75)

29. Ratepayers could expect to pay approximately 95 percent of NU's avoided costs over the 25 year term of the electric purchase agreement. (Tr. 7/29/80, p. 34)

30. For the year 1989, the on-peak rate for electricity sold to NU would start at 9.3¢/Kwh. The off-peak rate would start at 5.2¢/Kwh. (AES-3, Q. 1, Q. 86)

31. The Stone Container Corporation would purchase approximately 300 million pounds of steam per year to recycle paperboard. (Tr. 6/11/86, p. 49; AES-19, Q. 104)

32. Approximately 22,000 gallons of fuel oil might be required for each cold start-up and when the boilers were operating at less than 30 percent of maximum design. Start-up and shut-down operations might occur five times per year. (AES-3, Q. 14)

33. Fuel oil would be stored in a 60,000 gallon tank (26' diameter by 16' high) designed and constructed in accordance with American Petroleum Institute Standards. The tank would be located south of the coal storage adjacent to two existing water tanks. A lined berm would be constructed around the tank to contain the full volume of the tank in the event of tank failure. (AES-1, I-4: AES-3, Q. 15)

34. The facility would use bituminous coal at an average rate of approximately 1,580 tons per day. The maximum use of coal would be 1,834 tons per day. (AES-3, Q. 9, Q. 12)

35. On-site storage for coal would ensure 60 days of average facility operation or 52 days of maximum operation. A one day supply of 3/4-inch crushed coal would be stored in bunkers located in the generation building. (AES-3; Q. 13, Q. 16)

36. Coal would be delivered primarily by 10,000-ton capacity ocean-going barges. However, provisions would exist for truck or rail delivery. (AES-1, I-2)

37. An average of one or two barges would unload coal each week. A dock and a 1,000 ton per hour clam shell barge unloader would be used for barge unloading. (AES-1, I-3; AES-3, Q. 68)

38. A single stockout belt conveyor would carry coal from the dock-side barge unloading area to an on-site coal storage pile. Barge unloading operations would take approximately 10 hours per barge. (AES-1, I-2-I-4; AES-1, I-3)

39. Mobile equipment would be used to move coal from the coal storage pile to a "reclaim" structure. Coal would be conveyed from the "reclaim" structure to an enclosed crusher building. A single conveyor would deliver 3/4-sized coal from the crusher building to in-plant storage silos and bunkers. (AES-1, I-3)

40. All coal and limestone handling and processing operations would be scheduled during daylight hours only; however, coal delivery and use of mobile equipment to distribute incoming coal may be performed on a 24 hour schedule, day or night, depending on the delivery schedule. (AES-3, Q. 27)

41. The "reclaim" system would be designed to reclaim 24 hours worth of coal in eight hours. (AES-3, Q. 27)

42. Approximately 90 to 105 25-ton trucks or 23 to 26 100-ton railcar loads would be needed each day to deliver coal if such transport methods were chosen to deliver coal. (AES-3, Q. 12)

43. The average annual energy value of fuel input would be $13,361 \times 10^9$ British thermal units (Btu's). The average annual energy value of process steam and electricity generated would be $1,012.9 \times 10^9$ Btu's and $4,635.8 \times 10^9$ Btu's, respectively. The overall annual average efficiency would be approximately 42%. (AES-3, Q. 23; RF-13, Q. 28)

44. Approximately 52 percent of the plant heat would be lost as low temperature gas exhausted out the stack and low temperature water discharged out of the cooling system condensor. (Tr. 8/7/86, pp. 67-68; AES-3, Q. 24)

45. The cost estimate for the 115 kV interconnection line would be $1,200,000, with an additional $1,000,000 for the modification to the 115 kV Montville Substation. (AES-3; Q. 5)

46. NU would be responsible for making all substation modifications, building the 115 kV transmission line, and maintaining both the transmission line and associated substation equipment. AES would reimburse NU for the initial construction costs and all subsequent maintenance costs. AES would be directly responsible for the installation and maintenance of all electrical leads from the last interconnection structure to the facility. (AES-3, Q. 5)

47. The coal storage pile would be built into the existing bluff west of the Central Vermont Railroad to provide storage for approximately 95,000 tons of coal. The west half of the pile would be covered with topsoil and seeded with a permanent grass seed mixture according to Connecticut Department of Transportation specifications for long-term storage. The vegetated cap would reduce windblown fugitive dust and provide protection against surface runoff. (AES-1, J-18, I-4; AES-3, Q. 17, Q. 21)

48. The in-plant storage silos would consist of two gunite-lined bunkers, one for each boiler to provide a 24-hour supply of processed 3/4-inch coal within the generation building. (AES-3, Q. 16)

49. The coal pile storage area would be lined with a synthetic liner to prevent the migration of leachate into the groundwater storage basin. The liner would be sized to contain plant drainage, settled solids, and runoff from a 10-year, 24-hour storm. Only a small amount of leachate from the coal pile would escape (1.5 gallons per day) through the synthetic liner and mix with existing groundwater, which flows toward the Thames River. (AES-1, I-3, I-32, J-12; AES-3, Q. 18, Q. 19; Tr. 7/29/86, p. 96; AES-19, Q. 99; AES-21)

50. Reinforced, cast-in-place concrete coal and limestone pile runoff basins would collect surface runoff from the coal and limestone storage areas, with sufficient capacity to contain the 10-year, 24-hour storm, plus the maximum expected volume of plant drainage for 48 hours. (AES-1, I-32; AES-3, Q. 18)

51. Runoff within the coal basin would be pumped to the Montville sanitary sewer system. The coal pile runoff basin would be pumped as soon as a measurable amount of runoff were collected. The limestone pile runoff basin contents would be settled before discharge to the Thames River. Both basins would have spillways for passage of runoff in excess of the 10-year, 24-hour storm to the Thames River. (AES-1, I-32; AES-3, Q. 19)

52. The coal pile runoff basin could be sized to contain the 25-year and 100-year, 24-hour storms by increasing the basin depth by 1'-5" and 3'-9", respectively. (AES-3, Q. 19)

53. The ash silo, runoff basins, and chemical drainage system would be designed and installed so that leakage to ground water and soil would be negligible. (AES-3, Q. 44)

54. Leachate from the limestone storage pile would not be expected to cause any degradation of the underlying aquifer. (Tr. 8/7/86, pp. 5-6)

55. Dust control for coal and limestone storage and handling would be accomplished by vacuum collection systems at the hopper/feeder area and in the crusher building, the silo fill areas, and the generator building. Collected dust would be recycled into the coal handling system for eventual combustion. (AES-1, p. J-16, I-3)

56. Barges used to deliver coal and limestone would be furnished with hatch covers to control wind-blown dust during transport. (AES-1, p. J-16)

57. The barge unloading equipment would be enclosed on all sides except the barge side, which would contain fugitive dust within an air curtain. A clamshell unloader would travel freely between the barge and the unloading hopper for barge unloading. (AES-1, pp. J-16, J-17)

58. All conveyors would be provided with hoods and covers extending below the conveyor belts for dust control. (AES-1, p. I-3, J-17)

59. The limestone stockout conveyor would be fitted with a telescopic chute that would be lowered onto the pile and slowly raised as the pile forms. Flap gates would cover openings on the lowering tower to minimize fugitive dust during stockout operation. (AES-1, J-17)

60. All equipment in dust environments would be designed to be spark resistant with enclosed electrical equipment where necessary to minimize the potential for a dust explosion. (AES-3, Q. 29)

61. Dust control systems would be checked visually for effectiveness. (AES-3, Q. 28)

62. Any leaks within the dust control system would result in leakage into the vacuum system, without allowing escape of dust. (Tr. 8/7/86, p. 27)

63. Fugitive dust emissions during construction would be controlled by watering. (AES-1, p. J-15)

64. A vacuum conveying system would transport ash from the steam generators and baghouse filters to an on-site storage silo for removal by rail or truck. (AES-3, Q. 33)

65. The facility would produce approximately 475 tons of ash per day under maximum operating conditions, burning an average grade coal (11.2 percent ash, 1.95 percent sulfur by weight, and 12,500 Btu per pound). The peak ash production would be approximately 819 tons per day with the use of the lowest expected grade of coal (17.6 percent ash, 3.24 percent sulfur by weight, and 11,800 Btu per pound). (AES-1, p. I-16,17, Exhibit I-3)

66. On-site ash storage would have a capacity of two to four days storage, depending on the mode of operation and type of coal used. (AES-1, Exhibit I-3)

67. Ash would be disposed of out-of-state as part of an integrated coal supply/ash removal arrangement. The disposal of the ash would conform with all applicable regulations of the receiving state, including a toxicity analysis, if required. (AES-3, Q. 11, Q. 30)

68. The DEP would require a solid waste permit for on-site ash handling. Review of the permit application would primarily center on system reliability, adequate storage capacity, and dust control. (DEP letter 5/21/86)

69. In the absence of chemical data, DEP Hazardous Waste Materials Management Unit would consider the coal fly ash hazardous waste. Storage of such ash in on-site containers would be allowed for up to 90 days without a state DEP Hazardous Waste permit. (DEP letter 5/8/86)

70. Approximately seven to twelve 100-ton railcar loads per day, 27 to 46 25-ton truck loads per day, or one 10,000-ton barge load every nine to fifteen days would be required to remove ash from the site. (AES-1, Exhibit I-3)

71. Telescoping chutes or rotary dustless unloaders would be used to load ash into railcars or trucks. If barge transport were chosen, the future installation of a pressure conveying system from the site to ash separation and discharge equipment at the barge loading facility would be required. (AES-1, p. I-17)

72. Continuous emission monitoring for opacity, SO_2, NO_x, CO, and O_{2x} or CO_2 is presently planned for installation at the facility. (AES-3, Q. 67; Tr. 8/7/86)

73. A DEP automated telemetering system would continuously measure and transmit information on stack emission levels into a DEP computer to monitor the facility's stack emissions. (DEP letter 5/8/86)

74. It is expected that the facility would result in an overall reduction of air pollution as compared to existing oil fired facilities in the New England area. (Tr. 6/11/86, p. 76)

75. The project site is located in Air Quality Control Region 41, which is in attainment for National Ambient Air Quality Standards (NAAQS) for sulfur dioxide (SO_2), nitogen dioxide (NO_2), ozone (O_3), and lead (Pb), but not for total suspended particulates (TSP) and carbon monoxide (CO). (AES-1, G-18)

76. Best Available Control Technology (BACT) would be required as a provision of the Clean Air Act to limit SO_2 and NO_x emissions. The Lowest Achievable Emission Rate (LAER) would be used to limit TSP and CO emissions. (RF-13, Q. 19; AES-1, G-18, AES-3, Q. 93, Abatement Air Pollution 22A-174-3)

77. Staged combustion technology with temperatures between 1500° and 1600° F would be expected to reduce NO_x by over 50 percent. (AES-11)

78. The facility would be designed to meet or fall below the New Source Performance Standard (NSPS) for NO_x emissions of 0.50 Lb/MBtu for subbituminous coal. (AES-1, I-18, I-25)

79. Due to the lack of long-term CFB boiler NO_x emission performance data and to uncertainties regarding long-term boiler performance, NO_x emissions might fluctuate over the life of the combustion units. (AES-1, I-25)

80. Alternative methods to reduce NO_x emissions, such as thermal $DENO_x$ and Selective Catalytic reduction systems, were considered and rejected due to space requirements, low operational experience, and cost. (AES-3, Q. 68; AES-1, I-27)

81. Sulfur emissions would be reduced through a two-stage CFB process that removes sulfur dioxide (SO_2) through injection of alkaline limestone in the boiler (in-bed), followed by particulate removal

in the fabric filter particulate removal system. (AES-1, I-19-20; Tr. 6/11/86, p. 48)

82. The desulfurization system would be designed for 90 percent SO_2 removal to meet the NSPS, which requires a minimum reduction of 70 percent in potential SO_2 emissions, and a State SO_2 emission limitation of .55Lb/MBtu. (AES-1, I-18, I-20; AES-3, Q. 66, Q. 67)

83. The desulfurization system represents Best Available Control Technology (BACT) for maintenance of NAAQSs. (AES-1, I-20)

84. Wet limestone scrubber and lime spray dryer flue gas desulfurization processes were considered as alternatives to in-bed limestone injection, but were rejected due to cost, energy use, and space requirements. (AES-1, I-23)

85. Two dedicated fabric filters, one for each boiler, would be used to remove particulate matter from the facility exhaust. (AES-1, I-19; Tr. 6/11/86, p. 48)

86. Reverse gas baghouse cleaning would be used to remove accumulated particulates from the fabric filters. Cleaning would occur at a preset pressure differential across the fabric filter or at a time interval of one hour or longer. The fabric filter bags would be replaced every three to five years. (AES-3, Q. 65)

87. If a complete fabric filter failure occurred, the unit would be taken off-line. However, such a failure would be unlikely due to the compartmentalized design of the filters, which would allow limited repair during operation of the boiler unit. (AES-2, Q. 65)

88. The fabric filter system located downstream of the boilers would not exceed the Lowest Achievable Emission Rate (LAER) for particulate emissions (.025 LB/MBtu) and an opacity of 10 percent. (AES-1, I-19-20; AES-3, Q. 67)

89. Fabric filters have a history of use at coal fired boilers to effectively remove particulate matter and meet LAER requirements. (AES-1, I-19)

90. It is anticipated that the fabric filter system would capture 99.96 percent of all particulate matter leaving the boiler and would produce almost no visible emissions from the stack. (AES-11, p. 3)

91. The proposed stack height of 383 feet represents "good engineering practice" as defined by the U.S. Environmental Protection Agency. (AES-19, Q. 105)

92. AES has submitted a notice to the Federal Aviation Administration for the proposed construction of the stack. (AES-19, Q. 96)

93. The facility would use water from the Thames River withdrawn at a maximum rate of 108,000 gallons per minute (gpm), for condenser cooling. All water would be discharged back to the river at a temperature approximately 17.2^{o} F above ambient river temperature in the summer and 23.9^{o} F in the winter. (AES-1, I-6, I-7, Exhibit J-4, p. 2; AES-3, Q. 63)

94. The condenser cooling system would consist of an intake structure, circulating pumps, 60-inch reinforced cylindrical pipe, a condenser, and an outfall structure. (AES-1, p. I-7, I-9)

95. Components of the cooling system would be protected against corrosion by use of corrosion resistant materials and protective coatings. (AES-3, Q. 56)

96. Three 36,000 gpm, 1/3 capacity circulating water pumps would circulate water through the cooling system. The probability that each pump would operate for a year without failure would be 86 percent, or an average failure of once every seven years. (AES-1, p. I-7; Exhibit J-4, p. 5; AES-3, Q. 54)

97. The facility would be able to operate at a reduced load with only one or two pumps in operation. During the winter months, full unit load would be maintained with two pumps operating. (AES-3, Q. 55)

98. A double-pass condenser would be used to reduce the amount of cooling water required by about one-third to reduce impingement and entrainment of aquatic species by a proportional amount. (AES-3, Q. 63)

99. It is estimated that about 3.5 percent of the Thames River mean monthly tidal flow past the facility would be diverted through the intake. (AES-1, Exhibit J-4, p. 14)

100. The intake structure, a reinforced, cast-in-place structure, would be placed on concrete pilings driven into the river bottom on the west bank of the Thames River immediately downstream from the mouth of Horton Cove. (AES-1, p. I-7)

101. The intake structure would use a curtain wall to create a submerged opening to force withdrawal from the bottom ten feet of the water column, which is the coldest, densest (saltiest) water in the river estuary. Water withdrawn from the lower half of the Thames River

would avoid the impingement of most fresh water species. (AES-1, Exhibit J-4, pp. 10-11; AES-1, p. J-10; AES-3, Q. 63)

102. The intake structure would include trash racks and 3/8-inch mesh traveling screens to prevent entrainment of larger fish species. (AES-1, p. I-8, AES-3, Q. 63; Tr. 8/7/86, p. 51)

103. The approach velocity at the intake structure has been designed for 0.5 feet per second, below the swimming speed of most fish longer than 5 cm, as a suggested EPA design objective to minimize entrainment or impingement of fish. (AES-1, Exhibit J-4, pp. 5, 12; AES-3, Q. 63)

104. Based on conservative assumptions, it is estimated that 4,305 tom-cod, 3,284 menhaden, 1,883 winter flounder, 886 silver hake, 475 squid, 332 bluegill, 276 pipefish, 225 windowpane flounder, and 142 blue crab, would be impinged on the intake structure each year. (AES-1, Exhibit J-4; Tr. 8/7/86, p. 51)

105. If impingement were found to hinder programs for the reestablishment of anadramous fish in the Thames River, fish return equipment, including fish buckets, low-pressure wash jets, and fish return troughs could be added to the intake structure. (AES-1, Exhibit J-4, p. 5; Tr. 8/7/86, p. 92)

106. The outfall structure would consist of a 60-inch diameter pipe, placed on the river bottom under the barge dock near the southeastern site boundary. The top of the pipe would be approximately eight feet below the extreme low water at the discharge point. (AES-1, p. I-8)

107. The river bottom in the vicinity of the discharge would be riprapped to prevent erosion and resuspension of sediments in the discharge plume's impact zone. (AES-1, p. I-8)

108. A thermal plume would be created within the Thames River as the result of discharge from the facility's outfall. The average cross sectional area of the plume for any given tidal cycle would be less than the DEP maximum 25 percent cross sectional area guideline. (Tr. 7/29/86, p. 74; AES-1, Exhibit J-4; AES-3, Q. 91)

109. Warm cooling water discharge from NU's Montville Power Plant accounts for approximately 72.5 percent of the combined AES Thames, Montville Power Plant heat load in the Thames River. A sudden termination of the AES facility would less likely result in a thermally induced fish kill due to the existance of the independant thermal plume discharging from the Montville Power Plant. (AES-19, Q. 108; Tr. 8/7/86, pp. 85-90)

110. There would be adequate space in the Thames River for most fish to move up and downstream without encountering overly warm water, and there would be no significant damage to indigenous marine ecosystems, representative important species, or endangered and threatened species. (Tr. 7/29/86, p. 76; AES-1, Exhibit J-4; AES-13)

111. Facility discharges to the Thames River would include once through cooling water; roof drains; overflow from the coal pile runoff basin; discharge of the limestone pile runoff basin, including discharge from the limestone storage and yard drains, generation and services building, and process drains; overflow from the

limestone pile runoff basin; temporary dewatering wastewater; discharge of the coal pile runoff basin, including discharge from coal storage and yard drains and maintenance building process drains; and discharge of seal water. All discharges would be consistent with federal water quality standards and regulated by DEP through a NPDES Permit. (AES-21; Tr. 7/29/86, p. 172)

112. The facility would not be expected to have any significant impact on the biomass, BOD, or DO levels in the Thames River. (Tr. 7/29/86, p. 185; AES-3, Q. 45, Q. 48)

113. Sodium hypochlorite would be fed into the cooling system intake to reduce biofouling and aquatic growth in the condenser. Sodium sulfite would be fed downstream of the condenser to react with any chlorine residuals. The maximum chlorine residual prior to dechlorination is expected to be less than 1.0 mgl. No measurable chlorine residual in the system discharge is expected. (AES-1, p. I-11; AES-3, Q. 49)

114. The increase of total dissolved solids resulting from chlorination and dechlorination is not expected to be significant or harmful to the river ecology. (AES-3, Q. 49)

115. Backwash wastewater from the condensate polishing system would be routed to the runoff pond for settling of solid material before being discharged to the Montville sanitary sewer system. (AES-1, I-13)

116. Approximately 150 gpm of water would be drawn from Gair Pond for service and makeup water. Approximately 100 gpm would be consumed internally, with the remainder directed to the Montville sewer system. (AES-1, I-6)

117. Service and makeup water would be demineralized and stored in a 40,000 gallon tank. (AES-1, I-11-12)

118. Based on estimated annual recharge rates, Gair Pond would have the capacity to meet the estimated 150 gallon per minute demand for service water. (AES-1, p. I-6; AES-3, Q. 39)

119. In the event of a water shortage, additional water held within Oxoboxo Lake, estimated to contain at least 2,000 acre-feet, could be released to Gair Pond for service water needs. (AES-3, Q. 40)

120. A neutralization basin, a circular, below grade, reinforced concrete structure lined with a chemical resistant membrane, would be used to collect chemical wastes from demineralizer regeneration, chemical cleaning, and miscellaneous chemical drains. (AES-1, p. I-15; AES-3, Q. 36)

121. The neutralization basin would be 30' in diameter with a minimum operating depth of 6', which is sufficient to retain the largest single discharge of wastes from chemical cleaning of the boiler (estimated to be 32,000 gallons). (AES-1, p. I-15; AES-3, Q. 36)

122. After chemical neutralization and mechanical mixing, effluent would be pumped from the neutralization basin to the Montville sanitary sewer system at a rate of approximately 90 to 180 gallons per minute. Discharge would occur on a batch basis approximately once every three days, after neutralization had been verified by pH testing. (AES-1, p. I-15; AES-3, Q. 36)

123. Approximately 2,700 gallons of sanitary waste would be generated at the facility and discharged to the Montville sanitary sewer system. (AES-1, p. I-16)

124. The Montville waste water treatment plant has the capability to receive all sanitary, chemical plant, and runoff wastes without restriction. (AES-3, Q. 36)

125. Wastes in the runoff basins and neutralization basin would be non-volatile and would not produce emissions. The basins would not be covered, but would be surrounded by hand rails or fences for security. (AES-3, Q. 34)

126. The concentrations of constituents in the basins would not reach toxic levels and should pose no threat to wildlife. (AES-3, Q. 35)

127. Solids that accummulated in the neutralization and runoff basins would be tested for hazardous material and removed when necessary for disposal at an off-site landfill. (AES-3, Q. 38)

128. Water demand from Montville water system would be approximately 3,000 gallons per day (gpd) as a monthly average. Approximately 300 gpd net consumption would be anticipated, with the remaining to be discharged to the Montville sewer system. (AES-1, I-6)

129. Potential traffic congestion in the vicinity of the site would be reduced during construction by using rail and barges for delivery of large components and by bussing in construction workers from off-site parking areas. (AES-3, Q. 25)

130. During facility operation, AES would restrict truck traffic to 15 to 20 trucks per day if trucks are to be used. (AES-3, Q. 25)

131. The highways and roads associated with the site would be adequate to safely accommodate peak construction demands and demands during operation of the planned facility. (AES-1, p. J-20)

132. The Town of Montville supports the project and has provided zoning and coastal area management approval. (Tr. 6/11/86, pp. 53-54, p. 96; AES-3, Q. 88; AES-4)

133. The western side of the facility would be screened by rows of 15' high Juniper trees. (AES-3, Q. 90; Tr. 7/29/86, p. 109)

134. Noise from construction would be limited to daylight hours during the week for a 33-month construction period. (AES-1, J-21-22)

135. Noise control measures that would be implemented during construction include the use of exhaust silencers on internal combustion engines and scheduling noisy construction activities during daytime, high noise periods. (AES-1, J-23)

136. Noise sensitive receptors would include residences located approximately 750 feet to the northwest of the proposed generation building and 800 feet west and southwest of the proposed coal storage area. (AES-1, G-21)

137. The major sources of noise from facility operation would be draft fans, transformers, and coal/limestone handling equipment. (AES-1, J-22)

138. The project is not expected to violate any state or local noise standards. (AES-1, J-23)

139. AES would order custom exhaust silencers for all coal moving dozers to reduce the resultant noise level at the nearest residence to 51 dBA, thus meeting the 51 dBA nighttime state noise standard for a Class C industrial emitter on a Class A residential receptor. (AES-1, G-23; AES-19, Q. 102)

140. AES would perform noise testing and provide additional soundproofing to ensure compliance with all state and local noise regulations. (AES-3, Q. 73; Tr. 8/7/86, p. 101)

141. A decision to restrict barge unloading to daytime hours only would result in economic impact to the coal supplier. (Tr. 8/7/86, p. 100)

142. AES Thames, Inc., has submitted a groundwater monitoring plan for DEP approval. AES Thames, Inc., will implement the plan as approved. (AES-19, Q. 98)

143. AES Thames, Inc., has submitted a formal erosion and sedimentation control plan. (AES-19, Q. 97)

144. Dewatering and disposal of water from excavation will be filtered to minimize the discharge of suspended solids into the Thames River. (AES-21, August 7, Transcript, p. 95)

145. The project is designed to be made safe against the 100-year flood event. (AES-3, Q. 80)

146. The project will not restrict existing access to or use of the Thames River for recreational purposes. (AES-3, Q. 77)

147. The project will have no effect on historical, architectural, or archeological resources listed on or eligible for the National Register of Historic Places. (AES-1, Exhibit J-2)