DOCKET NO. 71

AN APPLICATION OF THE CONNECTICUT RESOURCES RECOVERY AUTHORITY, MIDSTATE REGIONAL RESOURCE RECOVERY AUTHORITY, AND AMERICAN REF-FUEL COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE MIDSTATE REGIONAL RESOURCE RECOVERY FACILITY, WHICH WOULD GENERATE ELECTRICITY BY MASS-BURNING MUNICIPAL SOLID WASTE IN THE CITY OF MIDDLETOWN, CONNECTICUT.	:	CONNECTICUT SITING COUNCIL March 11, 1987

F I N D I N G S O F F A C T

1. The Midstate Regional Resource Recovery Authority (MRRRA), the Connecticut Resources Recovery Authority (CRRA), and the American REF-FUEL Company (REF-FUEL), in accordance with the provisions of section 16-50k and 16-501 of the Connecticut General Statutes (CGS), applied to the Connecticut Siting Council on August 29, 1986, for a Certificate of Environmental Compatibility and Public Need to construct a refuse-to-energy facility. The project is known as the Midstate Resource Recovery Facility (Midstate). (Record)
2. The fee as prescribed by section 16-50v-1 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 16-501(b) of the CGS. (Record)
4. Affidavits of newspaper notice as required by statute and section 16-501-1 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) filed written comments with the Council. (Record)

6. The chief executive officers of the municipalities of Middletown, Portland, Middlefield, Cromwell, and Haddam were each made parties to the proceeding and expressed their support for the project. In addition, a letter of support for the project was received from the first selectman of the Town of Durham. (Tr. 1, pp. 8-11, 21, 23-27; Tr. 2, pp. 36-40; Midstate-9)

7. The chairman of the Midstate Regional Planning Agency (MRPA) was made a party to the proceeding and indicated the Agency's support for the project. (Tr. 1, pp. 11, 12, 28-30)

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

9. The Council and its staff made an inspection of the proposed facility site on October 27, 1986. (Record)

10. Pursuant to section 16-50m of the CGS, the Council, after giving due notice thereof, held a public hearing on October 27, 1986, beginning at 2:00 P.M. in the Council Chamber of the Middletown Municipal Building, Middletown, Connecticut. The hearing was continued at 7:00 P.M. on the same date. (Record)

11. The project would include waste combustion/boiler trains, electrical generation equipment, and electrical interconnections. Steam would be produced from the combustion of municipal solid waste (MSW) and used to generate electricity. (Midstate-1, A-7, A-8)

12. The proposed project would serve the needs of the public by reducing dependence on imported energy resources, reducing the environmental degradation brought about from landfilling refuse, and providing a

backup source of electricity for the Connecticut Valley Hospital (CVH). (Midstate-1, A-7, B-1 to B-6)

13. The project would be fueled primarily by approximately 68,800 tons per year of MSW from the towns of Durham, Middlefield, Portland, Middletown, Cromwell, East Haddam, and Haddam. The towns make up the Middletown/Midstate wasteshed as proposed in the State of Connecticut Solid Waste Management Plan (CSWMP). (Midstate-1, p. A-1; Midstate-5, Q. 1; CSWMP, p. 77)

14. Landfill disposal of MSW in the Middletown/Midstate wasteshed region is extremely limited and is expected to be exhausted by 1989 for all of the municipalities except Portland. (Midstate-5, Q. 8)

15. There is a critical need for alternatives to land disposal of MSW. CSWMP recommends that the proposed facility be developed to meet the needs of the Middletown/Midstate wasteshed. (CSWMP, pp. 2, 3, and 90)

16. The General Assembly has found that the prevailing Connecticut solid waste practices generally result in unnecessary environmental damage, waste valuable land and other resources, and constitute a continuing hazard to the health and welfare of the people of the state. Connecticut statutes further recommend solid waste processing on a regional basis. (Exhibit 1, B-4; CSWMP, pp. i-5)

17. According to CSWMP, the current state generation rate for MSW is 2.2 million tons per year. Of the 2.2 million tons of municipal solid waste generated annually within the state, approximately 95 percent is presently being disposed of in landfills. (Exhibit 1, p. A-2; CSWMP, p. 2)

18. The use of MSW as fuel meets state energy policy goals by reducing the state dependence on imported fuels in favor of diversified, reusable, and indigenous energy resources. (Midstate-1, B-1)

19. Based on sample weighing surveys, the current generation rate for the municipalities participating in the Midstate project is about 190 tons of MSW per day, 69,500 tons per year. Based on population, CSWMP estimates that the area produces about 151 tons of MSW per day, 55,300 tons per year. (Midstate-5, Q. 1; CSWMP, Table 1h)

20. The proposed facility would include two independent mass burning waste combustion boiler trains, each capable of processing 115 tons per day of MSW (4,800 Btu/lb. The predicted on-line waste processing availability is 82 percent, which means that the facility would have an annual capacity to burn 68,839 tons of MSW. (Midstate-4, pp. 2, 28)

21. The facility would have to process at least 160 TPD of MSW in order to be economically viable. (Midstate-5, Q. 1)

22. The participating municipalities have committed their MSW totaling 160 TPD to the project for the life of the service agreement. Midstate participants do not foresee an opportunity for municipalities not presently participating in the project to join at a later time. (Midstate-5, Q. 1; Tr. 1, p. 78)

23. The facility would begin commercial operation by mid-1989. The term of the service agreement with REF-FUEL is 20 years. (Midstate-1, F-2)

24. The facility would have a 4.9 MW (gross) turbine/generator with the capacity to produce 4.4 MW (net) of electricity; 0.5 MW would be required for station service. (Midstate-1, C-3)

25. Net electricity production at the facility would be for exclusive sale to Northeast Utilities (NU). (Midstate-1, A-7)

26. The facility would add 4.4 MW of MSW-fired power to the NU system and would meet approximately .1 percent of energy supply requirements under NU planning assumptions for 1995. (Midstate-1, C-2)

27. The purchase of electricity from refuse-fueled energy projects is consistent with the objectives of NU. NU's 1986 Forecast Report identifies a need for capacity from private power producers both over the next ten years and thereafter. However, NU opposes paying prices for the project's output which exceed NU's avoided costs. (Midstate-1, B-2, 3; NU 1986 Forecast Report, pp. II-18, 19, IV-2; Tr. 2, p. 56; Midstate-5, Q. 39; Midstate-19)

28. Although there is no contractual obligation to do so, the project would be expected to operate seven days per week and to have operating characteristics yielding power to NU on a predictable schedule. (Midstate-1, C-2; Midstate-5, Q. 39; Tr. 1, p. 42)

29. The facility would produce approximately 34.5 million kilowatt hours per year of electricity, displacing approximately 68,000 barrels of oil per year. (Midstate-1, A-1, C-2)

30. NU would design, construct, and maintain the electrical interconnection and the tie line connecting the project to the NU 13.2 KV distribution network. The costs for the electrical interconnection would be paid for by the participating municipalities of the project. (Midstate-1, A-7; Midstate-5, Q. 38)

31. CRRA is a non-profit, public instrumentality established by the General Assembly in 1973 to implement a state-wide solid waste management program. (Midstate-1, A-3; CGS section 22a-257 to 281)

32. MRRRA is a public instrumentality created by the seven towns in the Midstate region to implement a long-term, regional, solid waste management program through a resource recovery facility. (Midstate-1, A-4, A-5; CGS chapter 103b)

33. MRRRA would contract with CRRA for solid waste disposal services and would provide local input and oversight through construction and operation of the project. (Midstate-1, A-5; Midstate-5, Q. 1)

34. CRRA and MRRRA selected REF-FUEL to design, construct, and operate the facility. (Midstate-1, A-4)

35. REF-FUEL has created a project-specific organization called American REF-FUEL Company of Midstate Connecticut (Midstate REF-FUEL) to have the sole responsibility of designing, constructing, and operating the facility. (Midstate-1, A-6)

36. American REF-FUEL Construction of Midstate Connecticut, Inc., a wholly-owned subsidiary of Midstate REF-FUEL, would be expected to be the prime contractor responsible for the construction of the facility. (Midstate-1, A-6)

37. The obligations of REF-FUEL and its subsidiaries would be guaranteed by its parent companies, Air Products and Chemicals, Inc., and Browning-Ferris, Inc. CRRA has determined that the financial strength of the parent companies is sufficient to pay off the bonds in case of default. (Midstate-1, A-5, E-2; Tr. 2, pp. 53, 54)

38. CRRA has issued revenue bonds in the amount of $42,300,000 to finance this project. These funds have been placed in escrow awaiting regulatory approvals and completion of final agreements among project participants. (Midstate-10, p. 2)

39. Midstate REF-FUEL would provide an equity contribution in the amount of 75 percent of the sum of $31,200,000, the estimated cost for construction, exclusive of liability insurance, escalated at an index from June 30, 1986, until escrow is broken, plus, under certain conditions, other project costs not exceeding $2,000,000. (Midstate-1, A-6, E-1, E-2)

40. Midstate REF-FUEL has agreed to operate the project for the term of the service agreement based on a service fee determined by a formula which includes debt service, a guaranteed annual operation and maintenance (O&M) fee, pass-through costs for such items as lease payments and local taxes, a credit for energy revenues, and the amount of MSW delivered to the facility. (Midstate-1, A-6, E-2, E-6)

41. The CRRA would pay all debt service, O&M, and pass-through costs as defined by formula. REF-FUEL would operate and maintain the facility, deliver residue to MRRRA's landfills, and obtain construction and operation permits. (Midstate-1, E-6,7)

42. Annual operation and maintenance fees and the additional waste processing fee would escalate annually by an index reflecting the inflation of REF-FUEL's costs of operation. (Midstate-1, E-3)

43. Various initial estimated annual costs expected to increase at five percent per year include:

- o administrative costs at $140,000;
- o payment in lieu of taxes at $1 per ton of MSW processed;
- o general liability insurance at $100,000; and
- o miscellaneous costs at $50,000.

(Midstate-1, E-5)

44. The estimated O&M costs would be $2,516,000 on an annual basis (1986 costs), escalated by an index which would reflect the inflation of the vendor's cost of operation. (Midstate-1, E-3)

45. The project's estimated operating staff would total 30 persons. The estimated annual labor cost would total $1.4 million. (Midstate-1, E-8)

46. The initial tipping fee is estimated to be between $35 and $40 per ton of MSW. The projected tipping fees during the life of the project would be comparable to tipping fees projected for other Connecticut projects under construction. (Midstate-1, E-5; Midstate-13)

47. CRRA would pay an additional waste processing fee of $3 per ton for MSW delivered above 58,400 tons per year, but less than 68,839 tons per year. (Midstate-1, E-3)

48. The fee for the additional waste processing would escalate at a mutually-agreed index estimated at five percent per year. (Midstate-1, E-5)

49. REF-FUEL would pay all costs of operation and retain all energy revenues prior to acceptance testing. REF-FUEL would receive payments of up to $25 per ton processed if the facility were operating reliably as expected. (Midstate-1, E-6)

50. The annual cost of residue disposal is estimated at $10 per ton and is estimated to escalate at five percent per year over the period of the contract. (Midstate-1, E-5)

51. The proposed site is a parcel of approximately four acres on the grounds of the Connecticut Valley Hospital (CVH), a state hospital located in Middletown. The site is presently unoccupied and is part of a gently sloping, grassed field which is traversed by several utility corridors. (Midstate-1, G-1)

52. CVH buildings are located approximately 800 feet west of the proposed site. Riverview Hospital is located approximately 1,600 feet east of the proposed site. A public housing project is located on Silver Street 900 feet north of the site. To the south lies land open for 2,100 feet to residential units along Bow Lane. (Midstate-1, G-1, G-24; DEP Letter 11/14/86)

53. The site and the majority of land included in both the CVH and Riverview Hospital complexes are zoned for institutional development by the City of Middletown. Resource recovery facilities are permitted uses by special exception in the institutional development zone. (Midstate-1, G-2)

54. MRRA would lease the land from the State of Connecticut for a term of 20 years, with options to renew. CRRA would hold title to facility structures and equipment. (Midstate-1, A-7; Tr. 2, pp. 50-51; Public Act 84-33)

55. The seven MRRRA towns decided to propose this project, instead of joining a larger facility, to preserve local control over solid waste management and to reduce transportation costs. (Tr. 1, pp. 71-72)

56. In 1979 MRPA prepared a report for the Middletown Solid Waste Task Force (MSWTF) to identify and evaluate a potential site for the facility. (Midstate-1, H-2)

57. Access, transportation, utilities, and steam markets were considered in the project site search. (Tr. 1, p. 78)

58. MRPA and MSWTF considered locating a cogeneration resource recovery facility at the Middletown Pratt and Whitney plant. Pratt and Whitney declined participation because of poor energy matches and security concerns. (Midstate-1, H-2)

59. MRPA and MSWTF also considered cogeneration sites at Wesleyan University, the Sawmill Brook Industrial area, and the proposed CVH site, all in Middletown. The Wesleyan University and Sawmill Brook Industrial area sites were rejected because of uncertain and variable energy demands. Preliminary evaluations suggested that CVH energy demands matched the production levels of a facility in the size range needed to serve the Midstate Region. (Midstate-1, p. H-3,4)

60. The proposed CVH site was chosen because of the site's availability, the public utilities present, compatibility with hospital operations, environmental compatibility, compatible surrounding land uses, central location, zoning, access, and CVH's energy demand. (Midstate-1, p. H-3,6; Midstate-10; Midstate 19)

61. At no time was a non-cogeneration site in Middletown examined. (Tr. 2, p. 46)

62. In 1983, MRRRA determined that the best alternative to dispose of MSW within the Middletown Midstate region was a resource recovery

facility at CVH. Following that determination, extensive discussions were held with the State to ensure that the resource recovery facility would be compatible with the primary mission of the Hospital. (Midstate-10)

63. From the spring of 1984 through December 1985, the project was viewed as a cogeneration project which would sell steam and electricity to CVH, with excess electricity sold to NU. (Midstate-10)

64. CGS section 16-50p(e) stipulates that "In making its decision as to whether or not to issue a certificate, the council shall in no way be limited by the fact that the applicant may already have acquired land or an interest therein for the purpose of constructing the facility which is the subject of its application." (CGS section 16-50p(e))

65. Revenues from the sale of electricity would be paid to Connecticut National Bank, the Trustee of Midstate, which would credit 76 percent of the revenues to the account of the municipalities, thereby reducing tipping fees for refuse disposal, and disburse the balance according to the terms of the agreement. (Midstate-19, p. 2)

66. Pursuant to CGS section 16-243e, which became effective October 1, 1983, NU is required to purchase electricity generated by a resource recovery facility owned or operated by or for the benefit of a municipality or municipalities at the same rate it charges the municipality or municipalities for electricity. This rate is called the municipal buy-back rate. (Midstate-10; Midstate-5, Q. 37)

67. In a general sense, the proposed facility would have to receive a higher-than-avoided cost electric buy-back rate in order to achieve tipping fees comparable with other state resource recovery projects. This is because of the project's small size sacrifices the

economies of scale of larger resource recovery projects. (Tr. 1, pp. 61-63, 74-75; Midstate-13; Midstate 19, p. 2)

68. The applicants state that during the spring of 1986, cogeneration was dropped because of difficulties relating to the amount and pressure of steam loads at CVH and an inability to match the expected steam production with the steam needs of CVH to minimize municipal tipping fees. In addition, the relative economics of producing steam and electricity changed substantially because of the reduction in oil prices and the availability of a relatively high price for electric sales to NU. (Midstate-10)

69. In late spring 1986, the applicants determined that no process steam would be produced and that all energy produced by the facility (approximately 4.4 MW), an increase from the original proposed capacity commitment, would be sold to NU at the municipal buy-back rate. The DPUC has estimated that this change would result in NU purchasing an additional 2.3 MW of capacity from the project. (Midstate-10; Tr. 1, p. 41; Midstate-1, A-7; Midstate-19)

70. Under the revised configuration, CVH would purchase an estimated 5,902 megawatt hours (MWh) from NU, rather than purchase this amount from the project. (Midstate-10; Midstate 19, p. 3; Tr. 1, p. 82)

71. The estimated starting, average municipal buy-back rate at all hours would be 11.5 cents per kilowatt hour (¢/Kwh) in 1989. This rate is projected to increase to 34.79¢/Kwh by 2008. NU's projected avoided cost rate would be 3.3¢/Kwh in 1989. This rate is projected to increase to 25.4¢/Kwh by 2008. The average municipal buy-back rate would result in payments of 160 percent of NU's

avoided cost over the 20-year term of the project. (Midstate-5, Q. 37; Midstate-12)

72. Total cumulative payments to the project over the term of the contract are projected at $118.7 million, an increase from the originally projected minimum total cumulative payments of $57.7 million as originally approved by DPUC in 1985. (Midstate-19, p. 2)

73. The Project's maximum annual revenue requirement would be increased $4.0 million, $2.1 million more than the originally-proposed cogeneration facility. (Midstate-19, p. 2)

74. Payments for the electricity sold to NU at the proposed rate would be expected to increase NU's revenue requirements by $22 million over the term of the contract, calculated on a cumulative present worth basis. Payments to the project would be expected to exceed 100 percent of NU's avoided costs in each and every year of the proposed twenty-year contract. (Midstate-19, p. 2)

75. Ratepayers would have to pay approximately $56 million more over the term of the project for the capacity from the project than if the capacity were produced by NU or purchased at NU's avoided cost rate from other private power producers. (Midstate-12)

76. As proposed, the two new package boilers, back-up electricity, and an upgrading of the electrical interconnection would be provided by the project to CVH to compensate for the loss of the steam contemplated in the original cogeneration project. (Tr. 1, pp. 82-84; Midstate-21)

77. CVH would discontinue the use of its existing in-house boiler for electrical generation and rely on the facility for all back-up power. (Tr. 1, p. 82; Midstate-21)

78. The two new auxiliary package boilers would supply steam for low-use periods and supplemental peak steam to CVH's existing boilers during high-use periods. (Tr. 1, pp. 43-44; Midstate-10)

79. Providing the small package boiler unit to CVH would reduce CVH oil consumption by an estimated 150,000 gallons per year. Based on current oil prices, this would save CVH an estimated $3.6 million over the planned service life of the project. The net present value of these savings, at a ten percent discount rate, would be $1.2 million. (Midstate-21)

80. The main process building would be approximately 85 feet wide by 208 feet long, with a middle section 125 wide and 60 feet long. The roof of the boiler structure would be approximately 70.5 feet above grade. (Midstate-1, I-3)

81. The proposed stack height would be 213 feet. The top of the CVH powerhouse stack would be approximately 47 feet higher than the facility stack. (Midstate-11; Midstate-5, Q. 29)

82. The stack would be visible from residential areas on Bow Lane and Silver Street, but would not be significantly more visible than the existing CVH powerhouse stack. The plant itself, though not as tall, would appear more prominent because of its bulk. (Midstate-5, Q. 31; Midstate-1, J-5; DEP letter 11/14/86)

83. The main process building would have neutral panelled siding. Landscape plantings would be used to screen portions of the site and to enhance the project area aesthetically. (Midstate-1, J-5)

84. Each of the two furnace/boiler units would be equipped with a feedhopper, charged from the storage pit, to process municipal solid waste at a capacity rating of 115 tons per day. The flow of

refuse into the furnace would be controlled by the speed of the Deutsche Babcock Anlagen reciprocating grate, which would support, agitate, and convey the fuel bed through the furnace. (Midstate-1, I-5; Midstate-4, p. 5)

85. Each furnace would be of sufficient size and structural integrity to easily contain minor explosions resulting from aerosol cans and other small containers or flammable liquids commonly found in MSW. A dump condenser would be capable of condensing full boiler steam flow during a turbine generator outage. (Midstate-1, I-6, I-9)

86. The scheduled maintenance program would require shutdown for 60 boiler/days per year out of a possible 730 boiler/days per year. Shutdowns for uncontrollable circumstances would be expected to account for an additional 72 boiler days per year. The system-wide, on-line waste processing availability would be 82 percent. (Midstate-4, p. 28)

87. The facility is designed to operate continuously, 24 hours per day, seven days per week, and would receive MSW six days per week. (Midstate-4, p. 3)

88. Within 2,000 feet of the site, historic resources include the Town Farms Inn, a restaurant and conference center on the National Register of Historic Places, and the CVH, which has been nominated for inclusion on the National Register as a historic district. Although there are historic resources in the vicinity of the proposed site, it is anticipated that no historic resources would be adversely affected by the proposed facility. (Midstate-1, G-7, J-6; Midstate-5, Q. 42)

89. The site would be located in a grassy field with few shrubs and no trees. No species of plants or wildlife designated as threatened or endangered would be adversely affected by the proposed facility. (Midstate-3, G-12A, J-11A, J-13A)

90. The facility would be approximately 300 feet northwest of a cemetery. (Midstate-1, Exhibit G-1)

91. The facility would reduce raw refuse 70-80 percent by weight and 90-95 percent in volume. (Midstate-1, B-5)

92. Ash residue and bypassed waste from the facility would be disposed of in the Portland and Middletown landfills. (Midstate-1, I-5)

93. As of June 1, 1985, the Portland landfill had an estimated capacity 456,000 cubic yards (cy) and the Middletown landfill had a capacity of 415,000 cy. (Midstate-5, Q. 9)

94. Approximately 575,000 cy of ash residue would be generated over the 20-year life of the facility. (Midstate-1, p. I-12)

95. Although the landfills associated with the facility would be an integral element of the project, confirmation of the Middletown landfill's availability and operation has not been included as part of this application. (DEP Letter 11/14/86; Town of Portland, MRRRA, Indenture of Lease)

96. MRRRA would operate a transfer station at the Portland landfill for individual Portland residents. With this exception, MRRRA and CRRA do not plan to provide transfer stations. (Midstate-5, Q. 3)

97. On-site queuing space would be available for 12 to 15 trucks. The access drive to the facility would have queuing space for an additional 30 to 33 trucks. (Midstate-5, Q. 26)

98. The refuse storage pit would have an on-site waste storage capacity of over 690 tons of MSW, a three-day storage capacity under maximum processing capacity. (Midstate-4, p. 2, 29)

99. Ash residue would be stored in ash transfer containers, then loaded in trucks approximately three times per day for transfer to a landfill. (Midstate-1, I-12)

100. On-site residue storage capacity would be 180 tons, a two- to four-day storage capacity under maximum processing capacity. (Midstate-1, B-5; Midstate-4, p. 2, 29)

101. The ash residue, economizer fly ash, and grate siftings from the combustion of MSW would be discharged into a water-filled residue conveyer, on which it would be quenched and cooled, and then discharged into ash transfer containers. (Midstate-1, I-11)

102. Representative samples of bottom ash (grate residue) would be laboratory tested for moisture content, combustible content, higher heating value, and putrescible content during a seven day acceptance test. (Midstate-4, pp. 69-70)

103. Under current standards and criteria established by the EPA and DEP, the ash residue would not be toxic. CRRA would have the contractual right to test ash residue at any time. (Midstate-5, Q. 13)

104. Both REF-FUEL and MRRRA would have contractual obligations to take affirmative action so that only acceptable waste would be brought to the facility. Any hazardous waste inadvertently delivered to the facility would be disposed of by contract with a licensed hazardous waste disposal company. (Midstate-5, Q. 10, 11; Tr. 2, pp. 11-12)

105. As part of the development of the facility, it is anticipated that Silvermine Road between Silver Street and O'Brien Drive would be closed and an access road would be constructed from Silver Street to the facility. As a result, the only city street providing access to the facility would be Silver Street. (Tr. 2, pp. 24, 25, 120)

106. Data for the existing traffic demand shows that Silver Street operates under acceptable conditions. The level of service (LOS) for this street has been classified LOS A for all periods except for the afternoon peak when the roadway functions at LOS B/C. LOS A through D are acceptable during peak periods, while LOS E and F are unacceptable in most cases. (Midstate-1, G-22)

107. It is anticipated that during the 30-month construction period, peak hour traffic increases would total 100 vehicles. However, this addition would not reduce the LOS on Silver Street below LOS C. (Midstate-1, J-18, 19)

108. Once facility operations were commenced, an estimated 78 vehicles would visit the facility daily, representing 156 one-way vehicle trips. These trips would include 100 refuse truck trips per day over a ten-hour operating period, 30 employee trips per day, six residue disposal trips per day, and 20 delivery and visitor trips per day. Peak refuse truck traffic volume is estimated at 20 trucks per hour. (Midstate-1, J-20; Exhibit G-4)

109. Analysis of the projected trips during facility operations shows that Silver Street would still operate at LOS C during all peak hours. (Midstate-1, J-20)

110. MRRRA has agreed to make a number of safety and roadway improvements, including placing sidewalks on the north side of Silver Street, increasing warning signs and adding pedestrian walk lights on Silver Street, repaving Eastern Drive and Silver Street, and making radius changes to the Silver Street/Eastern Drive intersection to facilitate truck turning movements. (Midstate-1, J-20, 21)

111. An average of 1.5 trucks per day (from Haddam) would use Route 9 heading south out of Middletown for their return trip. The access ramp to Route 9 south on Saybrook Road can be reached via Tryon Street or Bow Lane. The Bow Lane/Saybrook Road intersection has been improved to provide a better radius and line of sight than exists at the Tryon Street intersection. (Midstate-23)

112. Facility operations would require 153,000 gallons per day of water. Processing and cooling water would require 145,800 gallons per day of this total, and would be provided by the CVH water system. Potable water and water for fire protection would be provided by the City of Middletown. Waterlines from both systems are adjacent to the site. (Midstate-1, J-10, 11)

113. The facility would be designed to draw water from the City of Middletown or the CVH water system. (Midstate-5, Q. 25)

114. The CVH water system now has a safe yield of 700,000 gpd and an average use of 350,000 gpd. CVH has an additional reservoir, which could be developed to increase the system's safe yield. The City of Middletown water system has a current safe yield of 9.65 million gallons per day and a projected 1990 demand of 5.8 million gallons per day. (Midstate-5, Q. 25)

115. The facility has been designed to conserve water and to minimize discharges through the reuse and recirculation of water and waste waters. Waste waters from the demineralizer and cooling tower and boiler blow-down waters would be used in the ash quenching process. Over 5,500 gallons per minute of cooling water would be recirculated through the cooling towers. (Midstate-1, J-11)

116. Discharges to the CVH sewage treatment system would average 7,416 gallons per day. The average allowable flow to the sewage treatment plant is 750,000 per day, and average waste water flow is now 269,000 per day. (Midstate-3, J-14A; Midstate-14, pp. 12, 21)

117. Noise from construction operations would be limited to normal daylight hours, Monday through Friday, for the construction period. Periodic noise levels during construction resulting in readings of 60 to 63 dBA at the nearest sensitive receptors would be expected. (Midstate-1, J-23)

118. Noise from general construction activities would be exempt from the State of Connecticut noise regulations. City of Middletown regulations contain no specific noise standards. (RSA section 22a-69-1.8(g); Midstate-1, J-22)

119. The maximum expected noise level during operations at the receptor nearest the plant would be 40 dBA. DEP noise regulations require that the facility maintain noise levels at the nearest receptor below 61 dBA during daytime hours and 51 dBA during nighttime hours. Facility features to control noise during plant operations would include enclosed tipping areas, acoustical attenuating panels, noise suppressors, equipment isolation, and procurement of

low-noise emission equipment. (Midstate-1, J-21 to J-23; Midstate-4, pp. 44, 45)

120. The refuse storage pit would be waterproof. Equipment and facility wash down would be collected in the plant sump system and used for ash quenching. All process areas would be located indoors. Storm water runoff from the site would not be contaminated by refuse. (Midstate-4, pp. 3, 33, Fig. 5-10; Tr. 2, p. 11)

121. Storm water runoff would be piped to the existing storm water system associated with the adjacent road network. The runoff would contain contaminants associated with runoff from roads and parking areas. Storm water runoff would be discharged to Reservoir Brook and the Connecticut River. (Midstate-3, J-12a, J-14a; Tr. 2, pp. 113-115)

122. There is a small area (approximately 0.5 acres) at the western edge of the site which contains a town-regulated inland wetland area. The area appears to have been disturbed in the past. The encroachment on 0.04 acres by site construction would not have a significant adverse impact upon inland wetland values or functions. (Midstate-3, G-22A, G-23A, J-8A, J-9A; Midstate-6)

123. Any impact from runoff during construction would be controlled through the use of measures outlined in Public Act 83-388 and the Connecticut Council on Soil and Water Conservation Guidelines for Erosion and Sedmentation Control. (Midstate-1, J-8)

124. The Planning and Zoning Commission and the Inland Wetlands Agency of the City of Middletown have approved the location of the facility. (Midstate-6)

125. The air emission control equipment would consist of combustion controls, acid dry gas scrubbers, and fabric filters or bag houses. These scrubbers would use lime slurry water and compressed air to react with sulfur dioxide, hydrogen chloride, and other acid gases. Fly ash and dry reacted salts would be removed in the bag house to reduce the particulate concentration to the level required by environmental regulations. (Midstate-4, pp. 41-43; Midstate-1, A-9, I-15)

126. The facility would meet or exceed the following current DEP performance requirements and all other federal, state, and local air pollution regulations:

> 0.015 grains per dry standard cubic foot at 12 percent CO_2, operating;
>
> 90 percent removal of HCl or 50 parts per million volume wet (measured at 12 percent CO_2);
>
> SO_2 emissions limited to 0.32 pounds per million Btu heat imput from waste;
>
> a furnace design that maintains combustion gases for 1 second at a temperature of 1800°F or higher; and
>
> minimum combustion gas temperatures during operations of 1500°F with a one-second residence time after injection of secondary air.

(Midstate-4, p. 6-7, 24-25)

127. The air pollution control equipment would be designed to achieve state and federal emissions standards and technology requirements issued by DEP and Environmental Protection Agency (EPA). Based on an air quality dispersion analysis, the proposed facility would not violate National Ambient Air Quality Standards. The facility is not subject to prevention of significant deterioration (PSD) standards because its emissions are below the minimum threshold. (Midstate-1, A-9, J-13 to J-15)

128. Should the average temperature of combustion gas fall below 1500°F, maintained for a one-second residence time after secondary air injection, auxiliary fuel oil burners would increase the temperature of the combustion gases to restore temperatures to 1500°F or above for a one second residence time after secondary air injection. (Midstate-4, p. 7-8; Midstate-5, Q. 22, Q. 23)

129. Auxiliary fuel would be stored in an above-ground storage tank south of the tipping hall. (Midstate-5, Q. 34)

130. The facility is designed to maintain the operating conditions leading to the destruction of dioxins by employing very stringent controls over temperatures. (Midstate-1, p. A-11)

131. Polychlorinated Dibenzo-Dioxins (dioxin) levels seem to be affected by a series of combustion conditions which can be controlled in modern resource recovery incinerators. (Midstate-5, Q. 44, Assessment of Potential Public Health Impacts Associated with Predicted Emissions of Polychlorinated Dibenzo-Dioxins and Polychlorinated Dibenzo-Furans from the Brooklyn Navy Yard Resource Recovery Facility, 1984, p. ES-7)

132. The combustion conditions necessary for destruction of dioxins and Polychlorinated Dibenzo-Furans (furans) include a minimum of one to two seconds of gas residence time at a combustion temperature of 900-1000°C (1652-1832°F), very turbulent conditions in the high-temperature zone, and an air/fuel mixture with a slight excess of oxygen. A 99.99 percent destruction of the dioxin isomer Tetrachlordinated Dibenzo-Dioxin 2,3,7,8 would occur at a temperature of 977°C (1790°F) with a residence time of one second. (Midstate-5 Q. 44, Assessment of Potential Public Health Impacts Associated

with Predicted Emissions of Polychlorinated Dibenzo-Dioxins and Polychlorinated Dibenzo-Furans from the Brooklyn Navy Yard Resource Recovery Facility, 1984, p. ES-7, 2-11)

133. Based on the state's responsibility to ensure that air quality standards in the state plan as approved by the federal government are maintained, there would be continuous monitoring of emissions and operating temperatures to ensure that permit standards are met. (Midstate-1, A-11, A-12; Tr. 2, p. 67)

134. Although the high efficiency package boilers to be provided by the applicant to CVH are not part of this application and are only indirectly involved with the facility, air pollution modeling might show that the facility would consume the available local emissions increment, rendering the package boilers inoperable and, therefore, useless to the hospital. (DEP Letter 11/14/86)

135. Fugitive dust and odors would be minimized by maintaining a negative air pressure within enclosed refuse unloading and handling areas. Air drawn from unloading and handling areas would be used as combustion air for each of the two furnaces. Residue would be damp due to quenching and would be hauled in a wet condition, eliminating a potential fugitive dust problem. (Midstate-4, p. 27; Midstate-1, I-11, I-12)

136. Dust control during the construction phase would include limiting traffic on the site, using paved areas for traffic and parking, wetting of roads and excavations, and minimizing destruction of vegetated ground cover. (Midstate-4, p. 28)

137. DEP prepared a draft environmental impact evaluation of this project in May 1985, which concluded that the data presented indicated no significant, avoidable impacts. On October 3, 1985, the Office of Policy and Management determined that this evaluation satisfied the requirements of CGS section 22a-1(e). (Midstate-1, K-2)