DOCKET NO. 74

An application of the Connecticut Resources Recovery Authority, Southeastern Connecticut Regional Resources Recovery Authority, and American REF-FUEL Company for a Certificate of Environmental Compatibility and Public Need for the Southeastern Connecticut Regional Resources Recovery Facility, which would generate electricity by mass-burning municipal solid waste in the Town of Preston, Connecticut.	:	Connecticut Siting Council
	:	October 6, 1987

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

Introduction

1. The Southeastern Connecticut Regional Resources Recovery Authority (SCRRRA), the Connecticut Resources Recovery Authority (CRRA), and the American REF-FUEL Company (REF-FUEL), called collectively the Applicants, in accordance with the provisions of Sections 16-50k and 16-50l of the Connecticut General Statutes (CGS), applied to the Connecticut Siting Council (Council) on November 10, 1986, for a Certificate of Environmental Compatibility and Public Need to construct a resource recovery facility (the Facility). (Record)
2. The application fee was submitted as prescribed by Section 16-50v-1 of the Regulations of Connecticut State Agencies (RSA). (Record)
3. The application and notice thereof were served in accordance with CGS Section 16-50l(b) and Council orders made on February 20, 1987, and April 1, 1987. (Record; App.-8)

4. Notice of the application was published in the Norwich Bulletin on November 3, 1986, and November 6, 1986, in accordance with CGS Section 16-50l(b). (Record)

5. The Southeastern Connecticut Regional Planning Agency (SCRPA) filed a limited appearance in support of the Facility. That agency concluded that the Facility was necessary to meet the region's solid waste disposal needs, that the Preston site is the most suitable of the 14 sites studied, and that vehicular traffic to and from the Facility could be accommodated safely by existing roadways. (Record)

6. Pursuant to CGS Section 16-50j and Section 16-50j-15 of the RSA, the Connecticut Department of Environmental Protection (DEP) and the Department of Health Services (DHS) filed written comments with the Council. (Record)

7. The Council and its staff inspected the Facility site on March 5, 1987. (Record)

8. Pursuant to CGS Section 16-50m, the Council, after giving due notice thereof, held public hearing sessions on January 29, March 5, May 7, May 12, May 18, May 21, May 26, May 27, June 4, June 8, and June 9, 1987. The March 5 hearing session was held at the Plains School in Preston, and the May 26 hearing session was held at the Norwich City Hall. The remaining hearing sessions were held at the Poquetanuck Fire House in Preston. The

March 5 and May 7 hearing sessions were continued into the evening. (Record)

Applicants

9. The SCRRRA is a corporate entity, a public instrumentality, and a political subdivision of the State of Connecticut established pursuant to CGS Chapter 103b. It is authorized to implement a long-term, regional solid waste management program through the development of a resources recovery facility. (App.-1, p. A-4)

10. Participating municipalities of the project were initially chosen after a feasibility study performed in 1982 by the Town of Waterford evaluated 27 communities within the southeastern Connecticut region for a solid waste management solution. (App.-1, pp. H-1 through H-3; App.-46)

11. During 1983 and 1984, a regional task force, made up of 12 municipalities from southeastern Connecticut, considered alternative technologies for the disposal of municipal solid waste (MSW) and decided to pursue a project based on mass-burning and the sale of energy. (App.-1, p. H-2; App.-46)

12. The SCRRRA was formed in January 1985 by 13 communities to provide a long-range (20-year) solution to their solid waste disposal needs. (App.-1, p. H-2; App.-46)

13. The SCRRRA was created through the adoption of a joint resolution by municipalities in southeastern Connecticut. By joining, each member municipality agreed to sign a Municipal Solid Waste Management Service Contract (MSWMSC) to commit solid waste to the SCRRRA's resources recovery system when such agreements were completed, or to lose membership. SCRRRA is now composed of 11 municipalities: East Lyme, Griswold, Groton, Ledyard, Montville, New London, North Stonington, Norwich, Sprague, Stonington, and Waterford. The Towns of Preston and Salem were original members of the SCRRRA, but forfeited their memberships when they declined to execute a Municipal Solid Waste Management Services Contract (MSWMSC). (CAIR-17; App.-46; App.-2, Q. 20, MSWMSC'S; App.-2, Q. 13)

14. CRRA is a corporate entity, a public instrumentality, and a political subdivision of the State of Connecticut. CRRA is charged by statute with the responsibility of implementing solid waste disposal and resource recovery systems and facilities. In developing the Facility, CRRA provided developmental assistance to the SCRRRA and, in consultation with the SCRRRA, selected REF-FUEL to negotiate contracts to design, construct, and operate the Facility. (App.-1, pp. A-3, A-4; CGS Section 22a-261)

15. REF-FUEL is a joint undertaking of Air Products and Chemicals, Inc., and Browning-Ferris Industries, Inc. REF-FUEL would establish a project-specific organization, to be called American REF-FUEL Company of Southeastern Connecticut, which would have the sole responsibility of designing, constructing, and operating the Facility, and which would provide an equity contribution to the Facility. American REF-FUEL Construction of Southeastern Connecticut, Inc., a wholly-owned subsidiary of the American REF-FUEL Company of Southeastern Connecticut, would manage the construction of the Facility. (App.-1, pp. A-5, A-6)

16. Air Products and Chemicals, Inc., and Browning-Ferris Industries, Inc., entered into an agreement with American REF-FUEL Company of Southeastern Connecticut, pursuant to which they would support the fulfillment of the obligations of American REF-FUEL Company of Southeastern Connecticut. These parent companies have the expertise and financial strength to provide such support. (App.-2, Q. 119)

Facility Description

17. Steam would be produced from the combustion of MSW and used to generate electricity. (App.-1, p. A-1)

18. The project has been proposed in an effort to reduce the volume of MSW that must be disposed of by landfilling in the southeastern region of the State of Connecticut. (App.-1, p. A-1)

19. The Facility would process approximately 180,000 tons per year of MSW per year and generate electricity for exclusive sale to the Connecticut Light and Power Company (CL&P). (App.-1, pp. A-1, I-8; App.-2, Q. 31.)

20. The Council has jurisdiction over such electric generating facilities with generating capacity of more than one megawatt which do not utilize cogeneration technology. (App.-4; Tr. 5/12, pp. 95, 96; CGS Section 16-50i[a]; Record)

21. The Facility would produce steam from the combustion of MSW solely for electric generation, and not for any industrial, commercial, heating, or cooling purposes. (App.-4)

22. The Facility would consist of scales and a scale house reception area; a process building housing administrative and employee facilities, shop, tipping hall, and refuse storage bunker; a boiler building containing two independently operating processing trains; residue handling area; turbine building containing a condensing turbine generator; a cooling tower; air emission control

equipment, including dry scrubbers and baghouses (fabric filters); a stack; and electrical interconnect facilities. (App.-1, pp. A-7, A-8.)

23. The Facility would include two independent waste processing, steam producing trains each capable of processing 300 tons per day of MSW at 5,000 Btu per pound. (App.-1, Ex. I-1)

24. The ash handling areas would be enclosed and drained to a sump from which washdown water and spills would be returned to the cycle for reuse. (App.-2, Q. 25)

25. CL&P would design, construct and maintain the electrical interconnection and tie-line connecting the Facility to the CL&P transmission system. The interconnection would be the subject of a separate Council proceeding. The electrical interconnection would be paid for by the Facility. (App.-1, p. A-8, Ex. A-8; App.-2, Q. 127)

26. The Facility would begin commercial operations between mid-1989 and January 1990. (App.-1, p. F-2; App.-2, Q. 97, Q.-120)

Need for Facility

27. Cost estimates for the project assume 179,580 tons of MSW processed at the Facility per year, and that each ton of MSW processed at the Facility would produce 486 Kwh of

net electricity. This would produce 87,275,880 Kwh per year, or an equivalent of approximately 10 MW of net electrical capacity. (App.-2, Q-31, Q-120; Tr. 5/21 AM, pp. 41, 58; Tr. 5/21 PM, p. 23; Preston-6 p. 7; Tr. 5/12, p. 36)

28. The Facility would have a maximum capacity to produce a nominal 12.9 MW of electricity for sale to CL&P, plus approximately 1.6 MW for internal use, or an average annual power generation of 89 million Kwh. (App.-1, p. A-2; App.-2, Q. 31)

29. In its 1986 forecast of loads and resources, CL&P projected its earliest need for additional energy-generating capacity in 1995. This forecast assumed the purchase of approximately 2,000 MW from Hydro-Quebec Phase I and II and an entitlement of 46.7 MW from Seabrook Unit 1. (The Northeast Utilities System 1986 Forecast of Loads and Resources for 1986-1995 and 1996-2005, pp. II-3, II-4)

30. According to CL&P, 586 MW of private power production, not including the capacity from the proposed Facility, is already planned for the Northeast Utilities' service area in the states of Connecticut and Massachusetts, and would be on-line by 1991. (Tr. 5/27, pp. 139-140; CL&P-2, pp. 2, 3)

31. Reduced oil dependence and diversification of their energy supply mix is a goal of CL&P policy. (CL&P-2, p. 1; Tr. 5/27, pp. 146, 147)

32. It is a policy of the State of Connecticut to reduce dependence on imported oil, utilize indigenous and renewable resources, and to diversify the state's energy supply mix. (CGS Section 16a-35k; Tr. 5/12, pp. 8, 9; App.-18)

33. The Facility would reduce dependence on imported energy resources, diversify the state's energy supply mix, and increase the utilization of renewable energy resources. (App.-1, p. B-1)

34. The State of Connecticut encourages the generation of electricity through the incineration of MSW by providing for purchases of such electricity at the same rate that the electric company charges municipalities for electricity. (CGS Section 16-243e)

35. The Facility could displace at least 110,000 barrels of oil per year. (Tr. 5/27, p. 165; Tr 5/21 AM, p. 59; Preston-6, p. 9)

36. CL&P's oil dependence is in the range of 20 to 25 percent at the present time. Approximately 75 percent of CL&P's capacity is from nuclear generation plants and approximately three percent is from coal generation plants in Massachusetts. (Tr. 5/27, p. 170)

37. By 1996, approximately 30 percent of CL&P's capacity is projected to be from oil-fired generation. (Tr. 5/27, pp. 172, 173)

Facility Role in MSW Management

38. The proposed Facility would reduce by approximately 75 percent the volume of the processible MSW which would otherwise be landfilled. (Tr. 5/18, pp. 55, 152, 153; Tr. 5/21 AM, p. 84; CAIR Ex. 1, Supporting Analysis Part C, p. 2; 5/26, pp. 197, 198)

39. Although the Facility would produce residue ash and emit pollutants, the project would reduce the environmental degradation brought about from landfilling MSW and would play a major role in assisting the towns of Southeastern Connecticut in managing their solid waste in a manner consistent with the state's environmental policies. (App.-1, pp. B-3 through B-6, Table 8.7-1, Table 8.7-3, pp. I-10, I-11)

40. According to the DEP, the state's average current generation rate for MSW is 0.8 tons per person per year. At this time 2.6 million tons of MSW would be generated statewide in 1990. Of the MSW generated annually within the state, approximately 95 percent is presently being disposed of in landfills. (App.-2, Q. 133; App.-28, Vol. I, p. 2)

41. The Facility would be fueled primarily by MSW from SCRRRA member towns. Initially, those towns would be expected to supply between approximately 136,573 and 149,538 tons per year of processible MSW. By the 20th year of the Facility's operation, those towns would be expected to supply between approximately 146,091 tons per year and 185,724 tons per year of processible MSW. The Facility also would be expected to process between 19,461 and 23,685 tons of MSW per year in 1990, and 21,355 and 28,007 tons of MSW per year in 2000, from the Towns of Guilford and Madison under contracts which are terminable after 10 years. (App.-29, Table 2-1; App.-2, Q. 133)

42. The Connecticut General Assembly has found that the prevailing 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. (CGS Section 22a-258)

43. The Connecticut General Assembly recommends the implementation of resource recovery projects, particularly on a regional basis. (CGS Sections 22a-259, 7-273aa, et seq.)

44. Landfilling MSW is a major source of groundwater contamination in Connecticut. (Tr. 3/5 AM, p. 89)

45. Landfill capacity for MSW disposal in southeastern Connecticut is extremely limited. At present, the Towns of Griswold, New London, and Waterford lack in-town disposal sites. By January 1990, Ledyard, East Lyme, Montville, and Sprague are expected to exhaust their capacity. (Tr. 5/27, pp. 12, 13; App.-47)

46. The Connecticut Solid Waste Management Plan (CSWMP), a document last promulgated in 1985 after public notice and hearing by the DEP, recommends that a resource recovery facility be developed by 1987 to meet the needs of the southern portion of the Eastern Connecticut Wasteshed. (App.-28, Vol. I, p. 81)

Compatibility with Electric Power System

47. Southeastern Connecticut has four nuclear plants sited in it, with a capacity of over 3,200 MW's. At present, Southeastern Connecticut exports electricity to other areas of the state and outside the state. (Tr. 5/27, pp. 138, 139; 156; Tr. 5/12, p. 71)

48. The limit of new capacity without the construction of a new major transmission facility in Southeastern Connecticut is approximately 500 MW. The DPUC has approved or is hearing proposals from developers for about 400 MW of capacity to be built in this area. (Tr. 5/27, pp. 129, 151; CL&P-2, pp. 5, 6)

49. Approximately 211 MW of privately generated power have been approved by the DPUC in the southeastern Connecticut area to date. (CL&P-2, p.5; Tr. 5/27 AM, p. 151)

50. If more private power production came on-line than CL&P's transmission system could handle, CL&P would have to curtail purchases from private power producers, back down CL&P units, including Millstone nuclear units, which are not designed to cycle, or allow the transmission system to automatically relieve itself of stress. (Tr. 5/27 AM, p. 129)

51. Private power producers must comply with the utility system's operational requirements, such as voltage control, frequency, and interruptibility. CL&P would not accept an inferior product and would take automatic action to protect itself and shutdown the offending equipment or facility. (CL&P-2, pp.4, 5; Tr. 5/27 AM, p. 128)

Site Selection

52. In April 1985, after reviewing over a dozen siting options that had been proposed, the SCRRRA Executive Committee proposed that the regional Authority focus its efforts on siting an electric generating facility in the

vicinity of the Norwich State Hospital. A site in this area had been under consideration since at least August 1983, and its development had been encouraged by the local state representative. The proposal was approved at the May 1985 meeting of SCRRRA by a unanimous vote, including the representative of the Town of Preston. (App.-46; App.-1, p. H-4)

53. In May 1985, a representative of Regional Disposal Systems Inc., (RDS) appeared before SCRRRA to propose development of a resources recovery project in Lisbon. At that time, SCRRRA voted to pursue development and construction of a facility at Norwich State Hospital in Preston. (App.-46; Tr. 6/4 AM, pp. 59, 60)

54. After comments from state officials, a project that would provide steam to the Norwich State Hospital was rejected because of a mismatch between the steam needs of the hospital and a design capacity needed to process MSW from the participating communities. (App.-2, Q. 37; App.-1, pp. H-4, 5; Tr. 5/26, p. 57)

55. Subsequently, SCRRRA officials met with representatives of the Town of Preston, including the local state representative, the First Selectman, and members of the Planning and Zoning Commission, to determine a specific location in this area. At the request of Preston

officials, the Authority excluded state property east of Route 12, which was in a residential zone, and focused on industrially zoned property west of Route 12 and along the Thames River. (App.-46; Tr. 5/26, pp. 61, 62)

56. In August of 1985, the SCRRRA was informed that contemplated federal tax law changes possibly could increase the project's tipping fee by as much as 50 percent if revenue bonds were not issued before December 31, 1985. It was decided that a site had to be selected, firm contracts with municipalities had to be executed, a vendor had to be selected, and a memorandum of understanding with the vendor had to be negotiated so that the project could be financed in 1985. (App.-1, p. H-5; App.-46)

57. In late August or September 1985, the SCRRRA asked William F. Cosulich Associates to conduct a site review in the area in the vicinity of the Norwich State Hospital. At that time, SCRRRA indicated to Cosulich a preference for siting a facility in that area and preferably on the Norwich State Hospital site. (Tr. 5/26, p. 55)

58. As a result of an investigation by William F. Cosulich Associates, five parcels of industrially zoned property in the vicinity of Routes 2A and 12 in Preston were

considered, and an agreement to acquire an option to buy the proposed site was executed on November 12, 1985. (App.-1, p. H-5; Tr. 5/26, pp. 55 through 63; CAIR-22)

59. On October 16, 1985, SCRRRA presented municipal service agreements to its members for their approval on or before November 13, 1985. (Preston-23; Tr. 6/4 PM, pp. 106, 107; Tr. 3/5 AM, p. 61)

60. At that October 1985 meeting, it was generally understood that the incinerator was to be sited in Preston. (Tr. 5/7 PM, pp. 110 through 115; CAIR-1, Document 12; CAIR-17)

61. The SCRRA specified that, after commencement of operations, towns not currently members of the project would not be able to join. Such towns would only be able to use the project by contract when excess capacity existed. (App.-2, Q. 14)

62. MSWMSC's, which guaranteed a minimum commitment of MSW to the project, were signed by Montville on November 12, 1985; New London, Norwich, Ledyard, Groton, East Lyme, Waterford, Sprague, Stonington, and North Stonington on November 13, 1985; and Griswold on July 3, 1986. (App.-1, Q. 20; Tr. 3/5 PM, p. 61)

63. In October 1985, SCRRRA appeared before the Preston Zoning Board of Appeals seeking a variance to permit

construction of a garbage incinerator in Preston, which variance was denied. (Preston-11 and 12)

64. On November 20, 1985, by way of a town referendum, Preston voted not to sign a MSWMSC with SCRRRA. (Tr. 3/5 PM, p. 28; Preston-15, Preston-16; CAIR-17; CAIR-18)

65. In March 1986, the Town of Preston amended its regulations to prohibit the construction of resource recovery facilities. (Preston-18)

66. When it became apparent that the Town of Preston was objecting to the site selection, CRRA retained William F. Cosulich Associates to conduct a site investigation and evaluation of 13 alternative sites for the proposed Facility. (App.-1, pp. H-5, H-6, Ex. H-1; Tr. 5/26, pp. 64 through 67; Tr. 3/5 PM, pp. 61, 62)

67. With the exception of the Preston site, which was chosen as described above, the alternative sites were suggested by various SCRRRA municipal representatives or contact persons chosen by them. (Tr. 5/26 pp. 61, 65, 147, 148; Tr. 3/5 PM, p. 62)

68. Cosulich Associates published the results of its evaluation in a report dated December 11, 1985. The report evaluated the 13 sites with the following factors:

o Distance from waste generation centroid;

o Site adequacy and development problems;

o Access roads;

o Adjacent land use;

o Available utilities; and

o Energy market tie-in.

On a scale of 1 to 10, with 1 being a poor rating and 10 being an excellent rating, the December 4, 1985, Cosulich site report scored the Preston site 6 or above for each evaluation factor. (App.-1, Ex. H-1)

69. Preston was evaluated with a total score of 46 out of a possible 60. The North Stonington site followed with a total score of 44, followed by the Waterford, Groton, and Lisbon sites each with scores of 41. All other sites scored between 40 and 25. (App.-1, Ex. H-1; Tr. 5/26, p. 67)

70. Prior to the issuance of bonds in December 1985, a notice of the financing was published, which indicated that the Facility would be located at one of the five sites identified as favorable by the December 11, 1985, Cosulich report: Preston, Groton, Lisbon, Waterford, and North Stonington. (App.-45)

71. A detailed evaluation of the top five evaluated sites and an additional site in Stonington that was later evaluated with a score of 41 was submitted to the SCRRRA by William F. Cosulich Associates on March 12, 1986. This

report evaluated the six sites for ton miles of waste hauling; estimated tip fee impact of site associated costs including purchase, development and transportation, and compatibility with local zoning. (App.-1, Ex. H-2; Tr. 5/26, p. 68)

72. The Authority found no public support for any of the 14 sites included in its evaluation. (Tr. 3/5 AM, p. 62)

73. The March 12, 1986, Cosulich site report indicated that the Preston site would result in less transportation of MSW in the region, from a ton-mile standpoint. (App.-1, Ex. H-2)

74. The March 12, 1986, Cosulich site report indicated that the Preston site would result in less transportation of residue unless the Lisbon site could provide on-site residue landfilling. (App.-1, Ex. H-2)

75. The Preston site is located within 16 miles of all three locations proposed as potential ash landfills at the time of the study. (App.-1, Ex. H-2)

76. At present, none of the three proposed ash residue disposal sites considered in the March 12, 1986, Cosulich site report, which were located in Groton, Norwich or Canterbury, appear to be feasible sites for ash residue disposal. (App.-2, Q. 97; Tr. 6/8, pp. 145 through 171)

77. Based on the March 12, 1986, Cosulich site report, the relative costs for each of the six sites for 1989 would be as follows:

	MSW		Residue		Capital		Total
	1,000 Ton-Miles	$/Ton	1,000 Ton-Miles	$/Ton	$1,000	$/Ton	$/Ton
Groton	1,440	4.99	81	.27	6,701	4.42	9.68
Lisbon	2,076	7.19	38	.13	3,211	2.12	9.44
Preston	1,276	4.42	0	0	2,729	1.80	6.22
N. Stonington	2,302	7.97	89	.30	4,971	3.28	11.55
Stonington	2,359	8.17	81	.27	2,417	1.60	10.04
Waterford	1,448	5.02	93	.31	3,776	2,49	7.82

(App.-1, Ex. H-2; App.-2, Q. 92)

78. Based on the March 12, 1986, Cosulich site report, a comparative cost differential in dollars per ton of the six top sites would be as follows:

		1989		1999		2009	
	Capital	Operation	Total	Operation	Total	Operation	Total
Groton	4.42	5.26	9.68	8.56	12.98	13.95	18.37
Lisbon	2.12	7.32	9.44	11.92	14.04	19.42	21.54
Preston	1.80	4.42	6.22	7.19	8.99	11.73	13.53
N. Stonington	3.28	8.27	11.55	13.47	16.75	21.94	25.22
Stonington	1.60	8.44	10.04	13.74	15.34	22.39	23.99
Waterford	2.49	5.33	7.82	8.68	11.17	14.14	16.63

(App.-1, Ex. H-2; App.-2, Q. 92)

79. The March 12, 1986, Cosulich report based its cost calculation of hauling refuse on the 11 member towns and the Towns of Salem and Preston, which were not members. It did not include the Towns of Madison and Guilford. (App.-1, Ex. H-2)

Alternative Sites

80. RDS claims it could develop a 700-ton-per-day regional resource recovery facility to serve SCRRRA's members and other interested communities on a 282-acre site in Lisbon, Connecticut. (RDS-1; Tr. 6/8, pp. 227 through 247)

81. RDS is a company specializing in private sector development of environmental facilities, particularly in the solid waste area. RDS seeks to promote privatization, the private sector investment of time and resources to develop facilities and services which are generally considered to be in the public need. RDS is a developer of the 650-ton-per-day Bristol, Connecticut, resource recovery project. (Tr. 6/9, pp. 221, 222; RDS-1)

82. RDS wishes to develop the waste-to-energy facility in conjunction with, and as an anchor and source of infrastructure for, an industrial park of 15 or more commercial/industrial lots on 120 acres of the parcel. (RDS-1, pp. 3, 16)

83. RDS wishes to develop on the western half of the same site as the waste-to-energy facility an ash landfill to serve the facility, in an area totaling approximately 60 acres. The groundwater under the western half of this site is presently classified GA/GA/GC, and may be

consistent with the granting of permits by the Connecticut DEP for ash residue landfill use. The eastern half of this site is classified as GA, and would not be a suitable site for an ash landfill. (RDS-1, pp. 17, 18, RDS-4; Tr. 6/8, pp. 172 through 174, 194, RDS-9, pp. 38, 39; App.-48, pp. 9, 12; RDS-4)

84. The Lisbon and Preston sites are approximately 10 miles apart, by highway. (Tr. 6/8, p. 220; Tr. 6/4 PM, pp. 144, 145; App.-38 and 39)

Site Location

85. The regional centroids of the participating municipalities for 1) landfill location and waste generation, 2) population center and town population, and 3) population center and town area, all would be located in the Town of Ledyard, one to two miles south of the Ledyard/Preston town line. (App.-1, Ex. H-2, p. 2-2; App.-2, Q. 94)

86. The site of the Facility would be in the Town of Preston, which generates approximately 3,248 tons of MSW per year, or 1.8 percent of the Facility's design capacity of 180,000 tons per year. (App.-28, pp. 82, 83; App.-1, p. A-1)

87. The participating community with the largest contribution of MSW to the Facility, the City of Groton, generates approximately 28,861 tons of MSW per year, or 16.0 percent of the Facility's design capacity, and is located approximately 10.8 miles south of the Facility. (App.-28, pp. 82, 83; App.-1, p. A-1; App.-2, Q. 1, Q. 93, Q. 94)

88. The participating community with the second largest contribution of MSW to the Facility, the City of Norwich, generates approximately 26,831 tons of MSW per year, or 14.9 percent of the Facility's design capacity, and is located approximately 3.8 miles northwest of the Facility. (App.-28, pp. 82, 83; App.-1, p. A-1; App.-2, Q. 1, Q. 93, Q. 94)

89. Preston can be categorized as a suburban town, whereas Groton and Norwich are urban. (App.-29, Appendix A, G)

90. The site is located on the western border of Preston along the Thames River. The land across the River is in the Town of Montville. The Town of Ledyard is approximately one mile south of the site, and the City of Norwich is approximately one and one-half miles north of the site. (App.-1, Ex. G-1, p. G-1; App.-6, Rain-1)

91. Across the Thames River from the site is Fort Shantok State Park. (Tr. 5/27, p. 9; App.-1, p. G-6)

92. The site and the land to the north of the parcel as far as the Mohegan-Pequot Bridge are zoned for industrial development by the Town of Preston. (App.-1, pp. G-2, J-2, J-3)

93. The major structures in the area are the Mohegan-Pequot Bridge across the Thames River and the Norwich State Hospital, a state complex located less than one mile north of the site. (App.-1, p. J-3, G-1, Ex. G-1)

94. The site is bordered on the north by vacant, industrially-zoned land, on the east by Route 12 and commercial development, on the southeast and south by residentially zoned property which includes moderate density residential development, and on the west by an active railroad, which separates the site is located from the Thames River. The nearest houses to the site are located to the southwest, approximately 20 feet from the property line and 700 feet from the proposed Facility. (App.-37, Tr. 5/27, p. 9; App.-1, p. J-2)

95. The proposed site is on a parcel of approximately 35 acres along Route 12. The parcel has an open field on the south side and a wooded area on the north side. The Facility would be located on approximately 11 acres in the northwestern portion of the parcel. (App.-1, pp. G-1, G-2, G-27, J-2; App.-37; Tr. 5/27, pp. 10, 25)

96. There presently exist approximately 280 homes within a one-mile radius of the proposed site in Preston. Within a two-mile radius, there exist 1,120 homes, six schools, and part of Fort Shantok, a state park. (Tr. 3/5 PM, pp. 63 through 65)

97. The proposed Facility would be located near the Thames River and Poquetanuck Cove, whose surface waters contain significant spawning and nursery areas for fish during spring, fall and winter, supporting both recreational and commercial fisheries. (App.-1, Vol. I, pp. G-15 and 16; Tr. 5/7 AM, p. 185)

Facility Capacity

98. The Facility would be designed to operate continuously, 24-hours-per-day, seven-days-per-week, and would receive MSW six days-per-week. (App.-1, Ex. I-1, p. 3)

99. The design capacity of the Facility would be approximately 180,000 tons per year, or 600 tons per day, of MSW. (App.-1, p. A-1, Ex. I-1, p. 32; App-2, Q. 120)

100. Participating municipalities have an aggregate minimum commitment of 133,078 tons per year of MSW. (App.-2, Q. 1)

101. Based on a rate of 0.7 tons per person per year and 1982 population projections, the July 1985 State Solid Waste Management Plan projects that approximately 143,000 tons of MSW would be generated each year by the participating communities. (App.-28 pp. 82, 83)

102. In sizing the plant, the Applicants projected a range of per capita waste generation over the life of the Facility. The high end of the range estimated annual per capita increases at 0.75 percent. At the low end, a reduction was projected based on an achieved rate of 15 percent recycling of the processible waste stream. (App.-29, pp. 1, 2; Tr. 5/26, pp. 74 through 77)

103. Based on population projections, per capita waste generation estimates, analysis of tonage rate, and recycling, the Applicant projected that waste available for processing from the participating towns would be between 136,573 tons per year and 149,538 tons per year in 1990, and between 146,091 tons per year and 185,724 tons per year in 2010. If the Towns of Guilford, Madison, Preston, Salem, Bozrah, Franklin, Lisbon, and Voluntown, non-participating communities of the Eastern Connecticut wasteshed, were included in the Facility's waste flow, between 165,463 tons per year and 183,810 tons per year in 1990, and 181,391 tons per year to

232,916 tons per year in 2010, would be available for processing at the Facility. (App.-29, Table 2-1; App. 28, pp. 83, 84)

104. The Towns of Guilford and Madison are negotiating 10-year contracts under which they may deliver MSW to the Facility, but would not become members of the SCRRRA. (Tr. 5/27, p. 117; Tr. 6/4 PM, p. 65; App.-2, Q. 101; App.-29, pp. 1-2 through 1-4)

105. The Facility should process approximately 133,000 tons of MSW per year to be economically viable. (App.-2, Q. 1)

106. Per capita waste generation figures for Groton, New London, Norwich, and Waterford were originally estimated based on weigh data from the New London transfer station and the Norwich and Groton landfills. Those figures include background levels of recycling. Waste generation figures for the other municipalities were based on figures derived from the DEP and engineering experience. (App.-29; Tr. 5/26, pp. 74, 75)

107. Under the state's Solid Waste Management Plan, both long-term and short-term strategies for waste disposal urge minimizing long-distance hauling by grouping contiguous municipalities into wastesheds to share the services of resource recovery facilities. (App.-28, pp. 44, 45)

108. Since Guilford and Madison are not members of SCRRRA, it is contemplated that they would pay their own transportation costs, in addition to any tipping fee. (App.-2, Q. 14[b])

109. If the CRRA and SCRRRA were unable to obtain sufficient waste, REF-FUEL would be required to use all reasonable efforts to obtain waste from within the region first, from within Connecticut second, and from outside the state last. (App.-2, Q. 1)

110. Approximately 17,600 cubic yards of process rejects from the municipal solid waste stream (6,300 tons per year) would bypass the proposed Facility and be landfilled. (App.-47, p. 2)

111. Processible waste that would be accepted by the proposed Facility does not include liquid wastes, including sewage sludge; non-combustible construction debris or street sweepings; oversized bulky items; or hazardous, toxic radioactive, explosive, pathological, or biological materials that might adversely affect the Facility or the environment. (App.-2, Q. 20, MSWMSC, p. 13)

112. Incoming MSW would be checked for hazardous components by the scale house operator as vehicles were weighed in, two or three tipping haul attendants as trucks were unloaded into the pit, and the crane operators as waste was mixed in the pit. In addition, deliveries could be

spot-checked by dumping on the tipping hall floor and checking the contents in detail before dumping into the storage bunker. Unacceptable wastes would be rejected. (App.-2, Q. 5; Tr. 5/27, pp. 208 through 216)

113. Based on the experience of at least four European plants built by REF-FUEL's licensor, Deutsche Babcok Anlagen, an average availability of at least 82 percent is expected for the proposed Facility. REF-FUEL does not currently operate any resource recovery plants. (App.-2, Q. 44; App.-1, p. D-5)

114. The estimated annual downtime for the proposed Facility would be 28 days scheduled for maintenance and repairs and 38 days for unscheduled outages. (App.-1, p. D-7; App.-2, Q. 44)

115. Each of the two combustion units would include a Duesseldorf Roller Grate with a capacity to process 300 tons per day of MSW, at 5000 Btu per pound. This technology has been proven reliable in at least four other facilities. (App.-1, p. D-5; App.-2, Q. 44)

116. The cast iron grate bars used on the Duesseldorf Roller Grate would last approximately four years. This life expectancy is based on many years of operating experience at over 50 facilities worldwide. (App.-2, Q. 74)

117. Maintenance on the two combustion trains would be performed independently to avoid a total facility

shut-down. To shut down an individual train, the input of refuse would be stopped and auxiliary fuel would be fired to maintain minimum flue gas temperatures until all refuse was fired. During a total facility shut-down, the steam turbine generator and its auxiliaries would then be shut down, and finally the second combustion train would be shut down. (App.-2, Q. 46)

118. The furnace would be of sufficient size and structural integrity to contain minor explosions from containers and flammable liquids commonly found in MSW. (App.-1, p. I-5)

119. The refuse storage pit dimensions are approximately 20 feet deep by 60 feet wide by 112 feet long, or 4,978 cubic yards. The storage pit would be designed to store approximately 1,900 tons of MSW or approximately three days of the Facility's disposal capacity. (App.-1, pp. A-1, I-3, Ex. I-1, p. 56)

120. The watertight ash storage pit would be designed to store approximately three days' production of ash and residue. (App.-1, p. I-10)

121. The overall average thermal efficiency of the Facility would be approximately 17 percent. This would be approximately equivalent to a heat rate of 20,000 Btu/Kwh. (App.-2, Q. 45; Preston-6)

Recycling

122. SCRRRA stated that its philosophy is to achieve waste reduction first by recycling and second through incineration. (Tr. 5/26, p. 204)

123. A report entitled "Evaluation and Development of a Comprehensive Regional Source Separation/Recycling Program," prepared for SCRRRA, recommends waste reduction, source separation, recycling, and supporting services. (App.-35, pp. ES-6 through ES-8)

124. It is estimated that current recycling efforts result in approximately a four to six percent reduction in the region's municipal solid waste stream. (App.-35, p. VI-5; Tr. 5/26, p. 191)

125. The SCRRRA plans to lease the existing Groton recycling facility and maximize its use to reach its design capacity of 40 tons per day. (App.-2, Q. 7; Tr. 5/26, p. 241; App.-35, p. VI-20)

126. The Connecticut Municipal Solid Waste Task Force has recommended for consideration by the State Assembly that the state adopt a goal for a 20 to 25 percent reduction of the municipal solid waste stream through recycling. (App.-35, p. ES-1; App.-28, p. 107; Tr. 5/26, p. 89)

127. Approximately 63 percent of the total waste stream would be available for recycling and approximately 50 percent of the population would participate in recycling. After

capture of particular materials, an overall reduction of the total waste stream by 23 percent would be expected. (Tr. 5/27, p. 112; App.-35, pp. VI-6, VI-7; Tr. 5/26, p. 93)

128. U.S. and European recycling and composting methods, that reduce the waste stream by 11 to 43 percent, would cost between $20 and $70 per ton of recyclable and organic waste. (Preston-5, pp. 2, 15)

129. Comprehensive programs of source separation of recyclables and compostables have achieved waste reductions of 50 percent and have a potential of achieving a waste reduction of up to 60 percent. (Tr. 5/21 AM, p. 86)

130. The recycling of non-combustible waste would increase heat release rates of MSW fuel available for the Facility. The recycling of paper and other combustible waste would decrease heat release rates. Overall, it is not anticipated that recycling would have a substantial impact on heat release rates. (App.-2, Q. 8; Tr. 5/26, pp. 81, 82)

131. The Facility would be able to produce its expected energy output through smaller volumes of waste with a higher Btu value. In such a case, the towns would not be penalized for implementing a successful recycling program and thus failing to meet volume requirements. (Tr. 6/4 PM, pp. 81, 82)

Ash Residue Disposal

132. The ash residue from the Facility would consist of bottom ash, fly ash, and scrubber residue. (Preston-5, p. 9)

133. Ash residue from the Facility could be contaminated with heavy metals and be considered toxic hazardous waste under the U.S. Environmental Protection Agency's (EPA) extraction procedure (EP) test. However, under current EPA standards, the ash would not be toxic. (Tr. 5/21 AM, pp. 80 through 82; App.-2, Q. 22)

134. Fly ash, the most toxic component of the total residue, would be mixed with bottom ash and scrubber residue before disposal at a landfill. (Preston-5, p. 9; App.-1, pp. A-2, I-10; App.-2, Q. 75)

135. About 10 percent of the total residue would consist of fly ash. (Preston-5, p. 10)

136. If fly ash were classified as hazardous waste, it would be separated for disposal at a licensed disposal facility. Such changes would add capital and operating costs to the project and increase the tipping fee of the Facility. (App.-2, Q. 27; Tr. 5/26, p. 87, 88)

137. Periodic sampling of ash residue would be performed in accordance with DEP permit requirements. (App.-2, Q. 22)

138. The proposed Facility would generate at least 54,000 cubic yards per year of ash, or approximately 1,500,000 cubic yards over a 20-year period. With the addition of

side slope and cover material, this would require approximately 67,500 cubic yards per year of space for landfilling. (Tr. 5/27, pp. 77, 78; App.-2, Q. 75; App.-1, p. I-11)

139. Disposal of ash, residue, and by-pass waste from the Facility was planned in landfills in Norwich, Groton, and Canterbury, and at a site adjacent to the Norwich landfill. (App-1, p. A-2)

140. The current unused capacity for the existing Norwich, Groton, Canterbury-Yaworski, and a proposed site adjacent to the Norwich landfill are as follows:

Norwich	230,000 cubic yards
Groton	1,070,000 cubic yards
Canterbury-Yaworski	440,000 cubic yards
Site adjacent to Norwich	1,200,000 cubic yards

(App.-2, Q. 75)

141. At the expected start-up date, the Canterbury-Yaworski and Norwich landfills are expected to be at capacity and the Groton landfill is expected to have 755,000 cubic yards of remaining permitted landfill capacity. (App.-2, Q. 97)

142. Alternative ash disposal sites are being considered at five areas where the groundwater is classified as GC in Griswold, Montville, Preston, North Stonington, and Lisbon. (Tr. 5/27, pp. 105, 106)

143. Under State of Connecticut design criteria, the ash from the Facility would have to be disposed of in a monofill.

It is likely that the monofill would require a bottom liner and collection system, a monitoring system, treatment of leachate, and ultimately a cap on the landfill. (Tr. 5/27, p. 19; Preston-9, pp. 2, 3)

144. A feasibility analysis concluded that a leachate collection and treatment system, provision of public water to local residents, and the issuance of proper permits would be necessary to expand and dispose of residue at the site adjacent to the Norwich landfill. (Preston-9, pp. 8, 9)

145. DEP siting policy for ash residue landfills requires groundwater with a classification of GC discharge to a Class B stream and no existing pollution problem. (Tr. 6/4 PM, pp. 144, 147, 148; Preston-9, p. 3)

146. The Norwich site would not be a feasible one for ash disposal, considering current siting policies and policies regarding ash disposal of the State of Connecticut. (Tr. 6/8, pp. 144 through 171)

147. Although negotiations with the City of Norwich have been ongoing for a period of months, there is no contract for the Norwich landfill or any other site for ash disposal at present. (Tr. 5/27, pp. 20, 21, 98, 99)

148. The CRRA is also studying the possibilities of ash recycling and utilization. (Tr. 5/27, p. 104)

Air Emissions

149. The proposed Facility is likely to emit the following air pollutants: lead (Pb), mercury (Hg), berillium (Be), arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni), zinc (Zn), sulphur dioxide (So_2), nitric oxides (NO_x), carbon monoxide (CO), fluoride (Fl), sulfuric acid (H_2SO_4), chlorine (Cl), hydrogen chloride (HCl), hydrocarbons (VOC), particulate matter (PM), and dioxins and furans. (App.-1, p. J-27, Table 8.3-1; App.-33, Appendix A)

150. The Town of Preston is a part of the Eastern Connecticut Air Quality Control Region, which has been designated as non-attainment for PM and ozone. (App.-1, p. G-22)

151. The Facility would install and operate a dry scrubber/fabric filter air pollution control system. This equipment would meet applicable state requirements for Best Available Control Technology (BACT) and Lowest Achievable Emission Rates (LAER). (App.-33, pp. 21, 22)

152. The fabric filter (baghouse) would operate at its design efficiency whenever the combustion train is operating. The scrubber would not operate at its maximum efficiency until the concentration of acid gases approaches the scrubber inlet design concentration. (App.-2, Q. 51)

153. The emission of particulates depends primarily upon the efficiency of the fabric filter. (App.-33, Appendix A, p. A-1)

154. If one of the approximately 1,000 bags of the fabric filter baghouse were to fail, a visible particulate plume could result. (App.-33, pp. 36, 37; Tr. 6/8, pp. 21 through 23)

155. The combustion control system would be designed to utilize the practice of good fuel mixing and control of underfire air and overfire air to maintain combustion temperatures at a range which would minimize the formation of NO_x and CO, yet destroy complex organics such as dioxin. (App.-2, Q 49; App. 33, Appendix A)

156. Operation parameters, including overfire and underfire combustion air, grate speed, and ram speed would be controlled and adjusted using a microprocessor-based control system to optimize combustion efficiency. The control system would adjust operating parameters based on monitor feedback, including process temperatures at various locations and oxygen (0_2) content in the stack gas. (App.-2, Q. 50)

157. By law, air emissions from the Facility would be the subject of a permitting process by the DEP, implementing standards for the operation of stationery sources to protect the public welfare, health, and the state's air resources. (CGS Sections 22a-170, 22a-171; RSA Section 22a-174)

158. Based on the conservative preliminary screening analysis, air impacts from the Facility would not cause or exacerbate violations of National Ambient Air Quality Standards (NAAQS). Furthermore, allowable Prevention of Significant Deterioration (PSD) increments would not be exceeded. (App.-1, p. J-17; Tr. 5/26, p. 166)

159. The refined modeling performed as part of the DEP air permit process would provide a more realistic estimate of expected Facility impacts. (Tr. 5/26, p. 37)

160. The final DEP air permit would be expected to require continuous monitoring for opacity, SO_2, NO_x, VOC, O_2, CO, and CO_2. (App.-2, Q. 54)

161. The DEP has existing ambient air monitoring equipment in the area for ozone, PM, and Pb. (App.-2, Q. 54)

162. Incineration of solid waste would be limited to the hours between 12 noon and 4 p.m. during a first stage industrial air pollution alert and prohibited during second and third stage industrial air pollution warnings and emergencies, as determined by DEP. (App.-2, Q. 56)

163. The Facility would be required to comply with DEP regulations concerning hazardous air pollutants and would have to meet Maximum Allowable Stack Concentrations for Pb, Hg, Be, hydrogen fluoride, H_2SO_4, HCl, As, Cd, Cr, Cu, Ni, Zn, dioxins, and furans which are

non-criteria hazardous air pollutants under NAAQS. (App.-2, Q. 59)

164. The maximum impact area for pollutants from the proposed Facility would be approximately 1.8 miles from the proposed site. (Tr. 5/7 AM, pp. 136, 137)

165. Connecticut and other states have determined the BACT to control dioxin and furan emissions is high combustion efficiency. The DEP has established requirements for combustion temperature and residence time to control dioxin and furan. (Tr. 5/26, pp. 46, 47; App.-31; App.-32)

166. The Facility would be designed to operate with boiler flue gases at 1,800^{o} F with a one-second residence time and at 1,500^{o} F with a one-second residence time after injection of secondary air. (App.-2, Q. 51)

167. Each combustion train would be provided with auxiliary fuel oil burners designed to maintain the stipulated minimum flue gas temperature conditions. The burners would fire fuel oil in quantities necessary to maintain the 1,800^{o} F for a one-second residence time and 1,500^{o} F with a one-second residence time after the injection of secondary air. (App.-2, Q. 52)

168. Although high temperatures in the proposed Facility are intended to reduce dioxin emissions, heating values in

the Facility would fluctuate, due to the varying composition of the waste stream. (Tr. 5/7 AM, p. 158; Tr. 5/18, p. 46; Tr. 6/8, p. 28)

169. Additional removal of dioxins and furans might occur as the gas stream passes through the air pollution control system. (Tr. 5/7 AM, pp. 28, 29)

170. Dioxins and furans are also covered by a separate regulation that has been proposed by DEP in consultation with DHS. (Tr. 5/26, p. 45; Public Act 86-332)

171. Dioxin testing would be performed during initial start-up by REF-FUEL. Subsequent dioxin testing would be done according to DEP regulations now being developed. (App.-1, Q. 53)

172. The approximate costs for a field sampling program, analysis, and results depicting dioxin isomers 2, 3, 7, 8-TCDD, 1, 2, 3, 7, 8 Penta CDD, 1, 2, 3, 7, 8, 9 Hexa COD, and associated furans, would be $25,000 per sample. (App.-2, Q. 96)

173. Fugitive vapor from the cooling tower would drift from the tower and travel with the prevailing winds. No significant effect would be expected on the electrical switchgear. (App.-2, Q. 48)

Water and Coastal Resources

174. Process water for the Facility would be used for process water makeup, cooling tower makeup, acid gas scrubber water, and service water which would be used for plant washdown. (App.-2, Q. 63)

175. The Facility would use approximately 383,000 gallons per day (gpd) of potable water from the Norwich water supply system with peaks up to 501,000 gpd. (App.-1, Exhibit I-1, Fig. 5-10-11; Tr. 5/26, p. 139)

176. The 20-year projected safe yield for the Norwich water supply system is greater than 9 million gpd. Current usage is approximately 4.5 million gpd. (App.-2, Q. 63)

177. The use of groundwater in the area might not be feasible because of the brackish quality of that water and the impact of withdrawal on nearby wells. (Tr. 6/4 PM, pp. 91, 92)

178. The Facility would use a cooling tower rather than a cooling water intake/thermal discharge outfall system on the Thames River. The use of the Thames River for cooling purposes was considered but rejected due to concerns about salinity, the cost of processing, the possible adverse effect of thermal discharges on the river and aquatic life, and potential difficulties in obtaining the necessary permits. (Tr. 6/4 PM, pp. 91, 92, 139; Tr. 5/26, pp. 140 through 145)

179. The water would be supplied from the City of Norwich system via an extension of its distribution system. (Tr. 6/4 PM, 139, 140; App.-1, Fig. 5-10 and 5-11)

180. The Facility would conserve its water supply by recycling cooling water, filter back-wash, and boiler blow-down. (App.-1, Ex. K-1)

181. Water discharges would be subject to DEP permitting proceedings. (App.-1, Ex. K-1)

182. Some 4,300 gpd of sanitary waste water with peaks of 50 gpm for four hours during boiler draining once every 18 months would be discharged to the City of Norwich sewer system via an extension of its system. Some of the process water used in the Facility would be transferred to the ash residue landfill with the ash. (Tr. 6/4 AM, p. 123; App.-1, p. I-1, Fig. 5-10 and 5-11; Preston-27, Q. 1)

183. A discharge of 4,300 gpd would be a small percentage of the one million gpd waste water discharge capacity that could be accepted at the Norwich sewer system. (App.-1, p. J-13; Preston-27, Q. 1, Q. 6, Q. 7)

184. Although the project, as contemplated, would not be a water-dependent activity, its proposed location would be within the Coastal Area Management Zone. (Thames River Watershed Association-1, p. 31; App.-1, p. J-8; App.-6, p. D-3, I-2)

185. Public access to the railroad or the Thames River to the west of the proposed Facility would be provided. (App.-2, Q. 77)

186. Programs to improve fishing and tourism as a significant industry along the Thames River in Southeastern Connecticut are being developed by the City of Norwich. (Tr. 6/9, pp. 74 through 100)

187. The site is located on a relatively undeveloped and scenic section of the Thames River. (Tr. 6/9, p. 74)

188. A wetland regulated under Connecticut law is located at the northwest corner of the site, adjacent to the railroad tracks. Runoff water from the paved and roofed areas of the Facility would be directed initially to a collection pond and then would be discharged to the wetland at a rate which did not exceed the current runoff. The DEP had determined that, as proposed, no inland wetland or watercourse permits would be required. (App.-1, pp. G-13, G-14, Ex. K-6; App.-6, pp. 6, 7)

189. In April 1987, after the commencement of public hearings, the Army Corps of Engineers identified an area of approximately one acre in the north central portion of the site as a federally-regulated wetland, based on a recently adopted wetlands delineation manual. The area is not a wetland under the state's wetland definition. (Tr. 5/7 AM, pp. 166, 167)

190. The area is located on dredge spoils deposited at the direction of the Army Corps of Engineers several decades ago. It contains no significant wetland values and is not a high quality wildlife habitat. The site plan of the Facility has been revised to avoid the area and any impact. (Tr. 5/7 PM, pp. 166 through 171, 184; App.-37)

191. The Thames River would receive storm water discharge associated with runoff from roads and parking areas. Contaminants included in this runoff are anticipated to include trace amounts of oil and grease, suspended solids, and, in winter months, a quantity of dissolved sodium and chloride. Smaller quantities of lead, copper, zinc, nitrogenous compounds, phosphates, and biological oxygen demand may also be present. Due to the minute quantities of these contaminants in comparison to the volume of water in which they would be diluted, no adverse impact on aquatic life in the Thames is expected. In addition, the DEP may require some pre-discharge treatment. (App.-1, p. J-10)

192. No populations of rare or endangered species are known to be present on the site. (App.-1, p. J-11)

193. The use of standard construction techniques and erosion and sedimentation control measures would help protect adjacent coastal resources. (App.-1, p. J-8)

Traffic

194. The site area is served by state highways providing access from several directions. The Facility itself would be connected directly to Route 12 by a driveway. (App.-1, p. G-25)

195. Refuse, residue, and employee traffic would generate 336 vehicles per day that would enter or leave the site. Approximately 33 vehicle movements would occur during the A.M. peak traffic hour. (App.-2, Q. 78; App.-1, Table 10.3-2)

196. At the time of peak A.M. traffic, Route 12 would be conducting 1,117 vehicles per hour. (App.-2, Q. 78)

197. MSW delivery would account for 280 vehicle trips per day, in delivery vehicles 20 cubic yards or larger. (App.-1, J-21; Table 10.3-2)

198. Ash residue removal would account for 12 vehicle trips per day in vehicles with a capacity of 16 cubic yards. (App.-1, J-21, Table 10.3-2)

199. During the peak construction period, expected to last eight months of the total construction time of 33 months, 240 construction workers would access the site per day. (App.-1, J-19)

200. Approximately 55 construction worker vehicles would access the site during peak traffic hours. (App.-1, J-20)

201. The Level of Service (LOS), the theoretical capacity of a road or intersection rated on a scale from A to F with A being the best and F being the worst, for Route 12 is rated at D, and would not be expected to decrease as a result of the Facility's traffic. (App.-1, p. J-23, Table 10.4-2)

202. Route 2A, approximately one mile north of the Facility, has a LOS E, Route 214, approximately two miles south of the Facility has a LOS C, and Route 2, approximately three miles south of the Facility has a LOS C. None of the LOS's for these roads would be expected to decrease as a result of the Facility's traffic. (App.-1, p. J-23, Table 10.4-2, Ex. H-1, Figure 1)

203. Route 12 is posted for 45 mph; State of Connecticut guidelines call for a sight line of 630 feet in each direction. (Tr. 5/27, p. 17)

204. The sight line available on Route 12 from the site access drive is 680 feet to the south and over 1,000 feet to the north. (Tr. 5/27, p. 17)

205. No improvements to the public road system would be planned except for a curb cut on Route 12 to enter the Facility. (App.-2, Q. 78)

206. DOT would review the Applicants' traffic information for design safety when the Applicants apply for a permit to

improve the existing curb cut for the Facility. DOT might include a signal or warning light, a right turn lane for south-bound traffic, and a bypass lane for north-bound traffic. (App.-2, Q. 78)

207. Queuing space on dedicated plant roadways would be sufficient for 22 transfer trailers or 30 packer trucks. (App.-2, Q. 64)

208. Proposed refuse and residue routes were based on existing collection practice and on evaluation of the route alternatives. Preferred routes could be encouraged through local licensing procedures and payment for transportation costs. (App.-2, Q. 66)

Dust and Odor

209. Roads and areas of significant vehicular activity would be paved and swept routinely, and sensitive areas watered for control of dust. (App.-1, Ex. I-1, p. 47)

210. Odor would be controlled by drafting air from the refuse bunkers into the combustion chambers. During shut-down, odor would be controlled by keeping the Facility doors closed to contain odors, applying odor masking agents, or by removing the waste from the Facility in the event of a long-term shut-down. (App.-1, p. I-5; Tr. 5/27, p. 218)

Vector Control

211. Vectors would not be likely to breed in the solid waste storage area. Such breeding requires an undisturbed area, with adequate oxygen and food available. Solid waste in the bunker would be continuously mixed, stockpiled, and incinerated. Spillages would be cleaned on a regular basis, and the site would be policed daily. (App.-1, pp. J-17, J-18)

Noise

212. The Facility would produce noise levels from 60 to 63 average decibles (DBA) during construction, and 40 DBA during operation at the closest sensitive receptor, a residential unit 650 feet away from the Facility. (App.-1, pp. J-25, J-26)

213. The majority of construction would take place between the hours of approximately 7 a.m. and 7 p.m. However, a few operations, such as continuous concrete pouring and the curing of the boilers, could not be arbitrarily halted. (App.-2, Q. 66)

214. Construction would conform to applicable state, federal and local noise control regulations. (App.-2, Q. 66)

215. Noise from Facility operation would be controlled through noise control equipment and acoustical attenuation materials on site. In addition, plant site landscaping would include trees, shrubs, and other vegetation which would help attenuate noise from the Facility. (App.-2, Q. 68)

216. On-site traffic noise would be controlled by use of sound abatement equipment on vehicles owned or operated by the Facility, by use of enclosures or vegetative screening, and by proper operating procedures. (App.-2, Q. 67)

217. Noise from plant operations would be within limits established by state and local regulations. (App.-2, Q. 70)

Visual Impacts

218. The roof of the boiler structure would be approximately 105 feet above grade. The exhaust stack would be approximately 250 feet above grade. (App.-1, p. I-14; Tr. 5/26 p. 177)

219. The visual impact of the Facility would be reduced by vegetative screening. REF-FUEL would save as much of the existing vegetation as possible to provide natural screening for the Facility. REF-FUEL would supplement

the existing vegetative screen with additional vegetation. (App.-37; Tr. 5/27, pp. 24, 30).

220. Vegetation on the site would screen most of the Facility, with the exception of the stack and the upper part of the tipping building. (Tr. 5/27, p. 23)

221. A shift of the proposed Facility to avoid federally-regulated wetlands would reduce the screening from the river provided in the original site plan. (Tr. 5/27, p. 24)

222. The proposed Facility would be visible from Fort Shantok State Park. (App.-39; Tr. 5/27, p. 32)

Historical/Archaeological Resources

223. In the past, local citizens have collected a large number of prehistoric artifacts in the project area. (App.-19 Final Report, pp. 2, 3)

224. Many prehistoric and historic period archaeological sites have been reported in the general area of the project, particularly the portion adjacent to Poquetanuck Cove. Archaeological research has confirmed the existence of prehistoric sites at the project site. (App.-19, Final Report, p. 8)

225. Subsequent to 1650, the Mohegan Indians lived and worked on the land on which the proposed Facility is to be located. (App.-19, Final Report, pp. 9, 10)

226. Members of the Preston Mohegans assert that the land on which the proposed Facility would be sited is an Indian burial ground. (Tr. 1/29, pp. 20, 21; Tr. 6/9, pp. 108 through 111)

227. While the site was originally thought to have a high potential for archaeological findings, the disturbed nature of the site substantially reduced the likelihood of such findings. No intact archaeological sites were found anywhere in the Facility area. (App.-19, Final Report, p. 11)

228. Alleged Indian burial mounds were tested by excavating trenches through them. The testing confirmed that the mounds were "tree throws," not burial mounds. (App.-19, Final Report, p. 12)

Project Costs

229. The site is currently owned jointly by CRRA and SCRRRA. When, and if, the escrow financing is broken, the property would be transferred to SCRRRA as the sole owner. SCRRRA would lease the property used for the project to CRRA, which would, in turn, sublease it to

REF-FUEL. Under the planned financing arrangement, CRRA would be the title owner of the site improvements and would, in turn, sublease it to REF-FUEL. REF-FUEL would be the beneficial owner of the improvements and would be treated as the owner for income tax purposes. (App.-2, Q. 111)

230. On December 31, 1985, the CRRA issued bonds in the aggregate principal amount of $62 million to finance a portion of the cost of the Facility. The net proceeds of this bond issuance were placed in escrow and would be released upon the fulfillment of certain conditions pursuant to the indenture under which the bonds were issued. (App.-1, p. A-4)

231. The member towns of the SCRRRA are committed to use the proposed project for the capitalization bond repayment period. (App.-2, Q. 20, MSWMSC's, pp. 15, 16)

232. The cost of the proposed project has increased from $62,000,000 to $66,800,000, which price may be renegotiated as of December 3, 1987. (App.-2, Q. 120; Tr. 6/4 PM, p. 6)

233. At present, the parties have not finalized whether the bond repayment/service agreement would be for a period of 20 years or 25 years. (Tr. 6/4 PM, pp. 7, 8; App.-2, Q. 120)

234. Annual operation and maintenance costs would total approximately $5,000,000 in 1989, and escalate to approximately $12,000,000 to $14,000,000 by 2009. (App.-2, Q. 88; Tr. 6/4 PM, pp. 6, 7)

235. REF-FUEL could reduce maintenance costs and provide alternative methods to dispose of MSW if the Facility failed to meet acceptance testing criteria. (Tr. 5/27, pp. 79 through 81; CAIR-1, MOU, pp. 8, 9)

236. A Memorandum of Understanding (MOU), between REF-FUEL, SCRRRA, and CRRA, binds the parties to the terms contained therein, unless those terms are specifically varied by agreement of the parties. The MOU contemplates the execution of a final service agreement embodying substantially the principles set forth in the MOU. (CAIR-1, MOU, pp. 1, 2)

237. American REF-FUEL would be responsible for paying off debt service in the event that the Facility could not operate due to defective equipment or technology. The municipalities would be responsible for paying off debt service if the Facility were irreparable due to a force majeure, such as an earthquake, flood or other uncontrollable event. (App.-2, Q. 15)

238. The MOU originally provided that REF-FUEL would contribute as equity 25 percent of the construction cost

of the base plant capacity (500 tons per day) and 100 percent of the additional construction cost required to achieve a capacity of 500 versus 600 tons per day. (App.-2, Q. 41; CAIR-1, MOU, p. 29)

239. At present, REF-FUEL, SCRRRA, and CRRA are deciding whether or not SCRRRA would accept responsibility for paying the debt service and obtaining processible waste for the full 600 ton per day capacity. Under this proposal, REF-FUEL would make an equity contribution of 25 percent of the construction cost of the entire Facility, and would not reserve "merchant capacity," which would be REF-FUEL's responsibility. This provision is still being negotiated and has not been finally decided upon. (Tr. 6/4 PM, pp. 5, 6; App.-2, Q. 120)

240. Once the scheduled commercial operation date of the Facility has been reached, SCRRRA would have primary responsibility for disposal of MSW from the communities. (App.-2, Q. 16)

241. The SCRRRA would have the responsibility to serve participating member communities first, and communities with contractual arrangements second, to implement the Connecticut Solid Waste Management Plan. (Tr. 5/27, pp. 117, 118)

242. Based on the MOU, this Facility would be operated under a "put-or-pay" contract. Each municipality would have an

obligation to deliver its minimum commitment of MSW to the Facility. In the event of a default by either party, the other party may seek specific performance. (Tr. 6/4 PM, p. 76; CAIR-1, MOU, pp. 15, 17; App.-2, Q. 20, MSWMSC'S, p. 10)

243. The contract establishing the tipping fee is presently under negotiation, and would take into consideration various factors, including the following: debt service costs, operating and maintenance costs, transportation costs, landfilling costs for ash residue and bypass waste, administration costs, payments in lieu of taxes to host communities, and revenues from the sale of electricity. (App.-2, Q. 17)

244. Assuming a 25-year term, the cost to dispose MSW at the Facility, calculated to include the average cost to deliver MSW to the Facility, is projected to begin at $40.47 per ton of MSW in 1990, and peak at $66.45 per ton of MSW in 2000, if electricity were sold at the municipal rate. If electricity were sold at an avoided cost rate, the cost is projected to begin at $53.88 per ton of MSW in 1990, and peak at $146.67 per ton of MSW in 2012. (App.-2, Q. 120)

245. A transportation component cost range was estimated from $1.24 per ton of MSW in 1990 to $3.99 per ton of MSW in 2014. (App.-2, Q. 21, Q. 120)

246. Tipping fees would not be expected to increase or change if the participating towns achieved a recycling goal to reduce the weight of the total waste stream by 20 to 25 percent. (Tr. 5/26, pp. 117 through 120)

247. There presently exists no contract for transportation of solid waste to and from the Facility. (App.-2, Q. 21)

248. Any cost of transporting ash residue to a disposal site more than 15 miles away from the proposed Facility would be treated as a "pass-through" cost to be paid by the municipalities. (App.-2, Q. 23)

249. REF-FUEL and SCRRRA would share the cost of disposal of any hazardous waste inadvertently delivered to the Facility if the party responsible for delivering such waste could not be identified. (App.-1, Q. 6)

250. Although the Applicant has provided an estimate of operations, maintenance, and host community fees for ash residue disposal, the location of an ash landfill has not yet been chosen, nor has any contract for ash disposal been executed. (App.-43; Preston-9, App. B; Tr. 6/4 AM, pp. 115, 116; Tr. 5/27, pp. 20, 21, 98, 99)

251. Any cost for dioxin testing, other than that conducted during initial start-up of the Facility, would be treated as a "pass-through" cost to be paid by the municipalities. At present, the nature and frequency of testing required is unknown. (App.-2, Q. 53)

252. Notwithstanding uncertainties as to costs and tipping fees, commitments of solid waste by towns are considered by the Applicant to be binding contracts. (Tr. 3/5, Afternoon, p. 68)

253. In accordance with the terms of the MOU, off-site sewer, potable water, and roadway improvements necessary to supply the Facility to the property line of the site would be handled as a "pass-through" cost to be paid by the municipalities. (App.-1, pp. E-2, E-3, E-7; App.-2, Q. 95, Q. 39; Tr. 6/4 PM, p. 84; CAIR-1, MOU, pp. 3, 15)

254. The electrical interconnection for the Facility had been preliminarily established by the Applicants to include a substation, a 69kV, three and one-half mile line and protector gear at a total cost of $1,680,000. (App.-1, Ex. H-1, Ex. H-2, Appendix D, pp. 3, 4)

255. REF-FUEL would be responsible for the cost of the transmission facility for up to $710,000. Expenses over this amount would be treated as a "pass through" cost to be paid for by the municipalities. (App.-1, pp, E-2, E-3)

Cost to Consumers of Electricity Produced by the Facility

256. Revenues from the sale of electricity would lower the tipping fees for the member towns. (App.-2, Q. 82, Q. 120; CAIR-1, MOU, pp. 6, 7, 13)

257. Only limited discussions have occurred between the applicant and CL&P with respect to an electricity purchase agreement. (CL&P-2, p. 7)

258. At present, the Applicant has not determined the electricity sales price it would seek for electricity generated by this Facility. (App.-2, Q. 82)

259. Based upon these discussions, and based upon documents filed by the applicant in these proceedings, it seems likely that the applicant would demand that CL&P pay the "municipal rate" for electricity produced by the Facility. (CL&P-2, p. 7; Tr. 5/27, pp. 130, 131)

260. As of 1990, it is projected that the municipal rate and avoided cost rate will be approximately 12.5 and 2.8 cents per kilowatt hour (Kwh), respectively. (Tr. 5/27, p. 158; App.-2, Q. 116)

261. Payment of this rate would result in payments averaging approximately 12 cents more per Kwh or almost double CL&P's avoided costs over the term of the contract. (CL&P Ex. 2, p. 7; App.-2, Q. 116)

262. If these payments at the municipal rate were made over a 20-year period, they would total $376,435,000. (CL&P-3, p. 1)

263. Over a 20-year term, ratepayers would pay at least $88 million, or $4 million per year more than CL&P's avoided

costs for capacity from the Facility if the Facility receives CL&P's municipal rate for electricity sold to CL&P. CL&P projects the cumulative nominal revenue requirement difference between an avoided cost and the municipal rate to be approximately $140 million over a 20-year term for the Facility. (CL&P-3, Case 4; Preston-6, p. 2)

264. Based on an in-service date of 1988, and assuming payment at the municipal rate, CL&P projects that ratepayers would pay more than $82 million for capacity from the Facility prior to the Facility's capacity contribution. (Tr. 5/27, p. 127; CL&P-2, pp. 3, 4; CL&P-3, Case 4)

Local Regulation

265. At a special town meeting held March 3, 1986, the Town of Preston passed a resolution that placed a moratorium upon the erection or construction of any waste disposal facility, waste processing facility, or incinerators for waste disposal. (Preston-18)

266. On August 29, 1986, SCRRRA applied to the Preston Planning and Zoning Commission for zoning and coastal site plan approval for a waste-to-energy facility in Preston. (App.-6)

267. The SCRRRA application for zoning approval from the Preston Planning and Zoning Commission was denied by the Town of Preston on September 17, 1986. Reasons for denial cited by the Town were violation of zoning regulations as a prohibited activity and land use, inconsistency with the purpose of Industrial Districts, violation of noise, smoke, fumes, and odor provisions of the zoning regulations, insufficient details of plant hours of operation, erosion and sedimentation control, location of the power transmission lines, and a conflict with the Town plans to use the same site as a sanitary landfill. (Preston-3; Preston-19; Preston-20; App.-6)

268. On September 17, 1986, the coastal site plan for the Facility was disapproved by the Town of Preston. Reasons cited by the Town were violation of Town zoning regulations, a visual blight in the coastal area, inadequate public access to the coastal area, and insufficient data to evaluate storm water discharges. (Preston 19; Preston 20)

269. On October 21, 1986, the Applicants appealed the Preston Planning and Zoning Commission's denial of zoning and coastal site plan approval to the Council. (App.-6)

270. Pursuant to CGS 16-50x(d), such orders are subject to the right of appeal to the Council within 30 days by any

party aggrieved, and the Council has jurisdiction, in the course of any proceeding on an application for a certificate or otherwise, to affirm, modify or revoke such order or make any order in substitution thereof by a vote of six members of the Council. (CGS 16-50x(d))

271. The Preston zoning regulations limit the height of buildings in industrial zones to 40 feet. (App.-2, Q. 79, Preston Zoning Regulations, p. 22; Tr. 5/26, p. 177)

272. The Town of Preston has plans for the same site to be developed as a sanitary landfill. (Preston 19)

273. SCRRRA made a preliminary proposal to the Town of Preston for payments in lieu of taxes of $3.00 per ton of MSW processed at the Facility. At the expected operating capacity of approximately 180,000 tons per year, this would amount to $540,000 per year. (App.-2, Q-95)

274. The development of the Facility would include an extension of sewer, water, and electrical utilities into the area. (App.-2, Q. 95)

275. State Senator Kenneth Przybysz, Nineteenth District, Uncasville, State Representaive Jay B. Levin, Fortieth District, New London, State Representative Janet Polinsky, Thirty-Eighth District, Waterford, and the chief executive officers and other representatives of

the municipalities of Madison, Montville, Waterford, Groton, New London, Ledyard, Stonington, and East Lyme expressed their support for the Facility. (Tr. 3/5, Evening, pp. 13 through 21, 25, 41 through 53, and 74 through 77; Record).

276. The voters of Preston voted by 688 to 185 not to sign the MSWMSC with the SCRRRA in a referendum held on November 20, 1985. (Preston-16)

277. Approximately 700 residents of the Town of Preston signed a petition in October 1985 opposing the construction and operation of a waste-to-energy plant in the Town of Preston. (CAIR-19)

278. The Town of Preston is not a member of the SCRRRA. (CAIR-22)

279. The Town of Preston has not contracted to use the Facility. (App.-29, pp. 1, 2)

280. State Representative David Anderson, Forty-Fifth District, Norwich, and the chief executive officers of the municipalities of Preston and Lisbon expressed opposition to the project. (Tr. 3/5, Evening, pp. 25 through 29; Tr. 5/7 PM, pp. 52 through 55)

281. Approximately 235 residents of the Town of Ledyard signed a petition in 1986 opposing the construction and operation of a waste-to-energy plant in the Town of Preston. (Bittersweet Homeowners' Assoc.,-1)

Procedural Matters

282. An identical application was received from the Applicants on August 29, 1986, and accepted as Docket No. 70. (App.-5; Record)

283. On November 10, 1986, the Applicant's withdrew the Docket 70 application because they had not provided notice to abutting landowners, and simultaneously refiled the application in this docket. (App.-5, Record)

284. When the application for Docket 74 was made, notice only was provided to all those entitled to receive service of the application pursuant to CGS 16-501. The notice indicated that the application was identical to the application previously filed in Docket 70. (App.-5, Record)

285. On December 3, 1986, the Town of Preston asserted that service deficiencies required the dismissal of the application. (Preston-1; Record)

286. On February 20, 1987, the Council ordered the applicant to complete service of the application, in accordance with the provisions of CGS 16-501. (Record)

287. At a hearing held March 5, 1987, an abutting landowner, Theodore Schulz, claimed he had not been given notice of the application. (Tr. 3/5 PM, pp. 69, 70)

288. On March 11, 1987, the applicant confirmed that Theodore Schulz was an abutting landowner, but had not

been given notice due to an error in the Town's tax assessor's records. (Motion for Order of Notice, Temporary Stay of Hearing and Temporary Opening of Docket to Theodore Schulz to All Prior Proceedings, dated March 11, 1987)

289. On April 1, 1987, the Council ordered:

1) Completion of Service as ordered by the Council on February 20, 1987;

2) That the applicants serve written notice of the application, pursuant to Section 16-501(b) of the Connecticut General Statutes, on Theodore Schulz, as an individual and as administrator of the Estate of Erna H. Schulz, no later than April 6, 1987, and provide to the Council documentation that this notice has been served as ordered; and

3) That the public hearings in this Docket be continued until no earlier than May 6, 1987, to permit Theodore Schulz to exercise his rights under applicable laws and regulations. (Record)

290. At a public meeting held on April 22, 1987, the Connecticut Siting Council denied the Town of Preston's Motion to Dismiss. The Council ruled that completion of service, notice to an abutting landowner, and a temporary stay of hearing had restored the rights of affected individuals and cured all deficiencies. (Preston-1; Record)

291. At a public meeting held on April 22, 1987, the Council denied the Thames River Association's request to disqualify the Commissioner of DEP from the Council. The Council found that the legislature makes specific provision for the participation of the DEP in the Council's adjudicatory process by virtue of Sections 16-50j(b) and (g) of the CGS. No legislative exception for the participation of DEP applies to Council consideration of applications for facilities which have a resource recovery component. (Record)

292. At a public meeting held on March 11, 1987, the Council denied a motion to dismiss the application due to improper service to the Town of Lisbon as an alternative site. The Council ruled that the evaluation of alternative sites in the application is intended to justify and document the selection of the proposed site, that no site in Lisbon has been presented to the Council for approval or other action, and therefore, no service was required pursuant to CGS 16-501. (Record)