New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Ogden Reid,
Commissioner

50-247

April 19, 1976

U.S. Nuclear Regulatory Commission
Washington, D. C.
20553

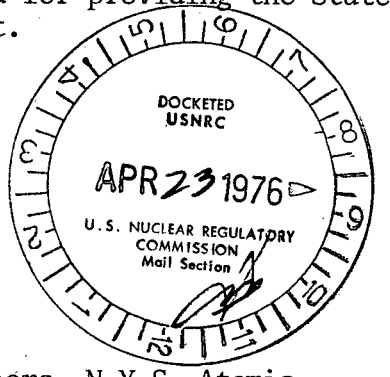
Attention: Director, Division of Site Safety
and Environmental Analysis

Dear Sir:

The State of New York has completed its review of the U. S. Nuclear Regulatory Commission "Draft Environmental Statement For Selection of the Preferred Closed Cycle Cooling System at Indian Point Unit No. 2", issued in February 1976. In preparing the enclosed comments, we have taken into consideration the views of interested State Agencies including those represented on the N.Y.S. Atomic Energy Council.

The closed cycle cooling systems considered in the draft environmental statement were analyzed for an 873 MWe nuclear plant with its corresponding thermal discharge. This is the present licensed level of operation for Unit 2. However, by May 1980 Con Edison plans to utilize the entire capacity of Unit 2, namely 1033 MWe. The draft statement should, therefore, have been based on comparison of closed cycle cooling systems capable of dissipating the heat from a 1033 MWe plant, not a 873 MWe plant; otherwise additional cooling capability must be installed as Unit 2 is uprated. Considering the fact that Unit 2 will achieve its total electrical output of 1033 MWe within one year after a closed cycle cooling system commences operation in 1979, it is felt that the environmental statement should assess the preferred closed cycle cooling system for operation at the 1033 MWe level. We strongly urge this be done in the final EIS.

Thank you for providing the State the opportunity to comment on this environmental statement.



Sincerely yours,

Theodore L. Hullar

Theodore L. Hullar, Ph.D.
Deputy Commissioner for
Programs and Research

cc: Members, N.Y.S. Atomic
Energy Council
C. Simian

4080

STATE OF NEW YORK

[Comments on the

U.S. NUCLEAR REGULATORY COMMISSION

"DRAFT ENVIRONMENTAL STATEMENT

FOR SELECTION OF THE PREFERRED CLOSED CYCLE COOLING SYSTEM

AT INDIAN POINT UNIT NO. 2" (NUREG-0038)]

DOCKET NO. 50-247

PUBLISHED: FEBRUARY 1976

APRIL 15, 1976

1. General Comment

The draft statement should discuss the ultimate disposition of the various CCC systems considered. Decommissioning costs and environmental problems of decommissioning should be presented for each CCC system considered.

2. General Comment

The draft statement should contain a discussion of the seismology and geology of the site. It should also present the maximum seismic event the preferred CCC systems are capable of sustaining and reference the amendments to the Staff Safety Evaluation Reports which have addressed this issue. If the Safety Evaluation has not been amended to assess safety considerations relative to the preferred CCC systems, then an assessment should be provided in the draft statement, since these considerations should be factored into the cost-benefit analysis for selecting the preferred CCC system.

3. General Comment

The draft environmental statement should present an assessment of the potential for interference by a NDCT with the migratory patterns of any birds such as water fowls, raptors, etc.

4. General Comment

The construction period for the addition of a cooling tower is somewhat over two years; the "cut in" period is stated to be seven consecutive months. In view of the usual two month refueling period each year, the installation of towers would result in at least a five month loss of plant output in a single year. If a portion of the "cut in" construction could be performed during an earlier refueling period, the plant outage associated with tower construction would be reduced. It is recommended that this option be explored.

5. General Comment

It is agreed that the conclusion on page 2-1 is correct that operation of cooling towers in the open cycle or "helper" mode would not assist in meeting the problems of concern in the Hudson River. To the degree that the operation of Indian Point #2 constitutes a hazard to the maintenance of the indigenous fish populations of the Hudson River and of areas dependent on the Hudson River as a nursery area, the major problem appears to be the quantity of water withdrawn and the resulting ichthyoplankton entrainment losses. Since the "helper" mode does not reduce water withdrawal it would not help in this regard and there would be no value in providing a system for such application.

6. General Comment

NRC staff's evaluation of visual impact resulting from the various CCC's alternatives is limited to a comparative analysis of the relative mass of the proposed structure(s) and related plume(s). However, the third paragraph on page 6-39 makes reference to an overall visual impact study prepared for the NRC by Jones and Jones, November 1975. The inclusion of this report in the final EIS would be desirable and may provide the answers to the following:

a. With consideration for scale, color, texture, and form, the draft statement should discuss the visual compatibility of the various types of CCCS, considered in the draft EIS with:

- The existing power block
- Other nearby man-made structural forms or complexes
- Recreational uses within the visual and physical impact zones of the towers
- Regional landforms, considering the inherent visual quality of the lower Hudson Valley and its environs in the vicinity of the Indian Point facility.

6. General Comment (cont.)

b. The environmental statement should provide a comparative analysis for each type of structure with consideration for site restoration and alternate uses when the generating facility is ultimately decommissioned.

7. General Comment

The statement should have further addressed the construction activity and associated acoustical impact, especially in the vicinity of the designated transportation routes for the delivery and removal of material.

8. General Comment

Section 3.3, page 9 states that Unit No. 1 wharf, as well as the beach at Lent's Cove, could be used for the delivery of construction materials and removal of excavated material. The statement should have addressed this alternative, because it could significantly affect the acoustical impact from construction related transportation activity.

9. General Comment

The thermal plume from once-through cooling of Units 1 and 2 is not expected to exceed New York State Thermal Criteria for estuaries. With once-through cooling added to Units 1 and 2, Unit 3 probably would exceed the criteria under certain conditions. The environmental problem at Indian Point has historically been stated as impingement and entrainment and the heat rejection rate or the cooling efficiency in terms of BTU designed into the towers is not the prime environmental consideration. The important operating characteristic is the amount of water the towers will use, coupled with other possible savings in service water usage, and a consideration as to whether Unit 1 should be allowed to operate with a once-through system.

9. General Comment (cont.)

If Unit 1 continues to operate with once through cooling at roughly 300,000 gallons per minute, it is of little consequence to consider an additional 10% or 30,000 gpm which could be saved if the house service water were also required to utilize on-site recirculating cooling technology. However, if Unit 1 never operates again or is required to go to closed-cycle cooling, then the service water system would represent 50% of the water use associated with the closed-cycle cooling for the main condenser system (30,000 gpm, 15,000 gpm for blowdown and 15,000 gpm for evaporation). It appears that for safety and reliability factors, the house service cooling system would have to be separate from the main system to provide independent operation during shutdown procedures.

10. General Comment

The discussion of emissions from the alternative facilities does not address the contributions which cooling tower drift will make to settleable and suspended particulate levels in the air around the plant and whether these contributions will result in violations of applicable New York State ambient air quality standards. This issue must be addressed explicitly.

11. General Comment

From an air quality viewpoint, it is felt that NRC and Con Edison correctly concluded that a natural draft cooling tower is the most environmentally preferable form of wet-cooling tower. Further, the calculated impact of natural draft cooling towers on settleable particulate concentrations at Indian Point meets an increment deemed acceptable. Mechanical draft towers would not.

a. The maximum drift deposition predicted for natural draft cooling towers, given in Table 5-1, meets the allowable increment of 0.1 mg/sq. cm./month, which is considered acceptable towards meeting settleable particulate standards, and does not give contravention of the standard of 0.3 mg./sq. cm./month.

11. General Comment (cont.)

b. The maximum drift deposition for circular mechanical draft cooling towers, given in Table 5-7, does not meet the increment referenced above.

12. General Comment

The expected impact of the cooling tower plume on increased cloudiness, precipitation, fog and icing is small.

13. General Comment

The models used by NRC and Con Edison in predicting plume impact are representative of current state-of-the-art and are valid.

14. Genral Comment

NRC did not justify its conclusion regarding conservatism in the Con Ed estimates of visible plume length and duration.

15. General Comment

Suspended particulate concentrations were not addressed in the draft statement and should be included. The statistical summary for calendar year 1975, however, suggests that State and Federal primary suspended particulate concentrations were met throughout the impact area of the cooling tower.

16. General Comment

Because of the extensive use of acronyms throughout the statement, a glossary would materially assist the reader who is unfamiliar with them.

17. Page iv, Item 8

It is recommended that additional information is needed and should be included to "determine the significance of drift and salt deposition and to detect botanical injury to sensitive plant species if it occurs." The draft report recognizes, however, that installation of any closed cycle cooling system,other than a dry system, will probably have some adverse effect on terrestrial biota which must be balanced against the expected beneficial effect of reducing the withdrawal of cooling water from the Hudson River. Natural draft towers will minimize the potential effects associated with drift and salt deposition.

18. Page 2-1, Section 2

Description of Alternate Closed Cycle Cooling Systems - The beneficial use of part or all the waste heat should have been considered among the alternatives.

19. Page 2-1, Section 2.2

Although the pond/lake/channel cooling technique has been discarded, sentiment by fisheries biologists continue to be directed toward an aquaculture concept. A development of this type might be used in conjunction with a cooling structure as a development program for alternative cooling and thermal discharge for future installations.

Since land surface area is not available, a controlled impoundment section of the main river should be considered.

20. Page 2-1, Section 2.3

Local industry or the commercial community should be afforded the opportunity to consider the use of the thermal discharges for processing or other continuous activities. Although the temperature level of the waste water is relatively low, it does contain a substantial thermal potential (BTU's).

20. Page 2-1, Section 2.3 (cont.)

For certain processes, this thermal potential might be an inducement for the location of other commercial enterprises in this area.

21. Page 2-3, Section 2.3

A negative conclusion is reached on the suitability, of the powered spray - module system based on the lack of suitable land on or near the site. However, the previous paragraph indicated that this sytem would require about 55 acres of the 239 acre site. NRC staff should indicate how many acres on the site are suitable and whether consideration was given to the feasibility of utilizing the Hudson River for part of the necessary acreage.

22. Page 2-5, Section 2.4.3

This section should discuss whether the back-pressure on the turbines varies for the various wet cooling systems.

23. Page 2-5, Section 2.4.3

This section should present the typical noise levels emitted for each of the wet cooling tower options. This information should also be presented in Section 2.4.1 and 2.4.2 for the dry and wet-dry towers.

24. Page 3-4, Section 3.2

This section should explain how the 500 ft. distance from the natural draft cooling tower to the wall of the Unit No. 2 containment building was arrived at. It is stated that the 500 ft. was determined by economic and safety considerations.

25. Page 3-4, Section 3.3

The Commission staff should thoroughly investigate the possibility of disposing of the excavated material at the quarry on Con Edison's Ver Plank site. In this manner, an old quarry site could be restored to a more natural

25. Page 3-4, Section 3.3

condition at the same time resolving a large disposal problem.

26. Page 3-4, Section 3.3

With the exception of paragraph (2), Section 4.2, no discussion is provided with respect to the ultimate disposal of up to 350,000 cubic yards of excavated material. This activity in and of itself may be of environmental significance. In the consideration of disposal alternatives,beneficial uses as well as adverse environmental impacts should be addressed.

27. Page 3-6, Figure 3-1

The report should discuss the potential safety implications of siting a 565' cooling tower 500 feet from the reactor containment building.

28. Page 3-9, Section 3.4.1

The maintenance of once-through operating capability, as noted on page 3-9, is a useful adjunct to the proposed system. Although capital costs of this "redundancy" are greater, the dollar and fuel savings which result (when such operation is possible in terms of aquatic impacts) appear to far exceed the incremental cost of making provision for such alternative operation where the once-through capability is already in place. Moreover, "once-through whenever possible" has environmental advantages in terms of air quality, terrestrial ecology, acoustics, and aesthetics.

29. Page 3-10, Section 3.4.3

This section should present the amount of various materials necessary to construct each of the alternate CCC systems. The staff should pay particular attention to those materials which are scarce or result in proportionately greater environmental impacts in their processing.

30. Page 3-12, Section 3.4.5

It is stated that "the proposed cooling towers would be located at least a tower height away from all safety-related structures...", yet, on page 2-8, the natural draft tower was recommended to be 565 feet tall while on page 3-4 (Section 3.2) it is stated that the "...natural draft cooling towers at the base is located 500 feet north from the outside wall of the Unit No. 2 containment building. Since the containment building is a safety related structure, this apparent discrepancy should be resolved.

31. Page 3-13, Section 3.5

It is not clear why the total heat rejection to the Hudson River will be 120×10^6 Btu/hr as indicated on page 3-13 rather than 220×10^6 Btu/hr. In general, the State favors use of the service water as the source of make-up water for closed cycle cooling systems. It is not clear why this will not be done in this case. While the volume of water used and the anticipated impact of such low volume withdrawals on fish life are small, the extra withdrawal would seem to require installation of additional service water pumps and an unnecessary increase in withdrawal of eggs and larvae. On the assumption that reduction of such withdrawal is the purpose of the imposition of the closed cycle requirement, the use of service water as a make-up source should be seriously considered and probably required.

32. Page 4-3, Section 4.2

This section fails to discuss permits or approvals of State and local agencies. Readily identifiable New York State Department of Environmental Conservation permits are:

1. Air - Air Contamination Source Permit

(continued)

32. Page 4-3, Section 4.2 (cont.)

2. Water - SPDES permit or modification of existing NPDES permit and attendant 401 Certification (PL92-500).

3. Disposal of excavated material - Protection of Water Permit and 401 Certification to obtain Section 404 permit (Corps of Engineers) if subaqueous disposal is selected.

4. Modification or construction of docks (suggested in section 3.3) would also require Protection of Water Permits and permits of the Corps of Engineers.

33. Page 5-21, Section 5.1.3.4

This Section should discuss the incremental adverse effects of salt deposition on automobiles and trucks of residents and workers in the vicinity of the site. Other exposed surfaces in the vicinity of the site such as on bridges, garden houses, etc., should also be assessed for potential corrosion attack and estimates of expected damage given.

34. Page 5-28, Section 5.2.2

Increased consideration should be given to the change that the associated forested area will undergo with an increase in the amount of air-borne salt.

The impact of the frequent extended dry spells in the area in the months of July through October should be considered. Compilation of precipitation data (see attached Table1)from the West Point weather station, published by the U.S. Department of Commerce, shows that in the 8 selected years, there were 11 months which had dry spells with a duration of 10 days or longer. If the statement "brownout and partial defoliation of the susceptible species" is valid during a 10 day period, then at least 9 of these episodes could potentially cause complete defoliation, which would kill conifers. Eastern Hemlock, Eastern White Pine, Junipers, Scotch Pine, Elm, Magnolia, Dogwood, Sugar and Norway Maples are susceptible to salt damage. The salty environment of the Long Island

34. Page 5-28, Section 5.2.2 (cont.)

coast does not usually support these species. The Hemlock elimination in the zone of salt drift is likely, since it is sensitive to many environmental alterations such as soil compaction, drought and forest stand changes. It is also very susceptible to attack by numerous pests and diseases when in a weakened condition.

Suggestions for replacement planting are Spruce, Holly and Yew. These tree species are resistant to salt injury and are compatible to the local growing condition. Austrian and Japanese Black Pine are also tolerant of salt but their existence in this region is hampered by a fungus and a lethal insect problem.

Specific data demonstrating the effects of doses of salt on foliage for specific tree species is not available for this area. A more thorough study of the initial species screening should be done by the applicant so that dose tolerances for the affected plant groups could be established.

35. Page 5-28, Section 5.2

This section should indicate if there are any unique individual vegetation (e.g., oldest or largest Hemlock in N.Y.S.) which may be affected by the various CCC systems considered.

36. Page 5-30, Section 5.2.2.1

Since some vegetation in the vicinity of the site already exhibit signs of foliar necrosis resembling "salt burn", the additional salt deposition from the various CCC systems considered should be analyzed to ascertain if this stressed vegetation will tolerate the additional stresses from a CCC system. Also, the causes of the damage to these species should be determined in any preoperational surveys.

37. Page 5-39, Section 5.2.5

This section should discuss alternative plant designs and equipment modifications which would reduce the noise impacts for the various CCC systems considered.

38. Page 5-39, Section 5.2.5

This section should discuss the noise impacts which will result from various CCC systems for combined operation of Units 2 and 3, not just Unit 2.

39. Page 5-45, Section 5.2.5.2

The NRC staff considers the offsite acoustical impact associated with construction of the closed cycle cooling system to be "temporary". The State does not concur with this opinion. In considering the protection of the public health and welfare, it is unreasonable to designate construction activity as temporary when it could occur for a duration of approximately two years, and where the daily removal of excavated material by steady truck traffic past residences will occur for a 6 or 12 month period.

40. Page 5-46, Section 5.2.5.2

The statement implies that the acoustical impact during construction could be reduced to a level of acceptability if the applicant takes three precautions, one of which is "Equips all equipment used at the site during the construction phase with the required noise suppression equipment according to federal and state regulation procedures." The statement should have identified these "...federal and state regulation procedures.", and discussed how these regulations will influence this particular construction project.

41. Page 5-59 and 5-60, Section 5.2.5.5

The statement should have included in the section entitled "Staff's Conclusions on the Assessment of the Offsite Sound Levels", the staff's specific conclusions regarding acoustical impact from construction site activity and construction related transportation.

42. Page 5-60, Section 5.3

This section should discuss the potential of dispersing into the atmosphere heavy metals and potentially toxic chemicals, such as PCB's (poly-chlorinated-byphenols), which presently exist in the Hudson River due to industrial and municipal effluents. Data of the initial State analysis of this is presented in the attached Table 2.

43. Page 5-67, Section 5.3.2

This section must be expanded to discuss fully the potential interaction of the wet cooling tower plume with the SO_2 effluents from nearby fossil fired plants such as Lovett, Bowline, Roseton, and Danskammer creating acid mist or rain. Also, this section should discuss potential shifts in when "acid mist" will rain out from those areas it presently does.

44. Page 5-71, Section 5.4.4

Quantification of "current entrainment and impingement problems" should be provided. Additional foundation for use of term "acceptable levels" is also necessary. If nothing else,at least a concise summary of the conclusions reached in the EIS for Indian Point No. 2 should be included.

45. Page 5-71, Section 5.5

This section should indicate whether the radiological effluents will meet the Appendix I guidelines, and also the EPA proposed standards 40CFR 190.

46. Page 5-72, Section 5.5.2

It should be indicated in this section whether the various CCC systems would have an impact on the present circulation patterns of gaseous effluents and the locations where effluents such as I-131 settle out. In particular, the statement should discuss the impact the alternative CCC systems have on dispersion and settling out of gaseous radioactive effluents including fission product noble gases (krypton and xenon), halogens (mostly iodines), tritium contained in water vapor, and particulate material including both fission products and activated corrosion products.

47. Page 6-1, Section 6

The cost ($/year) to the average Con Edison customer of the various CCC systems considered should be clearly presented.

48. Page 6-1, Section 6

In the Socio-economic Analysis of Closed-Cycle Cooling Systems, the energy implications have not been directly considered. While changes in energy use will probably be reflected in the annual operating costs, it is felt that a direct consideration of the energy implications of cooling tower operations is necessary.

49. Page 6-6, Section 6.2.2.2.c

It is important to note that the NRC staff believes that the applicant's proposed installation of gas turbines to replace reduced peak generating capability (due to CCC) is an uneconomically large commitment of resources. The basis for the NRC staff's conclusion is that the absence of 63 MW to 70 MW of peak generating capability would not lower the reserve to an unacceptable level. With the lowest reserve margin Con Ed forcasts between 1976 and 1985 at 29% staff is correct(cf. 1976 Long Range Plan of NY Power Pool).

50. Pages 6-6 and 6-26, Section 6.3.1.3

Electric power stations are indicated as representing an important component of the industrial use of the Hudson River shoreline in the Verplank-Haverstraw area. If the projected eight power stations within 10 miles of this cooling tower site were to utilize the river valley ecology in this suggested way, the entire area environment could be jeopardized. This potential impact would possibly involve future consumptive water supply plans for the metropolitan area and would certainly exaggerate the existing biotic habitat situation. This impact should be addressed.

51. Page 6-7, Table 6-4

This Table indicates that Indian Point No. 3 will be a new capacity addition for Con Edison. Since the Power Authority now owns Unit 3, an explanation of the PASNY sales to Con Edison should be presented. Also, the acronym for the Power Authority of the State of New York is PASNY, not PASHY.

52. Page 6-36, Section 6.3.2.1

This section should discuss the impacts on aquatic biota that disposal of the excavated material will have if disposed of via the Hudson River.

53. Page 6-53, Section 6.3.3.3d and Page 6-54, Table 6-25

It should be indicated that there is a potential for the closed cycle cooling system to be ruled tax exempt as a pollution control device.

TABLE 1

PRECIPITATION DATA
WEST POINT, N.Y. STATION

Year	Month	Ppt. In. Total For Month	# of Rain Days over .01"	Longest # of Consecutive Dry Days
1960	July	9.64"	10	7
	August	5.66	14	5
	September	8.26	9	8
	October	2.46	9	9
	November	2.87	8	7
1965	July	3.53	9	8
	August	4.19	13	5
	September	3.24	13	5
	October	3.95	7	8
	November	2.31	14	5
1970	July	2.48	11	5
	August	2.57	7	9
	September	4.46	9	8
	October	3.78	6	11
	November	4.85	13	5
1971	July	3.84	10	12
	August	8.01	9	14
	September	6.48	11	8
	October	3.21	7	11
	November	--	--	--
1972	July	2.87	6	9
	August	--	--	--
	September	1.75	9	6
	October	5.60	8	8
	November	9.01	14	5
1973	July	4.54	7	6
	August	1.35	3	15
	September	2.96	9	9
	October	2.39	6	10
	November	2.46	10	11
1974	July	2.32	10	12
	August	3.62	9	12
	September	7.27	9	6
	October	2.19	4	17
	November	2.48	11	5
1975	July	7.91	12	7
	August	4.72	13	6
	September	9.74	13	4
	October	4.63	8	10
	November	4.41	11	8

TABLE 2

Calculations of Airborne Contaminant Concentrations and Comparison with Standards

	A	B= 2 x A	C = B x 3406.5	D = C x 11.2/39.21	E = TLV/50	F = D/E
	$\frac{ug}{l}$	$\frac{ug}{l}$	$\frac{kg}{hr.}$ x 10-6	$\frac{ug}{m^3}$ x 10-6	$\frac{ug}{m^3}$	
Cadmium	0.083	0.166	565	161	1.0	161 x 10-6
Chromium	Maximum 50.0	100.	340.65	97.3	20	4.9 x 10-6
Copper	Maximum 30.0	60.	204.39	58.4	20	2.9 x 10-6
Mercury	Maximum 1.4	2.8	9.54	2.7	1	2.7 x 10-6
Nickel	Average 2.1	4.2	14.31	4.1	20	0.2 x 10-6
Zinc	Average 50.0	100.	340.65	97.3	20	4.9 x 10-6
Arsenic	Maximum 12.0	24.	81.76	23.4	10	2.34 x 10-6
Lead	Maximum 250.0	500.	1,703.25	486.5	3	162.2 x 10-6
Iron	Average 760.0	1,520. 1,520	5,177.88	1,479.0	20	74.0 x 10-6
Manganese	Average 60.0	120.	408.78	116.8	100	1.2 x 10-6
PCBs	.00025	.0005	1.70	0.49	0.5	1.0 x 10-6

Description of Columns

A = Concentration of contaminants in river water.
B = Concentration of contaminants in cooling tower water.
C = Emission rate of contaminants from cooling tower based on a drift rate of 15 gallons per minute.
D = Maximum near ground concentration of metals based on Table 3-1 of Con Ed's application attached.
E = Threshold limit values divided by 50 for each metal. Since there are no State or Federal standards for the metals in question, the TLV limit values, normally applied to industrial hygiene, were used. Dividing the threshold limit values by 50 makes them quite conservative.

TABLE 2

(cont.)

F = The ratio of airborne metal concentrations to the standards. These values should be less than 1.

Notes: (1) The accuracy of calculations presented herein is limited by the available data on river water concentrations of metals and by the indirect method used to obtain estimated airborne concentrations.

(2) Water analyses from Division of Pure Waters.

(3) Value of drift (15 gpm) given in NRC Draft Environmental Statement, Section 3.5.3 on page 3-13.

Table 3-1 Predicted Monthly Average Salt Deposition Rate and Near Ground Airborne Concentration of Salt for Each Month at Peak Value and at Five Miles Downwind from the Tower

		Estimated Peak (at 1.24 mile downwind)		Estimates at 5 miles downwind	
Month	Sector	Deposition Rate, Kg/Km^2-month	Near Ground Airborne Concentration, $\mu g/m^3$	Deposition Rate, Kg/Km^2-month	Near Ground Airborne Concentration, $\mu g/m^3$
October	SSE	693	3.8	8.0	0.04
November	SE	1970	11.2	17.4	0.08
December	SE	1530	8.0	15.0	0.06
January	SE	1140	7.1	16.5	0.09
February	SE	1880	10.7	19.5	0.1
March	SSE	1716	10.8	14.9	0.07
April	SE	1390	7.6	13.5	0.06
May	SSE	571	3.7	5.6	0.03
June	ENE	284	0.9	20.3	0.1
	SE	268	1.5	12.4	0.07
July	ENE	691	2.8	18.7	0.09
	S	639	3.1	15.1	0.07
August	ENE	488	1.5	19.0	0.1
Annual Average (1)	SE	896	5.6	12.5	0.07

(1) Based on 11-month average.

Basis: Drift: 0.002% (39.21 Kg salt/hour)
Number of towers: One