

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
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In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by:

ORDER  
ON  
CONSENT

THE CITY OF NEW YORK

(Department of Sanitation  
125 Worth Street  
New York, NY 10013)

DEC CASE #  
D2-9001-89-03  
(Fresh Kills)

Respondent.

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WHEREAS:

1. The New York State Department of Environmental Conservation ("Department") is and has been a Department of the State of New York having jurisdiction over the State Pollutant Discharge Elimination System ("SPDES"), pursuant to Article 17, Title 8 of the Environmental Conservation Law ("ECL"), Parts 750-758 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York ("6 NYCRR"), and has been authorized by the United States Environmental Protection Agency to ensure compliance with the Clean Water Act ("Act") (33 USC 1251 et. seq.).

2. The Department is and has been the agency of the State of New York with jurisdiction over the discharge of pollutants into the waters of the State and with authority to maintain the cleanliness and purity of such waters pursuant to the Act, Article 17 of the ECL and Parts 750-758 of

6 NYCRR.

3. The Department is and has been the agency of the State of New York with jurisdiction pursuant to ECL Section 27-0703, and the Department's promulgated rules and regulations at 6 NYCRR Part 360 to regulate the design and operation of solid waste management facilities within the State of New York.

4. The Department is and has been the agency of the State of New York with jurisdiction pursuant to ECL Section 25-0302, and the Department's promulgated rules and regulations at 6 NYCRR Part 661 to regulate the uses of areas designated as tidal wetlands.

5. Respondent owns and operates a solid waste management facility known as the Fresh Kills Landfill ("Landfill") which, for the purpose of this Consent Order only, shall be deemed to include the Fresh Kills Bargefills (Sections 1/9 and 6/7), the Victory Boulevard Truckfill (Section 3/4) (excluding a parcel of approximately 75 acres within Section 3 west of the West Shore Expressway) and Muldoon Avenue Truckfills (Section 2/8) and encompasses an area of approximately 2038 acres in the County of Richmond and City of New York as defined by the map in Appendix C-1.

6. Respondent consented to the issuance of an Order dated October 23, 1980, and an amended Order of December 16, 1985, wherein it agreed, among other things, to apply for a solid waste management facility permit under the provisions of 6 NYCRR Part 360 in existence at that time;

apply for a SPDES permit under 6 NYCRR Parts 750-758; apply for a Tidal Wetlands permit under 6 NYCRR Part 661; prepare a draft environmental impact statement under 6 NYCRR Part 617; and comply with a series of remedial measures and submit various plans as listed in the said Orders.

7. As a result of inspections conducted by the Department, the Department alleges that Respondent was not and is not in conformity with the ECL, nor in compliance with the Order dated October 23, 1980, and the amended Order of December 16, 1985, in that no permit application which the Department deemed complete has ever been submitted to the Department as required by 6 NYCRR Parts 360 and 661; untreated and unpermitted leachate in the amount of approximately 2.0 million gallons per day enters the surface and ground waters of New York State in contravention of federal and State law and standards; and solid waste has been deposited in, or entered, the surface waters of the State and said waste was not always removed in its entirety by Respondent.

8. Respondent contends that it is in compliance with the Order dated October 23, 1980, and the amended Order of December 16, 1985, in that it did submit complete applications for a solid waste management facility permit, pursuant to 6 NYCRR Part 360, a SPDES permit, as required by 6 NYCRR Part 750-758, and a tidal wetlands permit as required by 6 NYCRR Part 661, all in compliance with the State Environmental Quality Review Act, by December 31, 1985; it

did submit a leachate management plan addressing, as required, leachate collection, storage, treatment and disposal; it did submit a plan to attenuate the entry of solid waste into the waterways of the State; and it did comply with the various other measures required by the Order.

9. Since 1948, Fresh Kills has operated as one of New York City's landfills. At the time the Landfill commenced operation, New York State did not regulate landfills. In 1973, the legislature enacted Title 7 of Article 27 of the ECL and the Department acquired regulatory responsibility for solid waste disposal. In 1977, the Department promulgated Part 360 regulations which established a system for regulating and permitting solid waste management facilities. On December 31, 1988, a new and revised Part 360 came into effect. The revised Part 360 makes significantly more stringent the regulatory standards contained in prior regulations.

10. In 1979, New York City had five active landfills in addition to the Fresh Kills Landfill. Since 1979, New York City has ceased accepting waste at four of these landfills. The Edgemere Landfill is currently the only remaining landfill accepting waste in New York City other than the Fresh Kills Landfill. Edgemere has an average daily disposal capacity of 1,200 tons, and may have to cease accepting waste as early as 1991. Fountain Avenue, with a daily disposal capacity of 8,000 tons, ceased accepting waste on December 31, 1985. Brookfield Avenue, with an average daily



disposal capacity of 1200 tons, ceased accepting waste in 1980. Pelham Bay ceased accepting waste in 1979 and averaged 2600 tons a day. Pennsylvania Avenue, with an average daily disposal capacity of 1,500 tons, ceased accepting waste in 1979.

11. Respondent contends that in 1980, the Fresh Kills Landfill received less than half the City's solid waste. Today, Fresh Kills is the world's largest landfill. At present, it receives an average of 17,000 tons of residential and commercial waste per day which is about 30% of the waste generated in New York State daily, and the tonnage received daily at the Landfill is approximately 65% of New York City's solid waste. The City Department of Sanitation is responsible for the collection of all the City's residential waste, 90% of which today is disposed of at Fresh Kills. Fresh Kills must operate six days a week, twenty-four hours a day to dispose of the large amount of solid waste generated in New York City.

12. Respondent contends that New York City, with less than 1% of the land area of the State, and 40% of its population, comprises by far its most densely populated area and that with few land disposal options within the City, Fresh Kills remains an important resource for disposal of solid waste. Moreover, Respondent contends there are no currently available waste disposal alternatives to the disposal capacity provided by the Landfill within the State of New York.

13. As an older landfill, the Fresh Kills Landfill has no liner. As a result, some leachate from the Landfill infiltrates into the groundwater and drains into the surface water. The purpose of the leachate collection and treatment system contemplated by this Order is to collect that leachate to the maximum degree practicable, and in any event, to collect at least 80% of the leachate.

14. Because Fresh Kills is an older landfill without a liner, the parties recognize that to grant the permits contemplated by this Order, variances from Part 360 would have to be granted by the Department, and the Department shall consider the granting of such variances.

15. It is not the intention of the Department to require Respondent to retrofit the Landfill to meet the requirements of 6 NYCRR §360-2.13(a), (d) - (l) and (n), provided that the Respondent submits an application for a variance in accordance with 6 NYCRR §360-1.7(c) that demonstrates compliance to the maximum extent practicable with the overall performance standards of 6 NYCRR §360-2.13(a), (d)-(l) and (n) and the standards for a variance.

16. On its own initiative Respondent has commenced efforts to develop alternatives to landfilling as a method of solid waste disposal, including resource recovery, and is implementing a source separation and recycling program. Respondent contends that those efforts are consistent with the State's solid waste management goals.

17. Penalties

A. Water Penalties - The civil liability for violations of ECL Article 17 or the rules, regulations or Orders promulgated thereto are set forth in ECL Article 71. ECL Section 71-1929 provides for civil penalties up to \$25,000 per day per violation. Criminal sanctions are set forth in ECL Section 71-1933.

B. Tidal Wetland Penalties - The civil liability for violation of ECL Article 25 and the regulations promulgated thereunder are set forth in ECL Article 71. ECL Section 71-2503 provides for civil penalties of up to \$3,000 per violation in addition to providing the Commissioner with the authority to direct restoration of affected wetlands and adjacent areas. ECL Section 71-2503 also sets forth criminal sanctions.

C. Solid Waste Penalties - The civil sanctions for violations of Title 3 and 7 of ECL Article 27 or any rule or regulation promulgated pursuant thereto are set forth in ECL Article 71. ECL Section 71-2703 provides for civil penalties of up to \$2,500 per violation plus an additional penalty of \$1,000 per day. ECL Section 71-2703 also provides criminal sanctions for violations.

18. The Department promulgated a revised regulation at 6 NYCRR Part 360 effective December 31, 1988. Upon execution of this Order, except as otherwise provided herein, these revised rules will apply to the Landfill.

19. This Order supercedes and replaces the Consent Order

executed October 23, 1980 and modified December 16, 1985.

20. Respondent waives its right to a hearing on this matter and consents to the issuance of this Order.

21. Respondent has committed to an extensive remedial program to upgrade the Landfill. Respondent contends it has already secured contracts for \$29.7 million worth of improvements and contemplates the expenditure of more than twice that amount in accomplishing the work required in Appendices A-3, A-4, A-6, A-7, A-8 and A-10.

22. Appendices A-3, A-4, A-6, A-7, A-8 and A-10 to this Order prescribe certain remedial measures to be undertaken by the Respondent at the Landfill. These remedial measures will involve the execution of many investigations, studies, reports and designs under the terms of this Order providing for Department review, comment and acceptance. In addition, the scope of the tasks included in Appendices A-3, A-4, A-6, A-7, A-8 and A-10 is based in part on prior investigations performed by the Respondent and reported to the Department.

23. Respondent has committed to undertake an Environmental Benefit Plan to benefit the environment.

24. Respondent denies any liability, wrongdoing or violation of any statute, rule or regulation.

NOW, having considered this matter and being duly advised, IT IS ORDERED THAT:

I. COMPLIANCE SCHEDULES AND REMEDIAL ACTIONS

The City shall undertake the program delineated in the Compliance Schedules in the Series A Appendices which are

incorporated within this Order. The City shall adhere to and complete the tasks in accordance with the Milestone Dates provided within the Series A Appendices.

II. : COMPLETENESS DETERMINATION/ACCEPTANCE OF SUBMISSIONS

Appendices A-3, A-4, A-6, and A-10 of this Order define the scope, type and quality of information required under 6 NYCRR 360 for landfill permitting purposes for the subject matters covered therein. Submissions made pursuant to those Appendices shall be reviewed for consistency with the scope set forth in the Appendix and for the adequacy of the work performed. Submissions of RFPs and contracts shall be reviewed only for the purpose of ensuring that the scope of work is adequate to fulfill Respondent's obligations under this Order.

The Department in making its completeness determination pursuant to 6 NYCRR §621 shall be bound by its acceptance of the Respondent's submissions of the following final reports made pursuant to Appendices A-3, A-4, A-6, A-7, and A-10 of this Order:

Appendix A-3, Subject #9 - Final Acceptable Closure Plan  
for Sections 2/8 and 3/4

Subject #11- Final Acceptable Closure Plan  
for Sections 1/9 and 6/7

Appendix A-4, Subject #13- Final Acceptable Landfill  
Leachate Mitigation Report

Subject #15- Final Acceptable Engineering  
Report

Subject #15- Final Acceptable Engineering  
Plan

Subject #15- Final Acceptable QA/QC  
Report

Appendix A-6, Subject #15- Final Acceptable  
Hydrogeological Report

Appendix A-7, Subject #14- Final Acceptable Surface  
Water and Sediment Report

Appendix A-10, Subject #11- Final Acceptable Geotechnical  
Site Characterization Report

Subject #12- Final Acceptable Geotechnical  
Analysis Report

Subject #14- Final Acceptable Monitoring  
System Design Report and  
Monitoring System  
Installation Plans and  
Specifications

With respect to the Site Investigation Plan specified as Subject 7 in Appendix A-6, the Department will be bound in making its permit application completeness determination by its acceptance of the Final Acceptable Site Investigation Plan except that the Department reserves its right to require Respondent to perform additional investigations as part of the Final Acceptable Hydrogeological Report based on unforeseen information not known to the Respondent or Department prior to the Department's acceptance of the Final

Site Investigation Plan, so long as any such changes shall not increase the total number of monitor wells and test borings as defined by the requirements of Appendix A-6.

The Department shall review the submissions made by the Respondent pursuant to Appendices A-3, A-4, A-6, A-7, and A-10 and comment on such submissions for the purpose of assisting the Respondent in successfully submitting a timely and complete permit application, as well as for the purpose of assuring that the remedial program is accomplished.

With these purposes in mind, if, prior to acceptance of the above listed final reports and plans, significant revisions occur to regulations which are relevant to the information which Respondent must provide the Department as part of a complete permit application, the Department shall immediately notify the Respondent to allow the Respondent to perform the work needed to meet the new regulatory requirements. This new information must then be incorporated into the above reports and plans.

Pursuant to Section XXIV, Paragraph A of this Order, the Department shall favorably consider any reasonable request by the Respondent to adjust the milestones of Appendices A-3, A-4, A-6, A-7, and A-10 as a result of any new work needed to satisfy the informational needs for a complete application resulting from new regulatory requirements.

If the Department has accepted any of the above listed reports or plans prior to the promulgation of regulatory revisions, no determination of incompleteness shall be made

based on the failure of any of the above listed final reports or plans to include information required by those regulatory revisions. If the material revision to the applicable regulations occurs after the acceptance of the relevant final report as identified in this paragraph, then the Respondent shall attempt to provide such information required by the revision prior to the time within which a decision is required to be made on application completeness in accordance with Appendix A-2. Nothing in this paragraph shall impair the Department's authority to deny the permit or to require additional information pursuant to 6 NYCRR Section 621.15.

The Department shall undertake to comment, to the extent required by the A Series Appendices, on submissions made by Respondent within 30 days of receipt of each such submission. To the extent that the Department does not provide comments within such 30 day period, the Department shall favorably consider and not unreasonably withhold approval of a request for extension of all milestone dates affected by the delay; provided that no such extension shall be required to be granted if the delay is due to Respondent's conduct in not meeting its obligations under this Order.

### III. INTERIM OPERATING REQUIREMENTS

The operation of the Landfill during the pendency of this Order is governed by the Interim Operating Requirements in Appendices B-1 and B-2. The Department shall not take any enforcement action against the Respondent for any violation of the operating requirements in 6 NYCRR Part 360 (rules



effective December 31, 1988) so long as this Order remains in effect, except that the Department may, pursuant to this Order, enforce violations of those operating requirements contained in 6 NYCRR §§360-1.14 and 2.17 which are incorporated in Appendices B-1 and B-2 of this Order. These interim operating requirements may be revised upon 20 days written notice by the Department's Regional Solid and Hazardous Waste Engineer to reflect subsequent amendments to 6 NYCRR Part 360 or in accordance with Paragraph XXIV.B of this Order. Revisions to the Order to reflect regulatory amendments may be made only after four years from the date of execution of this Order and thereafter, only four years following the last previous revision. If the Respondent objects to such modification within 20 days, the modification will not become effective unless the Commissioner modifies the Order pursuant to Paragraph XXIV.B; provided that, for any requirement which is imposed by a modification over Respondent's objection, such requirement shall be exempt from the provisions of Paragraph XIII.B; and, provided further that any such requirement that is incorporated in the Order pursuant to this paragraph shall be enforceable by the Department pursuant to the ECL.

#### IV. TERMINATION OF THIS ORDER

This Order shall terminate upon one of the following occurrences:

A. In the event the Commissioner of Environmental Conservation issues a Part 360 permit in response to the

applications specified in the Compliance Schedule (Appendix A-2), then this Order shall terminate upon the written Order of the Commissioner that all stipulated penalties have been satisfied; or

B. In the event the Respondent fails to submit complete permit applications in accordance with the requirements of the Compliance Schedule (Appendix A-2), then Respondent shall adhere to the requirements and milestones established in the Compliance Schedule (Appendix A-11) except as provided in a subsequent administrative or judicial order; or

C. In the event the Commissioner denies the Part 360 permit subject to the application requirements of the Compliance Schedule (Appendix A-2), then the Respondent shall adhere to the requirements and milestones established in the Compliance Schedule (Appendix A-12). This Order shall thereupon terminate according to the Landfill Action Plan established by Commissioner and pursuant to the Compliance Schedule (Appendix A-14).

V. FACTORS RELEVANT TO VARIANCES

With respect to a Part 360 variance request made in accord with 6 NYCRR §360-1.7(c) and included as part of the permit application submitted pursuant to Appendix A-2, the following supporting documentation will be deemed relevant to the issuance of any variances;

1. The degree of compliance which Respondent proposes to achieve, or the degree to which Respondent's proposal achieves the purpose of, the specific

provision(s) from which the Respondent seeks to vary and whether the degree of compliance, or achievement of purpose(s) is the maximum practicable.

2. What reasonable alternative solid waste disposal options exist within the State and geographic region and the associated costs of such options.
3. The estimated costs of full compliance with the specific provision and whether these costs are unreasonable in light of the incremental environmental benefit to be achieved by full compliance.
4. A weighing of the public health, safety, welfare or environmental impacts of granting or denying the variance.
5. A statement of the mitigative measures the Respondent proposes to undertake to address fully all significant adverse public health, safety, welfare, environmental or natural resource impacts occasioned by the granting of any variance. Such a proposal may include establishment of a natural resource trust fund for remediation and to finance, to the maximum extent practicable, restoration of damaged surface water and groundwater resources at the Landfill and/or its environs.

#### VI. SOLID WASTE MANAGEMENT PLANNING

Respondent is committed to preparation of a Local Solid Waste Management Plan. No later than the date specified in

Appendix A-9, the Respondent shall submit its Local Solid Waste Management Plan to the Department.

VII. DEPARTMENTAL MONITORING/SUBMISSION REVIEW

Five persons shall be employed to monitor Respondent's compliance with this Order and perform expedited review and analysis of all Respondent's submissions under this Order. The monitors, in accord with the access provision of this Order at Paragraph XVII, shall perform announced and unannounced inspections of the Landfill, solid waste transfer operations connected with the Landfill, any remedial operations, and any investigation operation performed by the Respondent at the Landfill. Two persons to be designated by the Department shall have as a primary function, performing expedited review of submissions made pursuant to this Order related to permit proceedings or permit submissions. Two persons to be designated by the Department shall have as a primary function, monitoring compliance with the provisions of this Order. One person shall be assigned to such tasks as the Department determines appropriate in order to fulfill its responsibilities to monitor compliance and perform expeditious permit application review under this Order. The Department shall, on the average, over the term of the Order, dedicate at least 55% of the monitoring staff time to making Departmental determinations, performing reviews and providing responses under this Order related to permit proceedings. The monitor staff shall be as follows: one Associate Sanitary Engineer or Associate Engineering Geologist (State

Civil Service, Grade 27), two Senior Sanitary Engineers (Grade 24), one Assistant Engineering Geologist (Grade 20) and one Senior Engineering Technician (Grade 13). The monitors shall be available, as needed, for discussions with and shall provide prompt feedback to the Respondent regarding the Department's position on any submission, plan or question the Respondent may have pertaining to this Order. The Director of the Landfill shall be provided copies of all field inspection reports for the Landfill (excluding confidential enforcement memoranda), and additional copies shall be provided pursuant to Paragraph XIX.B of this Order. The monitors shall report to the Department's Regional Solid and Hazardous Waste Engineer. The monitors shall not be the Department's spokespersons in ordering restrictions and/or modifications to the Landfill, nor shall such monitors be deemed employees of the City of New York for any reason. The monitors will be fully funded by the Respondent, including direct personal services, fringe benefits, and indirect costs as established for the Department by the U.S. Environmental Protection Agency, and necessary transportation required as an integral part of monitoring activities. The combined cost of indirect costs and fringe benefits shall be paid as a percentage of personnel services at a rate not to exceed 70% of the direct personnel service costs. With the exclusion of any tests or investigations already required by this Order, the Department may conduct and arrange with an independent contractor to conduct any and all tests or investigations at

the Landfill, to the extent authorized by 6 NYCRR Part 360, up to a total annual maximum of \$150,000. All such tests or investigations are to be promptly paid for by the Respondent upon the representation by the Department that each test or investigation for which payment is requested has been properly completed. This monitoring program shall continue so long as the Landfill operates under this Order.

The Respondent shall advance on a quarterly basis on April 1, July 1, October 1, and January 1, 100% of the cost of the services reasonably anticipated by the Department, in accordance with generally accepted accounting principles, to be provided during the ensuing quarter. The money so advanced shall be maintained in an interest-bearing account until it is spent and all interest earned shall be credited to the Respondent against the next required deposit of funds. Any balance of such accounts remaining at the termination of the monitoring program shall be promptly remitted to the Respondent. The money in the interest bearing account resulting from the December 16, 1985 Order shall be used as the initial payment of the cost of the services reasonably anticipated by the Department pursuant to this Paragraph. The scope and size of the monitoring program described in this paragraph is not to be considered an admission by the Commissioner or Respondent as to the appropriate scope and size of any monitor program which may be included as part of any permit issued for the Landfill. Evidence concerning the efficacy of the monitoring program to monitor compliance with

the Landfill, to the extent authorized by 6 NYCRR Part 360, up to a total annual maximum of \$150,000. All such tests or investigations are to be promptly paid for by the Respondent upon the representation by the Department that each test or investigation for which payment is requested has been properly completed. This monitoring program shall continue so long as the Landfill operates under this Order.

The Respondent shall advance on a quarterly basis on April 1, July 1, October 1, and January 1, 100% of the cost of the services reasonably anticipated by the Department, in accordance with generally accepted accounting principles, to be provided during the ensuing quarter. The money so advanced shall be maintained in an interest-bearing account until it is spent and all interest earned shall be credited to the Respondent against the next required deposit of funds. Any balance of such accounts remaining at the termination of the monitoring program shall be promptly remitted to the Respondent. The money in the interest bearing account resulting from the December 16, 1985 Order shall be used as the initial payment of the cost of the services reasonably anticipated by the Department pursuant to this Paragraph. The scope and size of the monitoring program described in this paragraph is not to be considered an admission by the Commissioner or Respondent as to the appropriate scope and size of any monitor program which may be included as part of any permit issued for the Landfill. Evidence concerning the efficacy of the monitoring program to monitor compliance with

the Order, while not determinative of the size and scope of any monitoring program made a condition to any permit issued hereunder, may be considered by the Commissioner in determining the scope of any such program that may be included as a condition to any permit issued by the Department.

#### VIII. COMPLIANCE PROGRESS REPORTS

Within 30 days after the end of every four month period, the Respondent shall provide the Department with a Compliance Progress Report. The Compliance Progress Report shall be submitted in a Departmentally-approved format as set forth in Appendix C-2, so that it will facilitate Respondent's and the Department's assessment of the status and progress of the Respondent in meeting the objectives and each milestone of this Order. The Compliance Progress Report shall also include reporting of significant measures (excluding routine maintenance and operational activities) taken by the Respondent which are not required by this Order but which nonetheless affect the upgrading of this Landfill and the preparation of complete permit applications. In addition, the Compliance Progress Report should include a summary analysis of the progress made, an identification of anticipated and incurred problems, and an articulation of the measures taken to maintain progress towards the objective and milestones of this Order. In addition, commencing on the date of this Order, Respondent shall provide the Department with a copy of each quarterly status report required pursuant



to Section V.K. of the Consent Order entered in Township of Woodbridge, et al. v. City of New York; Civ. No. 79-1060 (MTB)(D.N.J.).

IX. MONTHLY MEETINGS

Respondent shall meet with the Department not later than the 10th of each month to discuss all progress made towards completing the permit application and draft environmental impact statement, including all studies and remedial actions required by this Order. A representative of the Department shall be reasonably available for additional meetings with the Respondent for advice on pre-application procedures and preliminary review of submittal outlines. The parties may postpone the meetings by mutual consent.

X. NOTIFICATION OF FIELD WORK

Respondent shall provide the Department with written notification of all scheduled field activities. Written notification must be received by the Department seven (7) business days prior to the initiation of field activities where feasible, but in any event, notification shall be provided at the earliest reasonable time. A "field activity" means mobilization of a contractor's or Respondent's crews to conduct activities in furtherance of this Order, as well as other construction, investigation and remediation activities costing in excess of \$50,000, but excluding routine maintenance and landfilling activity or in-kind replacement.

XI. DATA ACQUISITION

All laboratory and field chemical analytic data and

related reports and information, as described in Appendix C-3, Paragraph (A), generated during the performance, by the Respondent or the Respondent's representative, of any environmental investigations related to the Landfill, including those associated with this Order, shall be submitted directly to the Department by the consultant that generated the data and information, within 5 business days following the submission of that data and information to the Respondent or other representatives of the Respondent. The laboratory and field data and related reports and information, as described in Appendix C-3, Paragraph (B), generated during the performance, by the Respondent or the Respondent's representative, of any environmental investigations related to the Landfill, including those associated with this Order, shall be compiled by the Respondent, or representative of the Respondent, on a monthly basis and submitted to the Department by the Respondent, or representative of Respondent, by the 14th day of the subsequent month.

All other field data, laboratory test data or other raw test data shall be made available on written request by the Department as is reasonably required for the purposes of quality control, investigation of anomalies or verification of results.

Data and information subject to the requirements of this paragraph shall be submitted to the Department in hard copy form, in the standard format used by Respondent or

representatives of Respondent.

The Respondent shall provide to the Department, upon request, validation information pertaining to the data submitted to the Department pursuant to this Order.

The Department shall contact the Respondent or its representative to ascertain the Respondent's data quality analysis prior to releasing the data so obtained.

The Department, upon written notice to the Respondent by the Department's Regional Solid and Hazardous Waste Engineer, reserves the right to reduce the data and information submittal requirements under this paragraph.

XII. ALTERATIONS TO THE LANDFILL PROCEDURES, EQUIPMENT AND STRUCTURES

During the period this Order is in force, Respondent shall not make significant alterations in its operating procedures or the equipment or the structures at the Landfill without prior written notice to the Department. The Respondent may provide such notice orally at monthly progress meetings or in the event of an emergency requiring immediate action where prior written notice is not practicable.

XIII. STIPULATED PENALTIES

A. Stipulated Penalties for Milestone Deficiencies

(i) Applicability/Definitions

The terms of this subparagraph govern stipulated penalties for milestone deficiencies for Appendices A-1 through A-11, A-13, A-14 and any amended or additional "Series A" Appendix. "Milestone Date" shall mean and include

each of the dates listed in any Series A Appendix, and a "milestone deficiency" means that a milestone has not been met on time and/or that a submission of material with respect to a milestone is not acceptable to the Department.

(ii) Minor Milestone Deficiencies

If the material Respondent submits by a Milestone Date is unacceptable to the Department solely due to defects that are in the Department's view minor in nature, then Respondent shall have the number of days specified by the Department (up to 45 days) to cure such minor defects and if Respondent does so to the satisfaction of the Department, then Respondent shall be deemed to have met the Milestone Date and no stipulated penalties shall be due.

(iii) Other Milestone Deficiencies

With respect to unacceptable resubmissions to cure any minor defects or resubmittals submitted beyond the date established for resubmission, or a milestone that is missed, or submissions deficient for non-minor reasons (where Dispute Resolution is not engaged) then it is stipulated that the Department shall have judgment against the Respondent for a stipulated penalty which accrues as set forth in the table below from the date of the missed milestone in the "Series A" Appendix in the amount set forth for each day until the milestone is satisfied, unless such penalty is modified pursuant to this Paragraph and Dispute Resolution under Paragraph XIV.

If the Respondent requests Dispute Resolution

under Paragraph XIV, the stipulated penalties shall not total more than \$310,000 as assessed by the ALJ or Commissioner under Paragraph XIV, and provided that no such penalties shall accrue during the time the Department's review period extends beyond 30 days from the date the submission was due nor during the time the Department's review of a revised submittal extends beyond 30 days.

The stipulated penalties are:

<u>Period of Non-Compliance</u>	<u>Penalty Per Day</u>
1st Day through the 7th Day	\$ 1,500
8th Day through the 21st Day	\$ 5,000
22nd Day through the 30th Day	\$ 7,000
31st Day through the 60th Day	\$ 10,000
Each Day Beyond the 60th	\$ 15,000

(iv) Communication of Milestone Deficiencies/NOMD's

The Department's determination of a milestone deficiency shall be communicated in a Notice of Milestone Deficiency (NOMD) duly served upon the Respondent's designated contacts. The NOMD shall state the basis for the milestone deficiency, and in the case of an unacceptable submission, all the reasons for the Department's conclusions, along with a statement of Respondent's stipulated penalty liability. For milestone deficiencies related to Respondent's failure to submit material acceptable to the Department for which Department approval is required, Respondent may invoke the procedures for Dispute Resolution set forth in Paragraph XIV. If Respondent fails to respond

to the NOMD in accordance with Paragraph XIV, then the Department may serve a Demand for Stipulated Penalties.

For all other milestone deficiencies, the Respondent may respond in writing within 20 days of receipt of the NOMD setting forth any disputation of fact, excuse, and argument. Anytime after 25 days since the Respondent's receipt of the NOMD, unless the Respondent requested and was granted additional time to respond, the Department may serve upon the Respondent a Demand for Stipulated Penalties. The Department shall take into account any response received from the Respondent and assess stipulated penalties up to the maximum provided in this subparagraph. The Demand for Stipulated Penalties shall include the Department's reasons and explanation for rejecting or agreeing with any response made to the NOMD.

If the NOMD was received more than 60 days after the missed milestone, then no penalties may be assessed for any non-compliance time period between the missed Milestone Date and the 60th day prior to the Respondent's receipt of the NOMD. The judgment shall become due and payable, and may be entered upon 60 days after service of the Demand for Stipulated Penalties.

(v) Reduction and Forgiveness of Stipulated Penalties

(a) Penalties in Light of Permitting Delay

In formulating its Demand for Stipulated Penalties, the Department shall reduce or completely relinquish its claim to stipulated penalties in circumstances

where delay in meeting of milestones is attributable to delays beyond the control of the Respondent, which Respondent encountered in obtaining required approvals or permits from non-city agencies and where the Respondent applied for such permits/approvals in a timely and competent fashion.

(b) Penalties in Light of Missed Interim Milestone Date

Notwithstanding the above, if the Respondent fulfills its obligations under a missed interim Milestone Date by the following chronological Milestone Date within the relevant Appendix schedule, and provided the missed milestone is met within 60 days of the scheduled due date, and provided that the Respondent also meets the Milestone Date chronologically following the missed Milestone Date, then 25% of the payable stipulated penalty shall be forgiven and judgment shall become due for only the remaining 75% of the stipulated sum calculated pursuant to subparagraphs A(iii) and (iv).

(c) Penalties in Light of Acceptable Resubmissions

With respect to submissions made by the requisite Milestone Date that require Department acceptance and where the Respondent revises and resubmits a submission in response to an NOMD and where the resubmission is found acceptable, then the Respondent shall be forgiven and judgment shall become due for the stipulated penalties calculated pursuant to subparagraphs A(iii) and (iv) as reduced according to the following table and Respondent's

liability for stipulated penalties shall cease on the date the revised submittal was received by the Department:

Number of Days after  
Respondents Receipt of NOMD  
(Where Resubmission is  
Acceptable)

Percent Forgiveness

10	92
15	90
20	83
30	80
45	78
60	68
After 60	0

B. Stipulated Penalties for Level I Interim Operating Requirements

The terms of this subparagraph govern stipulated penalties for violations of the Level I Interim Operating Requirements specified in Appendix B-1. Any Department allegation of violation of the Interim Operating Requirements shall be communicated in a Notice of Violation ("NOV"), accompanied by supporting field inspection reports, statement of Respondent's stipulated penalty liability and affidavits, duly served upon the Respondent's designated contacts. The NOV may be served upon the Respondent no later than 20 days after the date of the alleged violations. The Respondent may respond in writing within 15 days of receipt of the NOV setting forth any disputation of fact, excuse or factors in mitigation of stipulated penalty liability. The Department shall not consider any response submitted later than 15 days after the date of receipt for the NOV unless the Respondent



requests and is granted additional time to respond. Anytime after 20 days following the Respondent's receipt of the NOV or a granted extended date for response, the Department may serve upon the Respondent a Demand for Stipulated Penalties. The Department shall take into account any response received from the Respondent in assessing a penalty up to the maximum provided in this subparagraph. The Department's reasons for rejecting or agreeing with any response made to the NOV must be set forth in the Demand for Stipulated Penalties. The maximum stipulated penalties are presented in the table below:

<u>Period of Non Compliance</u> <u>per Violation</u>	<u>Maximum Stipulated Penalty</u> <u>per Violation/Day</u>
1st Day through 10th Day	\$1,000
11th Day through 20th Day	\$1,500
21st Day and Each Day thereafter	\$2,000

The Department shall have judgment for the penalties so demanded. The judgment shall become due and payable and may be entered 60 days after service of the Demand for Stipulated Penalties.

C. Stipulated Penalties for Level II Interim Operating Requirements

The terms of this subparagraph govern stipulated penalties for violations of the Level II Interim Operating Requirements specified in Appendix B-2. Any Department allegation of violation of the Interim Operating Requirements

shall be communicated in a Notice of Violation ("NOV"), accompanied by supporting field inspection reports, a statement of Respondent's stipulated penalty liability and affidavits, duly served upon the Respondent's designated contacts. The NOV may be served upon the Respondent no later than 30 days after the date of the alleged violations. The Respondent may respond in writing within 20 days of receipt of the NOV setting forth any disputation of fact, excuse or factors in mitigation of stipulated penalty liability. The Department shall not consider any response submitted later than 20 days after the date of receipt for the NOV unless the Respondent requests and is granted additional time to respond. The Department shall reinspect the Landfill for the continuance of any violation alleged in the NOV during a time period extending from 30 to 50 days following the date of the violations alleged in the NOV, or earlier if requested to do so by the Respondent, provided Department staffing resources allow. Respondent is entitled to be present at the reinspection. If the Department's Regional Director or Regional Solid and Hazardous Waste Engineer determine that the violation or violations alleged in the NOV have been corrected, then no further action for those violations and the stipulated penalties shall lie. If upon the reinspection noted above, the violation or violations have been found by the Department's Regional Director or Regional Solid and Hazardous Waste Engineer to continue, then the Department may serve a Demand for Stipulated Penalties which takes account

of any facts, excuse or mitigation presented by the Respondent for the alleged violation. The Department's reasons for rejecting or agreeing with any response made to the NOV must be set forth in the Demand for Stipulated Penalties. The stipulated maximum penalties are presented in the table below:

<u>Period of Non Compliance per Violation</u>	<u>Maximum Stipulated Penalty Violation/Day</u>
1st Day through 10th Day	\$1,000
11th Day through 20th Day	\$1,500
21st Day and Each Day thereafter	\$2,000

The Department shall have judgment for the penalties so demanded to be accrued from the date of the violation. The judgment shall become due and payable and may be entered upon 60 days after service of the Demand for Stipulated Penalties.

D. Relationship to Dispute Resolution

The stipulated penalties of this paragraph are not subject to Dispute Resolution of Paragraph XIV except as specifically provided therein.

XIV. DISPUTE RESOLUTION

A. This paragraph does not apply to Compliance Schedule (Appendix A-2), Applications for the Fresh Kills Landfill and Compliance Schedule (Appendix A-13), Environmental Benefit Projects.

B. In the event that a NOMD has been issued based on

the Department's disapproval of any of Respondent's submissions which require Department acceptance under this Order, the Respondent shall, within 30 days of receipt of the NOMD, revise and resubmit its submittals. If there are no written objections by the Department within 30 days, the submissions shall be deemed accepted unless the Department reserves an additional 30 days in which to set forth its objections.

C. At the written request of the Respondent, based on a dispute arising out of the revised submittal, or in accordance with Paragraph XX.B, the Commissioner shall appoint an Administrative Law Judge (ALJ) within a reasonable time, not to exceed 20 days, to settle the matter or adjudicate the question of whether or not the revised submittal meets the relevant standards of this Order, and the ALJ may establish an appropriate penalty. If the Respondent's submission is found to be acceptable, then no stipulated penalties may be assessed and subsequent interim Milestone Dates shall be extended appropriately as determined by the ALJ. If the submission is found to have been properly disapproved, then stipulated penalties shall be assessed by the ALJ within the maximum penalty limits provided in Paragraph XIII. Subsequent interim Milestone Dates may be extended for good cause shown within the discretion of the ALJ.

The ALJ may convene a hearing whenever it will aid in his determination of the matter. If the ALJ determines that

an issue of fact exists, he shall convene a hearing, and the taking of evidence shall be concluded as soon as practicable after the ALJ's appointment. If the ALJ determines that no issue of fact exists, he may decide the matter upon written submissions from the parties, and his written decision shall reflect the basis for his finding that no issue of fact exists and no hearing is necessary. In all proceedings hereunder:

1. The parties shall be the Respondent and the Department.

2. Notice shall be provided to the other party by the party requesting resolution of the dispute.

3. The burden of going forward to establish the adequacy of any of its submissions shall be on the Respondent.

4. The ALJ shall have all powers conferred by 6 NYCRR §622.12.

5. All proceedings conducted hereunder shall be stenographically recorded. The Respondent shall arrange, at its expense, for an expedited stenographic transcript to be made within 10 working days after conclusion of the proceeding, and for the original and two copies of the transcript to be delivered to the ALJ.

6. The ALJ shall prepare, within 45 working days after receipt of the transcript of the proceeding, a written summary of the documentation and testimony received during the proceeding, and a recommended decision. The summary and

recommended decision shall be hand-delivered to the Department's representative and sent by certified mail, return receipt requested, and another copy by Express Mail, to the Respondent.

7. The ALJ's recommended decision shall become the final determination of the Commissioner unless, within 20 working days from receipt of the recommended decision, either Respondent or the Department objects in writing. Any objections shall be submitted in writing to the ALJ with a copy sent by Express Mail, telecopier or hand-delivery to the other party, which shall serve and file in the same manner their response, if any, within 10 working days of receipt of the objections. Upon receipt of the objections and any response, the ALJ shall refer the matter to the Commissioner for final determination.

8. The final determination by the Commissioner shall be made within 45 days or as soon as practicable after receipt by him of the recommended decision by the ALJ.

9. The parties shall, upon mutual agreement, to the extent their agreement upon the submittals allows, or upon direction of the ALJ, segment the disputes so that there is the least impairment to the contract schedules of the Respondent. Only those segments of the submittals in dispute shall be submitted to the ALJ for dispute resolution.

10. The commencement of Dispute Resolution procedures hereunder shall stay the obligations of any party which are the subject of the Dispute Resolution procedures, except that

the final Milestone Date of a Compliance Schedule shall not be extended without good cause shown.

XV. SPLIT SAMPLES

The Department shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled by Respondent and the Department shall also have the right to take its own samples. Respondent shall have the right to review the handling of samples by the Department to ensure analytic results are consistent with the sampling protocol.

XVI. PERMITS AND OTHER APPROVALS

Respondent shall obtain whatever permits, easements, rights-of-way, rights-of-entry, approvals or authorizations are necessary to perform Respondent's obligations under this Order. The Department shall recognize the time constraints placed upon the Respondent and expeditiously discharge its permitting responsibilities with respect to the Landfill. Respondent shall not do anything or allow anything to be done at the Landfill which would require a permit under the ECL without receiving such permit or other approval pursuant to this Order.

XVII. ACCESS TO THE LANDFILL

Respondent shall permit any duly designated employee, consultant, or contractor of the Department to enter upon the Site or areas in the vicinity of the Site which may be under the control of Respondent for purposes of inspection, sampling and testing and to assure Respondent's compliance

with this Order. [The term "Site" is as defined at 6 NYCRR §360-1.2(b)(14)]. Unless the Department determines that it would, or would likely, thwart the Department's enforcement, investigatory or emergency response purposes, the Department shall register its presence at the Respondent's on-site Landfill offices immediately upon arriving at the Landfill. Respondent shall be entitled to have its own duly designated employee accompany the Department's representative while at the Site provided that the Respondent carries out its duty to expeditiously assign personnel to accompany the Department. Nothing herein shall render Respondent liable for the acts or omissions of the Department's representatives, and the Department shall indemnify and hold Respondent harmless to the full extent permitted by law for all claims, suits, actions, damages, and costs of every name and description arising out of such access for personal injury, or property damage.

XVIII. RESERVE

The Department may not prosecute or bring any enforcement action against the Respondent in any administrative or judicial forum on account of the alleged violations which led to the entry of this Order. Nothing in this Order shall prevent the Department from seeking administrative or judicial enforcement of the terms and conditions of this Order unless Respondent is in substantial compliance with this Order. Furthermore, notwithstanding any provision of this Order, the Commissioner may seek judicial



or administrative relief for remediation of any condition at the Landfill that presents a significant public health or environmental impact not previously addressed in the Order. Nothing in this Order shall impair the Commissioner's authority pursuant to Article 27, Title 13 of the Environmental Conservation Law.

**XIX. COMMUNICATIONS/PAYMENTS**

- A. All communications and reports, data and information required by this Order, except where otherwise specifically directed, shall be sent to:

Two copies:

Gilbert Burns, P.E.  
Regional Solid and Hazardous Waste Engineer  
New York State Department of Environmental Conservation  
Region 2  
47-40 21st Street  
Long Island City, New York 11101

One copy:

Norman H. Nosenchuck, P.E.  
Director  
Division of Solid Waste  
New York State Department of Environmental Conservation  
50 Wolf Road  
Albany, New York 12233-4010

All payments shall be addressed to:

Carl T. Ferrentino, Esq.  
Compliance Counsel for Environmental Quality  
New York State Department of Environmental Conservation  
Division of Environmental Enforcement  
50 Wolf Road  
Albany, New York 12233-5500

B. Communications from the Department to Respondent shall be made as follows:

One copy:

Marlene Gold, Esq.  
Deputy Commissioner for Legal Affairs  
New York City Department of Sanitation  
125 Worth Street  
New York, New York 10007

Two Copies:

Phillip Gleason, P.E.  
Director of Landfill Engineering  
The New York City Department of Sanitation  
280 Broadway - Room 705  
New York, New York 10007

C. The parties reserve the right to designate other or different addressees on notice to the other.

XX. FORCE MAJEURE

A. Respondent shall not suffer any penalty under this Order, or be subject to any proceeding or action, if it cannot comply with any requirement hereof because of circumstances beyond Respondent's control, an act of God, war, insurrection, riot, strikes, floods, fire, judicial injunctions or contractor default (per the terms of Subparagraph B). Respondent shall immediately notify the Department in writing when it obtains knowledge of any such condition and request an appropriate extension or modification of this Order.

B. Contractor default shall only be considered to be a force majeure event where Respondent has issued a formal determination of default. In its application to the Department for relief from stipulated penalty liability on account of delayed milestones, the Respondent shall be required to show with clear and convincing evidence that the Respondent's determination of default was justified, was beyond the control of the Respondent, and Respondent took all steps reasonably necessary to mitigate the delay (including whether Respondent could have reasonably foreseen the contractor default) in meeting its obligations under this Order on account of contractor default. Should the Department not agree with Respondent that it has met its burden under this paragraph, Respondent may invoke the procedures set forth in paragraph XIV and the ALJ may adjudicate whether the Respondent has met its burden of proof and whether any reduced sum of stipulated penalties should be paid to the Department.

XXI. SUMMARY ABATEMENT

This Order shall not be construed to prohibit the Commissioner or the Commissioner's duly authorized representative from exercising any summary abatement powers pursuant to ECL §71-0301 or ECL §71-1719.

XXII. INDEMNIFICATION

Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages and costs of

every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Order by Respondent, its directors, officers, employees, servants, agents, successors or assigns, provided that such indemnification does not extend to any claim, suit, action, damages or costs arising from the sole negligence or willful misconduct of the Department.

XXIII. PUBLIC NOTICE

This Order shall be publicly noticed and the public shall be provided with an opportunity (at least 30 days but not more than 90 days) to provide written comments to the Department. The Department will hold a public meeting at which the Department and Respondent will explain the Order and respond to public concern with respect to the Order. The notice of the Order and public meeting shall be published by the Respondent at least three times in a newspaper of general circulation in the City of New York. The Department shall place the notice in the Environmental News Bulletin. The Department shall prepare the notice upon service of this Order. The Department shall provide to the Respondent all comments received from the public. The Respondent will provide the Department with its response to such comments within 30 days; indicating in any response the Respondent's position on the comments and the reasons therefor. Within 60 days after the close of the public comment period, the Department may propose in writing to modify this Order to reflect significant or material concerns raised by the public

comments. Within 20 days of receipt of the Department's proposed modifications to the Order, the Respondent shall notify the Department whether it accepts the Department's proposed modifications. If the Respondent does not agree to the Department's proposed modifications, the Department may rescind this Order.

**XXIV. MODIFICATION**

No change in this Order shall be effective except as set forth in a written Order of the Commissioner of Environmental Conservation:

A. Upon written application by the City and with specific justification for the relief sought, or

B. Upon the findings of the Commissioner of Environmental Conservation concerning operational requirements pursuant to the grounds set forth at 6 NYCRR §621.14(a)(4) [except for a material change in applicable law and regulation] in accordance with the procedure therein and after an opportunity to be heard has been given to the City or; pursuant to summary abatement provisions of the ECL, or

C. As specified in the Dispute Resolution provision, Paragraph XIV, of this Order, or

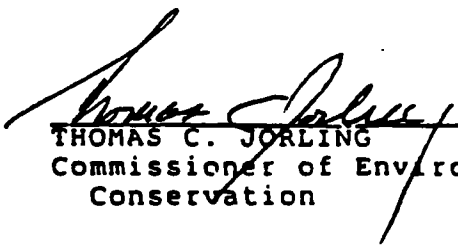
D. Within 90 days after the close of the public comment period provided for in Paragraph XXIII of this Order.

**XXV. JUDICIAL REVIEW**

Nothing in this paragraph or Order shall be construed to deprive Respondent of its right to bring a proceeding under New York CPLR Article 78 or any other statute or provision to

challenge any decision of the Commissioner, including, but not limited to, any denial by the Commissioner of any of the permits for which Respondent has submitted an application under this Order.

DATED: *April 24*, 1990  
Albany, New York

  
THOMAS C. JORLING  
Commissioner of Environmental  
Conservation

TO: Commissioner Brendan Sexton  
New York City Department of Sanitation  
125 Worth Street  
New York, New York 10013


Victor A. Kovner, Esq.  
Corporation Counsel  
New York City Department of Law  
100 Church Street, Room 4H17  
New York, New York 10007

Marlene Gold, Esq.  
Deputy Commissioner for Legal Affairs  
New York City Department of Sanitation  
125 Worth Street  
New York, New York 10013

Carl T. Ferrentino, Esq.  
Compliance Counsel for Environmental Quality  
New York State Department of Environmental Conservation  
50 Wolf Road  
Albany, New York 12233-5500

CONSENT BY RESPONDENT

Respondent hereby consents to the issuing and entering of the foregoing Order (DEC File No. D2-9001-89-03), waives its right to a hearing herein as provided by law, and agrees to be bound by the provisions, terms and conditions contained herein.

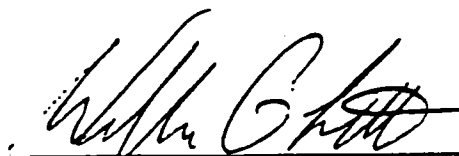


Brendan Sexton, Commissioner of Sanitation  
of the City of New York

ACKNOWLEDGEMENT

State of New York                    )  
County of New York                )   ss:

On the 24 day of April 1990, before me personally came Brendan Sexton to me known, who being by me duly sworn did depose and say that he maintains an office at 125 Worth Street, in the County of New York and that he is duly authorized to execute the foregoing instrument on behalf of the City of New York.



Notary Public

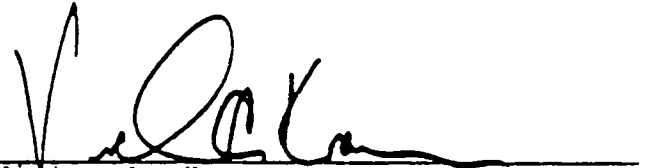
WILLIAM G. LITTLE  
Notary Public, State of New York  
Qualified in Albany County.

August 31, 1991

40

CONSENT BY RESPONDENT

Respondent hereby consents to the issuing and entering of the foregoing Order (DEC File No. D2-9001-89-03), waives its right to a hearing herein as provided by law, and agrees to be bound by the provisions, terms and conditions contained herein.



Victor A. Kovner  
Corporation Counsel of the City  
of New York

ACKNOWLEDGEMENT

State of New York        )  
County of New York     ) ss:

On the 9<sup>th</sup> day of April 1990, before me personally came Victor A. Kovner to me known, who being by me duly sworn did depose and say that he maintains an office at 100 Church Street, in the County of New York and that he is duly authorized to execute the foregoing instrument on behalf of the City of New York.



Notary Public

DOROTHY REGAN  
Notary Public, State of New York  
No. 31-4798810  
Qualified in New York County  
Commission Expires March 30, 1991



Order on Consent  
DEC Case D2-9001-89-03

List of Appendices

Series A Appendices

Subject

A-1	Operations and Maintenance Plan
A-2	Applications for the Fresh Kills Landfill
A-3	Landfill Final Cover Design
A-4	Landfill Leachate Mitigation of Sections 1/9 and 6/7
A-5	Waste Transport and Unloading Facilities
A-6	Hydrogeological Investigation
A-7	Surface Water and Sediment Investigation
A-8	Landfill Gas Migration Mitigation
A-9	Local Solid Waste Management Plan
A-10	Slope Stability Investigation
A-11	Remediation Funding Upon Non-Submittal of Complete Application
A-12	Actions Upon Permit Denial
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Series B Appendices

B-1	Level I Interim Operating Requirements
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Series C Appendices

C-1	Fresh Kills Landfill Map
C-2	Compliance Progress Report Format
C-3	Data Descriptions

Series D Appendices

D-1	City Ash Disposal Capacity
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April 19, 1990

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Compliance Schedule Appendix A-1  
Operation and Maintenance Plan

<u>Subject</u>	<u>Milestone Date</u>
1. The Respondent shall submit to the Department the current Operations and Maintenance Plan for the Landfill. The Plan should include the following, as a minimum, <ul style="list-style-type: none"><li>a. a description of the personnel requirements for the Landfill, stating personnel responsibilities and lines of authority;</li><li>b. a description of all machinery and equipment being used at the Landfill and their intended uses;</li><li>c. a description of the operational controls, including but not limited to, signs, hours and days of operation, landfill usage rules and regulations, traffic flow controls; and</li><li>d. a description of how winter and inclement weather operations will be conducted.</li></ul>	90 days after execution of this Order
2. The Respondent shall submit to the Department the revisions to the Operation and Maintenance Plan.	January 31 of each year

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Compliance Schedule Appendix A-2  
Applications for the Fresh Kills Landfill

<u>Subject</u>	<u>Milestone Date</u>
1. The Respondent shall submit for Department review and comment draft applications for a solid waste management facility permit, pursuant to 6 NYCRR Part 360, a SPDES permit, as required by 6 NYCRR Part 750-758, and a Tidal Wetlands permit, as required by 6 NYCRR Part 661, including draft documents for compliance with the State Environmental Quality Review Act. The City shall submit applications for those portions of the Landfill at which it plans to continue landfilling actions. Any solid waste management facility permit application for continued operation of the Landfill shall be submitted pursuant to 6 NYCRR 360-1.8 and 360-1.9, and shall contain the elements specified at 6 NYCRR 360-2.3, but not 6 NYCRR Part 360-2.12(a),(b),(d) and (e). The Department does not intend to require Respondent to retrofit the Landfill to meet the requirements of 6 NYCRR §360-2.13(a), (d) - (l) and (n), provided that Respondent submits an application for a variance in accordance with 6 NYCRR §360-1.7(c) that demonstrates compliance to the maximum extent practicable with the overall performance standards of 6 NYCRR §360-2.13(a), (d) - (l) and (n), and the standards for a variance. Solid waste management facility permits to construct and operate, or a solid waste management facility permit to operate with special conditions reflective of applicable construction standards, shall be issued provided the Respondent satisfies the standards set forth in 6 NYCRR 360-1.10 and 360-1.11 and/or demonstrates that a variance from any 6 NYCRR Part 360 provision should be granted. Such submissions shall be based on the regulations in effect on the date of submission, except as provided in Paragraph II of this Order. This submittal is intended to be an informal preliminary review of the applications and is, therefore, not subject to the requirements of the Uniform Procedures Act. The Department's review shall be of sufficient detail to identify all areas of incompleteness, if any, and the Department's comments will identify those areas.	9-15-94

2. The Respondent shall submit complete applications, 3-15-95  
as determined by the Department in accordance with  
6 NYCRR Part 621, for a solid waste management facility  
permit, pursuant to 6 NYCRR Part 360, a SPDES permit,  
as required by 6 NYCRR Part 750-758, and a Tidal Wetlands  
permit, as required by 6 NYCRR Part 661, including  
compliance with the State Environmental Quality Review  
Act. Such submission shall be in accordance with the  
regulations in effect on the date of submission, except  
as provided in Paragraph II of this Order.

The Department shall notify the Respondent in  
writing of its Completeness Determination and if the  
application is deemed incomplete, include a statement  
indicating all identifiable areas of incompleteness  
within 60 days of actual receipt of the Respondent's  
total submissions. If the Department fails to notify  
the Respondent of incompleteness within this  
timeframe, the application shall be deemed complete.

3. Submission of a revised permit application if 90 days from  
the application is deemed incomplete in receipt of Depart-  
ment Incompleteness  
Subject 2. Determination

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NOTE: See Appendix A-11 for a failure to submit a complete application.  
See Appendix A-12 for a denial of a permit(s) for the Landfill.

April 19, 1990

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Compliance Schedule Appendix A-3  
Landfill Final Cover Design

<u>Subject</u>	<u>Milestone Date</u>
•1. Respondent shall submit to the Department for review and comment a report on the final cover, as defined by the Respondent, placed at the Landfill as of May 1, 1990. This report shall include the design of the cover, the quality assurance/quality control testing performed for the construction of the cover, areal extent of cover placement as of May 1, 1990, and an analysis of the as-built cover performance as compared to a cover with eighteen inches of clay compacted to a permeability of 10 <sup>-7</sup> cm/sec. As a result of this review, the Department will determine if this cover is acceptable to be left in place or must be upgraded.	120 days after execution of the Order.
•2. Respondent shall submit to the Department for review and comment the draft interim final cover design for all Sections of the Landfill. This design shall be in accordance with 6 NYCRR 360-2.13(p) and 6 NYCRR 360-2.13(q) or (r). The design submission will include a draft Quality Assurance/Quality Control (QA/QC) Report in compliance with 6 NYCRR 360-2.8.	120 days after execution of the Order.
3. Respondent shall submit to the Department the acceptable interim final cover design for the Landfill, which will include, if necessary, any upgrade to the cover placed prior to May 1, 1990 and the acceptable QA/QC Report in compliance with 6 NYCRR 360-2.8.	6 months after execution of the Order.
•4. Respondent shall initiate placement of final cover in accordance with the accepted interim final cover design at the Landfill and continue as final grades are achieved or until acceptance of the final cover design(s).	6 months after execution of the Order.
•*5. Respondent shall submit to the Department for review and comment the draft final cover design for all sections of the Landfill, in	1-13-91

accordance with 6 NYCRR Part 360. If an equivalent final cover design is proposed pursuant to 6 NYCRR 360-2.13(v), as a minimum, a technical justification must be included comparing the performance of the proposed modification with that mandated in 6 NYCRR 360-2.13(p)-(s). The design submission will include a draft QA/QC Report in compliance with 6 NYCRR 360-2.8.

- #6. Respondent shall submit to the Department the acceptable final cover design for all Sections of the Landfill, in accordance with 6 NYCRR Part 360. The submittal shall contain a construction schedule based on the sequential landfill plan for placement of final cover on areas which have achieved final grade and have not received final cover in conformance with previously accepted designs and the acceptable QA/QC Report in compliance with 6 NYCRR 360-2.8. 9-1-91
- \*7. Respondent shall submit to the Department for review and comment the draft Closure Plan for Sections 2/8 and 3/4 of the Landfill, in accordance with 6 NYCRR 360-2.15. Information obtained from the work performed in Appendices A-4, A-6, and A-8, as a minimum, can be used to develop the draft Closure Plan. A schedule for completion of the closure of Sections 2/8 and 3/4 of the Landfill will be submitted with the Closure Plan. The schedule shall include no more than six (6) Subjects and corresponding Milestone Dates which, upon acceptance by the Department, shall be incorporated into this Compliance Schedule. 11-17-91
- 8. As to Section 2/8 and Section 3/4 separately, the Respondent shall cease disposal of all solid waste at such section when the solid waste mound reaches an elevation of 151 feet and 140 feet above mean sea level, respectively or by the Milestone Date, whichever occurs first. 12-31-93
- 9. Respondent shall submit the final acceptable Closure Plan for Sections 2/8 and 3/4 of the Landfill, in accordance with 6 NYCRR 360-2.15. 5-3-92
- 10. Respondent shall submit to the Department for review and comment the draft Closure Plan for 6-7-92

Sections 1/9 and 6/7 of the Landfill, in accordance with 6 NYCRR 360-2.15. Information obtained from the work performed in Appendices A-4, A-6, and A-8, as a minimum, can be used to develop the draft Closure Plan.

11. Respondent shall submit the final acceptable Closure Plan for Sections 1/9 and 6/7 of the Landfill, in accordance with 6 NYCRR 360-2.15. 12-6-S2

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NOTE: \*Additional requirements pursuant to 360-2.15 and 360-2.17 may result from information obtained as a result of the activities contained in Appendices A-4, A-6, A-8 and A-10.

•With respect to Subjects 1, 2, 4, 5, 6, 7 and 10 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of this Order.

April 19, 1990

DEC Case D2-9001-89-03

Compliance Schedule Appendix A-4  
Landfill Leachate Mitigation of Sections 1/9 and 6/7

The Respondent shall perform landfill leachate mitigation activities at Sections 1/9 and 6/7 of the Landfill. These activities shall consist of site investigation of subsurface geology, hydrogeology and leachate quality and quantity characterization; design of a complete perimeter leachate collection and containment system; design of the leachate treatment system; construction of the accepted perimeter leachate collection and containment system; and construction of the accepted leachate treatment system. The Respondent shall perform these activities in conformance with the information requirements of 6 NYCRR 360-2 as stated herein. Milestone submission requirements of the Respondent include a final Request for Proposals, a draft Leachate Mitigation Investigation Workplan, a final Leachate Mitigation Investigation Workplan, an interim Landfill Leachate Mitigation Report, a draft final Landfill Leachate Mitigation Report, a final Landfill Leachate Mitigation Report, a preliminary Engineering Plan, a draft final Engineering Plan, a final Engineering Plan, a preliminary Engineering Report, a draft final Engineering Report, a final Engineering Report, a draft Quality Assurance/Quality Control (QA/QC) Report, and a final QA/QC Report. In the event an on-site leachate pretreatment or treatment facility is to be developed, the Respondent shall also apply for all appropriate permits; if off-site leachate treatment is to be developed, the Respondent shall obtain a legal document certifying acceptance of leachate from the operator of the wastewater treatment facility with all conditions stipulated by the operator of the wastewater treatment facility. All field investigations and design and construction activities shall be performed in accordance with 6 NYCRR Part 360 and all other applicable regulations. All exploratory borings and monitoring well locations shall be subject to reasonable adjustments for field conditions.

The Leachate Mitigation Investigation Workplan must define the objectives of the Landfill Leachate Mitigation Investigation, the scope of all tasks to be performed, the methods and procedures to be utilized and the deliverables for each task. The tasks defined in the Leachate Mitigation Investigation Workplan must be in accordance with the procedures defined in 6 NYCRR 360-2 and must be of sufficient scope to support all reporting requirements as defined in 6 NYCRR Part 360 for design of the perimeter leachate collection and containment system.

The tasks defined in the Leachate Mitigation Investigation Workplan include the following:

- (1) Exploratory Soil Boring. Shallow borings will be performed at 200-linear-foot intervals along the traces of the proposed containment walls, unless otherwise approved by the Department.



Shallow exploratory borings will penetrate a minimum of 5 feet into the uppermost confining bed. Deep borings shall be performed at 1,000 linear-foot intervals along the traces of the proposed containment walls. Some of these deep borings can be performed as part of the monitor well and boring installation program included in Appendix A-6. Deep exploratory borings will penetrate a minimum of 5 feet into the second uppermost continuous confining bed. For the purpose of the deep perimeter exploratory borings, sequences of glaciolacustrine clay interbedded with glacial sand units will be considered one confining bed. For the purpose of all perimeter exploratory soil borings, tidal marsh deposits of peat, silt or clay are not considered a confining bed.

Additional exploratory borings will be required within the center area of the Landfill footprint to establish the lateral and vertical continuity of water-bearing zones, including holocene, pleistocene and cretaceous unconsolidated deposits; and confining or semi-confining units, including holocene marsh deposits, glaciolacustrine and glacial till deposits, cretaceous clay, residual clay and weathered bedrock. 15 exploratory borings will be required to bedrock at each of Sections 1/9 and 6/7.

- (2) Geologic Sampling. Soil samples will be collected for observation, description, and field and laboratory geotechnical testing. Samples collected shall be of sufficient number to fully define the configuration of geologic formations. A representative number of borings must be sampled continuously to the base of the boring. Continuous split-spoon sampling will be required through cretaceous deposits and holocene deposits at all boring locations. Where split-spoon samples are not taken continuously, samples 2-feet in length must be taken at intervals no greater than 5-feet.
- (3) Geotechnical Testing. Geotechnical tests will be performed on disturbed and undisturbed soil samples obtained from borings. Testing to be performed on soils must include, but is not limited to, Atterberg limits, gradation curves and vertical and horizontal laboratory hydraulic conductivity testing. Insitu hydraulic conductivity tests must be performed on all groundwater monitor wells used in this investigation. Measurement of groundwater head levels in all wells will be performed with continuous recorders to allow identification of the time-variable, three-dimensional groundwater flow characteristics within the critical stratigraphic section.
- (4) Installation of Groundwater Monitor-Wells in Confined Water-Bearing Units. Confined water bearing units include bedrock; cretaceous water bearing units; and pleistocene water-bearing units. One groundwater monitor well must be placed in each confined

water-bearing unit, at 750-linear-foot intervals, along the down- and cross-hydraulic-gradient perimeter of each of Sections 1/9 and 6/7; however, two or more wells will be required by the Department to provide full coverage in confined water bearing units greater than 15 feet thick. One groundwater monitor well shall be placed in each confined water bearing unit, at 1,500-linear-foot intervals, along the up-hydraulic-gradient perimeter of Sections 1/9 and 6/7; however, two or more wells will be required by the Department to provide full coverage in confined water bearing units greater than 15 feet thick. Where multiple confined water-bearing units are present, the wells should be installed in clusters.

- (5) Installation of Groundwater Monitor-Wells in Unconfined Water Bearing Units. Wells screened in the unconfined water-bearing units must be installed at 500-linear-foot intervals around the perimeter of each of Sections 1/9 and 6/7, beyond the existing footprint of the Landfill in unconfined water-bearing units.
- (6) Construction of Groundwater Monitor Wells and Piezometers. Construction of all groundwater monitor wells shall be performed in accordance with 6 NYCRR 360-2.11(a)(8)(i) and (ii). All construction materials used for groundwater monitor wells and piezometers are subject to Department approval. A groundwater monitor-well installation plan must be prepared by the Respondent that describes the drilling methods, the construction materials and the construction methods to be employed; the areal location of cluster-wells; and the vertical location of well-screens, sandpacks and well seals. During construction, sufficient efforts will be taken by the Respondent to insure that contaminants are prevented from migrating along the annulus of all wells and that all wells are protected from damage after they are installed. A sanitary construction design consisting of sealed casings isolating contaminated water bearing units will be required for all onsite borings (exploratory borings, wells and piezometers) that enter a confined water-bearing unit. Well designs shall incorporate best well construction technology to prevent downward migration of landfill leachate, or leachate-enriched groundwater, into those confined water-bearing units. The sanitary design for these borings is subject to approval by the Department.

Unless otherwise approved by the Department, requirements for groundwater monitor well and piezometer construction include: the inside diameter of each well screen or riser pipe must be at least 2 inches; screens must be factory constructed; each well or piezometer must be in a separate borehole; drilling muds are to be avoided, however, where drilling muds are necessary, as approved by the Department, the Respondent shall provide alternate specifications for well construction including the drilling mud composition and

methodology which the Department shall review and provide guidance and, if used, must not be used within 10 feet of the screened interval; a bentonite seal at least 3 feet thick must be placed at the top of the sand pack; a finer grained sand pack material (100% passing the number 30 sieve and less than 2% passing the number 200 sieve) six inches thick must be placed at the top of the sand pack between the sand and the bentonite seal; above the bentonite seal, the well annulus, along its complete length to the surface, must be fully sealed with Department approved cement-admixture grout installed via the tremie method; all equipment to be placed in the boring must be steam cleaned between holes; and only potable water may be used during boring and insitu hydraulic conductivity testing.

- (7) Health and Safety Plan. The Leachate Mitigation Investigation Workplan must include an appropriate Health and Safety Plan, in accordance with applicable OSHA requirements, to insure the safety of field personnel.
- (8) Development of Groundwater Monitor Wells and Piezometers. Development of all groundwater monitor wells and piezometers shall be performed in accordance with 6 NYCRR 360-2.11(a)(8)(iii). All wells and piezometers must be developed as soon as possible after installation, but not before the well seal and grout have set. Water must not be introduced into the well for development except with approval of the Department. The Department may require multiple attempts at well development to increase the likelihood that sediment free water can be obtained. The Workplan shall include a procedural plan for monitor well and piezometer development. All development procedures are subject to Department approval.
- (9) Groundwater Quality Sampling and Analysis. Groundwater samples will be collected and analyzed in accordance with 6 NYCRR 360-2.11(a)(12). Water samples from all groundwater monitor-wells shall be collected quarterly for chemical analyses. Groundwater samples from all wells shall be analyzed for Expanded Parameters as defined in 6 NYCRR 360-2.11(c)(6). Quarterly sampling and analysis of groundwater samples from all wells will continue until initiation of the Long-Term Groundwater Quality Monitoring Program.

The Workplan must specify how the samples will be collected and preserved; chain of custody documentation; analyses required; methods of analysis, and Quality Control/Quality Assurance protocols. All methods must be acceptable to the Department. A record of the methods employed and the personnel involved must be kept and reported to the Department with the analytical data.

Monitor well sampling techniques must be consistent with the following: before evacuation of the well, static water level must

be measured to the nearest one-hundredth of a foot using standard techniques; and for wells with documented contamination, where contamination by non-aqueous phase liquids may be present, standing water in the well must be checked for immiscible layers or other contaminants that are lighter or heavier than water (floaters or sinkers). If present, floaters or sinkers must be sampled and analyzed separately by a method described in the Workplan; evacuation of the well must replace stagnant water in the well and the sand pack with fresh water representative of the formation. Evacuation methods, including pumping rate, depth of pump intake, and method of determining sufficiency of evacuation, must be consistently applied each time the well is sampled. Evacuation methods must create the least possible turbidity in the well. Evacuated water must be properly managed; field analysis must be performed after evacuation of the well, either within the borehole using a probe or immediately after collection; and all field test equipment must be calibrated at the beginning of each sampling day and checked and recalibrated according to the manufacturer's specifications. Calibration data must be reported with the analytical results; laboratory analyses must be performed using analytical methodologies acceptable to the Department, by a laboratory acceptable to the Department. Where necessary to achieve acceptable minimum detection levels, the Department may require the use of specific analytical methods, as described in Test Methods for Evaluating Solid Waste (SW-846) and New York State Contract Laboratory Protocol (CLP); all samples must be collected and stored in the order of the parameter's volatilization sensitivity using methods, consistently applied, which ensure sample integrity; after volatile organic samples have been collected, field parameters must be measured from the next sample collected; all sampling equipment must be constructed of inert materials designed to obtain samples with minimal agitation and contact with the atmosphere, be cleaned in the laboratory and checked before use and protected during transport to avoid contamination. Dedicated equipment must be constructed of appropriate inert materials and must be appropriate for the type of samples to be taken in the well; samples must be properly preserved and delivered to the laboratory within all appropriate holding times for the parameters to be analyzed and with proper chain of custody; blanks and replicate samples must be collected and analyzed in accordance with a method acceptable to the Department.

- (10) Leachate Quality Sampling and Analysis.
- (11) Hydrogeologic Literature Review. A comprehensive review of literature that is pertinent and reliable will be performed. This task will include a review and evaluation of prior Fresh Kills Landfill and Brookfield Landfill site reports; records of borings and/or excavations performed for construction of highways and roads, bridges, marine facilities within 1 mile; and buildings within one-half mile of the site perimeter; compilation of reasonably available aerial photographs of the site since 1948; compilation of historical topographic site plans, fill progression plans and waste disposal records; and review of pertinent government publications and documents, professional papers, bulletins, circulars, open-file reports, college or university reports or theses, and EPA documents.
- A Leachate Mitigation Literature Review Report will be submitted to the Department at the conclusion of this task. The report will include logs from borings performed onsite; borings performed for roads and highways through or adjacent to the site; borings performed for bridges on or adjacent to the site; borings performed for construction of the Consolidated Edison Plant, the Staten Island Mall and the Eltingville and Mayflower Pumping Stations. In addition, the report should include all boring logs contained in reasonably available literature sources. The report must include a map showing the location of each boring and the approximate surface elevation. The report must evaluate the regional and local hydrogeologic setting of the site. The literature review and regional hydrogeologic evaluation should consider the hydrogeology in New Jersey adjacent to the Arthur Kill and across from Fresh Kills Landfill.
- (12) Land Survey of Borings, Wells and Piezometers. The locations and elevations of all borings, monitor wells (new and existing), piezometers and land surface along the proposed path of the leachate containment and collection system must be surveyed by an individual licensed to perform land surveying in the State of New York.
- (13) Abandonment of Exploratory Boring Wells and Piezometers. All wells and piezometers constructed during this investigation at the site that are not suitable for future use, or any exploratory soil borings or rock cores performed as part of this investigation, shall be fully abandoned in a manner appropriate to the geologic conditions to prevent contaminant migration. Abandonment procedures shall be in conformance with 6 NYCRR 360-2.11(a)(8)(vi).
- (14) Three-Dimensional Groundwater Flow Model.

The reporting and environmental monitoring requirements for the Landfill Leachate Mitigation Report include, but are not limited to, those required for a Hydrogeologic Report, as defined in 6 NYCRR 360-2.11(b) and (c). The Landfill Leachate Mitigation Report shall take into account the relevant information obtained from the investigations performed as part of Appendices A-6 and A-7, though not outlined herein.

This Report must include, but will not be limited to, an address of the following:

- (1) An evaluation and interpretation of all hydrogeologic and geologic data and information obtained during this investigation and the Hydrogeologic Investigation.
- (2) Identification of the lateral and vertical distribution of confining beds beneath Sections 1/9 and 6/7; the vertical and horizontal hydraulic conductivity of these beds; an evaluation of groundwater flow characteristics in all water-bearing zones beneath Sections 1/9 and 6/7; the effect of the distribution of confining beds on the flow of groundwater in unconfined and confined water-bearing zones; the effect of the distribution and hydraulic conductivity of confining beds on the relative efficiency of various perimeter leachate collection and containment system designs; the effect of the distribution, hydraulic conductivity and groundwater flow characteristics (present flow characteristics and theoretical future flow characteristics after construction of various designs) and the presence of a perimeter containment wall on the relative efficiency of various leachate collection and containment system designs. Determination of relative efficiency should include the depth of the zone of influence and the volume and pattern of groundwater/leachate discharge to the collection system.
- (3) An evaluation and interpretation of groundwater quality in all water-bearing zones beneath each section of the landfill.
- (4) An evaluation of various leachate treatment systems (off-site and onsite) taking into account that leachate sampling and analysis activities conducted as part of this Appendix.

The Respondent will prepare a series of reports defining the proposed design for the perimeter leachate collection and containment system around Sections 1/9 and 6/7 of the Landfill and the corresponding leachate treatment system. Each of these documents shall be prepared in accordance with the requirements of 6 NYCRR Part 360 and will form the basis for construction of the final design.

A draft Engineering Plan, conforming to the requirements of 6 NYCRR 360-2.4 as modified herein, shall be submitted to the Department for review

and comment. The final Engineering Plan shall be submitted to the Department for acceptance. The Engineering Plan shall include:

- (1) Site plans showing the Landfill's property boundaries (as certified by an individual licensed to practice land surveying in the State of New York), on-site utilities (such as electric, gas, water, storm, and sanitary sewer systems) and right-of-way easements; the location of soil borings, excavations, test pits, gas venting structures, wells, piezometers, environmental and facility monitoring points and devices (with each identified in accordance with a numbering system acceptable to the Department and whose horizontal and vertical locations are accurate to the nearest five hundredth and one hundredth foot, respectively, as measured from the ground surface and top of well casing) within the construction zone of the leachate containment system, benchmarks and permanent survey markers, and fences, gates, roads, parking areas, drainage culverts, and signs within the construction zone of the leachate containment system; the delineation of the total Landfill area, and the lateral and vertical limits of previously filled areas within the leachate containment and collection system; the location and identification of special waste handling areas; a wind rose; and site topography with five feet minimum contour intervals.
- (2) Detailed plans of the Landfill clearly showing in plan and cross-sectional views, the original undeveloped site topography before excavation or placement of solid waste; the seasonal high groundwater table; generalized geologic units; known and interpolated bedrock elevations; the proposed limits of waste placement; the location and placement of the leachate containment system and of each leachate collection system, locating and showing all critical grades and elevations of the collection pipe inverts and drainage envelopes, manholes, cleanouts, valves, sumps, and drainage blanket thicknesses; all existing berms, dikes, ditches, swales and other devices as needed to divert or collect surface water run-on or run-off; the final elevations and grades of the Landfill cover system including the grading and gas venting layer, low permeability barrier, and topsoil layers within the construction zone of the leachate collection and containment system; the system used for monitoring and venting the decomposition gases generated within the Landfill; groundwater monitoring wells; geophysical and geochemical monitoring devices or structures; and leachate storage, treatment and disposal systems including the collection network, sedimentation ponds and any treatment, pre-treatment, or storage facilities.

A draft Engineering Report, conforming to the requirements of 6 NYCRR 360-2.7 as modified herein, shall be submitted to the Department for review and comment. The final Engineering Report shall be submitted to the

Department for acceptance. The Engineering Report shall include a description of the existing site conditions and, at a minimum, an analysis of the Landfill that must:

- (1) contain a site analysis of the proposed action including:
  - (a) the land use within 1,000 feet of the Landfill and the structures therein;
  - (b) an analysis of the existing topography within 250 feet of each side of the trace of the leachate containment system; and
  - (c) a description of the materials and construction methods used for the placement of all gas venting systems; the leachate containment and collection and removal system; leachate storage, treatment, and disposal systems; and cover systems to demonstrate conformance with the applicable construction requirements found in Section 360-2.13;
  - (d) an estimate of the expected quantity of leachate to be generated, including:
    - (i) an annual water budget that must estimate leachate generation quantities during operation, upon application of intermediate cover, and following facility closure. At a minimum, the following factors must be considered in the preparation of the water budget to determine the amount of leachate generated as a result of precipitation infiltration into the Landfill: average monthly temperature, average monthly precipitation, evaporation, evapotranspiration which should consider the vegetation type and root zone depth, surface/cover soil conditions and their relation to precipitation runoff which must account for the surface conditions and soil moisture holding capacity and all other sources of moisture contribution to the Landfill;
    - (ii) leachate containment and collection system efficiencies that must be calculated using an appropriate analytical or numerical assessment. The factors to be considered in the calculation of leachate containment and collection system efficiencies must include, at a minimum, the saturated hydraulic conductivity of the underlying confining bed(s) and leachate containment system, the underlying confining bed(s) and containment wall thicknesses, the saturated hydraulic conductivity of the leachate collection system, the leachate collection system porosity, the hydraulic conductivity



of the underlying soils within the leachate containment system, the maximum flow distance to the nearest leachate collection pipe, the estimated leachate generation quantity as computed in accordance with the requirements of the preceding paragraph, the estimated quantity of groundwater recharge, as applicable, from outside the leachate containment system and underlying confining beds;

- (iii) a comparison of the leachate containment and collection system efficiencies calculated in the preceding paragraph with the generic liner and leachate collection system efficiencies of a double composite liner system designed in accordance with the requirements of 6 NYCRR Part 360-2; and
- (iv) predictions of the equilibrium head of leachate/ groundwater within the leachate containment system, volume of leachate to be collected, and the volume of leachate that may permeate through the entire leachate containment system, all on a monthly basis. Information gained from the collection efficiency calculations required in the preceding paragraphs must be used to make these predictions. This assessment also must address the amount of leachate expected to migrate beyond the leachate containment system and the underlying confining bed(s) in gallons per acre per day;

- (e) the design of a leachate storage facility, if necessary, in accordance with the requirements of 6 NYCRR 360-6; and
- (f) a description of the contingency plan for the construction phase. This plan must describe procedures for responding to construction deficiencies resulting from circumstances including, but not limited to, inclement weather, defective materials or construction inconsistent with specifications as demonstrated by quality control testing. The plan must provide a description of the criteria to be utilized in evaluating deficiencies, and selecting and implementing corrective actions; and

- (2) Specify the operation and closure plan for the leachate collection, treatment, and storage facilities consistent with the requirements of 6 NYCRR 360-2 and 6 NYCRR 360-6.

A draft QA/QC Report, conforming to the requirements of 6 NYCRR 360-2.8 as modified herein, shall be submitted to the Department for review and

comment. The final QA/QC Report shall be submitted to the Department for acceptance. The QA/QC Report shall include, but not be limited to:

- (1) a delineation of the responsibilities for the QA and QC management organizations, including the chain of command of the QA and QC inspectors and contractors;
- (2) a description of the required level of experience and training for the contractor, his crew, and QA/QC inspectors for every major phase of construction in sufficient detail to demonstrate that the installation methods and procedures will be properly implemented; and
- (3) a description of the QA and QC testing protocols for every major phase of construction, which must include, at a minimum, the frequency of inspection, field testing, sampling for laboratory testing, the sampling and field testing procedures and equipment to be utilized, the calibration of field testing equipment, the frequency of performance audits, the sampling size, the laboratory procedures to be utilized, the calibration of laboratory equipment and QA/QC of laboratory procedures, the limits for test failure, and a description of the corrective procedures to be used upon test failure.

In light of the Respondent's mitigation activities included in this Appendix, the Department deems this Appendix to meet the report submission requirements of 6 NYCRR 360-3.5(g)(4)(ii). Therefore, the Respondent may continue to dispose of bottom ash residue and combined ash residue from the existing apartment house incinerators, Greenpoint Incinerator, Betts Avenue Incinerator and Southwest Brooklyn Incinerator at the Landfill. The Department shall review the mitigation activities described in this Appendix for their ability to achieve adequate leachate management, mitigate off-site leachate migration and to control surface water run-off.

<u>Subject</u>	<u>Milestone Date</u>
1. The Department shall review and comment on the Request for Proposals entitled Fresh Kills Landfill Leachate Mitigation System.	45 days after execution of the Order
2. Department provides comments to the Respondent pursuant to the requirements of 6 NYCRR 360-3.5(g)(4)(ii).	6-1-90
3. Respondent shall award and register the contracts in response to the Request for Proposals entitled Fresh Kills Landfill Leachate Mitigation System.	7-15-90

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- \*13. Respondent shall submit to the Department the final acceptable Landfill Leachate Mitigation Report. 6-14-93 8-8-93 IT's proper date
- \*14. Respondent shall submit to the Department for review and comment the draft final Engineering Report, draft final Engineering Plan, and draft final QA/QC Report. 2-28-94 12-31-93 IT's proper date
- \*15. Respondent shall submit to the Department the final acceptable Engineering Report, final acceptable Engineering Plan, and final acceptable QA/QC Report. 5-22-94
- \*16. Respondent shall initiate construction of the perimeter leachate collection and containment system and the leachate treatment system. 8-1-94
- \*17. Respondent shall complete the construction of the perimeter leachate collection and containment system and the leachate treatment system. 11-1-96
- \*18. Respondent shall commence treatment of the collected leachate and attain the final permitted effluent limits for any direct discharge. 12-1-96
- \*19. Respondent shall submit the performance evaluation of the treatment and collection systems. 7-1-97

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NOTE: \*Per the requirements of Subjects 5 and 6, upon acceptance by the Department, the Milestone Dates for Subjects 8-16 shall be modified. If the Respondent's contractor proposes the Milestone Dates as such Milestone Dates are set forth above for Subjects 8-16, the Department shall not withhold acceptance.

•With respect to Subjects 3, 9, 10, 11, 12, 14, 16, 17, 18 and 19 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and

3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

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Compliance Schedule Appendix A-5  
Waste Transport and Unloading Facilities

<u>Subject</u>	<u>Milestone Date</u>
•1. Respondent shall submit to the Department for review and comment, a report containing the proposed actions which have been and/or will be taken to achieve the following:	12-31-90
a. Containment of solid waste which is deposited in the surface waters during barge unloading operations from escaping to the Arthur Kill and removal of waste so contained;	
b. Cleaning of all shorelines adjacent to the Fresh Kills Landfill, including Isle of Meadows, of solid waste of the type allowed to be disposed of at the Landfill;	
c. Transition to rubber tired vehicles for the transport of solid waste from the barge unloading areas to the working face;	
d. Reduction, to the greatest extent practicable, of windblown litter at the barge unloading areas and working faces;	
e. Passable roadways for use of rubber tired vehicles from the barge unloading facilities to the appropriate landfill sections;	
f. Removal of solid waste released into the Arthur Kill as a result of a contingent failure of the Respondent's solid waste control system; and	
g. Installation of fencing or establishment of other means around the perimeter of the Landfill to limit unauthorized access to the Landfill.	

The submitted report shall contain, by reference to maps or other documents, a physical description of the areas Respondent has cleaned, or intends to clean, pursuant to Subject 1.b above. The submission shall recommend additional Subjects and Milestone Dates that will be incorporated into this Compliance Schedule, once accepted by the Department. The Subjects

shall include: issuance of bid proposals, contract award, and activity completion dates where appropriate. The additional Subjects and Milestone Dates shall not be repetitive of, nor deemed to be, operational requirements as set forth in Appendices B-1 and B-2.

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| 2. Respondent shall submit to the Department the acceptable report incorporating Department comments. Upon acceptance by the Department, the Subjects shall be considered incorporated into this Compliance Schedule. | 90 days after the Department submits its comments to the Respondent. |
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NOTE: •With respect to Subject 1 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Date for the noted Subject up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subject are governed by the provisions of paragraph XXIV of the Order.

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Compliance Schedule Appendix A-6  
Hydrogeological Investigation

The Respondent shall perform a comprehensive Hydrogeological Investigation at the Fresh Kills Landfill in conformance with the procedures and informational requirements of 6 NYCRR Part 360, especially 6 NYCRR 360-2.11(a), (b) and (c). The Respondent shall address within the final Hydrogeologic Report (Site Investigation Report as defined in 6 NYCRR Part 360) all of the information requirements defined in 6 NYCRR 360-2.11, except those relating to surface water and sediment. Milestone submission requirements of the Respondent for the Hydrogeological Investigation include a final Request for Proposal, draft Site Investigation Plan, final Site Investigation Plan, Groundwater Monitor Well and Piezometer Survey Report, Supply Well Survey Report, Hydrogeological Literature Review Report, interim Hydrogeological Report, draft final Hydrogeological Report, and final Hydrogeological Report. The Respondent shall submit these reports in accordance with the attached schedule. All exploratory boring and monitoring well locations shall be subject to reasonable adjustments for field conditions.

The Site Investigation Plan (SIP) must define the objectives of the hydrogeological investigation, the scope of all tasks to be performed, the methods and procedures to be utilized, and the deliverables for each task. The SIP is intended to result in a sequential investigation. The tasks defined in the SIP must be in accordance with the procedures defined in 6 NYCRR 360-2.11 and must be of sufficient scope to support all reporting requirements stated in 6 NYCRR 360-2.11(b). The tasks defined in the SIP must include, but will not be limited to, the following:

- (1) Installation of Groundwater Monitor-Wells in Confined Water-Bearing Units. Confined water-bearing units include bedrock; cretaceous water-bearing units; and pleistocene water-bearing units. One groundwater monitor well must be placed in each confined water-bearing unit, at 750-linear-foot intervals, along the down- and cross-hydraulic-gradient perimeter of each of Sections 1/9, 6/7, 3/4 and 2/8; however, two or more wells will be required by the Department to provide full coverage in confined water bearing units greater than 15 feet thick. One groundwater monitor well shall be placed in each confined water bearing unit, at 1,500-linear-foot intervals, along the up-hydraulic-gradient perimeter of each Landfill section; however, two or more wells will be required by the Department to provide full coverage in confined water bearing units greater than 15 feet thick. Where multiple confined water-bearing units are present, the wells should be installed in clusters.

- (2) Installation of Groundwater Monitor-Wells in Unconfined Water-Bearing Units. Wells screened in the unconfined water-bearing units must be installed at 500-linear-foot intervals around the perimeter of each of Sections 1/9, 6/7, 3/4 and 2/8, beyond the existing footprint of the Landfill in unconfined water-bearing units at the Fresh Kills Landfill, unless otherwise approved by the Department.
- (3) Construction of Groundwater Monitor Wells and Piezometers. Construction of all groundwater monitor wells shall be performed in accordance with 6 NYCRR 360-2.11. All procedures and materials used in construction of groundwater monitor wells and piezometers are subject to Department approval. A groundwater monitor-well installation plan must be prepared by the Respondent that describes the drilling methods, the construction materials and the construction methods to be employed; the areal location of cluster-wells; and the vertical location of well-screens, sandpacks and well seals. During construction, sufficient efforts will be taken by the Respondent to insure that contaminants are prevented from migrating along the annulus of all wells and that all wells are protected from damage after they are installed. A sanitary construction design consisting of sealed casings isolating contaminated water bearing units will be required for all onsite borings (exploratory borings, wells and piezometers) that enter a confined water-bearing unit. Well designs shall incorporate best well construction technology to prevent downward migration of landfill leachate, or leachate-enriched groundwater, into those confined water-bearing units. The sanitary design for these borings is subject to approval by the Department.

Unless otherwise approved by the Department, requirements for groundwater monitor well and piezometer construction include: the inside diameter of each well screen or riser pipe must be at least 2 inches; screens must be factory constructed; each well or piezometer must be in a separate borehole; drilling muds are to be avoided, however, where drilling muds are necessary, as approved by the Department, the Respondent shall provide alternate specifications for well construction including the drilling mud composition and methodology which the Department shall review and provide guidance and, if used, must not be used within 10 feet of the screened interval; a bentonite seal at least 3 feet thick must be placed at the top of the sand pack; a finer grained sand pack material (100% passing the number 30 sieve and less than 2% passing the number 200 sieve) six inches thick must be placed at the top of the sand pack between the sand and the bentonite seal; above the bentonite seal, the well annulus, along its complete length to the surface, must be fully sealed with Department approved cement-admixture grout installed via the tremie method; all equipment to be placed in the



boring must be steam cleaned between holes; and only potable water may be used during boring and insitu hydraulic conductivity testing.

- (4) Health and Safety Plan. The SIP must include an appropriate Health and Safety Plan, in accordance with applicable OSHA requirements, to insure the safety of field personnel.
- (5) Development of Groundwater Monitor Wells and Piezometers. Development of all groundwater monitor wells and piezometers shall be performed in accordance with 6 NYCRR 360-2.11(a)(8)(iii). All wells and piezometers must be developed as soon as possible after installation, but not before the well seal and grout have set. Water must not be introduced into the well for development except with approval of the Department. The Department may require multiple attempts at well development to increase the likelihood that sediment free water can be obtained. The SIP shall include a procedural plan for monitor well and piezometer development. All development procedures are subject to Department approval.
- (6) Soil Boring and Geologic Sampling. Soil borings will be performed and soil samples will be collected for observation, description and field and laboratory geotechnical tests. Samples collected shall be of sufficient number to fully define the configuration of geologic formations comprising the critical stratigraphic section beneath the Landfill. The critical stratigraphic section for all sections of the Landfill includes all holocene, pleistocene, and cretaceous deposits, and weathered and hard bedrock. A representative number of borings must be sampled continuously to the top of bedrock. Rock cores shall be required for every boring which penetrates to the upper surface of bedrock. Continuous split-spoon sampling will be required through cretaceous deposits and holocene deposits at all boring locations. Where split-spoon samples are not taken continuously, samples 2-feet in length must be taken at intervals no greater than 5-feet in unconsolidated deposits and, in rock, as determined by the Department. Where multiple borings are planned for a single location, continuous sampling will only be required in the deepest boring. This boring must be drilled first.

Additional exploratory borings will be required within the center area of the landfill footprint to establish the lateral and vertical continuity of water-bearing zones, including holocene, pleistocene and cretaceous unconsolidated deposits; and confining or semi-confining units, including holocene marsh deposits, glaciolacustrine and glacial till deposits, cretaceous clay, residual clay and weathered bedrock. 15 exploratory borings will be required to the top of bedrock at each of Sections 1/9 and 6/7. 10 exploratory borings will be required to the top of bedrock at each of Sections 2/8 and 3/4.

- (7) Geotechnical Testing. Geotechnical tests will be performed on disturbed and undisturbed soil samples obtained from borings. Testing to be performed on soils must include, but is not limited to, Atterberg limits, gradation curves and vertical and horizontal laboratory hydraulic conductivity testing. Insitu hydraulic conductivity tests must be performed on all groundwater monitor wells used in the Hydrogeological Investigation. Measurement of groundwater head levels in all wells will be performed with continuous recorders to allow identification of the time-variable, three-dimensional groundwater flow characteristics within the critical stratigraphic section.
- (8) Hydrogeologic Literature Review. A comprehensive review of literature that is pertinent and reliable will be performed. This task must include a review and evaluation of prior Fresh Kills Landfill and Brookfield Landfill site reports; records of borings and/or excavations performed for construction of highways and roads, bridges, marine facilities within 1 mile; and buildings within one-half mile of the site perimeter; compilation of reasonably available aerial photographs of the site since 1948; compilation of historical topographic site plans, fill progression plans and waste disposal records; and review of pertinent government publications and documents, professional papers, bulletins, circulars, open-file reports, college or university reports or theses, and EPA documents.

A Hydrogeological Literature Review Report will be submitted to the Department at the conclusion of this task. The report will include logs from borings performed onsite; borings performed for roads and highways through or adjacent to the site; borings performed for bridges on or adjacent to the site; borings performed for construction of the Consolidated Edison Plant, the Staten Island Mall and the Eltingville and Mayflower Pumping Stations. In addition, the report should include all boring logs contained in reasonably available literature sources. The report must include a map showing the location of each boring and the approximate surface elevation. The report must evaluate the regional and local hydrogeologic setting of the site. The literature review and regional hydrogeologic evaluation should consider the hydrogeology in New Jersey adjacent to the Arthur Kill and across from the Landfill. This should include the distribution of unconsolidated deposits of pleistocene and cretaceous ages, and bedrock of triassic age.

- (9) Supply Well Survey. A survey of all public and private wells within one mile of the site must be performed. All relevant and available information regarding wells must be obtained and included in a Supply Well Survey Report to be submitted to the Department. The

report should identify those wells that have been, or are being used, for drinking water supply.

- (10) Groundwater Monitor Well and Piezometer Survey. A groundwater monitor well and piezometer survey will be performed and must include an evaluation of the integrity of all groundwater monitor wells and piezometers installed at the Fresh Kills Landfill prior to the execution of this Order. A reconnaissance of all wells and piezometers installed since 1975 must be performed and should include a record of vital statistics (well depth, static water level, casing height, etc.) as well as general observations regarding the condition and integrity of each well. These observations and statistics should be combined with a review of original well construction details, well design and boring log information to determine whether: (1) the well should be a candidate for rehabilitation and inclusion into the site monitor-well array; or, (2) the well should be properly abandoned. All wells and piezometers installed since 1975 must be accounted for in this report. All existing wells that are not candidates for rehabilitation must be properly abandoned.
- (11) Groundwater Monitor Well and Piezometer Land Survey. The locations and elevations of all exploratory borings, monitor wells (new and existing) and piezometers shall be surveyed by an individual licensed to perform land survey in the State of New York.
- (12) Well Replacement. If, in the opinion of the Department or the Respondent, based on available water quality data or field observations, the integrity of any groundwater monitor well used as part of the Hydrogeological Investigation has been lost, the well will be replaced and sampled for Baseline Parameters within 120 days.
- (13) Abandonment of Wells and Piezometers. All wells and piezometers constructed during previous hydrogeologic investigations at the site that are not suitable for future use, or any soil borings or rock cores performed as part of this investigation, shall be fully abandoned in a manner appropriate to the geologic conditions to prevent contaminant migration. Abandonment procedures shall be in conformance with 6 NYCRR 360-2.11(a)(8)(vi).
- (14) Water Quality Sampling and Analysis. Groundwater samples will be collected and analyzed in accordance with 6 NYCRR 360-2.11(a)(12). Water samples from all groundwater monitor-wells shall be collected quarterly for chemical analyses. Groundwater samples from all wells shall be analyzed for Expanded Parameters as defined in 6 NYCRR 360-2.11(c)(6). Quarterly sampling and analysis of groundwater

samples from all wells will continue until initiation of the Long-Term Groundwater Quality Monitoring Program.

The SIP must specify how the samples will be collected and preserved; chain of custody documentation; analyses required; methods of analysis, and Quality Control/Quality Assurance protocols. All methods must be acceptable to the Department. A record of the methods employed and the personnel involved must be kept and reported to the Department with the analytical data.

Monitor well sampling techniques must be consistent with the following: before evacuation of the well, static water level must be measured to the nearest one-hundredth of a foot using standard techniques; and for wells with documented contamination, where contamination by non-aqueous phase liquids may be present, standing water in the well must be checked for immiscible layers or other contaminants that are lighter or heavier than water (floaters or sinkers). If present, floaters or sinkers must be sampled and analyzed separately by a method described in the Site Investigation Plan; evacuation of the well must replace stagnant water in the well and the sand pack with fresh water representative of the formation. Evacuation methods, including pumping rate, depth of pump intake, and method of determining sufficiency of evacuation, must be consistently applied each time the well is sampled. Evacuation methods must create the least possible turbidity in the well. Evacuated water must be properly managed; field analysis must be performed after evacuation of the well, either within the borehole using a probe or immediately after collection; and all field test equipment must be calibrated at the beginning of each sampling day and checked and recalibrated according to the manufacturer's specifications. Calibration data must be reported with the analytical results; laboratory analyses must be performed using analytical methodologies acceptable to the Department, by a laboratory acceptable to the Department. Where necessary to achieve acceptable minimum detection levels, the Department may require the use of specific analytical methods, as described in Test Methods for Evaluating Solid Waste (SW-846) and New York State Contract Laboratory Protocol (CLP); all samples must be collected and stored in the order of the parameter's volatilization sensitivity using methods, consistently applied, which ensure sample integrity; after volatile organic samples have been collected, field parameters must be measured from the next sample collected; all sampling equipment must be constructed of inert materials designed to obtain samples with minimal agitation and contact with the atmosphere, be cleaned in the laboratory and checked before use and protected during transport to avoid contamination. Dedicated equipment must be constructed of appropriate inert materials and must be appropriate for the type of samples to be taken in the well; samples must be

properly preserved and delivered to the laboratory within all appropriate holding times for the parameters to be analyzed and with proper chain of custody; blanks and replicate samples must be collected and analyzed in accordance with a method acceptable to the Department.

The reporting and environmental monitoring requirements for the Hydrogeological Report are defined in 6 NYCRR 360-2.11(b) and (c). The scope of the Hydrogeological Report must be sufficient to meet these reporting requirements and support recommendations for a Long-Term Environmental Monitoring Plan, as defined in 6 NYCRR 360-2.11(c).

In addition to the requirements defined in 6 NYCRR 360-2.11, technical evaluations for the Hydrogeologic Report of the site must address unique site conditions and must include: a glacial depositional model that describes the diverse glacial geologic history of the Landfill site and local environment, and defines the origin and interrelation of all glacial, proglacial and periglacial deposits underlying the site including glacial till, glaciolacustrine clay and silt, glaciofluvial sands and gravel, and glacio-deltaic sands and gravel (ice-contact and otherwise); and development of a three-dimensional conceptual model of the distribution of cretaceous sand and clay deposits including their thicknesses, vertical and lateral configuration, and hydraulic inter-communication. Special attention must be directed towards variations in cretaceous depositional facies across the Landfill, inter-fingering of sand and clay units and the effect of these features on the three-dimensional pattern of groundwater flow; assessment of the surface configuration of triassic and ordovician bedrock beneath the site, the lateral distribution of these and other rock types, the nature of primary and secondary bedrock features including fracture and joint patterns, weathered condition, porosity, and the effect of these conditions on the pattern of groundwater flow within bedrock and discharge to or recharge from overlying unconsolidated deposits; a conceptual model of the diurnal hydraulic head fluctuations observed in confined water-bearing units caused by tidal action in the Fresh Kills and the Arthur Kill; an evaluation of the effects of Landfill size and age on the chemodynamics and hydrodynamics of leachate generated on-site; a quantitative assessment of the complex pattern of groundwater flow within and between unconfined and confined water bearing units present beneath the site, and discharge to or recharge from surface waters, based upon direct hydraulic-head field observations; a quantitative assessment of the complex pattern of groundwater flow within and between unconfined and confined water bearing units present beneath the site, and discharge to or recharge from surface waters, based on the results of chemical

analyses of groundwater and surface water; a detailed assessment of localized and regional hydrogeologic systems (including aquifers and confining beds) that are present in the vicinity of the Landfill including New Jersey; and assessment of the hydrogeologic relationship between water bearing units present beneath the Landfill and local and regional hydrogeologic system(s). Special attention must be directed to formulation of an accurate account of the nature of hydraulic communication and evidence of, or potential for, offsite migration of landfill leachate within groundwaters.

Specific requirements of the Hydrogeologic Report include the following:

1. The interim Hydrogeological Report must include an evaluation and interpretation of all hydrogeological and geological data and information obtained prior to the date of preparation of the report. The interim Hydrogeological Report shall identify potential gaps in the evolving data base. The Report shall include recommendations for the scope of additional investigations, if any, that are necessary to meet the hydrogeological reporting requirements set forth in 6 NYCRR Part 360.
2. The draft final Hydrogeological Report and final Hydrogeological Report shall include an evaluation and interpretation of all hydrogeological data and information generated during the Hydrogeological Investigation, the interim Hydrogeologic Report, and the literature review. The reports shall also include recommendations for the Long-Term Environmental Monitoring Plan for Fresh Kills Landfill including design of the appropriate monitor well array and sampling plan.

<u>Subject</u>	<u>Milestone Date</u>
1. The Department shall review and comment on the Request for Proposals entitled Fresh Kills Landfill Leachate Mitigation System.	45 days after execution of the Order
2. Respondent shall award and register the contracts in response to the Request for Proposals entitled Fresh Kills Landfill Mitigation System.	7-15-90
3. Respondent shall submit to the Department for review and comment the Milestone Dates as supplied by the contractor for Subjects 8-14. A meeting amongst the parties and the contractor will be held within fifteen days of this submittal to discuss the schedule.	8-26-90
4. Respondent shall submit to the Department the acceptable Milestone Dates for Subjects 8-14.	10-7-90

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Upon acceptance by the Department, the Milestone Dates shall become part of this Compliance Schedule.

5. Respondent shall submit to the Department for review and comment the draft Site Investigation Plan (SIP), which will reflect the Department's comments on the Request for Proposals. No later than 45 days after receipt of the Department's comments on the draft SIP, the parties shall meet with the contractor to determine a date by which the acceptable SIP shall be submitted. 10-7-90
- 6. Respondent shall initiate quarterly groundwater sampling. First round of sampling will include only those groundwater monitor wells installed in 1989. Subsequent sampling rounds will include all new completed wells and rehabilitated wells. 12-31-90
- \*7. Respondent shall submit to the Department the final acceptable Site Investigation Plan. The Department will be bound by its acceptance of the final Acceptable Site Investigation Plan except that the Department reserves its right to require Respondent to perform additional investigations to support the completeness determination of the final acceptable Hydrogeological Report based on unforeseen information not known to the Respondent or Department prior to the Department's acceptance of the final Site Investigation Plan, so long as any such changes shall not increase the total number of monitor wells and test borings as defined by the requirements of Appendix A-6. 12-31-90
- \*8. Respondent shall submit to the Department the acceptable Groundwater Monitor Well and Piezometer Survey Report. 12-31-90
- \*9. Respondent shall initiate the field program. 12-31-90
- \*10. Respondent shall submit to the Department the acceptable Water Supply Well Survey Report. 3-15-91
- \*11. Respondent shall submit to the Department the acceptable Hydrogeologic Literature Review Report. 3-15-91
- \*12. Respondent shall initiate one year of quarterly 4-6-91

groundwater sampling of all supply wells identified in the Supply Well Survey Report that can yield representative samples and all piezometers installed in 1989. Samples will be analyzed for Baseline Parameters as defined in 6 NYCRR Section 360-2.11(c)(6).

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| *13. Respondent shall submit to the Department for review and comment the interim Hydrogeological Report.   | 9-13-92  |
| *14. Respondent shall submit to the Department for review and comment the draft final Hydrogeological Report.   | 1-10-93  |
| 15. Respondent shall submit to the Department the final acceptable Hydrogeological Report.  | 4-4-93   |
| 16. Respondent shall initiate the Long-Term Groundwater Monitoring Program. The Long-Term Groundwater Monitoring Program shall be reevaluated for inclusion in the application described in Appendix A-2. | Three months after after submittal of the final acceptable Hydrogeological Report. |

- NOTE: \*Per the requirements of Subjects 4 and 5, upon acceptance by the Department, the Milestone Dates for Subjects 7-14, shall be modified. If the Respondent's contractor proposes the Milestone Dates as such Milestone Dates are set forth above for Subjects 7-14, the Department shall not withhold acceptance.
- \*With respect to Subjects 2, 6, 9, 12 and 13 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:
1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
  2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
  3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new



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Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

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Compliance Schedule Appendix A-7  
Surface Water and Sediment Investigation

The Respondent shall perform a comprehensive Surface Water and Sediment Investigation to determine the impact of the Landfill and related landfill leachate discharges on the quality of aqueous and sub-aqueous environments, in accordance with the procedures and informational requirements of 6 NYCRR Part 360, especially 6 NYCRR 360-2.11(a), (b) and (c). Milestone submission requirements of the Respondent for the Surface Water and Sediment Investigation include a final Request for Proposals, a draft Surface Water and Sediment Investigation Plan, a final Surface Water and Sediment Investigation Plan, a Surface Water and Sediment Literature Review Report, an interim Surface Water and Sediment Report, a draft final Surface Water and Sediment Report, and a final Surface Water and Sediment Report. The Respondent shall submit these reports in accordance with the attached schedule.

The Surface Water and Sediment Investigation Plan (SWSIP) shall define the objectives of the Surface Water and Sediment (SWS) Investigation, the scope of all tasks to be performed, and the methods and procedures to be utilized. The tasks defined in the SWSIP must be in accordance with the procedures defined in 6 NYCRR 360-2.11 and must be of sufficient scope to provide all relevant reporting requirements stated in 6 NYCRR Part 360, and herein. The tasks defined in the SWSIP shall include, but will not be limited to, the following:

1. Selection of Sampling Stations. Selection of seventeen (17) sampling stations for collection of surface water and sediment samples. Fifteen (15) stations will be located in the Fresh Kills waterways. A minimum of two stations will be located in the Arthur Kill waterway.
2. Sampling and Chemical Analyses. Samples of surface water for chemical analyses will be collected quarterly (every 3 months), for two years. Sampling of surface water during Round 1 and Round 5 will consist of four synoptic sampling events, evenly distributed within one tidal cycle. During each synoptic sampling event, one sample will be collected at each of the 17 stations. Samples collected during the low-tide synoptic event will be subjected to chemical analyses for Expanded Parameters, as defined in 6 NYCRR 360-2.11(c)(6). Samples collected during the remaining six synoptic sampling events will be subjected to chemical analyses for

Baseline Parameters, as defined in 6 NYCRR 360-2.11(c)(6), excluding the volatile organic constituents. Samples of sediment for chemical analyses will be taken from all 17 stations during Round 1 and Round 5. All sediment samples will be subjected to chemical analyses for Expanded Parameters, as defined in 6 Section 360-2.11(c)(6). Grain size distribution will be performed on sediment samples collected from all stations during Round 1 and Round 5.

3. Benthic Ecology Analyses. A benthic ecology study of the Fresh Kills waterway and the Arthur Kill will be required.
4. Leachate Bioassay Studies. Bioassay studies of leachate from each landfill section at the Landfill will be required.
5. Surface Water and Sediment Literature Review. A comprehensive review of literature that is pertinent and reliable shall be performed. This task will include a review and evaluation of prior Fresh Kills Landfill and Brookfield Landfill site reports; reports prepared by the Respondent or outside parties or agencies for the purpose of obtaining a permit to discharge water from a facility to the Arthur Kill; and a review of pertinent government publications and documents, professional papers, bulletins, circulars, open-file reports, college or university theses, and EPA documents. The Report will include an evaluation of the existing data and information, identify data gaps and provide recommendations for necessary investigations of environmental impacts related to the Landfill, including studies of benthic and aqueous communities, acute and chronic toxicity of landfill leachate, effects of bioaccumulation, pathobiological impacts on resident communities, and surface water hydraulics through the use of tracers. A SWS Literature Review Report shall be submitted to the Department at the conclusion of the task.

A comprehensive technical evaluation of all data and information obtained during the SWS Investigation shall be presented by the Respondent in an interim SWS Report, draft final SWS Report and a final SWS Report.

The reporting and environmental monitoring requirements for the SWS Report include those included in 6 NYCRR 360-2.11(b) and (c). The scope of the SWS Report must be sufficient to meet these reporting requirements and support recommendations for a Long-Term Surface Water and Sediment Monitoring Plan.

Specific requirements of the Surface Water and Sediment Report include, but are not limited to, the following:

- (1) The interim Surface Water and Sediment Report shall include an evaluation and interpretation of all surface water and sediment chemical quality and hydrodynamic data generated until the date of preparation of the report. Technical evaluations for the site shall address unique site conditions including the effect of tidal fluctuation and discharge of landfill leachate on the quality of surface waters and the effects of long-term operation of the Landfill on surface water and sediment quality.

The interim Surface Water and Sediment Report shall also include a comprehensive review of the data and information obtained during and subsequent to the SWS Literature Review, including the recommendations for additional investigations contained therein. This review must incorporate a review of new SWS chemistry data, the benthic analyses and the bioassay studies. The report must present recommendations for additional environmental studies (or expansion of existing studies) to adequately assess the impact of the Landfill leachate discharge on aqueous and sub-aqueous chemistry and environments.

The recommendations must include a draft investigation plan for additional surface water and sediment based studies, with a schedule for implementation of those studies. This plan will be reviewed by the Department and comments will be submitted to the Respondent.

The Respondent will then submit an acceptable investigation plan for additional studies, including a schedule for implementation of those studies. If the scope of work needed to complete the acceptable investigation plan for additional surface water and sediment based studies is significantly greater than originally anticipated, the Department will favorably consider, upon request by the Respondent, an extension of subsequent Milestone Dates.

- (2) The draft final SWS Report and final SWS Report shall include an evaluation and interpretation of all data generated during this and prior investigations, and information obtained during the literature review and any additional studies required herein. The reports shall include recommendations for design of a Long-Term Surface Water and Sediment Monitoring Plan and provisions for performance of additional technical investigations required for the site.

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<u>Subject</u>	<u>Milestone Date</u>
1. The Department shall review and comment on the Request for Proposals entitled Fresh Kills Landfill Leachate Mitigation System.	45 days after execution of the Order
2. Respondent shall award and register the contracts in response to the Request for Proposals entitled Fresh Kills Landfill Leachate Mitigation System.	7-15-90
3. Respondent shall submit to the Department for review and comment the Milestone Dates as supplied by the contractor for Subjects 7-13. A meeting amongst the parties and the contractor will be held within fifteen days of this submittal to discuss the schedule.	8-26-90
4. Respondent shall submit to the Department the acceptable Milestone Dates for Subjects 7-13. Upon acceptance by the Department, the Milestone Dates shall become part of this Compliance Schedule.	10-7-90
5. Respondent shall submit to the Department for review and comment draft Surface Water and Sediment Investigation Plan (SWSIP), which will reflect the Department's comments on the Request for Proposals. No later than 45 days after receipt of the Department's comments on the draft SWSIP, the parties shall meet with the contractor to determine a date by which the acceptable SWSIP shall be submitted.	10-7-90
*6. Respondent shall submit to the Department the final acceptable Surface Water and Sediment Investigation Plan.	12-31-90

- .\*7. Respondent shall initiate the field program. 1-15-91
- .\*8. Respondent shall initiate the quarterly surface water sampling. 1-15-91
- \*9. Respondent shall submit to the Department an acceptable Surface Water and Sediment Literature Review Report. 4-1-91
- \*10. Respondent shall submit to the Department for review and comment the interim Surface Water and Sediment Report based upon one year's sampling, including a draft plan for additional surface water and sediment based studies. Data from this report shall be utilized in the interim Landfill Leachate Mitigation Report required in Appendix A-4. 4-15-92
- \*11. Respondent shall submit to the Department an acceptable plan for additional surface water and sediment based studies. 6-15-92
- .\*12. Respondent shall initiate field studies pursuant to Subject 11 (above). 9-15-92
- \*13. Respondent shall submit to the Department for review and comment the draft final Surface Water and Sediment report. 4-15-93
- 14. Respondent shall submit to the Department the final acceptable Surface Water and Sediment Report. 7-19-93
- 15. Respondent shall initiate the Long-Term Surface Water and Sediment Monitoring Program. The Long-Term Surface Water and Sediment Monitoring Program shall be reevaluated for inclusion in the application described in Appendix A-2. *Final Acceptable, L M report to be submitted 6/14/93*  
Three months after acceptance of the final acceptable Surface Water and Sediment Report.

NOTE: \*Per the requirement of Subjects 4 and 5, upon acceptance by the Department, the Milestone Dates for Subjects 6-13 shall be modified. If the Respondent's contractor proposes the Milestone Dates as such

Milestone Dates are set forth above for Subjects 6-13, the Department shall not withhold acceptance.

•With respect to Subjects 2, 7, 8, and 12 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Date for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extension date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

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Compliance Schedule Appendix A-8  
Landfill Gas Migration Mitigation

A continuing landfill gas monitoring program based on the requirements of 6 NYCRR 360-2 must be initiated to ensure the gas concentration standards of Appendix B-2 are met. The type and frequency of monitoring must be approved by the Department and based on the following factors: soil conditions; the hydrogeological conditions surrounding the Landfill; the hydraulic conditions surrounding the Landfill; and the location of any man-made structures and property boundaries. In order to develop the landfill gas monitoring program, a Landfill Gas Migration Investigation must be performed in accordance with the requirements of 6 NYCRR 360-2.15(a)(2). The intent of this investigation must be to identify the presence and concentration of explosive gases at or near the Landfill; determine the extent of actual or potential gas migration off-site; and identify the soil stratigraphy beneath and around the Landfill.

The scope of the Landfill Gas Migration Investigation will include, but not be limited to, the following:

- (1) Review of reports and data of gas occurrence and potential migration pathways at and adjacent to (including at least the area within 1000 feet of the property boundary) the Landfill;
- (2) Design of a survey methodology which will include locations to sample, sampling protocols, and analytic methods proposed for data obtained;
- (3) Preparation of a topographic map with an appropriate scale showing the location of all underground utilities, all structures including roadways and buildings within at least 1000 feet of the property boundary, and the soil stratigraphy;
- (4) Description of the general design of the underground utilities including the approximate dimensions of the trenches and the material used to grade and fill the trenches; and
- (5) Assessment of the zones of actual and potential gas migration.

The Landfill Gas Migration Investigation will result in a report containing the proposals for landfill gas migration control systems in accordance with the requirements of 6 NYCRR Part 360-2.15(c), 360-2.15(d), and 360-2.16, as appropriate, and the Long-Term Landfill Gas Monitoring Program in accordance with the requirements of 6 NYCRR 360-2.17(f).



The compliance schedule follows:

<u>Subject</u>	<u>Milestone Date</u>
1. Respondent shall submit to the Department for review and comment the draft report containing the landfill gas migration investigation results, proposed gas migration control systems, and proposed Long-Term Landfill Gas Monitoring Program. The submittal shall include a schedule for the installation of the proposed gas migration control systems and final perimeter gas monitoring array. The schedule shall include no more than eight (8) Subjects and corresponding Milestone Dates which, upon acceptance by the Department, shall be incorporated into this Compliance Schedule.	5-26-91
2. Respondent shall submit to the Department the final acceptable report. Upon acceptance by the Department, the schedules for the installation of the proposed landfill gas migration control systems and final accepted perimeter gas monitoring array shall become part of this Compliance Schedule.	9-1-91

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NOTE: •With respect to Subject 1 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Date for the noted Subject up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extension date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subject are governed by the provisions of paragraph XXIV of the Order.

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Compliance Schedule Appendix A-9  
Local Solid Waste Management Plan

The Respondent shall develop a local solid waste management plan for the City of New York in accordance with the schedule included herein. The plan shall be for a minimum ten-year period.

The compliance schedule follows:

<u>Subject</u>	<u>Milestone Date</u>
1. Respondent shall submit to the Department for its approval a local solid waste management plan that addresses all the matters identified in 6 NYCRR 360-15.9, which, upon approval by the Department, shall thereafter become the local solid waste management plan in effect for the City of New York.	12-1-91

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Compliance Schedule Appendix A-10  
Slope Stability Investigation

The Respondent shall perform a Slope Stability Investigation to analyze the refuse slope stability and foundation consolidation and stability in relation to the grading plan and waste placement rates proposed for all the Sections of the Landfill. The scope of work for the Slope Stability Investigation shall include performance of soil borings and collection, observation and description of soil samples; performance of geotechnical tests on soil samples including hydraulic conductivity tests, shear tests, consolidation tests, and grain size distribution tests; evaluation of the landfill slope stability and subsurface soil consolidation rates of all the Sections for the proposed landfill progression plan to ensure stability; and development of a long-term slope stability monitoring program that includes data collection methodology and establishment of factors of safety for observed field measurements to ensure no catastrophic failures. Consideration shall be given to the effect of the leachate collection/containment system on the subsurface stability. Design requirements of Appendix A-4 and A-6 for piezometers shall not apply to piezometers installed to satisfy the requirements of this Appendix A-10.

The compliance schedule follows:

<u>Subject</u>	<u>Milestone Date</u>
1. Respondent shall submit to the Department for review and comment the draft Preliminary Geotechnical Evaluation Report (PGER). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable PGER shall be submitted.	5-1-90
*2. Respondent shall submit to the Department the final acceptable Preliminary Geotechnical Evaluation Report.	6-1-90
3. Respondent shall initiate the field investigations.	6-20-90
4. Respondent shall initiate the geotechnical testing.	6-30-90
*5. Respondent shall submit to the Department for review and comment the draft Field Investigation Report (FIR).	7-20-90

No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable FIR shall be submitted.

- 6. Respondent shall submit to the Department for review and comment the draft Geotechnical Testing Data Report (GTDR). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable GTDR shall be submitted. 8-15-90
- \*7. Respondent shall submit to the Department the final acceptable Field Investigation Report. 10-7-90
- \*8. Respondent shall submit to the Department the final acceptable Geotechnical Testing Data Report. 10-7-90
- 9. Respondent shall submit to the Department for review and comment the draft Geotechnical Site Characterization Report (GSCR). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable GSCR shall be submitted. 11-4-90
- 10. Respondent shall submit to the Department for review and comment the draft Geotechnical Analysis Report (GAR). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable GAR shall be submitted. 1-27-91
- \*11. Respondent shall submit to the Department the final acceptable Geotechnical Site Characterization Report. 3-3-91
- \*12. Respondent shall submit to the Department the final acceptable Geotechnical Analysis Report. 6-2-91
- 13. Respondent shall submit to the Department for review and comment the draft Monitoring System Design Report and Monitoring System Installation Plans and Specifications. No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the

acceptable report, plans and specifications shall be submitted.

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| *14. Respondent shall submit to the Department the final acceptable Monitoring System Design Report and Monitoring System Installation Plans and Specifications. | 9-1-91   |
| 15. Respondent shall initiate the installation of the monitoring system.   | 1-15-92  |
| 16. Respondent shall complete the installation of monitoring system and initiation of long-term monitoring.  | 10-15-92 |
| 17. Respondent shall initiate the long-term monitoring.  | 11-15-92 |
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NOTE: \*Per the requirements of Subjects 1, 5, 6, 9, 10, and 13, upon acceptance by the Department, the Milestone Dates for Subjects 2, 7, 8, 11, 12, and 14 shall be modified. If the Respondent's contractor proposes the Milestone Dates as such Milestone Dates are set forth above for Subjects 2,7,8,11,12, and 14, the Department shall not withhold acceptance.

•With respect to Subjects 5, 6, 9, 10, and 13 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extension date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

April 19, 1990

DEC Case D2-9001-89-03

Compliance Schedule Appendix A-11  
Remediation Funding Upon Non-Submittal of Complete Application

In the event the Respondent does not submit a complete permit application, as determined by the Department pursuant to 6 NYCRR Part 621, for a solid waste management facility permit, the Respondent shall, in addition to and apart from any stipulated penalty liability for missed milestones under Appendix A-2, be required to adhere to the following Compliance Schedule until the day the Respondent submits an application deemed complete by the Department or the date the Landfill is closed according to a Departmentally approved Closure Plan, and that closure is certified to as complete by an individual licensed to practice engineering in the State of New York.

A Remediation Fund shall be established by the Department; the principal and interest of which shall be reserved for remediation activities pursuant to the Compliance Schedule (Appendix A-4) and post closure remediation of natural resources at Fresh Kills and environs. Remediation Fund payments are to be transmitted to the Department and deposited by the Department to an interest bearing account created by the Department. Control of the fund shall be with the Department and Respondent. Disbursement of the Fund shall be based on the following: a) 50 percent shall be for remediation activities pursuant to the Compliance Schedule (Appendix A-4) upon submittal to the Department of supporting vouchers and b) 50 percent for remediation activities pursuant to a Departmentally approved Closure Plan for Sections 1/9 and 6/7 upon submittal to the Department of supporting vouchers. Upon completion of the remediation activities pursuant to Compliance Schedule (Appendix A-4), 100 percent of the Remediation Fund payments will be for remediation activities pursuant to a Departmentally approved Closure Plan for Sections 1/9 and 6/7.

Remediation Fund payments are stipulated by the Respondent to be \$15,000 for each day of non-submittal of a complete application. Payments shall become due and payable as specified by the Milestone Dates below. The Department shall have judgment for due sums if not remitted within 60 days of each due date. The establishment of the Remediation Fund and payments to the Remediation Fund do not in any way affect the City of New York's financial liability for full closure costs and remediation under the New York Law.

<u>Subject</u>	<u>Milestone Date</u>
1. Remit Remediation Fund payment for the time period running from the last date specified in Appendix A-2 until either: a) 60 days after the last Milestone Date specified in Appendix A-2, or b) the day the complete permit application was submitted, as determined by the Department in accordance with 6 NYCRR Part 621.	90th day after the last date specified in Appendix A-2.
2. If a complete application, as determined by the Department in accordance with 6 NYCRR Part 621, has not been submitted, Respondent shall thereafter remit a payment of \$15,000 per day until such time as the Landfill is permanently closed or a complete application is submitted.	Each succeeding 60th day after Milestone Date 1.

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NOTE: This Order shall terminate 30 years after the date upon which closure of the Landfill is complete and certified to by an individual licensed to practice engineering in the State of New York, and upon the written Order of the Commissioner that all stipulated penalties have been satisfied.

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Compliance Schedule Appendix A-12  
Actions Upon Permit Denial

This compliance schedule will become operative only if the Respondent is denied a Part 360 solid waste management facility permit for all or sections of the Landfill pursuant to an application made under Compliance Schedule (Appendix A-2). In the event the Respondent is denied a 6 NYCRR Part 360 solid waste management facility permit for all or sections of the Landfill, this Order shall remain in effect for all unpermitted sections of the Landfill and the Commissioner shall issue, no earlier than forty-five days after notice to Respondent of the denial of the Part 360 permit, an order containing any of the remedies provided for in the Environmental Conservation Law, including a closure schedule for the Landfill, which shall be incorporated in Appendix A-14. Current Department enforcement policy for closure of active solid waste landfills includes guidelines for the closure of non-complying landfills which range from immediately, for landfills where there is evidence of immediate adverse environmental and/or health impacts that are incapable of being mitigated on an interim basis, to no more than three (3) years, for landfills where there is evidence of adverse environmental and/or health impacts that do not pose an immediate threat and that cannot be eliminated.

1. Notwithstanding the above, the Commissioner shall not issue the order containing remedies specified above if, prior to the expiration of the forty-five day period after notice to Respondent of the denial of the Part 360 solid waste management facility permit for all or portions of the Landfill, Respondent requests that the Commissioner hold a hearing to establish a Landfill Action Plan (LAP). The hearing to establish a LAP shall be held in accordance with 6 NYCRR 622. The Department and Respondent shall have the right to call witnesses and present documentary evidence. After the hearing, the Commissioner shall establish the LAP, which shall include a schedule for the closure of all or part of the Landfill to solid waste, and/or contain the conditions under which Respondent will continue to operate the Landfill. Those conditions may include additional operating requirements, additional remedial or mitigative measures protective of the environment, and the submission of an amended or new Part 360 permit application addressing any deficiencies identified by the Commissioner in the decision denying Respondent's permit application.
2. The Commissioner's determination as to the LAP established pursuant to paragraph 1 above shall be based upon the following factors:



- a. the remaining available waste disposal capacity at the Landfill;
- b. the available permitted waste disposal capacity within the City;
- c. the available reasonable alternative permitted solid waste disposal options within the State and geographic region and the associated costs of such options;
- d. the time necessary for Respondent to develop other permitted solid waste management facilities and a phased reduction of its dependence on the Landfill;
- e. the environmental and economic consequences of the closure of all or part of the Landfill, as compared to the environmental and economic consequences of the Landfill's continued operation;
- f. whether Respondent has taken reasonable steps to obtain waste disposal capacity in other parts of New York State;
- g. progress by Respondent toward the goals set forth in its local solid waste management plan;
- h. the additional mitigative measures Respondent proposes to undertake to address adverse public health, safety, environmental or natural resources impacts occasioned by the continued operation of the Landfill including the proposed uses of the trust fund established in paragraph 4 for remediation and to finance restoration of damaged surface and ground water resources at the Landfill and/or its environs.

For the purpose of this paragraph, a "permitted waste disposal option" shall mean a solid waste management facility which, at the time of the Commissioner's determination, has a permit to operate from the State agency, commission, or other authority responsible for authorizing its operation.

- 3. Any LAP established by the Commissioner shall include Milestone Dates subject to the stipulated penalties provisions of this Order under Paragraph XIII. In addition, if such LAP includes acceptance of solid waste at any section of the Landfill for which a Part 360 solid waste management facility permit has been denied for more than three (3) years after the date of denial of permit applications submitted under Appendix A-2 of this Order and any supplemental submission made under this schedule, the Respondent shall be assessed a surcharge penalty for waste disposal at the Landfill in accordance with the following:

a. Schedule of Surcharges

\$5 - per ton for the fourth year after the permit denial date.

\$7 - per ton for the fifth year after the permit denial date.

And then for each succeeding year until the fourteenth year after the year of permit denial:

\$9 - per ton plus an additional \$2 per ton for each succeeding year.

\$25 - per ton for the fourteenth year after the permit denial date.

And then for each succeeding year after the fourteenth year after the year of permit denial:

\$26 - per ton plus an additional \$1 per ton for each succeeding year.

b. Consumer Price Indexing of Surcharges

The Department will adjust the surcharges each year after the fourth year after the permit denial date to reflect inflation using the Consumer Price Index (C.P.I.) of the U.S. Department of Labor, Bureau of Labor Statistics for the New York-Northeastern New Jersey area for all urban consumers [NY-NENJ(u)] and will be computed as follows: the annual average of the NY-NENJ C.P.I.(u) for the prior calendar year divided by the NY-NENJ C.P.I.(u) for the fourth year after the permit denial date multiplied by the current year's surcharge. Except that the following cap and limitation shall apply to the C.P.I. calculation in that the surcharge shall not be increased by more than 8% for any one year during the fourth year after the permit denial date through, and including, the fourteenth year after the permit denial date. Furthermore the surcharge shall not increase more than 4% in any one year during and after the fifteenth year after the permit denial date.

c. Surcharge Reduction Due To Reduced Landfilling

If the Respondent annually disposes of less than 2,718,000 tons but more than 906,000 tons of solid waste subject to this surcharge provision and the LAP, such surcharge shall be reduced by one-third. If the Respondent annually disposes of 906,000 tons or less of solid waste subject to this surcharge provision and the LAP, such surcharge shall be reduced by two-thirds.

4. Such surcharge penalty is in addition to and apart from any stipulated penalty for Milestone Date violations. By August 1 of each year following the first year for which the surcharge is assessed, surcharges required pursuant to this Compliance Schedule shall be deposited by Respondent into an interest bearing trust account established by the Respondent. The Respondent's selection of the Trustee must be approved by the Commissioner. If an account established pursuant to Appendix A-11 is in existence at the time such surcharges begin to become due, any monies remaining in that account shall be transferred into the account established pursuant to this subparagraph. Sixty percent of the funds deposited in the trust account shall be expended on projects undertaken by the Respondent to develop, secure, implement, or further in any way waste reduction measures, alternative waste disposal capacity to the Landfill, remediation activities pursuant to a Departmentally approved closure plan for Sections 1/9 and 6/7, or any remedial and mitigative measures that the LAP requires Respondent to implement. These projects may include, but are not limited to, recycling programs, other waste diversion or reduction methods, development and implementation of any local solid waste management plan, and resource recovery. The remaining 40 percent shall be expended for the preservation and enhancement of the natural resources of any of the boroughs of New York City, with preference given to projects within the Borough of Staten Island.

The Trustee shall disburse funds to the Respondent for any projects, remediation and mitigation measures or activities and natural resource enhancement/preservation projects described in the paragraph above, authorized by the Commissioner. By August 1 of each year following the first year for which the surcharge is assessed, Respondent shall submit to the Commissioner a statement of projects, remediation and mitigation measures or activities and natural resource enhancement/preservation projects, which it proposes to be funded from the trust account during the Respondent's fiscal year ending June 30. Within 30 days of receipt of such a submission, the Commissioner shall, in writing to the Trustee and the Respondent, advise the Trustee and Respondent whether the submitted projects, remediation and mitigation measures or activities and natural resource enhancement/preservation projects have been authorized by the Commissioner. A denial of authorization for a particular project, measure, or activity may be issued only if the Commissioner determines that the project, measure, or activity submitted by Respondent does not fall within the scope of projects, measures, or activities described in the paragraph above. The trust agreement shall provide that if the Commissioner fails to issue an authorization or denial to the Trustee and Respondent within 30 days of the receipt of the Respondent's submission, the submission shall be deemed acceptable and the funds shall be released by the Trustee as if the Commissioner had issued such authorization.

5. Notwithstanding any provision in an order issued by the Commissioner or in a LAP that the Landfill, or any sections thereof, shall be closed, the Landfill or any closed sections may be utilized after closure for solid waste disposal upon written request by the Respondent to the Department that an emergency exists and the reasons therefore, and the subsequent authorization from the Commissioner that the emergency warrants temporary reopening of all, or part of the Landfill. Nothing herein shall limit the Commissioner's powers described in paragraph XVIII (Reserve) and paragraph XXI (Summary Abatement) of this Order.
6. Notwithstanding the above, nothing in this Appendix shall be construed as an admission by Respondent that the denial of a permit by the Commissioner warrants the closure of the Landfill or as a consent to the closure of the Landfill under any circumstances, or as an admission by Respondent that the Commissioner possesses any powers other than those he possessed by virtue of law. Respondent retains every right it otherwise possesses to challenge any decision of the Commissioner, in a court or any other forum, and Respondent shall have the right to challenge any determination of the Commissioner made as a result of the hearing referred to in this Appendix.

<u>Subject</u>	<u>Milestone Date</u>
1. Respondent requests a hearing to establish a Landfill Action Plan.	No later than 45 days after permit denial.
2. Commissioner to issue an order, if permits are denied, containing any of the remedies provided for in the Environmental Conservation Law. Such schedule shall be consistent with this Appendix.	After 45 days after permit denial.
3. Incorporation into this Order as Appendix A-14 the final Landfill Action Plan.	Upon completion of the Landfill Action Plan hearing.

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Compliance Schedule Appendix A-13  
Environmental Benefit Projects

In connection with this settlement and Order, Respondent shall submit, no later than December 30, 1990, an Environmental Benefit Plan ("plan") to the Department. This plan will detail Respondent's prospective implementation of projects directed at the following goals: acquisition of fee titles or conservation easements over wetlands regulated pursuant to Article 24 of the Environmental Conservation Law, use of indigenous plants for vegetative cover, development of wildlife habitat areas, and development of tidal and freshwater wetlands in and about Staten Island. The funding required to implement these projects shall be \$12 million. The plan shall provide that 50% of the funding shall be dedicated to wetlands acquisition. The Respondent will undertake and complete these projects upon acceptance by the Department. The Department shall review this plan and determine in its sole discretion the plan's acceptability. This plan shall clearly describe the projects. The plan shall also itemize the costs of the projects, detail the tasks to be done and set the dates for completion. In the plan, the Respondent shall propose a procedure whereby the Respondent may seek an extension of the dates set for completion. The Department shall review the plan to determine whether the projects described in it are in furtherance of the goals set forth above and whether the estimated costs and completion dates are reasonable. In the event the final plan is not accepted by the Department, the Department shall notify the Respondent and set forth reasons for not accepting the final plan in writing. The Respondent will have thirty days from receipt of notice to modify the plan in a manner acceptable to the Department. Changes in the accepted plan will not be allowed except upon written consent of the Department, which shall not be unreasonably withheld. The Respondent will undertake and complete such projects upon acceptance by the Department. Upon completion of the projects, Respondent shall notify the Department and certify that the projects have been completed in accordance with the approved plan. In the event the Respondent has not substantially completed the approved projects within two years of the approved completion date and has not obtained an extension of the completion date from the Department, the Respondent shall pay an amount representing the unexpended funds allocated to the plan to the Department as a penalty, and shall in any event complete the plan as approved. The Department shall consider such projects favorably in reviewing Respondent's application for a variance in accordance with 6 NYCRR § 360-1.7(c) as set forth in paragraphs 14-15 and Section V of this Order.

Notwithstanding the above and the Milestone Dates provided below, the Respondent and the Department may agree to expedite the acquisition and protection of particular parcels of threatened wetlands.

<u>Subject</u>	<u>Milestone Date</u>
1. Respondent shall submit a draft Environmental Benefit Plan.	09-30-90
2. The Department shall provide comments on the draft Environmental Benefit Plan to the Respondent.	11-15-90
3. Respondent shall submit a final Environmental Benefit Plan.	12-30-90
4. Respondent shall remedy any deficiencies in the final plan noted by the Department.	30 days after receipt of the Department's comments on the final plan.
5. Respondent shall complete the Environmental Benefit Plan.	By date specified in the Department's acceptance of the Respondent's plan.

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Appendix B-1  
Level I Interim Operating Requirements

Commencing on the Effective Date of this Order, unless otherwise noted, the Respondent shall comply with the following operational requirements:

1. No solid waste shall be accepted at the Landfill unless the waste in the transporting vehicle is covered or confined in the vehicle transporting the waste to contain blowing paper and litter.
2. Effective landfill side slopes shall not exceed 33 percent. Landfill side slopes from bench to bench shall not exceed 40 percent and the vertical height from bench to bench shall not exceed 100 feet. This requirement does not apply to side slopes developed prior to execution of this Order.
3. The working face shall be confined to an area no larger than 20 feet high and 350 feet wide for all working faces served by the atehy wagons. All other working faces shall be 20 feet high and 200 feet wide.
4. Access to the Landfill and receipt of solid waste shall be permitted only when an attendant is on duty.
5. Except for rakings, grit and scum that the Respondent has been accepting from municipal water pollution control facilities, no solid waste resulting from sludge and sewage treatment shall be disposed of at the Landfill. However, nothing herein shall prevent the Respondent from requesting Department approval to utilize fixated, composted or otherwise treated sludge as final cover material in accordance with the requirements of 6 NYCRR Part 360.
6. Disposal of solid waste after the Effective Date of this Order shall not occur within 100 feet of the boundary lines of the property on which the Landfill is operated.
7. Disposal of bulk liquids at the Landfill is prohibited.
8. Respondent shall not knowingly accept for disposal at the Landfill hazardous waste as defined in 6 NYCRR Part 371 that is required to be managed at a facility subject to regulation under 6 NYCRR Parts 373 or 374 and low-level radioactive waste that is required to be disposed at a land disposal facility subject to regulation under 6 NYCRR Part 382.

9. Respondent shall not knowingly accept for disposal at the Landfill asbestos waste unless it is disposed of in accordance with the following procedures. Asbestos waste must have been removed and packaged in accordance with 40 CFR Part 61, Subparts A and M, and 29 CFR Part 1910 (see Section 360-1.3), and the following measures and precautions must be taken to prevent asbestos fibers from becoming airborne:
  - a. The transporter must have a permit pursuant to 6 NYCRR Part 364 and must first inform the landfill operator of his intent to dispose of asbestos waste, the volume of the waste, and the anticipated date the shipment will arrive at the Landfill;
  - b. The landfill operator must then direct the transporter to the selected disposal area. This area must be recorded on an operations site plan so that necessary precautions can be taken to handle the asbestos waste in a safe manner in the event of future or regrading activity in this area;
  - c. Sufficient protection, in accordance with the intent of 360-2.17(p)(3) & (4), must be provided at the location of the asbestos waste disposal; and
  - d. If the Landfill owner/operator or the Department determines that the disposal methods are insufficient to prevent the asbestos waste material from becoming airborne or coming in contact with landfill equipment because of site-specific conditions or otherwise, added precautions must be taken.
10. All soil borings or rock cores which are not completed as monitoring wells or piezometers and other abandoned wells must be fully sealed in a manner appropriate for the geologic conditions to prevent contaminant migration through the borehole. Generally, such sealing must include:
  - a. Overboring or removal of the casing to the greatest extent possible followed by perforation of any casing left in place. All casing and well installations in the upper five feet of the boring or within five feet of the proposed level of excavation must be removed.
  - b. Sealing by pressure injection with cement bentonite grout using a tremie pipe or other method acceptable to the Department must extend the entire length of the boring insofar as the boring extends through native soil, or to five feet below the ground surface or the proposed excavation level. The screened interval of the borehole must be sealed separately and tested to ensure its adequacy before



sealing the remainder of the borehole. Where the surrounding geologic deposits are highly permeable, alternate methods of sealing may be required to prevent the migration of the grout into the surrounding geologic formation. The upper five feet must be backfilled with appropriate native materials compacted to avoid settlement.

- c. The sealed site must be restored to a safe condition. The site must be inspected periodically after sealing for settlement or other conditions which require remediation.
- 11. By November 1, 1991, leachate shall not overflow out of the manholes of and pumping station associated with the Veterans Avenue Leachate Collection System.
- 12. By November 1, 1991, leachate outbreaks shall not occur as a result of the leachate recirculation operation.
- 13. By November 1, 1992, leachate recirculation shall cease and leachate collected in the Veterans Avenue collection pipes shall be treated on-site. If, for reasons beyond the Respondent's control and provided the Respondent has actively pursued implementation of this alternative leachate treatment method, the Respondent is unable, by November 1, 1992, to treat the leachate on-site, the Department shall grant the Respondent a reasonable extension of the date by which Respondent was to comply with this provision.
- 14. Solid waste shall not be disposed in designated wetland areas.
- 15. Solid waste shall not be disposed in areas where there is less than a five foot separation between new refuse and groundwater.
- 16. Solid waste shall not intentionally be deposited in surface waters or groundwaters. If solid waste unintentionally enters surface waters or groundwaters, it shall be removed from the same in accordance with the methods identified in the submissions required by Appendix A-5.
- 17. Intentional open burning of solid waste is prohibited. Measures must be taken immediately to extinguish any non-permitted open burning and the Department must be notified that it has occurred.

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Appendix B-2  
Level II Interim Operating Requirements

Commencing on the Effective Date of this Order, unless otherwise noted, the Respondent shall comply with the following operational requirements:

1. Solid waste must be spread in layers not to exceed two feet in thickness and must be compacted upon deposition at the working face by appropriately sized compaction equipment making a minimum of three passes.
2. An annual report including the data requested herein, must be submitted to the Department no later than 60 days after the first day of January of each year:
  - a. The total quantity of solid waste disposed of in tons for the calendar year from January 1 to December 31. This information must be compiled by waste type such as refuse, ash residue, commercial waste or other waste forms.
  - b. The remaining site life and capacity in cubic yards of the Landfill.
  - c. A compilation of all water and leachate quality data collected throughout the year as required in this Order.
  - d. The amount of leachate collected and the amount transported off-site or treated on a monthly basis.
  - e. A topographic map of the Landfill showing grades within the property boundaries as of no earlier than October 1 of the reporting year.
3. Respondent shall institute and maintain an acceptable program in accordance with Appendix A-5 to assure that blowing papers and litter shall be confined, to the greatest extent practicable, to solid waste holding, operating and barge unloading areas by fencing, temporary berms, proper application of daily and intermediate cover, or other suitable means.
4. On-site roads used to transport solid waste shall be maintained in a passable condition at all times, unless weather conditions (e.g. snow storms) prevent the same, excluding atthey wagon roads. Atthey wagon roads

shall be maintained in a passable condition to the best extent practicable.

5. Grass or ground cover shall be established and maintained on all exposed final cover material within four months after placement or, season not permitting, as soon as growing season begins.
6. Benchmarks shall be established and maintained at the Landfill at least every 100 acres, to establish and control landfill elevations and shall be used by the Respondent to control elevations.
7. The operator must select one waste collection vehicle from each operating section at random at least once weekly and unload its solid waste at the working face for inspection for unauthorized waste. In the case of Sections 1/9 and 6/7, the vehicles transporting waste from the barge unloading facilities shall be inspected. A record of this inspection must be kept on the premises and be available for Department review to ensure only authorized solid waste is being accepted at the facility. Substitution of one waste collection vehicle at random from each marine transfer station at least once weekly will be allowed for each of Sections 1/9 and 6/7.
8. When accepting any tank for disposal, where feasible, the tank ends must be removed or cut off, and the tank must be drained to the extent possible and be effectively compressed to its smallest practical volume.
9. The Respondent must effectively operate and maintain weight scales to measure the waste received on a daily basis. For the solid waste transported by barge to the Landfill, the effective operation and maintenance of weight scales at the marine transfer stations will satisfy this requirement. This requirement shall not become effective until one year after execution of this Order. In the interim, the no-scale load model established by the Respondent shall be adequate for weight measurement of the solid waste received at the Landfill.
10. All wells must be properly protected to ensure their integrity. If the Department determines, based on water quality or other data, that the integrity of a well is lost and cannot be rehabilitated, the well must be replaced and sampled within 120 days after written notification by the Department. If the well can be rehabilitated, it must be rehabilitated and sampled within 120 days after written notification by the Department. The initial sample for the replacement or rehabilitated well must be analyzed for Baseline Parameters.

11. Access to the Landfill must be strictly and continuously controlled by fencing, gates, signs or other suitable means. This shall become effective upon completion of related tasks in Appendix A-5.
12. The Respondent must frequently monitor and inspect the facility for malfunctions or deteriorations of equipment, operator errors, and discharges which may cause a release to the environment or a threat to human health. The Respondent must conduct these inspections often enough to identify problems and remedy them before they harm human health or the environment.

The Respondent must record the inspections in an inspection log. These records must be retained at the facility for at least seven years from the date of inspection. They must include the date and time of the inspection, the name of the inspector, a description of the inspection including identifying the specific equipment and structures inspected, the observations recorded, and the date and nature of any remedial actions implemented or repairs made as a result of the inspection.

This operation requirement does not pertain to the effects of leachate entering the groundwater, nor the effects of the leachate recirculation prior to November 15, 1992.

13. The Respondent must retain and/or make available records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation; and copies of all reports required by this Order) for a period of at least seven years from the date of the sample analysis, measurement or report. Records for monitoring information must include: the date, exact place, and time of sampling or measurements; the name of the individual who performed the sampling and measurement; the date analyses were performed; the name of the individual who performed the analyses; the analytical techniques or methods used; and the result of such analyses. Additional information relating to the analysis, including records of internal laboratory quality assurance and control, must be made available to the Department at its request.
14. Dust and odor must be controlled so that they do not constitute nuisances, or hazards to health, safety or property. The facility must be maintained so as to prevent, to the greatest extent practicable, the Landfill from being a vector breeding area.
15. Adequate numbers, types, and sizes of properly maintained equipment must be available to the Landfill during all hours of operation to maintain compliance with solid waste handling requirements.

16. Noise levels at the Landfill must be controlled to prevent sound levels beyond the property line at locations zoned or otherwise authorized for residential purposes to exceed the following Leq energy equivalent ambient sound levels:

Character of Community	7 a.m. - 10 p.m.	10 p.m. - 7 a.m.
Urban	67 decibels (A)	57 decibels (A)

- a. If the sound level excluding any contributions from the background sound level exceeds these limits, the operation of the facility must not cause a Leq statistical sound level exceeding the background. The Leq is the equivalent steady-state sound level during a one hour period exceeded no more than ten percent of the time.
  - b. The sound level must be weighted sound pressure level measured with the slow metering characteristic and A weighted.
  - c. Measuring instruments must be Type 1 general purpose sound level meters, Type 2, or corresponding special sound level meters Type S1A or S2A.
  - d. Mufflers are required on all internal combustion-powered equipment used at the facility, and sound levels for such equipment must not exceed 80dB(A) at a distance of 50 feet from the operating equipment.
17. Operation of the Landfill must be conducted under the direction of an individual who has authority and knowledge to make and implement decisions regarding operating conditions at the Landfill (called a "responsible individual in charge") and who has attended and successfully completed a course of instruction in solid waste management procedures relevant to the Landfill. Such courses must be provided or approved by the Department.
18. Salvaging, if permitted by the Respondent, must be controlled by the Respondent within a designated salvage area and must not interfere with Landfill operations nor create hazards or nuisances.
19. Ponding and erosion shall be prevented, except when severe weather conditions make achievement of this requirement not possible.
20. Respondent shall operate and maintain the leachate containment and collection system developed pursuant to Appendix A-4.

21. The concentration of methane and other explosive gases generated by the Landfill shall not exceed:

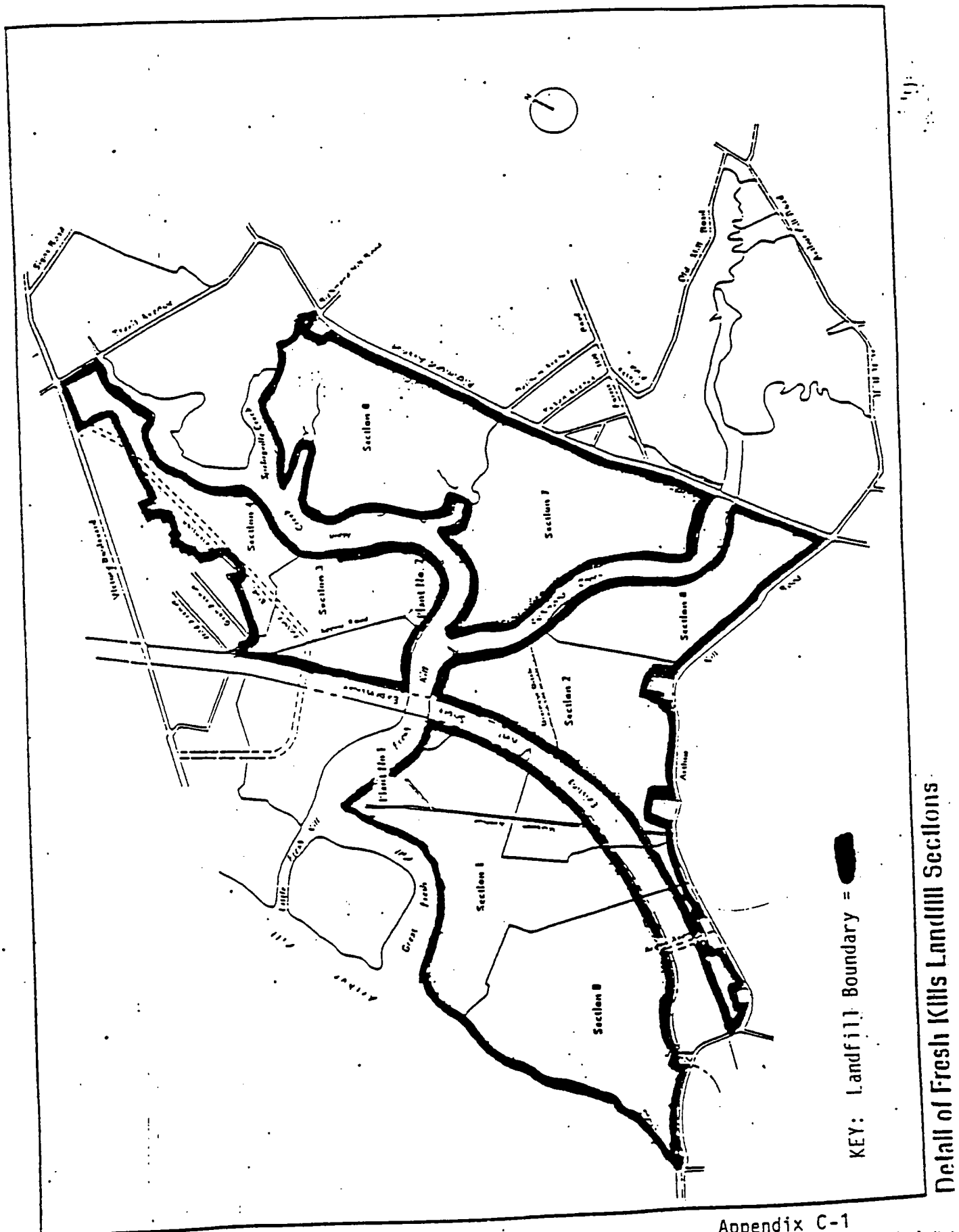
- a. 25 percent of the lower explosive limit for gases in facility structures on or off-site, excluding gas control or recovery components; and
- b. The lower explosive limit for the gases at or beyond the property boundary.

This operation requirement shall become effective upon completion of the Landfill gas migration control systems.

22. The gas monitoring system developed pursuant to the requirements of Appendix A-8 must be operated and maintained until Department approval to cease.
23. Upon detection of methane or other explosive gas levels exceeding the limits specified in item 21, above, the landfill operator and all appropriate emergency service officials must take all steps necessary to ensure safety and protection of health and must immediately notify the Department.
24. The Respondent shall perform on a continuing basis, the groundwater, surface water and sediment monitoring programs in accordance with the Department approved programs developed as a result of the tasks in Appendices A-6 and A-7.
25. Final cover shall be placed on the Landfill in accordance with the accepted final cover design(s) and the construction schedules incorporated into Appendix A-3.
26. The Respondent shall operate and maintain the slope stability monitoring array, as required by Appendix A-10, once the array is installed.
27. In all areas in which no additional waste will be deposited within 24 hours, the Respondent shall cover the waste with six inches of compacted cover material. In all areas in which no additional waste has been or will be deposited within 30 days, the Respondent shall cover the waste with 12 inches of compacted cover material. Cover material shall be as defined in 6 NYCRR 360-1.2(b)(39).

April 19, 1990

APPENDIX C-1



April 19, 1990

DEC Case D2-9001-89-03

Appendix C-2  
Compliance Progress Report Format

The Report required pursuant to Paragraph VIII of this Order shall be in the following format:

Cover Sheet. Appropriate identifying information, Case Number, reporting period and due date.

Section 1. Description of proposed or implemented operational changes at the Landfill (including temporary changes for evaluation purposes).

Section 2. Description of proposed on-going alterations to the equipment or structures at the Landfill.

Section 3. A Status Report for each A-series Appendix, discussed separately with the following elements:

- a. Status of efforts to comply with the Milestone Dates.
- b. Summary analysis of progress made.
- c. Summary identification of anticipated and incurred problems.
- d. Articulation of measures taken to maintain progress towards the objectives and milestones of this Order.



DEC Case D2-9001-89-03

Appendix C-3  
Data Descriptions

- A. Laboratory and Field Chemical Analytic Data. For the purposes of this provision, laboratory and field chemical analytic data shall be defined as all laboratory chemical analytic results of parameters analyzed for and related laboratory reports and information, and all field chemical analytic results of parameters analyzed for and related laboratory reports and information obtained with a portable GCMS and will include the concentration of all parameters tested for each sample, all non-detections and all detection limits, and all accessory information (date collected, date tested, etc.).
- Gas chromatograph strip charts will not be required, although they must be made available to the Department upon request. The submissions must also include the accompanying written report and all documentation of the QA/QC procedures utilized during sampling and analysis.
- B. Remaining Laboratory and Field Data. For the purpose of this provision, remaining laboratory and field data shall be defined as laboratory and field data, excluding that described in Paragraph A above, generated during the performance, by the Respondent or the Respondent's representative, of any environmental investigations relating to the Landfill. That information includes the following:
1. Field soil boring logs, field test-pit logs, related field notes, and final redrafts of boring logs based on reinspection of samples. The log should define the details of well construction material placement, where applicable (i.e. location of sand pack, well screen, etc.).
  2. Field geotechnical data from insitu hydraulic conductivity tests (bailer and slug tests, etc.), pump tests and recovery tests.
  3. Field measurements of static water level in monitor wells or piezometers, including date and time of measurement and all relevant accessory information related to the quality of the data. Reporting should include a tabulation of hand measurements or a copy of strip charts from automatic recorders including all relevant information.

4. Field chemical analytic measurements not obtained with a portable GCMS obtained from groundwater or surface water samples. These measurements will include, most commonly, pH, temperature, specific conductivity, turbidity, and relevant observations (color, odor, etc.). This submission shall include accessory information related to the quality of the data.
5. Field data related to the slope stability monitoring including piezometer measurements, slope indicator readings and survey point elevations (elevation changes, including magnitude, should be noted). These data can be submitted as a copy of strip chart record and should include accessory information related to the quality of the data.
6. Field measurements of air chemistry, methane emissions, and subsurface concentration of methane, and all organic screening on air, water or soil samples including those commonly obtained with a photoionizing detector or a flame ionizing detector. This applies to field measurements for gas migration and ambient air quality studies only and not the Health and Safety Program.
7. Laboratory geotechnical test data including worksheets for hydraulic conductivity tests, worksheets of sieve and/or hydrometer analyses with accompanying distribution graph, and the results of Atterberg limits, laboratory description and other observations, and all additional tests performed (shear tests, etc.). Pertinent accessory information and written reports related to the quality of the data should be included in the submission. This information will be submitted in graphic form.
8. Land survey data showing the elevations and east-west and north-south coordinates of all exploratory borings, monitor wells, and piezometers.

DEC Case D2-9001-89-03

APPENDIX D-1  
City Ash Disposal Capacity

The Department and Respondent both recognize that it is in Respondent's interest to develop an ash disposal site at the Landfill or elsewhere that complies with the requirements of 6 NYCRR Part 360.3-5(g)(1-3) to assure continued availability of ash disposal capacity for incineration facilities, including those that may be permitted in the future.

The Department recognizes Respondent's interest in proceeding expeditiously in submitting a permit application to construct an ash disposal facility and in receiving from the Department such technical and engineering guidance as might be appropriate. The Department will be available to provide guidance to Respondent in preparing a complete application for such a facility.

At any time that Respondent determines that it is ready to do so, it may submit a request that the Department provide general guidance on the type of engineering and technical data needed to document the characteristics of a particular site or sites and the process Respondent needs to follow to prepare and submit a complete application for an ash disposal facility. At the earliest time of mutual convenience thereafter, but not later than 60 days after such a request, Department personnel will meet with Respondent's representatives for that purpose. Following such a meeting, Respondent may submit a final inquiry with respect to the engineering and technical data needed to submit a complete application. The Department will work with Respondent to facilitate the filing of a permit application which meets criteria for a determination of completeness within three months thereafter.

Once Respondent files an application for an ash disposal facility, the Department shall review and comment on its completeness and, if incomplete, state what will be required for completeness within 90 days of receipt of that application. Not later than 45 days after mailing a notice of incompleteness, the Department will be prepared to meet with Respondent to determine jointly the date by which a revised and complete application shall be filed by Respondent and a schedule for permit review.

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
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In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by:

ORDER

ON

CONSENT  
Modification #1

THE CITY OF NEW YORK

(Department of Sanitation  
125 Worth Street  
New York, New York 10013)

DEC CASE #  
D2-9001-89-03  
(Fresh Kills)

Respondent  
-----

## WHEREAS:

1. The Order on Consent executed on April 24, 1990 with respect to the Fresh Kills Landfill required public notice and an opportunity for public comment upon such Order.
2. The opportunity for public oral and written comment was duly noticed according to the terms of Paragraph XXIII of said Order.
3. A public meeting was conducted by the Department on May 30, 1990 in Staten Island as indicated in the attached Public Notice.
4. Oral and written statements/comments have been received and reviewed by the Department and Respondent. Responses have been developed by both the Department and Respondent.
5. Paragraph XXIII provides that the Department may within 60 days after the close of the public comment period propose in writing to modify the Order to reflect significant or material concerns raised by the public comments. The date for proposal of the modification was modified by agreement until September 21, 1990.

6. The Department has determined that certain concerns raised by the public can appropriately be addressed by modification of the Order.

7. The Respondent is obligated under the terms of Paragraph XXIII of the Order to notify the Department whether it accepts the terms of this modification within 20 days of issuance of this modification.

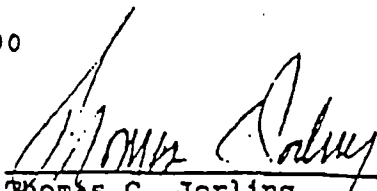
NOW, THEREFORE, IT IS ORDERED THAT:

A. The following six revised and new provisions summarized below and attached in full are hereby incorporated into the April 24, 1990 Consent Order:

1. A new decretal paragraph XXVI entitled "PUBLIC PARTICIPATION" is added to delineate procedures to enhance public knowledge and participation in activities related to proper execution of the terms of this Order;
2. A new Appendix D-2, entitled "Public Access Document Repository and Document Indexing" is added to specify the location, types and cataloging of documents subject to new decretal paragraph XXVI;
3. "Compliance Schedule Appendix A-2 - Applications for the Fresh Kills Landfill" is revised to require the advanced submission of a Contingency Plan;
4. "Appendix B-1 Level I Interim Operating Requirements" is revised to explicitly prohibit disposal of certain incinerator ash and to specify average daily tonnage limitation;
5. A revised List of Appendices to reflect this modification.

B. This modification shall be EFFECTIVE upon the return of the executed consent form attached to this modification within 20 days.

DATED: September 24, 1990  
Albany, New York

  
Thomas C. Jorling  
Commissioner of  
Environmental Conservation

TO: The Honorable Steven M. Polan  
Commissioner of Sanitation  
of the City of New York  
125 Worth Street  
New York, New York 10013

Victor A. Kovner, Esq.  
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New York City Department of Law  
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125 Worth Street  
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Carl T. Ferrentino, Esq.  
Compliance Counsel for Environmental Quality  
50 Wolf Road - Room 609  
Albany, New York 12233-5500


CONSENT BY RESPONDENT CITY OF NEW YORK

MODIFICATION #1

Respondent hereby consents to the issuing and entering of the foregoing Modification to this Order (DEC File No. D2-9001-89-03), pursuant to the terms of Paragraph XXIII of the Consent Order executed with respect to Fresh Kills Landfill.

  
\_\_\_\_\_  
Steven M. Polan, Commissioner of Sanitation  
of the City of New York

10/16/90  
Date

  
\_\_\_\_\_  
Victor A. Kovner, Corporation Counsel of the  
City of New York

10/19/90  
Date

Modification #1  
D2-9001-89-03

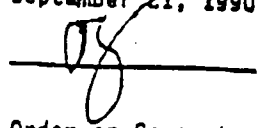
XXVI. PUBLIC PARTICIPATION

- A. The Respondent and the Department shall jointly maintain at least one public access document repository within the Borough of Staten Island. The specification of the documents to be routinely maintained at the repository, the location of the repository, and the methodology of indexing the documents shall be as set forth in Appendix D-2 of this Order. The Department shall take necessary measures to ensure that convenient public access to all documents related to this Order is maintained.
- B. All modifications of this Order pursuant to Paragraph XXIV shall be preceded by public notice, except that emergency modifications and modifications pursuant to adjudicated dispute resolutions under Paragraph XIV shall be accompanied by public notice. Public notice shall be accomplished by publication in the Environmental News Bulletin (ENB) and by direct placement of such notice and the proposed modification(s) in the public access document repositories. The notice shall be published at least fifteen (15) days prior to the issuance of any modification or denial of a modification request. Written public comment upon proposed modifications shall be invited. The Department may provide additional public notice at its discretion.
- C. The Respondent shall conduct, during the month of February, every year, a public meeting within the Borough of Staten Island. At the public meetings, the Respondent shall summarize its progress and avail to the public the opportunity to ask questions of the New York City Department of Sanitation concerning operation of the Landfill and compliance with this Order. The meetings shall be publicly noticed at least two weeks prior to the meeting date in the ENB and in a newspaper of general circulation for the Borough of Staten Island. The public meetings shall be scheduled at times and places calculated to ensure public participation by interested persons and officials.

*J*  
September 21, 1990  
September , 1990



September 21, 1990

  
Order on Consent  
DEC Case D2-9001-89-03List of AppendicesSeries A AppendicesSubject

A-1	Operations and Maintenance Plan
A-2	Applications for the Fresh Kills Landfill
A-3	Landfill Final Cover Design
A-4	Landfill Leachate Mitigation of Sections 1/9 and 6/7
A-5	Waste Transport and Unloading Facilities
A-6	Hydrogeological Investigation
A-7	Surface Water and Sediment Investigation
A-8	Landfill Gas Migration Mitigation
A-9	Local Solid Waste Management Plan
A-10	Slope Stability Investigation
A-11	Remediation Funding Upon Non-Submittal of Complete Application
A-12	Actions Upon Permit Denial
A-13	Environmental Benefit Projects
A-14	[Reserved]

Series B Appendices

B-1	Level I Interim Operating Requirements
B-2	Level II Interim Operating Requirements

Series C Appendices

C-1	Fresh Kills Landfill Map
C-2	Compliance Progress Report Format
C-3	Data Descriptions

Series D Appendices

D-1	City Ash Disposal Capacity
D-2	Public Access Document Repository and Document Indexing

September 21, 1990  


DEC Case 02-9061-89-03

Compliance Schedule Appendix A-2  
Applications for the Fresh Kills Landfill

<u>Subject</u>	<u>Milestone Date</u>
1. The Respondent shall submit an interim Contingency Plan for the Landfill based on, to the maximum extent practicable, the applicable requirements of 6 NYCRR 360-1.9(h) and 360-2.10.	7-01-91
2. The Respondent shall submit a draft Contingency Plan for the Landfill based on, to the maximum extent practicable, the applicable requirements of 6 NYCRR 360-1.9(h) and 360-2.10.	1-15-92
3. The Respondent shall submit a final, acceptable Contingency Plan which meets, to the maximum extent practicable, the applicable requirements of 6 NYCRR 360-1.9(h) and 360-2.10. The Contingency Plan shall be updated on an annual basis thereafter.	7-15-92
4. The Respondent shall submit for Department review and comment draft applications for a solid waste management facility permit, pursuant to 6 NYCRR Part 360, a SPDES permit, as required by 6 NYCRR Part 750-758, and a Tidal Wetlands permit, as required by 6 NYCRR Part 661, including draft documents for compliance with the State Environmental Quality Review Act. The City shall submit applications for those portions of the Landfill at which it plans to continue landfilling actions. Any solid waste management facility permit application for continued operation of the Landfill shall be submitted pursuant to 6 NYCRR 360-1.8 and 360-1.9, and shall contain the elements specified at 6 NYCRR 360-2.3, but not 6 NYCRR Part 360-2.12(a), (b), (d) and (e). The Department does not intend to require Respondent to retrofit the Landfill to meet the requirements of 6 NYCRR §360-2.13(a), (d) - (l) and (n), provided that Respondent submits an application for a variance in accordance with 6 NYCRR §360-1.7(c) that demonstrates compliance to the maximum extent practicable with the overall performance standards of 6 NYCRR §360-2.13(a), (d) - (l) and (n), and the standards for a variance. Solid waste management facility permits to construct and operate, or a solid	9-15-94

September 21, 1990  


waste management facility permit to operate with special conditions reflective of applicable construction standards, shall be issued provided the Respondent satisfies the standards set forth in 6 NYCRR 360-1.10 and 360-1.11 and/or demonstrates that a variance from any 6 NYCRR Part 360 provision should be granted. Such submissions shall be based on the regulations in effect on the date of submission, except as provided in Paragraph II of this Order. This submittal is intended to be an informal preliminary review of the applications and is, therefore, not subject to the requirements of the Uniform Procedures Act. The Department's review shall be of sufficient detail to identify all areas of incompleteness, if any, and the Department's comments will identify those areas.

5. The Respondent shall submit complete applications, as determined by the Department in accordance with 6 NYCRR Part 621, for a solid waste management facility permit, pursuant to 6 NYCRR Part 360, a SPDES permit, as required by 6 NYCRR Part 750-758, and a Tidal Wetlands permit, as required by 6 NYCRR Part 661, including compliance with the State Environmental Quality Review Act. Such submission shall be in accordance with the regulations in effect on the date of submission, except as provided in Paragraph II of this Order. The Department shall notify the Respondent in writing of its Completeness Determination and if the application is deemed incomplete, include a statement indicating all identifiable areas of incompleteness within 60 days of actual receipt of the Respondent's total submissions. If the Department fails to notify the Respondent of incompleteness within this timeframe, the application shall be deemed complete. 3-15-95
6. Submission of a revised permit application if the application is deemed incomplete in Subject 2. 90 days from receipt of Department Incompleteness Determination

NOTE: See Appendix A-11 for a failure to submit a complete application.  
See Appendix A-12 for a denial of a permit(s) for the Landfill.

September 21, 1990

DEC Case D21-9001-89-03

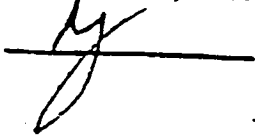
Appendix B-1  
Level 1 Interim Operating Requirements

Commencing on the Effective Date of this Order, unless otherwise noted, the Respondent shall comply with the following operational requirements:

1. No solid waste shall be accepted at the Landfill unless the waste in the transporting vehicle is covered or confined in the vehicle transporting the waste to contain blowing paper and litter.
2. Effective landfill side slopes shall not exceed 33 percent. Landfill side slopes from bench to bench shall not exceed 40 percent and the vertical height from bench to bench shall not exceed 100 feet. This requirement does not apply to side slopes developed prior to execution of this Order.
3. The working face shall be confined to an area no larger than 20 feet high and 350 feet wide for all working faces served by the atehy wagons. All other working faces shall be 20 feet high and 200 feet wide.
4. Access to the Landfill and receipt of solid waste shall be permitted only when an attendant is on duty.
5. Except for rakings, grit and scum that the Respondent has been accepting from municipal water pollution control facilities, no solid waste resulting from sludge and sewage treatment shall be disposed of at the Landfill. However, nothing herein shall prevent the Respondent from requesting Department approval to utilize fixated, composted or otherwise treated sludge as final cover material in accordance with the requirements of 6 NYCRR Part 360.
6. Disposal of solid waste after the Effective Date of this Order shall not occur within 100 feet of the boundary lines of the property on which the Landfill is operated.
7. Disposal of bulk liquids at the Landfill is prohibited.
8. Respondent shall not knowingly accept for disposal at the Landfill hazardous waste as defined in 6 NYCRR Part 371 that is required to be managed at a facility subject to regulation under 6 NYCRR Parts 373 or 374 and low-level radioactive waste that is required to be disposed at a land disposal facility subject to regulation under 6 NYCRR Part 382.

September 21, 1990  


9. Respondent shall not knowingly accept for disposal at the Landfill asbestos waste unless it is disposed of in accordance with the following procedures. Asbestos waste must have been removed and packaged in accordance with 40 CFR Part 61, Subparts A and M, and 29 CFR Part 1910 (see Section 360-1.3), and the following measures and precautions must be taken to prevent asbestos fibers from becoming airborne:
- The transporter must have a permit pursuant to 6 NYCRR Part 364 and must first inform the landfill operator of his intent to dispose of asbestos waste, the volume of the waste, and the anticipated date the shipment will arrive at the Landfill;
  - The landfill operator must then direct the transporter to the selected disposal area. This area must be recorded on an operations site plan so that necessary precautions can be taken to handle the asbestos waste in a safe manner in the event of future or regrading activity in this area;
  - Sufficient protection, in accordance with the intent of 360-2.17(p)(3) & (4), must be provided at the location of the asbestos waste disposal; and
  - If the Landfill owner/operator or the Department determines that the disposal methods are insufficient to prevent the asbestos waste material from becoming airborne or coming in contact with landfill equipment because of site-specific conditions or otherwise, added precautions must be taken.
10. All soil borings or rock cores which are not completed as monitoring wells or piezometers and other abandoned wells must be fully sealed in a manner appropriate for the geologic conditions to prevent contaminant migration through the borehole. Generally, such sealing must include:
- Overboring or removal of the casing to the greatest extent possible followed by perforation of any casing left in place. All casing and well installations in the upper five feet of the boring or within five feet of the proposed level of excavation must be removed.
  - Sealing by pressure injection with cement bentonite grout using a tremie pipe or other method acceptable to the Department must extend the entire length of the boring insofar as the boring extends through native soil, or to five feet below the ground surface or the proposed excavation level. The screened interval of the borehole must be sealed separately and tested to ensure its adequacy before

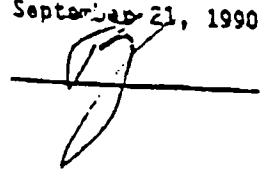
September 21, 1990  


sealing the remainder of the borehole. Where the surrounding geologic deposits are highly permeable, alternate methods of sealing may be required to prevent the migration of the grout into the surrounding geologic formation. The upper five feet must be backfilled with appropriate native materials compacted to avoid settlement.

- c. The sealed site must be restored to a safe condition. The site must be inspected periodically after sealing for settlement or other conditions which require remediation.
11. By November 1, 1991, leachate shall not overflow out of the manholes of and pumping station associated with the Veterans Avenue Leachate Collection System.
  12. By November 1, 1991, leachate outbreaks shall not occur as a result of the leachate recirculation operation.
  13. By November 1, 1992, leachate recirculation shall cease and leachate collected in the Veterans Avenue collection pipes shall be treated on-site. If, for reasons beyond the Respondent's control and provided the Respondent has actively pursued implementation of this alternative leachate treatment method, the Respondent is unable, by November 1, 1992, to treat the leachate on-site, the Department shall grant the Respondent a reasonable extension of the date by which Respondent was to comply with this provision.
  14. Solid waste shall not be disposed in designated wetland areas.
  15. Solid waste shall not be disposed in areas where there is less than a five foot separation between new refuse and groundwater.
  16. Solid waste shall not intentionally be deposited in surface waters or groundwaters. If solid waste unintentionally enters surface waters or groundwaters, it shall be removed from the same in accordance with the methods identified in the submissions required by Appendix A-5.
  17. Intentional open burning of solid waste is prohibited. Measures must be taken immediately to extinguish any non-permitted open-burning and the Department must be notified that it has occurred.
  18. Respondent shall not knowingly accept for disposal at the Landfill ash residue, as defined in 6 NYCRR 360-1.2(b)(13), from any solid waste incinerator except as provided for in Compliance Schedule Appendix A-4.

September 21, 1990  


19. If during any calendar quarter the amount of solid waste disposed of at the Landfill exceeds an average of 25,000 tons per operating day, no later than fourteen (14) days following the end of such quarter the Respondent shall notify the Department of such fact in writing. In no event shall the amount of solid waste disposed at the Landfill during any calendar quarter exceed an average of 27,000 tons per operating day, unless the Respondent has submitted, and the Department has accepted, an Operations and Maintenance Plan developed in accordance with 6 NYCRR 360-2.9(b)-(g), (k), & (l), and which adequately demonstrates how the proposal will meet the operation requirements set forth in Appendices B-1 and B-2 of this Order. The Operations and Maintenance Plan shall demonstrate that such volume can be handled safely, and in compliance with this Order, at the Landfill. The Department shall not unreasonably withhold its acceptance of the Operations and Maintenance Plan.

September 21, 1990  


DEC Case D2-9001-89-09

Appendix D-2  
Public Access Document Repository  
and Document Indexing

A. In accordance with paragraph XXVI of this Order, two copies of the following documents and reports issued under this Order shall be deposited by the Respondent and Department upon transmittal by one party to the other party of this Order:

1. All reports, plans and surveys submitted by the Respondent in compliance with any specific milestone date in any A-Series Compliance Schedule. Informal and preliminary submittals made in advance of a milestone date and correspondence between the Respondent and Department concerning the potential suitability or acceptability of the Respondent's forthcoming submittal need not be sent to the Repository. Also, the Department shall maintain the confidentiality of the identity of particular parcels of land subject to the acquisition interest of the Respondent, if so requested by the Respondent.
2. Compliance Progress Reports made by the City pursuant to paragraph VII of this Order.
3. Written notices to the Department concerning alterations to the Landfill procedures, equipment and structures made pursuant to paragraph XII of the Order.
4. Department-issued Notices of Milestone Deficiency (NOMD), Demands for Stipulated Penalties, Notices of Violation (NOV) and any Respondent response concerning the same issued pursuant to the Stipulated Penalty provisions of paragraph VIII of this Order.
5. Public Notices concerning modifications, requests for modifications and modifications to this Order.
6. Public comments and responses of the Department and Respondent as a result of paragraph XXIII of this Order.
7. A listing and index of all documents maintained at the Repository.

B. The Public Access Document Repository is located at:

Room 100, Office of the Borough President  
Staten Island Borough Hall  
Staten Island, New York 10301  
Telephone: (718) 390-5100



September 21, 1990  


The Department shall secure agreement from the officials responsible for the Repository to maintain at least one complete set of indexed documents required pursuant to paragraph XXVI of this Order and that such officials will provide access to the public for inspection and copying of such documents at the public members' expense during normal business hours. The Department may change the Repository during the term of the Order in order to ensure convenient public access to documents.

C. Document Indexing

All submittals made by the Respondent pursuant to this Order shall be clearly marked with identifying information on the cover and first page which indicates the Appendix, Paragraph and Subject and Milestone Date for which the document is responsive. The Respondent shall periodically revise the listing and indexing of the documents that compose a complete set of documents to be maintained at the Document Repository.

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
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In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by:

ORDER

ON

CONSENT

Modification #2

THE CITY OF NEW YORK  
(Department of Sanitation)  
125 Worth Street  
New York, New York 10013)

DEC CASE #  
D2-9001-89-03  
(Fresh Kills)

Respondent  
-----

WHEREAS:

1. On November 20, 1991, the Department of Sanitation requested that Appendix A-3 [Landfill Final Cover Design], Item 8 be modified to replace the current 140 foot elevation for the solid waste mound at Section 3/4 with the figure of 191 feet.

2. New York State Department of Environmental Conservation has determined that it is not necessary to increase the allowable height of the waste mound at Section 3/4 to 191 feet, but that a lesser height increase at Section 3/4 is necessary in order to assure proper management of the daily waste load until the Main Creek Bridge replacement is completed and Section 3/4 closed to the placement of municipal solid waste, on or before November 30, 1992.

NOW, THEREFORE, IT IS ORDERED THAT:

A. Appendix A-3 Landfill Final Cover Design, Item 8 is revised to delete the current references to Section 3/4, and add the following provisions:

1. The maximum elevation of Section 3/4 shall not exceed 170 feet;
2. Use of Section 3/4 for the placement of municipal solid waste shall cease as soon as all structural elements and paving of the Main Creek Replacement Bridge are completed, or November 30, 1992, whichever is sooner;
3. DOS shall unload no more than thirty six barges each week at Unloading Plant Two until Section 3/4 is closed to

municipal solid waste; all other barges shall be unloaded at Plant One:

4. DOS shall supply DEC with the following reports until Section 3/4 is closed to municipal solid waste:

a. A weekly report of the number of barges received at Fresh Kills separately stating the number of barges unloaded at Plants One and Two, and also stating the barge ID numbers, marine transfer station origins and tonnage for each barge unloaded;

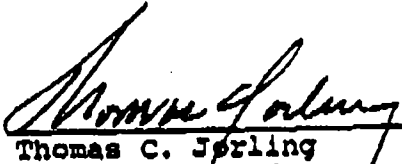
b. A monthly construction progress report and schedule update for the Main Creek Bridge replacement indicating compliance with the DOS's proposed schedule for completion of the bridge by November 30, 1992.

5. DOS shall submit the Final Acceptable Closure Plan required under Consent Order Appendix 3, Item 8 by May 18, 1992, rather than May 3, 1992 as currently required, to allow for the incorporation of the revised final elevation as prescribed above.

B. The Department of Sanitation shall provide DEC with funds, in an amount not to exceed Seven Hundred Fifty Thousand Dollars, for use in the implementation by DEC of an air pollution monitoring program that will characterize the specific air emissions from the Fresh Kills Landfill, their contribution to the ambient air and their relative contribution to the overall composition of air pollutants on Staten Island.

C. This modification shall be effective immediately.

DATED: April 22, 1992  
Albany, New York

  
Thomas C. Jerling  
Commissioner of  
Environmental Conservation

Rec'd 12-15-93

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
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In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by

ORDER

ON

CONSENT

Modification #3

THE CITY OF NEW YORK  
(Department of Sanitation  
125 Worth Street  
New York, New York 10013)

DEC CASE #  
D2-9001-89-03  
(Fresh Kills)

Respondent  
-----

WHEREAS:

1. On November 20, 1991 and September 21, 1992, the Department of Sanitation ("DOS") requested modifications to the April 24, 1990 Fresh Kills Landfill Order on Consent ("Order") to extend certain dates for compliance requiring public noticing, memorialize certain other brief extensions of Subjects/Milestone Dates that were in the power of DEC to grant directly, and add new Subjects/Milestone Dates to reflect increases in the Scopes of Work required for various Compliance Schedule Appendices.

2. DEC Staff considered DOS's requests and concluded that, with certain changes, they may be granted in accord with the standards of the Order.

3. Paragraph XXVI of the Order requires public notice and an opportunity for public comment before final DEC action upon certain requests to modify the Order. DEC Staff therefore provided the opportunity to make written comments on all DOS modification requests requiring such opportunity, by publishing notice of the proposed modifications in the Environmental Notice Bulletin on May 26, 1993, and by mailing on the same day a summary of the proposed modifications to: the Office of the Staten Island Borough President; the two Public Document Repositories maintained under the order; the Staten Island Solid Waste Advisory Board; and, Staten Island Community Board Two.

4. These notices provided that public comment on DOS's modification requests would be accepted until June 18, 1993, although DEC Staff subsequently extended that date until July 20, 1993.

5. Oral and written statements/comments have been received and reviewed by DEC Staff, which has developed the attached Responsiveness Summary. Upon review of the Responsiveness Summary, I find that it shows that Staff has considered these comments and that they do not demonstrate that the proposed modifications are contrary to the applicable standards in the Order.

NOW, THEREFORE, IT IS ORDERED THAT:

A. The following twelve revised provisions summarized below and attached in full are hereby incorporated into the April 24, 1990 Consent Order as previously revised on September 21, 1990 and April 22, 1992:

1. Paragraph II - Completeness Determination/Acceptance of Submissions is revised to clarify the process to grant extensions of Milestone Dates for document submittals when the Department does not complete its review within the thirty day timeframe provided in the Order;
2. Paragraph VII - Departmental Monitoring/Submission Review is revised to modify the process for payment by the Respondent of any tests or investigations conducted for the Department at the Landfill up to an annual maximum of \$150,000;
3. Paragraph XI - Data Acquisition is revised to require the Respondent to have all laboratory chemical analytical data validated and undergo a usability determination;
4. Compliance Schedule Appendix A-3 - Landfill Final Cover Design is revised to incorporate Milestone Date extensions which were authorized pursuant to the Note at the end of the Compliance Schedule Appendix and to clarify the timing for submittal of hydrogeological information related to closure of Sections 3/4 and 2/8;
5. Compliance Schedule Appendix A-4 - Landfill Leachate Mitigation of Sections 1/9 and 6/7 is revised to incorporate Milestone Date extensions which were authorized pursuant to the Note at the end of the Compliance Schedule Appendix and to incorporate revisions to the Milestone Dates for Subjects 11, 12, 13, 14, and 15 due to the Department taking more than 30 days to review the Interim Landfill Leachate Mitigation Report;
6. Compliance Schedule Appendix A-5 - Waste Transport and Unloading Facilities is revised to add new Subjects and Milestone Dates pursuant to the requirements of Subject 2;
7. Compliance Schedule Appendix A-6 - Hydrogeological Investigation is revised to incorporate Milestone Date extensions which were

authorized pursuant to the Note at the end of the Compliance Schedule Appendix and to incorporate revisions to the Milestone Dates for Subjects 14 and 15 due to the Department taking more than 30 days to review the Interim Hydrogeological Report;

8. Compliance Schedule Appendix A-8 - Landfill Gas Migration Mitigation is revised to add new Subjects and Milestone Dates pursuant to the requirements of Subject 2;
9. Compliance Schedule Appendix A-9 - Local Solid Waste Management Plan is revised to modify the Milestone Date for Subject 1 and to add a Subject 2 which requires submittal of a final acceptable local solid waste management plan;
10. Compliance Schedule Appendix A-10 - Slope Stability Investigation is revised to incorporate Milestone Date extensions which were authorized pursuant to the Note at the end of the Compliance Schedule Appendix and to incorporate revisions to Subjects 14, 15, 16, and 17, insert a new Subject 15, and renumber Subjects 15, 16, and 17 for purposes of describing the phased approach for slope stability monitoring.
11. Compliance Schedule Appendix B-1, Item 3 is revised to provide that the number of working faces is limited to two, and that each working face shall be confined to an area no larger than 20 feet high and 250 feet wide.
12. Compliance Schedule Appendix B-1, Item 13 is revised to provide that leachate recirculation in the area of Veteran's Avenue shall cease and leachate collected in the Veteran's Avenue collection pipes shall be treated on-site by January 18, 1994.

B. This modification shall be effective immediately.

DATED: Long Island City, NY  
November 18, 1993

THOMAS C. JORLING, Commissioner  
New York State Department of  
Environmental Conservation

By: /s/Phyllis Y. Atwater  
Phyllis Y. Atwater  
Regional Director, Region 2

ORDER ON CONSENT  
FRESH KILLS LANDFILL  
MODIFICATION #3  
RESPONSIVENESS SUMMARY  
November 18, 1993

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**General**

Comment: Why does this modification not include revisions to the Consent Order which reflect the new requirements of 40 CFR Part 258?

Response: The Consent Order already requires the City to meet the requirements of 40 CFR Part 258. The work being performed under Compliance Schedule Appendices A-3, A-4, A-6, A-7, A-8 and A-10 meet the requirements of the federal regulations. New York State regulatory requirements for municipal waste landfills generally exceed those of 40 CFR Part 258. Where the federal regulations contain additional requirements, they will be incorporated into the State regulations, 6 NYCRR Part 360. Paragraph II, Completeness Determination/Acceptance of Submissions, contains the mechanism for requiring the Department of Sanitation to meet the new standards.

Comment: The SEQR process should begin with full public involvement in the scoping process.

Response: The SEQR process is scheduled to be initiated early in 1994. The process will provide for full public involvement in the scoping of issues related to the landfill.

Comment: The Memorandum of Understanding between the New York City Department of Sanitation and Assembly Member Vitaliano, dated December 14, 1992, should be incorporated into the Order on Consent.

Response: The Order on Consent already contains in Appendix B-1 prohibitions on the disposal of solid waste within 100 feet of the boundary of the landfill property and in areas where there is less than a five foot separation between the solid waste to be deposited and groundwater. With these two restrictions in place, the Department of Sanitation cannot expand the existing limit of solid waste under the Order on Consent. Furthermore, if there are areas at the Landfill which do not meet these criteria, they are in areas where no solid waste has been deposited yet. The Department will not allow the Department of Sanitation to deposit solid waste in these areas without a liner system and permit approving it. Therefore, incorporating the Memorandum of Understanding into

the Order on Consent will serve no purpose since the Order will not apply.

#### **Completeness Determination/Acceptance of Submissions**

Comment: There are no provisions for a reporting mechanism where the public would know when the Department took more than thirty days for a review and the reasons for the delay.

Response: The Department must notify the Department of Sanitation of any delay in the review in writing and the reasons for the delay. All correspondence related to document reviews are placed in the Repositories for public accessibility. There is no need for any additional provisions.

#### **Departmental Monitoring and Submission Review**

Comment: Why does the Discussion of Modifications not mention the ability of the Department to perform investigations at the Landfill using the \$150,000?

Response: The lack of any discussion is an error of omission. Nothing in the modifications prohibits the Department's ability to perform an investigation at the Landfill.

#### **Compliance Schedule Appendix A-3**

Comment: When is the final closure plan implementation to begin for Section 3/4?

Response: The final closure plan implementation has already begun with the initiation of construction of surface water run-off sedimentation basins. Grading for the final cover has begun and final cover construction should be complete in 1995.

Comment: What other requirements, if any, must be met before final closure of Section 3/4?

Response: An evaluation of the need, or lack thereof, for additional leachate mitigation measures beyond placement of a final cover. This need is currently being evaluated by the Department as part of the work being performed by the Department of Sanitation under Compliance Schedule Appendix A-4. This evaluation will be complete by the end of this year.



## Compliance Schedule Appendix A-10

Comment: The adequacy of the observational approach in lieu of standard geotechnical analyses is unknown given the complex stratigraphy underlying the landfill.

Response: This modification does not cause the observational approach to be utilized for stability analyses in lieu of standard geotechnical calculations. The observational approach will be utilized to supplement the findings of the stability analyses using standard geotechnical values.

Slope and foundation stability analyses using standard geotechnical values were performed for the landfill as part of the initial work under Compliance Schedule Appendix A-10. The information resulting from these analyses are in the documents residing in the Repository. Because of the size of the landfill and the proposed height, it was decided that standard geotechnical values normally assumed for slope and foundation stability analyses may not be appropriate for the landfill. Therefore, monitoring equipment has begun to be installed at the landfill to obtain site specific data on pore pressures, horizontal movement of the waste mound, and consolidation of the waste mass. This information will be used to check the results of the stability analyses using the standard geotechnical values. These analyses will be periodically updated to ensure that the projections for stability of the landfill were correct.

Comment: Dates were extended beyond the two month maximum allowed by the Consent Order in the Compliance Schedule Appendix A-10 specifically, Subject 14, with a Milestone Date of September 1, 1991, was changed to an interim report and a new Subject 15 added with a Milestone Date of April 1, 1993. An extension of one year and seven months.

Response: This new schedule and addition of a new report submittal was required by the Department. The information on hand for placement of the monitoring arrays was not sufficient at that time to ensure placement in critical locations for stability monitoring. Work being performed as part of the requirements for Compliance Schedule Appendix A-6 was indicating the hydrogeology under the landfill was different than anticipated. This information resulted in the need for the interim report to begin placement of monitoring arrays in locations of known need and a new final report once the hydrogeology of the site was known in more detail. These changes were not instituted to relieve the Department of Sanitation of any responsibilities with regard to the Consent Order. Instead, the changes resulted in more work for the

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Department of Sanitation and a more technically sound  
placement of the stability monitoring array.

May 26, 1993

DEC Case D2-9001-89-03

Compliance Schedule Appendix A-3  
Landfill Final Cover Design

<u>Subject</u>	<u>Milestone Date</u>
•1. Respondent shall submit to the Department for review and comment a report on the final cover, as defined by the Respondent, placed at the Landfill as of May 1, 1990. This report shall include the design of the cover, the quality assurance/quality control testing performed for the construction of the cover, areal extent of cover placement as of May 1, 1990, and an analysis of the as-built cover performance as compared to a cover with eighteen inches of clay compacted to a permeability of $10^{-7}$ cm/sec. As a result of this review, the Department will determine if this cover is acceptable to be left in place or must be upgraded.	120 days after execution of the Order.
•2. Respondent shall submit to the Department for review and comment the draft interim final cover design for all Sections of the Landfill. This design shall be in accordance with 6 NYCRR 360-2.13(p) and 6 NYCRR 360-2.13(q) or (r). The design submission will include a draft Quality Assurance/Quality Control (QA/QC) Report in compliance with 6 NYCRR 360-2.8.	120 days after execution of the Order.
3. Respondent shall submit to the Department the acceptable interim final cover design for the Landfill, which will include, if necessary, any upgrade to the cover placed prior to May 1, 1990 and the acceptable QA/QC Report in compliance with 6 NYCRR 360-2.8.	6 months after execution of the Order.
•4. Respondent shall initiate placement of final cover in accordance with the accepted interim final cover design at the Landfill and continue as final grades are achieved or until acceptance of the final cover design(s).	6 months after execution of the Order.
•*5. Respondent shall submit to the Department for review and comment the draft final cover design for all sections of the Landfill, in accordance with 6 NYCRR Part 360. If an equiva-	3-11-91

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Subject

Milestone Date

lent final cover design is proposed pursuant to 6 NYCRR 360-2.13(v), as a minimum, a technical justification must be included comparing the performance of the proposed modification with that mandated in 6 NYCRR 360-2.13(p)-(s). The design submission will include a draft QA/QC Report in compliance with 6 NYCRR 360-2.8.

- 6. Respondent shall submit to the Department the acceptable final cover design for all Sections of the Landfill, in accordance with 6 NYCRR Part 360. The submittal shall contain a construction schedule based on the sequential landfill plan for placement of final cover on areas which have achieved final grade and have not received final cover in conformance with previously accepted designs and the acceptable QA/QC Report in compliance with 6 NYCRR 360-2.8. 9-16-91
- 7. Respondent shall submit to the Department for review and comment the draft Closure Plan for Sections 2/8 and 3/4 of the Landfill, in accordance with 6 NYCRR 360-2.15. Information obtained from the work performed in Appendices A-4, A-6, and A-8, as a minimum, can be used to develop the draft Closure Plan. A schedule for completion of the closure of Sections 2/8 and 3/4 of the Landfill will be submitted with the Closure Plan. The schedule shall include no more than six (6) Subjects and corresponding Milestone Dates which, upon acceptance by the Department, shall be incorporated into this Compliance Schedule. 1-17-92
- 8. As to Section 2/8, and Section 3/4 separately, the Respondent shall cease disposal of all solid waste at such section when the solid waste mound reaches an elevation of 151 feet above mean sea level or by the Milestone Date, whichever occurs first. 12-31-93
- 9. As to Section 3/4, the Respondent shall cease disposal of all solid waste at such section when the mound reaches an elevation of 170 feet above mean sea level, or by the Milestone Date, or as soon as all structural elements and paving of the Main Creek Replacement Bridge are completed, whichever is sooner. 11-30-92

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<u>Subject</u>	<u>Milestone Date</u>
*10. Respondent shall submit the final acceptable Closure Plan for Sections 2/8 and 3/4 of the Landfill, in accordance with 6 NYCRR 360-2.15.	5-18-92 + Revisions 9-23-92
•11. Respondent shall submit to the Department for review and comment the draft Closure Plan for Sections 1/9 and 6/7 of the Landfill, in accordance with 6 NYCRR 360-2.15. Information obtained from the work performed in Appendices A-4, A-6, and A-8, as a minimum, can be used to develop the draft Closure Plan.	<del>7</del> -7-92
*12. Respondent shall submit the final acceptable Closure Plan for Sections 1/9 and 6/7 of the Landfill, in accordance with 6 NYCRR 360-2.15.	12-6-92

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NOTE: \*Additional requirements pursuant to 360-2.15 and 360-2.17 may result from information obtained as a result of the activities contained in Appendices A-4, A-6, A-8 and A-10.

•With respect to Subjects 1, 2, 4, 5, 6, 7 and 10 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of this Order.

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DEC Case D2-9001-89-03

Compliance Schedule Appendix A-4  
Landfill Leachate Mitigation of Sections 1/9 and 6/7

The Respondent shall perform landfill leachate mitigation activities at Sections 1/9 and 6/7 of the Landfill. These activities shall consist of site investigation of subsurface geology, hydrogeology and leachate quality and quantity characterization; design of a complete perimeter leachate collection and containment system; design of the leachate treatment system; construction of the accepted perimeter leachate collection and containment system; and construction of the accepted leachate treatment system. The Respondent shall perform these activities in conformance with the information requirements of 6 NYCRR 360-2 as stated herein. Milestone submission requirements of the Respondent include a final Request for Proposals, a draft Leachate Mitigation Investigation Workplan, a final Leachate Mitigation Investigation Workplan; an interim Landfill Leachate Mitigation Report, a draft final Landfill Leachate Mitigation Report, a final Landfill Leachate Mitigation Report, a preliminary Engineering Plan, a draft final Engineering Plan, a final Engineering Plan, a preliminary Engineering Report, a draft final Engineering Report, a final Engineering Report, a draft Quality Assurance/Quality Control (QA/QC) Report, and a final QA/QC Report. In the event an on-site leachate pretreatment or treatment facility is to be developed, the Respondent shall also apply for all appropriate permits; if off-site leachate treatment is to be developed, the Respondent shall obtain a legal document certifying acceptance of leachate from the operator of the wastewater treatment facility with all conditions stipulated by the operator of the wastewater treatment facility. All field investigations and design and construction activities shall be performed in accordance with 6 NYCRR Part 360 and all other applicable regulations. All exploratory borings and monitoring well locations shall be subject to reasonable adjustments for field conditions.

The Leachate Mitigation Investigation Workplan must define the objectives of the Landfill Leachate Mitigation Investigation, the scope of all tasks to be performed, the methods and procedures to be utilized and the deliverables for each task. The tasks defined in the Leachate Mitigation Investigation Workplan must be in accordance with the procedures defined in 6 NYCRR 360-2 and must be of sufficient scope to support all reporting requirements as defined in 6 NYCRR Part 360 for design of the perimeter leachate collection and containment system.

The tasks defined in the Leachate Mitigation Investigation Workplan include the following:

- (1) Exploratory Soil Boring. Shallow borings will be performed at 200-linear-foot intervals along the traces of the proposed

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containment walls, unless otherwise approved by the Department. Shallow exploratory borings will penetrate a minimum of 5 feet into the uppermost confining bed. Deep borings shall be performed at 1,000 linear-foot intervals along the traces of the proposed containment walls. Some of these deep borings can be performed as part of the monitor well and boring installation program included in Appendix A-6. Deep exploratory borings will penetrate a minimum of 5 feet into the second uppermost continuous confining bed. For the purpose of the deep perimeter exploratory borings, sequences of glaciolacustrine clay interbedded with glacial sand units will be considered one confining bed. For the purpose of all perimeter exploratory soil borings, tidal marsh deposits of peat, silt or clay are not considered a confining bed.

Additional exploratory borings will be required within the center area of the Landfill footprint to establish the lateral and vertical continuity of water-bearing zones, including holocene, pleistocene and cretaceous unconsolidated deposits; and confining or semi-confining units, including holocene marsh deposits, glaciolacustrine and glacial till deposits, cretaceous clay, residual clay and weathered bedrock. 15 exploratory borings will be required to bedrock at each of Sections 1/9 and 6/7.

- (2) Geologic Sampling. Soil samples will be collected for observation, description, and field and laboratory geotechnical testing. Samples collected shall be of sufficient number to fully define the configuration of geologic formations. A representative number of borings must be sampled continuously to the base of the boring. Continuous split-spoon sampling will be required through cretaceous deposits and holocene deposits at all boring locations. Where split-spoon samples are not taken continuously, samples 2-feet in length must be taken at intervals no greater than 5-feet.
- (3) Geotechnical Testing. Geotechnical tests will be performed on disturbed and undisturbed soil samples obtained from borings. Testing to be performed on soils must include, but is not limited to, Atterberg limits, gradation curves and vertical and horizontal laboratory hydraulic conductivity testing. Insitu hydraulic conductivity tests must be performed on all groundwater monitor wells used in this investigation. Measurement of groundwater head levels in all wells will be performed with continuous recorders to allow identification of the time-variable, three-dimensional

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groundwater flow characteristics within the critical stratigraphic section.

- (4) Installation of Groundwater Monitor-Wells in Confined Water-Bearing Units. Confined water bearing units include bedrock; cretaceous water bearing units; and pleistocene water-bearing units. One groundwater monitor well must be placed in each confined water-bearing unit, at 750-linear-foot intervals, along the down- and cross-hydraulic-gradient perimeter of each of Sections 1/9 and 6/7; however, two or more wells will be required by the Department to provide full coverage in confined water bearing units greater than 15 feet thick. One groundwater monitor well shall be placed in each confined water bearing unit, at 1,500-linear-foot intervals, along the up-hydraulic-gradient perimeter of Sections 1/9 and 6/7; however, two or more wells will be required by the Department to provide full coverage in confined water bearing units greater than 15 feet thick. Where multiple confined water-bearing units are present, the wells should be installed in clusters.
- (5) Installation of Groundwater Monitor-Wells in Unconfined Water Bearing Units. Wells screened in the unconfined water-bearing units must be installed at 500-linear-foot intervals around the perimeter of each of Sections 1/9 and 6/7, beyond the existing footprint of the Landfill in unconfined water-bearing units.
- (6) Construction of Groundwater Monitor Wells and Piezometers. Construction of all groundwater monitor wells shall be performed in accordance with 6 NYCRR 360-2.11(a)(8)(i) and (ii). All construction materials used for groundwater monitor wells and piezometers are subject to Department approval. A groundwater monitor-well installation plan must be prepared by the Respondent that describes the drilling methods, the construction materials and the construction methods to be employed; the areal location of cluster-wells; and the vertical location of well-screens, sandpacks and well seals. During construction, sufficient efforts will be taken by the Respondent to insure that contaminants are prevented from migrating along the annulus of all wells and that all wells are protected from damage after they are installed. A sanitary construction design consisting of sealed casings isolating contaminated water bearing units will be required for all onsite borings (exploratory borings, wells and piezometers) that enter a confined water-bearing unit. Well designs shall incorporate best well construction technology to prevent downward migration of landfill leachate, or



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leachate-enriched groundwater, into those confined water-bearing units. The sanitary design for these borings is subject to approval by the Department.

Unless otherwise approved by the Department, requirements for groundwater monitor well and piezometer construction include: the inside diameter of each well screen or riser pipe must be at least 2 inches; screens must be factory constructed; each well or piezometer must be in a separate borehole; drilling muds are to be avoided, however, where drilling muds are necessary, as approved by the Department, the Respondent shall provide alternate specifications for well construction including the drilling mud composition and methodology which the Department shall review and provide guidance and, if used, must not be used within 10 feet of the screened interval; a bentonite seal at least 3 feet thick must be placed at the top of the sand pack; a finer grained sand pack material (100% passing the number 30 sieve and less than 2% passing the number 200 sieve) six inches thick must be placed at the top of the sand pack between the sand and the bentonite seal; above the bentonite seal, the well annulus, along its complete length to the surface, must be fully sealed with Department approved cement-admixture grout installed via the tremie method; all equipment to be placed in the boring must be steam cleaned between holes; and only potable water may be used during boring and insitu hydraulic conductivity testing.

- (7) Health and Safety Plan. The Leachate Mitigation Investigation Workplan must include an appropriate Health and Safety Plan, in accordance with applicable OSHA requirements, to insure the safety of field personnel.
- (8) Development of Groundwater Monitor Wells and Piezometers. Development of all groundwater monitor wells and piezometers shall be performed in accordance with 6 NYCRR 360-2.11(a)(8)(iii). All wells and piezometers must be developed as soon as possible after installation, but not before the well seal and grout have set. Water must not be introduced into the well for development except with approval of the Department. The Department may require multiple attempts at well development to increase the likelihood that sediment free water can be obtained. The Workplan shall include a procedural plan for monitor well and piezometer development. All development procedures are subject to Department approval.

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- (9) Groundwater Quality Sampling and Analysis. Groundwater samples will be collected and analyzed in accordance with 6 NYCRR 360-2.11(a)(12). Water samples from all groundwater monitor-wells shall be collected quarterly for chemical analyses. Groundwater samples from all wells shall be analyzed for Expanded Parameters as defined in 6 NYCRR 360-2.11(c)(6). Quarterly sampling and analysis of groundwater samples from all wells will continue until initiation of the Long-Term Groundwater Quality Monitoring Program.

The Workplan must specify how the samples will be collected and preserved; chain of custody documentation; analyses required; methods of analysis, and Quality Control/Quality Assurance protocols. All methods must be acceptable to the Department. A record of the methods employed and the personnel involved must be kept and reported to the Department with the analytical data.

Monitor well sampling techniques must be consistent with the following: before evacuation of the well, static water level must be measured to the nearest one-hundredth of a foot using standard techniques; and for wells with documented contamination, where contamination by non-aqueous phase liquids may be present, standing water in the well must be checked for immiscible layers or other contaminants that are lighter or heavier than water (floaters or sinkers). If present, floaters or sinkers must be sampled and analyzed separately by a method described in the Workplan; evacuation of the well must replace stagnant water in the well and the sand pack with fresh water representative of the formation. Evacuation methods, including pumping rate, depth of pump intake, and method of determining sufficiency of evacuation, must be consistently applied each time the well is sampled. Evacuation methods must create the least possible turbidity in the well. Evacuated water must be properly managed; field analysis must be performed after evacuation of the well, either within the borehole using a probe or immediately after collection; and all field test equipment must be calibrated at the beginning of each sampling day and checked and recalibrated according to the manufacturer's specifications. Calibration data must be reported with the analytical results; laboratory analyses must be performed using analytical methodologies acceptable to the Department, by a laboratory acceptable to the Department. Where necessary to achieve acceptable minimum detection levels, the Department may require the use of specific analytical methods, as described in Test Methods for Evaluating Solid Waste (SW-846) and New York State Contract Laboratory Protocol (CLP); all samples must be collected and stored in the order of the

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parameter's volatilization sensitivity using methods, consistently applied, which ensure sample integrity; after volatile organic samples have been collected, field parameters must be measured from the next sample collected; all sampling equipment must be constructed of inert materials designed to obtain samples with minimal agitation and contact with the atmosphere, be cleaned in the laboratory and checked before use and protected during transport to avoid contamination. Dedicated equipment must be constructed of appropriate inert materials and must be appropriate for the type of samples to be taken in the well; samples must be properly preserved and delivered to the laboratory within all appropriate holding times for the parameters to be analyzed and with proper chain of custody; blanks and replicate samples must be collected and analyzed in accordance with a method acceptable to the Department.

(10) Leachate Quality Sampling and Analysis.

(11) Hydrogeologic Literature Review. A comprehensive review of literature that is pertinent and reliable will be performed. This task will include a review and evaluation of prior Fresh Kills Landfill and Brookfield Landfill site reports; records of borings and/or excavations performed for construction of highways and roads, bridges, marine facilities within 1 mile; and buildings within one-half mile of the site perimeter; compilation of reasonably available aerial photographs of the site since 1948; compilation of historical topographic site plans, fill progression plans and waste disposal records; and review of pertinent government publications and documents, professional papers, bulletins, circulars, open-file reports, college or university reports or theses, and EPA documents.

A Leachate Mitigation Literature Review Report will be submitted to the Department at the conclusion of this task. The report will include logs from borings performed onsite; borings performed for roads and highways through or adjacent to the site; borings performed for bridges on or adjacent to the site; borings performed for construction of the Consolidated Edison Plant, the Staten Island Mall and the Eltingville and Mayflower Pumping Stations. In addition, the report should include all boring logs contained in reasonably available literature sources. The report must include a map showing the location of each boring and the approximate surface elevation. The report must evaluate the regional and local hydrogeologic setting of the site. The literature review and regional hydrogeologic evaluation should consider the hydrogeology in New Jersey adjacent to the Arthur Kill and across from Fresh Kills Landfill.

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- (12) Land Survey of Borings, Wells and Piezometers. The locations and elevations of all borings, monitor wells (new and existing), piezometers and land surface along the proposed path of the leachate containment and collection system must be surveyed by an individual licensed to perform land surveying in the State of New York.
- (13) Abandonment of Exploratory Boring Wells and Piezometers. All wells and piezometers constructed during this investigation at the site that are not suitable for future use, or any exploratory soil borings or rock cores performed as part of this investigation, shall be fully abandoned in a manner appropriate to the geologic conditions to prevent contaminant migration. Abandonment procedures shall be in conformance with 6 NYCRR 360-2.11(a)(8)(vi).
- (14) Three-Dimensional Groundwater Flow Model.

The reporting and environmental monitoring requirements for the Landfill Leachate Mitigation Report include, but are not limited to, those required for a Hydrogeologic Report, as defined in 6 NYCRR 360-2.11(b) and (c). The Landfill Leachate Mitigation Report shall take into account the relevant information obtained from the investigations performed as part of Appendices A-6 and A-7, though not outlined herein.

This Report must include, but will not be limited to, an address of the following:

- (1) An evaluation and interpretation of all hydrogeologic and geologic data and information obtained during this investigation and the Hydrogeologic Investigation.
- (2) Identification of the lateral and vertical distribution of confining beds beneath Sections 1/9 and 6/7; the vertical and horizontal hydraulic conductivity of these beds; an evaluation of groundwater flow characteristics in all water-bearing zones beneath Sections 1/9 and 6/7; the effect of the distribution of confining beds on the flow of groundwater in unconfined and confined water-bearing zones; the effect of the distribution and hydraulic conductivity of confining beds on the relative efficiency of various perimeter leachate collection and containment system designs; the effect of the distribution, hydraulic conductivity and groundwater flow characteristics (present flow characteristics and theoretical future flow characteristics after construction of various designs) and the presence of a perimeter containment wall on the relative efficiency of various leachate collection and containment system designs. Determination of relative efficiency should include the depth of the zone of influence

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and the volume and pattern of groundwater/leachate discharge to the collection system.

- (3) An evaluation and interpretation of groundwater quality in all water-bearing zones beneath each section of the landfill.
- (4) An evaluation of various leachate treatment systems (off-site and onsite) taking into account that leachate sampling and analysis activities conducted as part of this Appendix.

The Respondent will prepare a series of reports defining the proposed design for the perimeter leachate collection and containment system around Sections 1/9 and 6/7 of the Landfill and the corresponding leachate treatment system. Each of these documents shall be prepared in accordance with the requirements of 6 NYCRR Part 360 and will form the basis for construction of the final design.

A draft Engineering Plan, conforming to the requirements of 6 NYCRR 360-2.4 as modified herein, shall be submitted to the Department for review and comment. The final Engineering Plan shall be submitted to the Department for acceptance. The Engineering Plan shall include:

- (1) Site plans showing the Landfill's property boundaries (as certified by an individual licensed to practice land surveying in the State of New York), on-site utilities (such as electric, gas, water, storm, and sanitary sewer systems) and right-of-way easements; the location of soil borings, excavations, test pits, gas venting structures, wells, piezometers, environmental and facility monitoring points and devices (with each identified in accordance with a numbering system acceptable to the Department and whose horizontal and vertical locations are accurate to the nearest five hundredth and one hundredth foot, respectively, as measured from the ground surface and top of well casing) within the construction zone of the leachate containment system, benchmarks and permanent survey markers, and fences, gates, roads, parking areas, drainage culverts, and signs within the construction zone of the leachate containment system; the delineation of the total Landfill area, and the lateral and vertical limits of previously filled areas within the leachate containment and collection system; the location and identification of special waste handling areas; a wind rose; and site topography with five feet minimum contour intervals.
- (2) Detailed plans of the Landfill clearly showing in plan and cross-sectional views, the original undeveloped site topography before excavation or placement of solid waste; the seasonal high groundwater table; generalized geologic units; known and interpolated bedrock elevations; the proposed

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limits of waste placement; the location and placement of the leachate containment system and of each leachate collection system, locating and showing all critical grades and elevations of the collection pipe inverts and drainage envelopes, manholes, cleanouts, valves, sumps, and drainage blanket thicknesses; all existing berms, dikes, ditches, swales and other devices as needed to divert or collect surface water run-on or run-off; the final elevations and grades of the Landfill cover system including the grading and gas venting layer, low permeability barrier, and topsoil layers within the construction zone of the leachate collection and containment system; the system used for monitoring and venting the decomposition gases generated within the Landfill; groundwater monitoring wells; geophysical and geochemical monitoring devices or structures; and leachate storage, treatment and disposal systems including the collection network, sedimentation ponds and any treatment, pre-treatment, or storage facilities.

A draft Engineering Report, conforming to the requirements of 6 NYCRR 360-2.7 as modified herein, shall be submitted to the Department for review and comment. The final Engineering Report shall be submitted to the Department for acceptance. The Engineering Report shall include a description of the existing site conditions and, at a minimum, an analysis of the Landfill that must:

- (1) contain a site analysis of the proposed action including:
  - (a) the land use within 1,000 feet of the Landfill and the structures therein;
  - (b) an analysis of the existing topography within 250 feet of each side of the trace of the leachate containment system; and
  - (c) a description of the materials and construction methods used for the placement of all gas venting systems; the leachate containment and collection and removal system; leachate storage, treatment, and disposal systems; and cover systems to demonstrate conformance with the applicable construction requirements found in Section 360-2.13;

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- (d) an estimate of the expected quantity of leachate to be generated, including:
  - (i) an annual water budget that must estimate leachate generation quantities during operation, upon application of intermediate cover, and following facility closure. At a minimum, the following factors must be considered in the preparation of the water budget to determine the amount of leachate generated as a result of precipitation infiltration into the Landfill: average monthly temperature, average monthly precipitation, evaporation, evapotranspiration which should consider the vegetation type and root zone depth, surface/cover soil conditions and their relation to precipitation runoff which must account for the surface conditions and soil moisture holding capacity and all other sources of moisture contribution to the Landfill;
  - (ii) leachate containment and collection system efficiencies that must be calculated using an appropriate analytical or numerical assessment. The factors to be considered in the calculation of leachate containment and collection system efficiencies must include, at a minimum, the saturated hydraulic conductivity of the underlying confining bed(s) and leachate containment system, the underlying confining bed(s) and containment wall thicknesses, the saturated hydraulic conductivity of the leachate collection system, the leachate collection system porosity, the hydraulic conductivity of the underlying soils within the leachate containment system, the maximum flow distance to the nearest leachate collection pipe, the estimated leachate generation quantity as computed in accordance with the requirements of the preceding paragraph, the estimated quantity of groundwater recharge, as applicable, from outside the leachate containment system and underlying confining beds;
  - (iii) a comparison of the leachate containment and collection system efficiencies calculated in the preceding paragraph with the generic liner and leachate collection system efficiencies of a double composite liner system designed in accordance with the requirements of 6 NYCRR Part 360-2; and

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- (iv) predictions of the equilibrium head of leachate/groundwater within the leachate containment system, volume of leachate to be collected, and the volume of leachate that may permeate through the entire leachate containment system, all on a monthly basis. Information gained from the collection efficiency calculations required in the preceding paragraphs must be used to make these predictions. This assessment also must address the amount of leachate expected to migrate beyond the leachate containment system and the underlying confining bed(s) in gallons per acre per day;
  - (e) the design of a leachate storage facility, if necessary, in accordance with the requirements of 6 NYCRR 360-6; and
  - (f) a description of the contingency plan for the construction phase. This plan must describe procedures for responding to construction deficiencies resulting from circumstances including, but not limited to, inclement weather, defective materials or construction inconsistent with specifications as demonstrated by quality control testing. The plan must provide a description of the criteria to be utilized in evaluating deficiencies, and selecting and implementing corrective actions; and
- (2) Specify the operation and closure plan for the leachate collection, treatment, and storage facilities consistent with the requirements of 6 NYCRR 360-2 and 6 NYCRR 360-6.

A draft QA/QC Report, conforming to the requirements of 6 NYCRR 360-2.8 as modified herein, shall be submitted to the Department for review and comment. The final QA/QC Report shall be submitted to the Department for acceptance. The QA/QC Report shall include, but not be limited to:

- (1) a delineation of the responsibilities for the QA and QC management organizations, including the chain of command of the QA and QC inspectors and contractors;
- (2) a description of the required level of experience and training for the contractor, his crew, and QA/QC inspectors for every major phase of construction in sufficient detail to demonstrate that the installation methods and procedures will be properly implemented; and



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- (3) a description of the QA and QC testing protocols for every major phase of construction, which must include, at a minimum, the frequency of inspection, field testing, sampling for laboratory testing, the sampling and field testing procedures and equipment to be utilized, the calibration of field testing equipment, the frequency of performance audits, the sampling size, the laboratory procedures to be utilized, the calibration of laboratory equipment and QA/QC of laboratory procedures, the limits for test failure, and a description of the corrective procedures to be used upon test failure.

In light of the Respondent's mitigation activities included in this Appendix, the Department deems this Appendix to meet the report submission requirements of 6 NYCRR 360-3.5(g)(4)(ii). Therefore, the Respondent may continue to dispose of bottom ash residue and combined ash residue from the existing apartment house incinerators, Greenpoint Incinerator, Betts Avenue Incinerator and Southwest Brooklyn Incinerator at the Landfill. The Department shall review the mitigation activities described in this Appendix for their ability to achieve adequate leachate management, mitigate off-site leachate migration and to control surface water run-off.

<u>Subject</u>	<u>Milestone Date</u>
1. The Department shall review and comment on the Request for Proposals entitled Fresh Kills the Landfill Leachate Mitigation System.	45 days after execution of Order
2. Department provides comments to the Respondent pursuant to the requirements of 6 NYCRR 360-3.5(g)(4)(ii).	6-1-90
•3. Respondent shall award and register the contracts in response to the Request for Proposals entitled Fresh Kills Landfill Leachate Mitigation System.	7-15-90
4. Respondent shall submit to the Department for review and comment the Milestone Dates as supplied by the contractor for Subjects 9-16. A meeting amongst the parties and the contractor will be held within fifteen days of this submittal to discuss the schedule..	8-26-90
5. Respondent shall submit to the Department for review and comment the draft Leachate Mitigation Investigation Workplan (LMIW), which will reflect the Department's comments on the Request for Proposals. No later than 45 days after receipt	12-31-90

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<u>Subject</u>	<u>Milestone Date</u>
of the Department's comments on the draft LMIW, the parties shall meet with the contractor to determine the date by which the acceptable LMIW shall be submitted.	
6. Respondent shall submit to the Department the acceptable Milestone Dates for Subjects 9-16. Upon acceptance by the Department, the milestone dates shall become part of this Compliance Schedule.	10-7-90
7. Respondent submits to the Department the acceptable report pursuant to the requirements of 6 NYCRR 360-3.5(g)(4)(ii).	12-1-90
*8. Respondent shall submit to the Department the final acceptable Leachate Mitigation Investigation Workplan.	12-31-90
•*9. Respondent shall initiate boring program and field activities.	1-6-91
•*10. Respondent shall submit to the Department for review and comment the interim Landfill Leachate Mitigation Report.	9-13-92
•*11. Respondent shall submit to the Department for review and comment the preliminary Engineering Report and preliminary Engineering Plan.	12-14-93
•*12. Respondent shall submit to the Department for review and comment the draft final Landfill Leachate Mitigation Report.	6-14-93
*13. Respondent shall submit to the Department the final acceptable Landfill Leachate Mitigation Report.	9-14-93
•*14. Respondent shall submit to the Department for review and comment the draft final Engineering Report, draft final Engineering Plan, and draft final QA/QC Report.	2-22-94
*15. Respondent shall submit to the Department the final acceptable Engineering Report, final acceptable Engineering Plan, and final acceptable QA/QC Report.	7 6-22-94

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<u>Subject</u>	<u>Milestone Date</u>
•*16. Respondent shall initiate construction of the perimeter leachate collection and containment system and the leachate treatment system.	8-1-94
•17. Respondent shall complete the construction of the perimeter leachate collection and containment system and the leachate treatment system.	11-1-96
•18. Respondent shall commence treatment of the collected leachate and attain the final permitted effluent limits for any direct discharge.	12-1-96
•19. Respondent shall submit the performance evaluation of the treatment and collection systems.	7-1-97

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NOTE: \*Per the requirements of Subjects 5 and 6, upon acceptance by the Department, the Milestone Dates for Subjects 8-16 shall be modified. If the Respondent's contractor proposes the Milestone Dates as such Milestone Dates are set forth above for Subjects 8-16, the Department shall not withhold acceptance.

•With respect to Subjects 3, 9, 10, 11, 12, 14, 16, 17, 18 and 19 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

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Compliance Schedule Appendix A-5  
Waste Transport and Unloading Facilities

<u>Subject</u>	<u>Milestone Date</u>
•1. Respondent shall submit to the Department for review and comment, a report containing the proposed actions which have been and/or will be taken to achieve the following:	12-31-90
a. Containment of solid waste which is deposited in the surface waters during barge unloading operations from escaping to the Arthur Kill and removal of waste so contained;	
b. Cleaning of all shorelines adjacent to the Fresh Kills Landfill, including Isle of Meadows, of solid waste of the type allowed to be disposed of at the Landfill;	
c. Transition to rubber tired vehicles for the transport of solid waste from the barge unloading areas to the working face;	
d. Reduction, to the greatest extent practicable, of windblown litter at the barge unloading areas and working faces;	
e. Passable roadways for use of rubber tired vehicles from the barge unloading facilities to the appropriate landfill sections;	
f. Removal of solid waste released into the Arthur Kill as a result of a contingent failure of the Respondent's solid waste control system; and	
g. Installation of fencing or establishment of other means around the perimeter of the Landfill to limit unauthorized access to the Landfill.	

The submitted report shall contain, by reference to maps or other documents, a physical description of the areas Respondent has cleaned, or intends to clean, pursuant to Subject 1.b above. The submission shall recommend additional Subjects and Milestone Dates that will be incorporated into this Compliance Schedule, once accepted by the Department.

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Subject

Milestone Date

The Subjects shall include: issuance of bid proposals, contract award, and activity completion dates where appropriate. The additional Subjects and Milestone Dates shall not be repetitive of, nor deemed to be, operational requirements as set forth in Appendices B-1 and B-2.

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| 2.  | Respondent shall submit to the Department the acceptable report incorporating Department comments. Upon acceptance by the Department, the Subjects shall be considered incorporated into this Compliance Schedule. | 90 days after the Department submits its comments to the Respondent. |
| 3.  | Purchase and delivery of two skimmer boats.  | 8-15-91  |
| 4.  | Issuance of bid proposals for thirteen additional refuse haulers.  | 10-15-91   |
| 5.  | Contract award for purchase of thirteen additional refuse haulers.   | 10-15-91   |
| 6.  | Contract award for purchase of two hydraulic cranes.   | 11-15-91   |
| 7.  | Initiation of construction of 4,000 linear feet of road across Section 1/9.  | 12-15-91   |
| 8.  | Completion of Stages I and III of paving of Plant 1.   | 2-1-92   |
| 9.  | Completion of Stages I and III of construction of Plant 1 concrete retaining walls.  | 2-1-92   |
| 10. | Initiation of construction of new bridge across Main Creek.  | 2-1-92   |
| 11. | Completion of construction of 4,000 linear feet of road across Section 1/9.  | 2-15-92  |
| 12. | Completion of construction of additional fencing.  | 3-1-92   |
| 13. | Completion of construction of Plant 1 access road.   | 3-30-92  |
| 14. | Delivery of thirteen additional refuse vehicles.   | 5-15-92  |
| 15. | Delivery of two hydraulic cranes.  | 5-15-92  |

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	<u>Subject</u>	<u>Milestone Date</u>
16.	Institution of refuse hauler loading at Plant 1, First Unloading Pad.	5-30-92
17.	Completion of Stage II of Plant 1 paving.	10-31-92
18.	Completion of Stage II of construction of Plant 1 concrete retaining walls.	10-31-92
19.	Institution of refuse hauler loading at Plant 1, Second Unloading Pad.	11-30-92

NOTE: •With respect to Subject 1 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Date for the noted Subject up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subject are governed by the provisions of paragraph XXIV of the Order.

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Compliance Schedule Appendix A-6  
Hydrogeological Investigation

The Respondent shall perform a comprehensive Hydrogeological Investigation at the Fresh Kills Landfill in conformance with the procedures and informational requirements of 6 NYCRR Part 360, especially 6 NYCRR 360-2.11(a), (b) and (c). The Respondent shall address within the final Hydrogeologic Report (Site Investigation Report as defined in 6 NYCRR Part 360) all of the information requirements defined in 6 NYCRR 360-2.11, except those relating to surface water and sediment. Milestone submission requirements of the Respondent for the Hydrogeological Investigation include a final Request for Proposal, draft Site Investigation Plan, final Site Investigation Plan, Groundwater Monitor Well and Piezometer Survey Report, Supply Well Survey Report, Hydrogeological Literature Review Report, interim Hydrogeological Report, draft final Hydrogeological Report, and final Hydrogeological Report. The Respondent shall submit these reports in accordance with the attached schedule. All exploratory boring and monitoring well locations shall be subject to reasonable adjustments for field conditions.

The Site Investigation Plan (SIP) must define the objectives of the hydrogeological investigation, the scope of all tasks to be performed, the methods and procedures to be utilized, and the deliverables for each task. The SIP is intended to result in a sequential investigation. The tasks defined in the SIP must be in accordance with the procedures defined in 6 NYCRR 360-2.11 and must be of sufficient scope to support all reporting requirements stated in 6 NYCRR 360-2.11(b). The tasks defined in the SIP must include, but will not be limited to, the following:

- (1) Installation of Groundwater Monitor-Wells in Confined Water-Bearing Units. Confined water-bearing units include bedrock; cretaceous water-bearing units; and pleistocene water-bearing units. One groundwater monitor well must be placed in each confined water-bearing unit, at 750-linear-foot intervals, along the down- and cross-hydraulic-gradient perimeter of each of Sections 1/9, 6/7, 3/4 and 2/8; however, two or more wells will be required by the Department to provide full coverage in confined water bearing units greater than 15 feet thick. One groundwater monitor well shall be placed in each confined water bearing unit, at 1,500-linear-foot intervals, along the up-hydraulic-gradient perimeter of each Landfill section; however, two or more wells will be required by the Department to provide full coverage in confined water bearing units greater than 15 feet thick. Where multiple confined

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water-bearing units are present, the wells should be installed in clusters.

- (2) Installation of Groundwater Monitor-Wells in Unconfined Water-Bearing Units. Wells screened in the unconfined water-bearing units must be installed at 500-linear-foot intervals around the perimeter of each of Sections 1/9, 6/7, 3/4 and 2/8, beyond the existing footprint of the Landfill in unconfined water-bearing units at the Fresh Kills Landfill, unless otherwise approved by the Department.
- (3) Construction of Groundwater Monitor Wells and Piezometers. Construction of all groundwater monitor wells shall be performed in accordance with 6 NYCRR 360-2.11. All procedures and materials used in construction of groundwater monitor wells and piezometers are subject to Department approval. A groundwater monitor-well installation plan must be prepared by the Respondent that describes the drilling methods, the construction materials and the construction methods to be employed; the areal location of cluster-wells; and the vertical location of well-screens, sandpacks and well seals. During construction, sufficient efforts will be taken by the Respondent to insure that contaminants are prevented from migrating along the annulus of all wells and that all wells are protected from damage after they are installed. A sanitary construction design consisting of sealed casings isolating contaminated water bearing units will be required for all onsite borings (exploratory borings, wells and piezometers) that enter a confined water-bearing unit. Well designs shall incorporate best well construction technology to prevent downward migration of landfill leachate, or leachate-enriched groundwater, into those confined water-bearing units. The sanitary design for these borings is subject to approval by the Department.

Unless otherwise approved by the Department, requirements for groundwater monitor well and piezometer construction include: the inside diameter of each well screen or riser pipe must be at least 2 inches; screens must be factory constructed; each well or piezometer must be in a separate borehole; drilling muds are to be avoided, however, where drilling muds are necessary, as approved by the Department, the Respondent shall provide alternate specifications for well construction including the drilling mud composition and methodology which the Department shall review and provide guidance and, if used, must not be used within 10 feet of the screened interval; a bentonite seal at least 3 feet thick must be placed at the top of the sand pack; a finer grained sand pack material (100% passing the number 30 sieve and less than 2%



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passing the number 200 sieve) six inches thick must be placed at the top of the sand pack between the sand and the bentonite seal; above the bentonite seal, the well annulus, along its complete length to the surface, must be fully sealed with Department approved cement-admixture grout installed via the tremie method; all equipment to be placed in the boring must be steam cleaned between holes; and only potable water may be used during boring and insitu hydraulic conductivity testing.

- (4) Health and Safety Plan. The SIP must include an appropriate Health and Safety Plan, in accordance with applicable OSHA requirements, to insure the safety of field personnel.
- (5) Development of Groundwater Monitor Wells and Piezometers. Development of all groundwater monitor wells and piezometers shall be performed in accordance with 6 NYCRR 360-2.11(a)(8)(iii). All wells and piezometers must be developed as soon as possible after installation, but not before the well seal and grout have set. Water must not be introduced into the well for development except with approval of the Department. The Department may require multiple attempts at well development to increase the likelihood that sediment free water can be obtained. The SIP shall include a procedural plan for monitor well and piezometer development. All development procedures are subject to Department approval.
- (6) Soil Boring and Geologic Sampling. Soil borings will be performed and soil samples will be collected for observation, description and field and laboratory geotechnical tests. Samples collected shall be of sufficient number to fully define the configuration of geologic formations comprising the critical stratigraphic section beneath the Landfill. The critical stratigraphic section for all sections of the Landfill includes all holocene, pleistocene, and cretaceous deposits, and weathered and hard bedrock. A representative number of borings must be sampled continuously to the top of bedrock. Rock cores shall be required for every boring which penetrates to the upper surface of bedrock. Continuous split-spoon sampling will be required through cretaceous deposits and holocene deposits at all boring locations. Where split-spoon samples are not taken continuously, samples 2-feet in length must be taken at intervals no greater than 5-feet in unconsolidated deposits and, in rock, as determined by the Department. Where multiple borings are planned for a single location, continuous sampling will only be required in the deepest boring. This boring must be drilled first.

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Additional exploratory borings will be required within the center area of the landfill footprint to establish the lateral and vertical continuity of water-bearing zones, including holocene, pleistocene and cretaceous unconsolidated deposits; and confining or semi-confining units, including holocene marsh deposits, glaciolacustrine and glacial till deposits, cretaceous clay, residual clay and weathered bedrock. 15 exploratory borings will be required to the top of bedrock at each of Sections 1/9 and 6/7. 10 exploratory borings will be required to the top of bedrock at each of Sections 2/8 and 3/4.

- (7) **Geotechnical Testing.** Geotechnical tests will be performed on disturbed and undisturbed soil samples obtained from borings. Testing to be performed on soils must include, but is not limited to, Atterberg limits, gradation curves and vertical and horizontal laboratory hydraulic conductivity testing. Insitu hydraulic conductivity tests must be performed on all groundwater monitor wells used in the Hydrogeological Investigation. Measurement of groundwater head levels in all wells will be performed with continuous recorders to allow identification of the time-variable, three-dimensional groundwater flow characteristics within the critical stratigraphic section.
- (8) **Hydrogeologic Literature Review.** A comprehensive review of literature that is pertinent and reliable will be performed. This task must include a review and evaluation of prior Fresh Kills Landfill and Brookfield Landfill site reports; records of borings and/or excavations performed for construction of highways and roads, bridges, marine facilities within 1 mile; and buildings within one-half mile of the site perimeter; compilation of reasonably available aerial photographs of the site since 1948; compilation of historical topographic site plans, fill progression plans and waste disposal records; and review of pertinent government publications and documents, professional papers, bulletins, circulars, open-file reports, college or university reports or theses, and EPA documents.

A Hydrogeological Literature Review Report will be submitted to the Department at the conclusion of this task. The report will include logs from borings performed onsite; borings performed for roads and highways through or adjacent to the site; borings performed for bridges on or adjacent to the site; borings performed for construction of the Consolidated Edison Plant, the Staten Island Mall and the Eltingville and Mayflower Pumping Stations. In addition, the report should include all boring logs contained in reasonably available literature sources. The report must include a map showing

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the location of each boring and the approximate surface elevation. The report must evaluate the regional and local hydrogeologic setting of the site. The literature review and regional hydrogeologic evaluation should consider the hydrogeology in New Jersey adjacent to the Arthur Kill and across from the Landfill. This should include the distribution of unconsolidated deposits of pleistocene and cretaceous ages, and bedrock of triassic age.

- (9) Supply Well Survey. A survey of all public and private wells within one mile of the site must be performed. All relevant and available information regarding wells must be obtained and included in a Supply Well Survey Report to be submitted to the Department. The report should identify those wells that have been, or are being used, for drinking water supply.
- (10) Groundwater Monitor Well and Piezometer Survey. A groundwater monitor well and piezometer survey will be performed and must include an evaluation of the integrity of all groundwater monitor wells and piezometers installed at the Fresh Kills Landfill prior to the execution of this Order. A reconnaissance of all wells and piezometers installed since 1975 must be performed and should include a record of vital statistics (well depth, static water level, casing height, etc.) as well as general observations regarding the condition and integrity of each well. These observations and statistics should be combined with a review of original well construction details, well design and boring log information to determine whether: (1) the well should be a candidate for rehabilitation and inclusion into the site monitor-well array; or, (2) the well should be properly abandoned. All wells and piezometers installed since 1975 must be accounted for in this report. All existing wells that are not candidates for rehabilitation must be properly abandoned.
- (11) Groundwater Monitor Well and Piezometer Land Survey. The locations and elevations of all exploratory borings, monitor wells (new and existing) and piezometers shall be surveyed by an individual licensed to perform land survey in the State of New York.
- (12) Well Replacement. If, in the opinion of the Department or the Respondent, based on available water quality data or field observations, the integrity of any groundwater monitor well used as part of the Hydrogeological Investigation has been lost, the well will be replaced and sampled for Baseline Parameters within 120 days.

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- (13) Abandonment of Wells and Piezometers. All wells and piezometers constructed during previous hydrogeologic investigations at the site that are not suitable for future use, or any soil borings or rock cores performed as part of this investigation, shall be fully abandoned in a manner appropriate to the geologic conditions to prevent contaminant migration. Abandonment procedures shall be in conformance with 6 NYCRR 360-2.11(a)(8)(vi).
- (14) Water Quality Sampling and Analysis. Groundwater samples will be collected and analyzed in accordance with 6 NYCRR 360-2.11(a)(12). Water samples from all groundwater monitor-wells shall be collected quarterly for chemical analyses. Groundwater samples from all wells shall be analyzed for Expanded Parameters as defined in 6 NYCRR 360-2.11(c)(6). Quarterly sampling and analysis of groundwater samples from all wells will continue until initiation of the Long-Term Groundwater Quality Monitoring Program.

The SIP must specify how the samples will be collected and preserved; chain of custody documentation; analyses required; methods of analysis, and Quality Control/Quality Assurance protocols. All methods must be acceptable to the Department. A record of the methods employed and the personnel involved must be kept and reported to the Department with the analytical data.

Monitor well sampling techniques must be consistent with the following: before evacuation of the well, static water level must be measured to the nearest one-hundredth of a foot using standard techniques; and for wells with documented contamination, where contamination by non-aqueous phase liquids may be present, standing water in the well must be checked for immiscible layers or other contaminants that are lighter or heavier than water (floaters or sinkers). If present, floaters or sinkers must be sampled and analyzed separately by a method described in the Site Investigation Plan; evacuation of the well must replace stagnant water in the well and the sand pack with fresh water representative of the formation. Evacuation methods, including pumping rate, depth of pump intake, and method of determining sufficiency of evacuation, must be consistently applied each time the well is sampled. Evacuation methods must create the least possible turbidity in the well. Evacuated water must be properly managed; field analysis must be performed after evacuation of the well, either within the borehole using a probe or immediately after collection; and all field test equipment must be calibrated at the beginning of each

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sampling day and checked and recalibrated according to the manufacturer's specifications. Calibration data must be reported with the analytical results; laboratory analyses must be performed using analytical methodologies acceptable to the Department, by a laboratory acceptable to the Department. Where necessary to achieve acceptable minimum detection levels, the Department may require the use of specific analytical methods, as described in Test Methods for Evaluating Solid Waste (SW-846) and New York State Contract Laboratory Protocol (CLP); all samples must be collected and stored in the order of the parameter's volatilization sensitivity using methods, consistently applied, which ensure sample integrity; after volatile organic samples have been collected, field parameters must be measured from the next sample collected; all sampling equipment must be constructed of inert materials designed to obtain samples with minimal agitation and contact with the atmosphere, be cleaned in the laboratory and checked before use and protected during transport to avoid contamination. Dedicated equipment must be constructed of appropriate inert materials and must be appropriate for the type of samples to be taken in the well; samples must be properly preserved and delivered to the laboratory within all appropriate holding times for the parameters to be analyzed and with proper chain of custody; blanks and replicate samples must be collected and analyzed in accordance with a method acceptable to the Department.

The reporting and environmental monitoring requirements for the Hydrogeological Report are defined in 6 NYCRR 360-2.11(b) and (c). The scope of the Hydrogeological Report must be sufficient to meet these reporting requirements and support recommendations for a Long-Term Environmental Monitoring Plan, as defined in 6 NYCRR 360-2.11(c).

In addition to the requirements defined in 6 NYCRR 360-2.11, technical evaluations for the Hydrogeologic Report of the site must address unique site conditions and must include: a glacial depositional model that describes the diverse glacial geologic history of the Landfill site and local environment, and defines the origin and interrelation of all glacial, proglacial and periglacial deposits underlying the site including glacial till, glaciolacustrine clay and silt, glaciofluvial sands and gravel, and glacio-deltaic sands and gravel (ice-contact and otherwise); and development of a three-dimensional conceptual model of the distribution of cretaceous sand and clay deposits including their thicknesses, vertical and lateral configuration, and hydraulic inter-communication. Special attention must be directed towards variations in cretaceous depositional facies across the Landfill, inter-fingering of sand and clay units and the effect of these features on the three-dimensional pattern of groundwater flow; assessment of the surface configuration of triassic and ordovician bedrock beneath the site, the

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lateral distribution of these and other rock types, the nature of primary and secondary bedrock features including fracture and joint patterns, weathered condition, porosity, and the effect of these conditions on the pattern of groundwater flow within bedrock and discharge to or recharge from overlying unconsolidated deposits; a conceptual model of the diurnal hydraulic head fluctuations observed in confined water-bearing units caused by tidal action in the Fresh Kills and the Arthur Kill; an evaluation of the effects of Landfill size and age on the chemodynamics and hydrodynamics of leachate generated on-site; a quantitative assessment of the complex pattern of groundwater flow within and between unconfined and confined water bearing units present beneath the site, and discharge to or recharge from surface waters, based upon direct hydraulic-head field observations; a quantitative assessment of the complex pattern of groundwater flow within and between unconfined and confined water bearing units present beneath the site, and discharge to or recharge from surface waters, based on the results of chemical analyses of groundwater and surface water; a detailed assessment of localized and regional hydrogeologic systems (including aquifers and confining beds) that are present in the vicinity of the Landfill including New Jersey; and assessment of the hydrogeologic relationship between water bearing units present beneath the Landfill and local and regional hydrogeologic system(s). Special attention must be directed to formulation of an accurate account of the nature of hydraulic communication and evidence of, or potential for, offsite migration of landfill leachate within groundwaters.

Specific requirements of the Hydrogeologic Report include the following:

1. The interim Hydrogeological Report must include an evaluation and interpretation of all hydrogeological and geological data and information obtained prior to the date of preparation of the report. The interim Hydrogeological Report shall identify potential gaps in the evolving data base. The Report shall include recommendations for the scope of additional investigations, if any, that are necessary to meet the hydrogeological reporting requirements set forth in 6 NYCRR Part 360.
2. The draft final Hydrogeological Report and final Hydrogeological Report shall include an evaluation and interpretation of all hydrogeological data and information generated during the Hydrogeological Investigation, the interim Hydrogeologic Report, and the literature review. The reports shall also include recommendations for the Long-Term Environmental Monitoring Plan for Fresh Kills Landfill including design of the appropriate monitor well array and sampling plan.

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<u>Subject</u>	<u>Milestone Date</u>
1. The Department shall review and comment on the Request for Proposals entitled Fresh Kills Landfill Leachate Mitigation System.	45 days after execution of the Order
•2. Respondent shall award and register the contracts in response to the Request for Proposals entitled Fresh Kills Landfill Mitigation System.	7-15-90
3. Respondent shall submit to the Department for review and comment the Milestone Dates as supplied by the contractor for Subjects 8-14. A meeting amongst the parties and the contractor will be held within fifteen days of this submittal to discuss the schedule.	8-26-90
4. Respondent shall submit to the Department the acceptable Milestone Dates for Subjects 8-14. Upon acceptance by the Department, the Milestone Dates shall become part of this Compliance Schedule.	10-7-90
5. Respondent shall submit to the Department for review and comment the draft Site Investigation Plan (SIP), which will reflect the Department's comments on the Request for Proposals. No later than 45 days after receipt of the Department's comments on the draft SIP, the parties shall meet with the contractor to determine a date by which the acceptable SIP shall be submitted.	12-31-90
•6. Respondent shall initiate quarterly groundwater sampling. First round of sampling will include only those groundwater monitor wells installed in 1989. Subsequent sampling rounds will include all new completed wells and rehabilitated wells.	12-31-90
*7. Respondent shall submit to the Department the final acceptable Site Investigation Plan. The Department will be bound by its acceptance of the final Acceptable Site Investigation Plan except that the Department reserves its right to require Respondent to perform additional investigations to support the completeness determination of the final acceptable Hydrogeological Report based on unforeseen information not known to the Respondent or Department prior to the Department's acceptance of the final Site Investigation	12-31-90

May 26, 1993

<u>Subject</u>	<u>Milestone Date</u>
Plan, so long as any such changes shall not increase the total number of monitor wells and test borings as defined by the requirements of Appendix A-6.	
*8. Respondent shall submit to the Department the acceptable Groundwater Monitor Well and Piezometer Survey Report.	12-31-90
•*9. Respondent shall initiate the field program.	12-31-90
*10. Respondent shall submit to the Department the acceptable Water Supply Well Survey Report.	3-15-91
*11. Respondent shall submit to the Department the acceptable Hydrogeologic Literature Review Report.	3-15-91
•*12. Respondent shall initiate one year of quarterly groundwater sampling of all supply wells identified in the Supply Well Survey Report that can yield representative samples and all piezometers installed in 1989. Samples will be analyzed for Baseline Parameters as defined in 6 NYCRR Section 360-2.11(c)(6).	4-6-91
•*13. Respondent shall submit to the Department for review and comment the interim Hydrogeological Report.	9-13-92
*14. Respondent shall submit to the Department for review and comment the draft final Hydrogeological Report.	4-10-93
15. Respondent shall submit to the Department the final acceptable Hydrogeological Report.	7-25-93 7-4-93 [Addendum 7-13-93]
16. Respondent shall initiate the Long-Term Groundwater Monitoring Program. The Long-Term Groundwater Monitoring Program shall be reevaluated for inclusion in the application described in Appendix A-2.	Three months past submittal of the final acceptable Hydrogeological Report.

A-6



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NOTE: \*Per the requirements of Subjects 4 and 5, upon acceptance by the Department, the Milestone Dates for Subjects 7-14, shall be modified. If the Respondent's contractor proposes the Milestone Dates as such Milestone Dates are set forth above for Subjects 7-14, the Department shall not withhold acceptance.

•With respect to Subjects 2, 6, 9, 12 and 13 of this Appendix; the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

May 26, 1993

DEC Case D2-9001-89-03

Compliance Schedule Appendix A-8

Landfill Gas Migration Mitigation

A continuing landfill gas monitoring program based on the requirements of 6 NYCRR 360-2 must be initiated to ensure the gas concentration standards of Appendix B-2 are met. The type and frequency of monitoring must be approved by the Department and based on the following factors: soil conditions; the hydrogeological conditions surrounding the Landfill; the hydraulic conditions surrounding the Landfill; and the location of any man-made structures and property boundaries. In order to develop the landfill gas monitoring program, a Landfill Gas Migration Investigation must be performed in accordance with the requirements of 6 NYCRR 360-2.15(a)(2). The intent of this investigation must be to identify the presence and concentration of explosive gases at or near the Landfill; determine the extent of actual or potential gas migration off-site; and identify the soil stratigraphy beneath and around the Landfill.

The scope of the Landfill Gas Migration Investigation will include, but not be limited to, the following:

- (1) Review of reports and data of gas occurrence and potential migration pathways at and adjacent to (including at least the area within 1000 feet of the property boundary) the Landfill;
- (2) Design of a survey methodology which will include locations to sample, sampling protocols, and analytic methods proposed for data obtained;
- (3) Preparation of a topographic map with an appropriate scale showing the location of all underground utilities, all structures including roadways and buildings within at least 1000 feet of the property boundary, and the soil stratigraphy;
- (4) Description of the general design of the underground utilities including the approximate dimensions of the trenches and the material used to grade and fill the trenches; and
- (5) Assessment of the zones of actual and potential gas migration.

May 26, 1993

The Landfill Gas Migration Investigation will result in a report containing the proposals for landfill gas migration control systems in accordance with the requirements of 6 NYCRR Part 360-2.15(c), 360-2.15(d), and 360-2.16, as appropriate, and the Long-Term Landfill Gas Monitoring Program in accordance with the requirements of 6 NYCRR 360-2.17(f).

The compliance schedule follows:

<u>Subject</u>	<u>Milestone Date</u>
1. Respondent shall submit to the Department for review and comment the draft report containing the landfill gas migration investigation results, proposed gas migration control systems, and proposed Long-Term Landfill Gas Monitoring Program. The submission shall include a schedule for the installation of the proposed gas migration control systems and final perimeter gas monitoring array. The schedule shall include no more than eight (8) Subjects and corresponding Milestone Dates which, upon acceptance by the Department, shall be incorporated into this Compliance Schedule.	5-26-91
2. Respondent shall submit to the Department the final acceptable report. Upon acceptance by the Department, the schedules for the installation of the proposed landfill gas migration control systems and final accepted perimeter gas monitoring array shall become part of this Compliance Schedule.	9-1-91
3. Initiation of design of gas vent trench for three areas of the Landfill.	11-21-91
4. Completion of design of perimeter gas vent trench for three areas of the Landfill.	12-3-91
5. Initiate preliminary design for remaining perimeter gas vent trench.	12-4-91
6. Initiation of pre-construction monitoring.	12-4-91
7. Initiate construction of the perimeter gas vent trench for three areas of the landfill.	1-6-92
8. Complete final design for the remaining perimeter gas vent trench.	1-31-92

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<u>Subject</u>	<u>Milestone Date</u>
9. Complete construction of perimeter gas vent trench for three areas of the Landfill.	3-6-92
●10. Register the contract for the construction of the remaining perimeter gas vent trench.	6-15-92
11. Commence long-term landfill gas monitoring.	12-9-92
●12. Complete construction of the remaining perimeter gas vent trench.	6-15-93

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NOTE: ●With respect to Subject 1 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Date for the noted Subject up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extension date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subject are governed by the provisions of paragraph XXIV of the Order.

May 26, 1993

DEC Case D2-9001-89-03

Compliance Schedule Appendix A-9  
Local Solid Waste Management Plan

The Respondent shall develop a local solid waste management plan for the City of New York in accordance with the schedule included herein. The plan shall be for a minimum ten-year period.

The compliance schedule follows:

	<u>Subject</u>	<u>Milestone Date</u>
1.	Respondent shall submit to the Department for its approval a local solid waste management plan that addresses all the matters identified in 6 NYCRR 360-15.9, which, upon approval by the Department, shall thereafter become the local solid waste management plan in effect for the City of New York.	3-31-92
2.	Respondent shall submit to the Department the final acceptable Local Solid Waste Management Plan which shall become the local solid waste management plan in effect for the City of New York.	10-1-92

May 26, 1993

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extension date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

May 26, 1993

DEC Case D2-9001-89-03

Compliance Schedule Appendix A-10  
Slope Stability Investigation

The Respondent shall perform a Slope Stability Investigation to analyze the refuse slope stability and foundation consolidation and stability in relation to the grading plan and waste placement rates proposed for all the Sections of the Landfill. The scope of work for the Slope Stability Investigation shall include performance of soil borings and collection, observation and description of soil samples; performance of geotechnical tests on soil samples including hydraulic conductivity tests, shear tests, consolidation tests, and grain size distribution tests; evaluation of the landfill slope stability and subsurface soil consolidation rates of all the Sections for the proposed landfill progression plan to ensure stability; and development of a long-term slope stability monitoring program that includes data collection methodology and establishment of factors of safety for observed field measurements to ensure no catastrophic failures. Consideration shall be given to the effect of the leachate collection/containment system on the subsurface stability. Design requirements of Appendix A-4 and A-6 for piezometers shall not apply to piezometers installed to satisfy the requirements of this Appendix A-10.

The compliance schedule follows:

<u>Subject</u>	<u>Milestone Date</u>
1. Respondent shall submit to the Department for review and comment the draft Preliminary Geotechnical Evaluation Report (PGER). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable PGER shall be submitted.	5-1-90
*2. Respondent shall submit to the Department the final acceptable Preliminary Geotechnical Evaluation Report.	6-1-90
3. Respondent shall initiate the field investigations.	6-20-90
4. Respondent shall initiate the geotechnical testing.	6-30-90
•5. Respondent shall submit to the Department for review and comment the draft Field Investigation Report (FIR). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor	7-20-90

May 26, 1993

Subject

Milestone Date

to determine the date by which the acceptable FIR shall be submitted.

- 6. Respondent shall submit to the Department for review and comment the draft Geotechnical Testing Data Report (GTDR). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable GTDR shall be submitted. 8-15-90
- \*7. Respondent shall submit to the Department the final acceptable Field Investigation Report. 10-7-90
- \*8. Respondent shall submit to the Department the final acceptable Geotechnical Testing Data Report. 10-7-90
- 9. Respondent shall submit to the Department for review and comment the draft Geotechnical Site Characterization Report (GSCR). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable GSCR shall be submitted. 1-4-91
- 10. Respondent shall submit to the Department for review and comment the draft Geotechnical Analysis Report (GAR). No later than 45 days after receipt of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable GAR shall be submitted. 3-28-91
- \*11. Respondent shall submit to the Department the final acceptable Geotechnical Site Characterization Report. 5-17-91  
~~3-3-91~~
- \*12. Respondent shall submit to the Department the final acceptable Geotechnical Analysis Report. The Geotechnical Analysis Report shall be updated annually using the field monitoring data collected during the preceding year. 8-23-91  
~~6-2-91~~
- 13. Respondent shall submit to the Department for review and comment the draft Monitoring System Design Report and Monitoring System Installation Plans and Specifications. No later than 45 days after receipt 8-2-91



May 26, 1993

<u>Subject</u>	<u>Milestone Date</u>
of the Department's comments, the parties shall meet with the contractor to determine the date by which the acceptable report, plans and specifications shall be submitted.	
*14. Respondent shall submit to the Department the interim acceptable Monitoring System Design Report and Monitoring System Installation Plans and Specifications.	<del>9-1-91</del> 1-17-92
15. Respondent shall submit to the Department the final acceptable Monitoring System Design Report and Monitoring System Installation Plans and Specifications. The report shall be <u>updated annually</u> to reflect different phases of Landfill development.	4-1-93
16. Respondent shall initiate the installation of the monitoring system.	1-15-92
17. Respondent shall complete the installation of monitoring system for Phase I.	10-15-92
18. Respondent shall initiate the long-term monitoring.	11-15-92

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NOTE: \*Per the requirements of Subjects 1, 5, 6, 9, 10, and 13, upon acceptance by the Department, the Milestone Dates for Subjects 2, 7, 8, 11, 12, and 14 shall be modified. If the Respondent's contractor proposes the Milestone Dates as such Milestone Dates are set forth above for Subjects 2, 7, 8, 11, 12, and 14, the Department shall not withhold acceptance.

•With respect to Subjects 5, 6, 9, 10, and 13 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

Appendix B-1

3. Provided the number of working faces is limited to two, each working face shall be confined to an area no larger than 20 feet high and 250 feet wide.

If the daily tonnage of refuse increases substantially and it becomes necessary to operate three working faces, then one of the working faces may be a combined bank. The working face of the combined bank may be no larger than 20 feet high and 250 feet wide measured at the top of the bank. The other two working faces shall be limited to an area no larger than 20 feet high and 200 feet wide.

If it is necessary to operate more than three working faces, each shall be limited to an area no larger than 20 feet high and 200 feet wide.

The term combined bank means the working face that accepts solid waste by refuse haulers from one unloading pad, NYCDOS collection trucks and private carter collection trucks.

13. By January 18, 1994, leachate recirculation shall cease and leachate collected in the Veteran's Avenue collection pipes shall be treated on-site.

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
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In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by

ORDER

ON

CONSENT

Modification #4

THE CITY OF NEW YORK  
(Department of Sanitation  
125 Worth Street  
New York, New York 10013)

DEC CASE #  
D2-9001-89-03  
(Fresh Kills)

Respondent  
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WHEREAS:

1. On October 7, 1993, the New York City Department of Sanitation ("DOS") requested modification of Appendix A-5 of the April 24, 1990 Fresh Kills Landfill Order on Consent ("Order") to add three milestones providing for construction of an enclosed single-barge unloading facility. DOS requested this change because it is ordered to build the unloader in the June 15, 1993 Judgment in Township of Woodbridge v. City of New York (US District Court, Dist. N.J. [Barry, J.]). The unloader will serve a remedial purpose in that it will reduce the exposure of waste to winds and rainwater, with a corresponding avoidance of blowing litter and leachate creation. The unloader would be constructed from about August 1995 until some time in 1998.

2. On November 19, 1993, DOS also requested modification to Appendix D-2 of the Fresh Kills Order to reduce from two to one the number of copies of public documents mandated under the Order to be sent to the Document Repository at the Staten Island Borough President's Office. DOS made this request to conserve rapidly declining space at the Repository.

3. On December 27, 1993, DOS also requested modification to Appendix D-2 of the Fresh Kills Order to allow the discarding of interim and draft final versions of milestone reports when the final versions of such reports are placed in the Repository. Again DOS made this request to conserve rapidly declining space at the Repository.

4. DEC Staff considered DOS's requests and concluded that they may be granted in accord with the standards of the Order.

5. Paragraph XXVI of the Order requires public notice and an

opportunity for public comment before final DEC action upon certain requests to modify the Order. DEC Staff therefore provided the opportunity to make written comments on all DOS modification requests requiring such opportunity, by publishing notice of the proposed modifications in the Environmental Notice Bulletin on February 2, 1994, and by mailing a summary of the proposed modifications on January 25, 1994 to: the Office of the Staten Island Borough President; the two Public Document Repositories maintained under the order; the Staten Island Solid Waste Advisory Board; and, Staten Island Community Board Two.

6. These notices provided that public comment on DOS's modification requests would be accepted until March 15, 1994. No oral or written statements/comments have been received by DEC Staff.

NOW, THEREFORE, IT IS ORDERED THAT:

A. The following two revised provisions are hereby incorporated into the April 24, 1990 Consent Order, as previously revised on September 21, 1990, April 22, 1992, and November 18, 1993:

1. Compliance Schedule A-5 - Waste Transport and Unloading Facilities, Subject 2, is modified to add the following three milestones for construction of an enclosed single-barge unloading facility (the "unloading facility"): i. complete final design for the unloading facility by December 30, 1994; ii. complete construction of the unloading facility by March 31, 1998, and iii. establish a satisfactory protocol for the operation and maintenance of the unloading facility by September 30, 1998.
2. Compliance Schedule Appendix D-2, Public Document Repository and Document Indexing is revised to allow DOS and DEC to supply only one copy of each document required under the Order to the official Repository at the Staten Island Borough President's Office, and to allow the discarding of interim and draft final versions of milestone reports when the final versions of such reports are placed in the Repository.

B. This modification shall be effective immediately.

DATED: Long Island City, NY

July 15, 1994

LANGDON MARSH, Commissioner  
New York State Department of  
Environmental Conservation

By: 

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
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In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by

ORDER

ON

CONSENT

Modification #5

THE CITY OF NEW YORK  
(Department of Sanitation)  
125 Worth Street  
New York, New York 10013

DEC CASE #  
D2-9001-89-03  
(Fresh Kills)

Respondent  
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WHEREAS:

1. On June 23, 1994, the New York City Department of Sanitation ("Respondent") requested that the New York State Department of Environmental Conservation ("DEC") modify Appendix A-2 of the April 24, 1990 Fresh Kills Landfill Order on Consent ("Order") to extend the Order's March 15, 1995 milestone for submitting a complete solid waste facility permit application, by nine months. Respondent stated four reasons for seeking the modification: changes in federal and state regulations since the Consent Order was signed; the need to incorporate data from current environmental and health studies into the application; the desire to maximize public input into the scoping and preparation of the draft EIS; and, the need to decide whether DEC will mandate leachate controls at Sections 2/8 & 3/4, at which solid waste disposal has ceased.

2. On December 12, 1994, Respondent made a revised request for a one-year modification of the March 15, 1995 deadline for submitting required solid waste facility permit applications. Respondent stated the following additional reasons for this revised modification request: the City will need to update its Solid Waste Management Plan, so that the plan accurately reflects the role of the Fresh Kills Landfill in the City's overall solid waste management program; and, that the City will need to obtain an entire year's air monitoring data to determine accurately the ambient air quality in the vicinity of the Landfill.

3. Paragraph XXVI of the Order requires public notice and an opportunity for public comment before final DEC action upon certain requests to modify the Order. On February 22, 1995, DEC Staff provided the opportunity to make written comments on Respondent's revised modification request by publishing notice of the requested

FRESH KILLS ORDER -DRAFT MODIFICATION #5 [12/20/94]

modification in the State Environmental Notice Bulletin, and by mailing a summary of the proposed modifications to: the Office of the Staten Island Borough President; the two Public Document Repositories maintained under the Order; the Staten Island Solid Waste Advisory Board; and, Staten Island Community Board Two.

4. These notices provided that public comment on Respondent's modification requests would be accepted until April 22, 1995. Oral and written comments were received by DEC Staff, and are addressed in the attached "Responses to Public Comments."

5. DEC is willing to grant Respondent's request, solely on the grounds that it will allow Respondent to provide for the receipt and analysis of an entire year's data from air monitoring stations adjacent to the Landfill as part of the environmental impact study. These monitoring stations are sources of valuable information about ambient air conditions in and around the landfill, and it bears noting that the stations were funded by special legislative action several years after the Order was signed, meaning that the Order's schedule for submission of permit applications could not have taken account of the additional time needed to gather the data generated by these stations. DEC does not find that Respondent's other proposed grounds for this modification request, referred to in paragraphs 1 and 2 above, justify this modification request.

NOW, THEREFORE, IT IS ORDERED THAT:

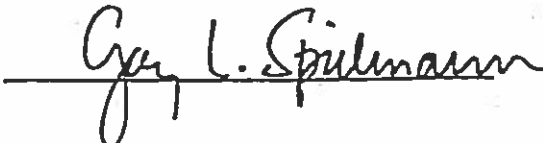
A. Compliance Schedule Appendix A-2, Subject 5 is revised to provide that Respondent must submit the complete Part 360 Solid Waste Management Facility permit application mandated therein by March 15, 1996.

B. This modification shall be effective immediately.

DATED: Albany, NY

July 26, 1995

GARY SPIELMANN, Executive  
Deputy Commissioner  
New York State Department of  
Environmental Conservation



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



**ORDER ON CONSENT  
FRESH KILLS LANDFILL  
MODIFICATION #5  
RESPONSIVENESS SUMMARY**

Michael D.  
Zagata  
Commissioner

**GENERAL**

Comment: Modification to the Consent Order should not be granted until a public meeting on this subject is held in order to receive oral comments from the public.

Response: Provisions for public comment on modifications to the Consent Order are established in Modification #1 of the Consent Order. The order requires that public notice, inviting written comment, shall be accomplished by publication in the Environmental Notice Bulletin (ENB) and by placement of the proposed modification to the Consent Order in the public access document repositories. In addressing this current proposed modification, the Department provided for an extended public comment period to allow detailed responses to be developed. Additional, comprehensive public comment opportunities, both written and oral, will be provided as part of the hearing on the Draft Environmental Impact Statement and the complete Part 360 application. The public will also have opportunity for direct input into defining the issues related to the Part 360 permit application and during the anticipated permit hearing process.

Comment: The one year extension should only be granted if it is conditioned on specific commitments for other waste strategies for the City of New York. Specific issues for inclusion are phase down of waste disposal at the landfill, a requirement for stepped-up recycling, private sanitation services for non-mayoral city agencies, an efficiency study of garbage collection in the City, diversion of waste to processing facilities and a requirement that the City explore export options.

Response: The above issues are more appropriately addressed in the update of the City of New York's Local Solid Waste Management Plan, which is available in June 1995 for public review and comment.

Comment: Insert applicable 40 CFR Part 258 requirements into the Consent Order.

Response: As noticed in the Federal Register on March 14, 1995, the Environmental Protection Agency has concluded that New York State's application for adequacy determination meets all statutory and regulatory requirements established by RCRA. This determination means that any owner or operator complying with provisions in the State program approved by EPA can be considered to be in compliance with the Federal Criteria. The Consent Order requirement for a permit is the mechanism to achieve Part 258 requirements.

Comments: The existing NYSDEC air monitoring program has nothing to do with permitting.

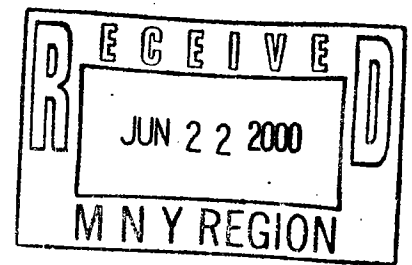
Response: There are two air monitoring programs being conducted by NYSDEC at the landfill. The first is ambient air monitoring, which is part of the national requirement for monitoring of criteria pollutants and has stations throughout New York City. We agree that this program has nothing to do with permitting the Fresh Kills Landfill. The second study is entitled Air Quality Characterization Study for the Fresh Kills Landfill. Monitoring for volatile organics, metals and odorous compounds are part of this study. This data will be used to further characterize the ambient air quality at and near the landfill. While this study is not part of the requirements of Part 360, it is necessary for the State and City Environmental Quality Review. This environmental quality review process requires the Applicant to look at all aspects of the environmental impact of a proposal. Therefore, the data collected during the air characterization study will be analyzed as part of the Draft Environmental Impact Statement required by State and City Environmental Quality Review regulations.

Comment: The application for a solid waste permit has been a requirement since the first consent order in 1980. Fifteen years is plenty of time to prepare an application.

Response: As has been stated previously by this Department, the first two consent order mandates for permit submittal (1980 and 1985) were ineffective. No penalties were included in those orders if the City did not comply. The previous orders did not contain the extensive and detailed mandates to be performed as a guarantee that the Department of Environmental Conservation would receive a timely and complete application. The Consent Order executed in 1990, however, does have significant penalties for non-compliance and a detailed milestone schedule. To date, the City has shown good faith efforts in meeting the Milestone Dates in the Order. The Consent Order has three phases. The first requires DOS to perform involved long term investigations on impacts to the surface and ground waters as well as the stability of the mounds. The second, based on these studies, was to design and implement remedial activities to minimize the assessed impacts and to submit an application for a permit to operate the facility supported by the



investigation. The last investigation study was approved in the summer of 1994. There upon the preparation of the permit application began. The City is now awaiting the data from the Department's Air Characterization Study to complete their database for compilation of the entire application package.



STATE OF NEW YORK  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
-----X

In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by

FRESH KILLS  
ORDER  
ON  
CONSENT

Modification #6

THE CITY OF NEW YORK  
(Department of Sanitation)  
125 Worth Street  
New York, New York 10013)

DEC CASE #  
D2-9001-89-03

Respondent  
-----X

WHEREAS:

1. On April 24, 1990 the City of New York ("City") and DEC entered into an Order On Consent regarding the Fresh Kills Landfill (the "Fresh Kills Order"). The Fresh Kills Landfill ("landfill") is a solid waste management facility owned by the City and operated by the New York City Department of Sanitation ("Sanitation") in Staten Island, New York. Among other things, the Fresh Kills Order requires Sanitation to perform specific operational, investigatory, and preliminary closure tasks at the landfill pursuant to a set schedule.

2. This is the sixth modification of the Fresh Kills Order.

3. On March 6, 1995 the New York State Department of Environmental Conservation ("DEC") issued a Notice of Milestone Deficiency ("NOMD") under the Fresh Kills Order. The NOMD asserted that Sanitation's Sections 2/8 and 3/4 closure plan was inadequate and a violation of the Fresh Kills Order in that it did not provide for any collection or treatment of leachate generated from these closed sections. DEC had earlier determined that such leachate collection and treatment was practicable and, therefore, required under the Fresh Kills Order.

4. Although Sanitation disputed the NOMD, it agreed to construct leachate controls at closed Sections 2/8 and 3/4 so as to provide additional environmental protection to the small tributaries of the Fresh Kills complex. On April 22, 1996, Sanitation proposed an implementation schedule for these leachate controls at Sections 2/8 and 3/4 of the Fresh Kills Landfill. Sanitation's proposal was accompanied by an Engineering Report and Plan detailing a new leachate recovery and collection system. A copy of the April 22, 1996 submission is annexed hereto as Exhibit

1.

5. Thereafter, in October 1996, Sanitation requested a two-part modification to the Fresh Kills Consent Order to: (a) incorporate the agreed-to leachate controls for Sections 2/8 and 3/4; and (b) extend the milestone deadlines for leachate collection and treatment requirements for Sections 6/7 and 1/9 already provided for in the Fresh Kills Order. The extension was sought by Sanitation to allow it to add the work at Sections 2/8 and 3/4 to the procurement package for the Section 1/9 and 6/7 work so that the entire leachate collection and treatment system would be integrated in one bidding process. A copy of Sanitation's modification request, dated October 18, 1996, is annexed hereto as Exhibit 2.

6. In February 1997, Sanitation submitted a revised consent order modification request to allow for a sequencing of the leachate control project that had not been initially contemplated. In other words, Sanitation had begun work first at Section 2/8, and then at Section 3/4. This allowed them to have the benefit of the field experience at Section 2/8 to guide the work at Section 3/4. Sanitation's proposed revision also added some additional time to complete the entire project. A copy of Sanitation's revised modification request, dated February 25, 1997, is annexed hereto as Exhibit 3.

7. Since that time, work on the leachate control system has been ongoing and a number of the milestone deadlines proposed by Sanitation in its modification requests have been achieved. The work associated with each such milestone date is set forth at Paragraph A.2. below.

8. To quantify the potential leachate yields from recovery wells in various areas in Sections 2/8 and 3/4, Sanitation conducted pump tests the results of which were analyzed and reported in March and July, 1997. The results of such testing precipitated extensive technical discussions between Sanitation and DEC regarding the determination of the best method of leachate collection at Sections 2/8 and 3/4. Sanitation's plan called for selection of either center well leachate collection technology or leachate collection by use of a perimeter collection drains.

9. Following these discussions, Sanitation proposed enhancement of its previous leachate control plan, by including both partial perimeter leachate collection drains and center leachate recovery wells at each closed section of the landfill. A copy of Sanitation's enhanced proposal, dated January 21, 1998, is annexed hereto as Exhibit 4.

10. DEC approved Sanitation's enhanced leachate control plan, subject to certain conditions which Sanitation agreed to. A copy of DEC's February 9, 1998 approval letter, and Sanitation's February 11, 1998 request letter are annexed hereto as Exhibit 5. DEC authorized Sanitation to commence such work on February 13,

1998.

11. Sanitation commenced the DEC approved enhanced leachate control work at Section 2/8 on February 17, 1998, and the work at Section 3/4 on March 20, 1998.

12. On April 16, 1998 Sanitation wrote to DEC to update its earlier consent order modification request in certain respects. Sanitation proposes ten milestone subjects and dates for the leachate control work at Sections 2/8 and 3/4 that had been authorized by DEC on February 13, 1998. The first eight proposed milestone dates (six of which were the dates originally proposed on February 25, 1997) have already been met. Sanitation proposes to commence treatment of leachate from both closed sections of the landfill (new milestone subjects nine and ten) by July 15, 1998, the same date it has proposed to also commence leachate treatment for open sections 6/7 and 1/9.

13. DEC Staff considered Sanitation's April 1998 modification request and the work that already has been done, and concluded that the modification request should be granted, consistent with the standards of the Fresh Kills Order.

NOW, THEREFORE, IT IS ORDERED THAT:

A. The following revised and new provisions are hereby incorporated into the April 24, 1990 Consent Order, as previously revised on September 21, 1990, April 22, 1992, November 18, 1993, July 15, 1994, and July 26, 1995:

1. Compliance Schedule A-4 - Landfill Leachate Mitigation of Sections 1/9 and 6/7, Milestone Subjects 17, 18 and 19, are modified as follows: Subject 17, Milestone Date - May 31, 1998\*; Subject 18, Milestone Date - June 30, 1998; and, Subject 19, Milestone Date - December 31, 1998.
2. Compliance Schedule Appendix A-14 - Landfill Leachate Mitigation of Sections 2/8 and 3/4, Milestone Subjects 1 to 10, is created and added as follows in the table below:

Milestone Subject	Milestone Date**
1. Commence construction of the leachate recovery wells and observation wells at Sections 2/8 and 3/4.	September 30, 1996*
2. Commence recovery well pump tests at Section 2/8.	December 2, 1996*

3. Commence recovery well pump tests at Section 3/4.	February 14, 1997*
4. Complete construction of the leachate recovery and observation wells at Sections 2/8 and 3/4.	February 28, 1997*
5. Submit to DEC a report on the performance of the pump test and well yields for Section 2/8, for DEC review and determination of the feasibility of recovery well yields.	March 31, 1997*
6. Submit to DEC a report on the performance of the pump test and well yields for Section 3/4, for DEC review and determination of the feasibility of recovery well yields.	July 14, 1997*
7. Commence construction work at Section 2/8 of the leachate collection trench and associated appurtenances.	February 17, 1998*
8. Commence construction work at Section 3/4 of the leachate collection trench and associated appurtenances.	March 20, 1998*
9. Commence treatment of leachate from Section 2/8.	July 15, 1998
10. Commence treatment of leachate from Section 3/4.	July 15, 1998

\*\* Please note that Milestone Dates denoted both in Paragraph A.1 and in the above chart with a \* reflect that Sanitation has completed the associated work prescribed therein.

B. Respondent may request an extension of a Milestone Date for Appendix A-14 Subjects numbered 9 and 10 by:

- i. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
- ii. Communicating the request to the Regional Solid and Hazardous Materials Engineer; and,
- iii. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Materials Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone

Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of Paragraph XXIV of the Order.

C. All other terms and obligations set forth in the 1990 Fresh Kills Order, except as specifically previously modified, remain in full force and effect.

D. This modification shall be effective upon execution on behalf of DEC.

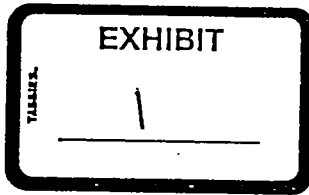
DATED:

*Oct 20*

, 1998

JOHN CAHILL, Commissioner  
New York State Department of  
Environmental Conservation

By: *Mary Ellen K...*





# THE CITY OF NEW YORK Department of Sanitation

MARTHAK Hill  
Deputy Commissioner

Solid Waste  
44 Beaver Street  
New York, NY  
Telephone (212) 312-2000

April 22, 1996

Mr. Norman Nosenchuck, P.E.  
Director, Division of Solid Waste  
New York State Department of Environmental Conservation  
50 Wolf Road  
Albany, NY 12233

Mr. Gilbert Burns, P.E.  
Regional Engineer  
New York State Department of Environmental Conservation  
Region 2  
47-40 21st Street, 2d Floor  
Long Island City, NY 11101

Re: Fresh Kills Consent Order  
DEC Case No. D2-9001-89.03  
Appendix A-3, Subject 10

Dear Mr. Nosenchuck and Mr. Burns:

This is a followup of my letter to you of September 14, 1995 responding to the Department of Environmental Conservation's request for an implementation schedule for additional leachate controls beyond capping at Sections 2/8 and 3/4.

As you know, it is the Department of Sanitation's position that previously planned leachate control measures at the closed sections, consisting of final closure and capping, fully satisfy all Consent Order requirements and that no milestone deficiency has occurred. Nonetheless, in the interest of cooperation, in an effort to avoid delay to the ongoing closure program, and to provide additional environmental protection to the small tributaries in the Fresh Kills complex, DOS offered a conceptual proposal last August to resolve this matter with the Department of Environmental Conservation which was accepted at the end of that month. Since that time, DEC and DOS technical staffs have worked together to successfully integrate the additional leachate controls at the closed sections into the leachate mitigation project planned for Sections 1/9 and 6/7 of the landfill. By doing so, we will be able to add leachate controls to the ongoing closure work at Sections 2/8 and 3/4 as rapidly as possible. The work proposed at Sections 2/8 and 3/4 is set forth in detail in the final contract documents including Addendum 3 of the "Fresh Kills Leachate Control, Site Work, and Appurtenances Contract" which was let on March 4, 1996, and in the documents entitled *Engineering Report, Fresh Kills Landfill, Sections 2/8 and 3/4 Leachate Recovery and Collection Systems* and the *Final Construction Quality Assurance/Construction Quality Control (CQA/CQC) Plan, Fresh Kills Landfill, Sections 2/8*





*and 3/4 Leachate Recovery and Collection Systems.* The Engineering Report and CQA/CQC Plan are enclosed with this letter. Copies of the final contract documents and Addendum 3 will be sent under separate cover to appropriate personnel at DEC shortly.

Since last summer, the DOS has taken many steps to reach the point at which it is able to present the Engineering Report for this project. The work started with preparing designs for the leachate recovery pumps and consideration of how the pump tests would be conducted, and deliberation about how to move recovered leachate from the pumps to the leachate treatment plant. During the early autumn of 1995, DOS determined that certain creeks and wetlands in the Fresh Kills complex would have to be crossed, rather than tunneled under as originally planned, in order to transfer the recovered leachate to the treatment plant and this would require modifications to the existing wetlands and related permits. Similarly, DOS determined that it would have to examine the characteristics of the leachate in Sections 2/8 and 3/4 to decide whether the existing SPDES permit would require modification. Accordingly, enclosed with this letter as specific Exhibits are copies of correspondence documenting these efforts and the determinations reached and authorizations issued. The information contained in these Exhibits, along with the Engineering Report, CQA/CQC Plan, and final contract documents and Addendum 3 referred to above, provide all pertinent information relating to this project. The Exhibits are provided herein for your information and possible reference.

On November 2, 1995, Project Manager T. Alex Saunders of the Department of Sanitation wrote to both NYSDEC and the U.S. Army Corps of Engineers, requesting modifications to the existing permits and authorizations for performing work in wetlands areas. The letter to NYSDEC is labeled Exhibit A and the letter to the Army Corps is labeled Exhibit B. On November 16, 1995, the Army Corps responded, by requesting additional information regarding restoration or mitigation of the impacted wetlands and certain other documentation. This letter is provided as Exhibit C. Also on November 16, 1995, Mr. Saunders wrote to the NYS Department of State, Coastal Management Program, requesting a consistency determination for the additional leachate controls at Sections 2/8 and 3/4 and for the requested DEC and Army Corps permit modifications. This letter is provided as Exhibit D.

On January 19, 1996, Mr. Saunders wrote to NYSDEC's Division of Water, providing answers to questions arising during ongoing discussions about whether discharge of treated leachate from Sections 2/8 and 3/4 would be authorized under the existing SPDES permit. This letter is provided as Exhibit E.

Draft construction contract drawings for the entire Fresh Kills leachate mitigation project, incorporating the work at Sections 2/8 and 3/4, were provided to DEC for information and review during January. Copies of these are not enclosed in this letter.

On January 24, 1996 the NYS Department of State reaffirmed the coastal zone management consistency determination for this project, as shown in Exhibit F. On February 2, 1996, NYSDEC issued a Notice of Incomplete Application, detailing the additional information and documentation required to modify the existing tidal wetlands permits and associated permits and authorizations. The Notice of Incomplete is enclosed as Exhibit G.

On February 9, 1996, Mr. Saunders sent specifications for installation of the leachate recovery and observation wells and for performance of the pump tests and yield tests to NYSDEC. This letter is enclosed as Exhibit H. These items were discussed at a meeting between DOS and DEC on February 22, 1996 and agreement was reached. This is documented in minutes to this meeting, enclosed as Exhibit I.

On March 5, 1996, as shown in Exhibit J, DEC's Division of Water responded to Mr. Saunders' letter of January 19, by requesting additional information and a complete permit application to modify the existing SPDES permit. On March 14, 1996, Mr. Saunders provided information responding to DEC's Notice of Incomplete Application for the wetlands permit. This is enclosed as Exhibit K, but without the oversize drawings which were part of the March 14 submittal. Copies of these drawings will be provided upon request. DEC issued the Notice of Permit Modification for the wetlands and associated permits and authorizations on April 4, 1996; a copy is provided as Exhibit L. Mr. Saunders sent a copy of this to the Army Corps on April 12, 1996. Early last week Mr. Saunders was informed by the Army Corps that the permit modification would be issued within days and that it would require no additional work beyond that required by the DEC permit modification.

On April 17, DOS issued an addendum to the construction contract bid package which included the DEC permit modification. Also on that date, Mr. Saunders provided the additional information and documentation requested by DEC's Division of Water relating to modification of the existing SPDES permit. A copy is provided as Exhibit M. I anticipate that the matter of the SPDES permit modification will be fully resolved within the next few months. I do not expect that the resolution will have any impact on the project schedule.

As referred to above, the primary construction contract for the Section 1/9 and 6/7 perimeter containment and collection system was advertised for bidding on March 4, 1996. A mandatory pre-bid meeting was conducted on April 2, 1996 and was attended by approximately 60 companies expected to be prospective bidders for parts of the project. The bid opening date is April 30, 1996.

The Department expects to complete the award of the contract and its registration during June and to receive a final (reviewed and approved by DOS) construction schedule from the contractor during July-August. Based on the dates in that construction schedule, the Department will be able to provide dates to DEC for the activities relating to additional leachate controls at Sections 2/8 and 3/4 described below. In addition, at that time, based on the construction schedule and as previously mentioned, DOS will also submit a request for a Fresh Kills Consent Order modification of the milestone dates for Subjects 17, 18 and 19 of Appendix A-4.

The proposed activities to be scheduled, in the sequence in which I now believe they will be performed, is as set forth below. When I send the proposed dates for these activities this summer, I will also ask you to bear in mind the need for flexibility to extend each of the dates as field conditions and other construction demands may dictate.

1. Commencement of construction of leachate recovery wells and observation wells at Sections 2/8 and 3/4. Well development will follow.
2. Performance of recovery well pump tests at Sections 2/8 and 3/4. As discussed with and agreed to by DEC previously, this will entail recirculation back to the landfill mound of any recovered leachate during the performance of the test. These tests will be conducted over approximately three months.
3. Submittal to DEC of a report on the performance of the pump test and pump yield at Sections 2/8 and 3/4, for DEC review and determination whether to implement recovery wells or a partial perimeter leachate drain at each section.
4. Within 30 days of DEC's decision on the pump yield, commencement of either the rest of the construction work for transporting leachate from the recovery wells or from a partial perimeter drain at each section.
5. Commencement of treatment of leachate from Section 2/8.
6. Commencement of treatment of leachate from Section 3/4.

This Department is committed to working closely with DEC on the leachate mitigation project and other initiatives at Fresh Kills Landfill to ensure that they are implemented successfully. On a related note, it will interest you to know that within the constraints of the City's budget, we are seeking to develop a proposal to fund an additional period of DEC's air monitoring of the Fresh Kills Landfill, which has been conducted pursuant to Consent Order Modification Number 2. DOS will be able to provide more detailed information about this proposal soon.

If you have any questions about this, please call me or Project Manager Alex Saunders at 212/837-8386.

Sincerely,

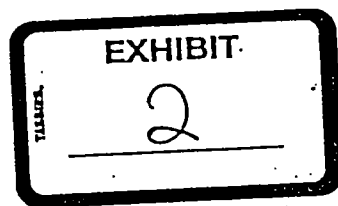
*Phillip J. Gleason*  
*by Heidi*

Phillip J. Gleason, P.E.  
Director, Landfill Engineering

c: Comm. J.J. Doherty  
M. Hirst  
L. Allan  
L. Chalfen  
T.A. Saunders  
R. Geller  
S. Kath, Law Dept.  
R. Orlin, Law Dept.  
H. Rubinstein, Law Dept. [with enclosures]

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P. Gallay, NYSDEC Region 2  
G. Milstrey, NYSDEC Solid Waste - Albany [with enclosures]  
J. Nehila, NYSDEC Region 2 Attorney [with enclosures]  
R. Bruzzone, NYSDEC Region 2 Solid Waste [with enclosures]  
G. Murthy, NYSDEC Region 2 Solid Waste [with enclosures]  
D. Walsh, NYSDEC Region 2 Solid Waste [with enclosures]  
Public Repository, Roy F. Weston of NYC [2 copies] [with enclosures]

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# THE CITY OF NEW YORK Department of Sanitation

MARTHA K. HILL  
Deputy Commissioner

Solid Waste  
44 Beaver Street  
New York, NY 10013  
Telephone (212) 312-1234

October 18, 1996

Mr. Norman H. Nosenchuck, P.E.  
Director, Division of Solid and Hazardous Materials  
NYS Department of Environmental Conservation  
50 Wolf Road, Room 212  
Albany, New York 12233-4010

Mr. Richard Bruzzone, P.E.  
Regional Solid and Hazardous Materials Engineer  
NYS Department of Environmental Conservation, Region 2  
47-40 21st Street, 2d Floor  
Long Island City, New York 11101

Re: Fresh Kills Consent Order  
DEC Case No. D2-9001-89-03  
Request for Modification  
To Add Leachate Controls at Sections 2/8 and 3/4  
and to Extend Completion of Construction and other  
Dates for the Leachate Mitigation  
Project at Sections 1/9 and 6/7

Dear Messrs. Nosenchuck and Bruzzone:

Pursuant to Paragraph XXIV (Modification) of the above-referenced Consent Order and for the reasons set forth below, the New York City Department of Sanitation (DOS) respectfully requests a two-part consent order modification:

(1) to add leachate control requirements at closed Sections 2/8 and 3/4 to the Consent Order; and

(2) to extend the dates in Appendix A-4 for completion of construction of the leachate treatment plant expansion and leachate controls, commencement of leachate treatment, and performance evaluation, at open Sections 1/9 and 6/7.

Adding milestones for leachate controls (in addition to the completion of final cover), at closed Sections 2/8 and 3/4.

The first part of this modification request is a followup to my letter of April 22, 1996 to Messrs. Nosenchuck and Burns in which I proposed new milestone subjects relating to leachate controls at Sections 2/8 and 3/4 (copy enclosed). As promised in the April letter, I now propose milestone dates to accompany those subjects. In so doing, I reiterate my earlier request, which was to bear in mind the need for flexibility to extend each of the dates proposed, as field conditions and other construction demands may dictate. Accordingly, I am also proposing text similar to that of the "bullet footnote" of Appendix A-4 (and several other Consent Order Appendices) to each of these new milestones. The "bullet footnote" reads in pertinent part as follows:

The Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. - Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

The proposed new milestone subjects and dates are as follows:

Proposed Milestone Subject	Proposed Milestone Date
1. Commence construction of the leachate recovery wells and observation wells at Sections 2/8 and 3/4.	# September 30, 1996
• 2. Commence recovery well pump tests at Sections 2/8 and 3/4. This will entail recirculation back to the landfill mound of any recovered leachate during the performance of the test. ○	December 2, 1996
• 3. Submit to DEC a report on the performance of the pump test and well yields for Sections 2/8 and 3/4, for DEC review and determination of the feasibility of recovery well yields.	March 15, 1997

• 4. Within 30 days of DEC's decision on the feasibility of recovery well yields, commence construction work.	* May 15, 1997
• 5. Commence treatment of leachate from Section 2/8.	* July 1, 1997
• 6. Commence treatment of leachate from Section 3/4.	* September 1, 1997

# This milestone has been accomplished.

\* These dates are contingent on DEC reaching a decision on proposed Milestone Number 3, the report on the feasibility of recovery well yields, within 30 days of DOS submittal of the report. If the time needed to make the decision is lengthened, then the milestone dates must be pushed back accordingly.

o As an important note to proposed Milestone Subject Number 2, because the estimated cost for the well installations is more than \$1,000,000 at each Section, quite apart from the other tasks set forth above, if DOS finds that the recovery wells in the leachate mound at Section 2/8 perform very poorly, DOS will forward this information to DEC, for a determination of whether DEC continues to want DOS to install the recovery wells in Section 3/4.

#### Appendix A-4, Milestone Subjects 17, 18, and 19

The second part of this modification request is a proposal to extend the Milestone Dates of Appendix A-4, Milestone Subjects 17, 18 and 19 as follows:

Milestone Subject	Original Milestone Date	Proposed Milestone Date
• 17. Respondent shall complete the construction of the perimeter leachate collection and containment system and the leachate treatment system.	11-1-96	5-31-98
• 18. Respondent shall commence treatment of the collected leachate and attain the final permitted effluent limits for any direct discharge.	12-1-96	6-30-98
• 19. Respondent shall submit the performance evaluation of the treatment and collection systems.	7-1-97	12-31-98

With regard to Milestone Subject Number 17, it should be noted that DOS will be treating additional large amounts of leachate from Sections 1/9 and 6/7 months before May 31, 1998



Justification for the Relief Sought in the Second Part of this Modification Request

On March 31, 1994 DOS submitted to DEC applications for a SPDES permit modification and for a Tidal Wetlands permit, in addition to several other permit applications, in partial satisfaction of the requirements of Milestones 4 and 5 of Appendix A-2, and well in advance of the milestone dates for those subjects. As explained at that time, DOS submitted those permit applications with the understanding that it would be necessary to obtain the applied-for permits early to be able to complete construction of the leachate mitigation project by the date set forth in Appendix A-4, Milestone Subject No. 17. As was then explained, the project had to be sequenced so that additional leachate treatment capacity became available before work commenced on digging the perimeter trenches; otherwise, the excavation would release large amounts of stored leachate with no available on-site treatment. That is, the SPDES permit (and tidal wetlands permit) for the expanded leachate treatment plant was needed before the treatment plant expansion could begin, and the expanded treatment plant's capacity was needed before any of the perimeter trench work could begin. DOS documented this in Compliance Progress Report No. 12, dated May 31, 1994, and in subsequent compliance progress reports, which are required to be submitted every four months by paragraph VIII of the Consent Order to keep DEC apprised of the status of consent order compliance efforts and of foreseeable problems as they arise. On the basis of the March 31, 1994 permit applications, DEC issued a Notice of Complete Application on July 29, 1994, four months after the applications had been filed.

In Compliance Progress Report No. 14, dated January 31, 1995, covering the period September 1 through December 31, 1994; in noting that permits were not yet issued, DOS explained that the delay in receipt of permits (coupled with a delay in receipt of DEC's comments on the Engineering Reports on the expansion of the leachate treatment plant) had caused a delay in the commencement of bidding for various components of the leachate mitigation system, which would ultimately affect the completion of construction date in Milestone Subject Number 17. DOS provided notification at the time that it therefore would request a consent order modification to extend that date once an extension date could be reasonably determined. This modification request is the one referred to in the January 1995 compliance progress report and in subsequent compliance progress reports since.

In addition, as explained in Compliance Progress Report No. 16 which was issued September 30, 1995, the need to integrate the additional leachate controls at Sections 2/8 and 3/4 which constitute the first part of this modification request, resulted in additional delay in the commencement of the bidding process for the leachate mitigation project. These efforts were documented in detail in the April 22, 1996 letter referred to above. As explained therein, this work included obtaining DEC approval of the specifications for installation of the leachate recovery and observation wells and for performance of the pump tests and yield tests, and deciding whether the recently issued tidal wetlands and SPDES permits (and associated permit and approvals) had to be modified. Once it was determined that they did, the process of obtaining permit modifications took additional time.

DEC issued the permits for the leachate treatment plant expansion and the perimeter leachate system on April 24, 1995, thirteen months after the permit applications had

been filed; and the federal wetlands permits were issued by the Army Corps of Engineers on July 19, 1995. Based on discussions with DEC staff that the permit would be issued very shortly, DOS had let out bids for construction of the leachate treatment plant expansion on April 20, 1995 and amended the solicitation once the DEC permit had been issued. DOS let out bids on the Section 1/9-6/7 perimeter system, which included the Section 2/8 and 3/4 controls, on March 4, 1996. On July 5, 1996, the New York City Comptroller registered the DOS contract for the leachate mitigation project, including construction of the perimeter system at Sections 1/9 and 6/7 and aspects of the additional leachate controls at Section 2/8 and 3/4 with Tully Construction Co., Inc. DOS sent Tully an Order to Commence Work as of July 22, 1996. The dates proposed in both parts of this extension request are based on Tully's construction schedule, as well as the completion of the closure work at Sections 2/8 and 3/4, which is being handled under other construction contracts.

Accordingly, for the reasons stated above, a consent order modification to incorporate leachate controls at Sections 2/8 and 3/4 and to extend the milestone dates for Appendix A-4, Subjects 17, 18 and 19 is requested. If you have any questions, or require any additional information in connection with this request for consent order modification, call me at (212) 837-8370 or Assistant Corporation Counsel Heidi Rubinstein at (212) 788-1571.

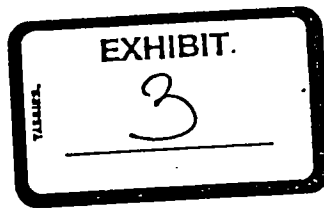
Sincerely,

*Phillip J. Gleason*

Phillip J. Gleason, P.E.  
Director, Landfill Engineering

c: J.J. Doherty  
M. Carpinello  
M. Hirst  
L. Allan  
A.C. Zarillo  
M. Benitez  
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# THE CITY OF NEW YORK Department of Sanitation

MARTHAK HIRST,  
Deputy Commissioner

Solid Waste  
44 Beaver Street, 12th  
New York, NY 10004  
Telephone (212) 837

February 25, 1997

Mr. Norman H. Nosenchuck, P.E.  
Director, Division of Solid and Hazardous Materials  
NYS Department of Environmental Conservation  
50 Wolf Road, Room 212  
Albany, New York 12233-4010

Mr. Richard Bruzzone, P.E.  
Regional Solid and Hazardous Materials Engineer  
NYS Department of Environmental Conservation, Region 2  
47-40 21st Street, 2d Floor  
Long Island City, New York 11101

Re: Fresh Kills Consent Order  
DEC Case No. D2-9001-89-03  
Revision to Request Modification  
To Add Leachate Controls at Sections 2/8 and 3/4

RECEIVED  
N.Y.S.D.E.C. - REGION 2  
FEB 27 1997  
SOLID WASTE

Dear Messrs. Nosenchuck and Bruzzone:

This revises the first part of my October 18, 1996 request for Consent Order modifications, which is pending under your review. As stated therein, the first part of the October 18 request was based on applying dates to achievement of the six activities described in my April 22, 1996 letter to Messrs. Nosenchuck and Burns. This revision, which adds four more milestones to the six proposed on October 18, is offered to reflect that the leachate control work, which has been progressing at Sections 2/8 and 3/4 of the Landfill during the past few months, has actually involved sequencing the project, by proceeding first at Section 2/8 and then at Section 3/4. In addition, this revision reflects that some additional time will be needed to complete the work at Sections 2/8 and 3/4.

The revised new milestone subjects and dates are proposed to be as follows:

Proposed Milestone Subject	Proposed Milestone Date
1. Commence construction of the leachate recovery wells and observation wells at Sections 2/8 and 3/4.	± September 30, 1996
• 2. Commence recovery well pump tests at Section 2/8. This will entail recirculation back to the landfill mound of any recovered leachate during the performance of the test.	± December 2, 1996
• 3. Commence recovery well pump tests at Section 3/4.	February 14, 1997
• 4. Complete construction of the leachate recovery and observation wells at Section 3/4.	February 28, 1997
• 5. Submit to DEC a report on the performance of the pump test and well yields for Section 2/8, for DEC review and determination of the feasibility of recovery well yields.	March 31, 1997
• 6. Within 30 days of DEC's decision on the feasibility of recovery well yields at Section 2/8, commence construction work at Section 2/8.	* May 30, 1997
• 7. Commence treatment of leachate from Section 2/8.	* August 11, 1997
• 8. Submit to DEC a report on the performance of the pump test and well yields for Section 3/4, for DEC review and determination of the feasibility of recovery well yields.	July 14, 1997
• 9. Within 30 days of DEC's decision on the feasibility of recovery well yields at Section 3/4, commence construction work at Section 3/4.	* September 15, 1997
• 10. Commence treatment of leachate from Section 3/4.	* December 15, 1997

± This milestone has been accomplished.

- The "bullet footnote" provides as follows:

The Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of paragraph XXIV of the Order.

\* These dates are contingent on DEC reaching decisions on proposed Milestones Numbers 5 and 8, the reports on the feasibility of recovery well yields, within 30 days of DOS submittal of the reports. If the time needed to make the decisions is lengthened, then the subsequent construction and treatment milestone dates must be pushed back correspondingly.

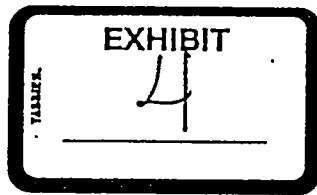
If you have any questions, or require any additional information in connection with this revision of the pending request for consent order modification, call me at (212) 837-8370 or Assistant Corporation Counsel Heidi Rubinstein at (212) 788-1571.

Sincerely,

*Phillip J. Gleason by Heidi, [signature]*  
Phillip J. Gleason, P.E.  
Director, Landfill Engineering

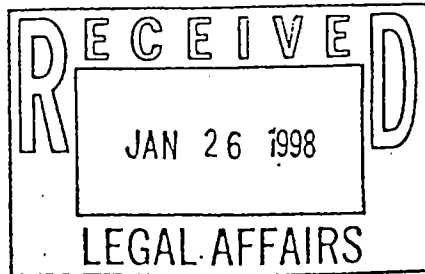
c: J.J. Doherty  
M. Carpinello  
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fkco\leachate\nosenc\4.3





# sanitation



MARTHA K. HIRS  
Deputy Commissioner

Solid Waste  
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New York, New York 10  
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January 21, 1998

Mr. Norman H. Nosenchuck, P.E.  
Director, Division of Solid and Hazardous Materials  
NYS Department of Environmental Conservation  
50 Wolf Road, Room 212  
Albany, New York 12233-4010

Mr. Richard Bruzzone, P.E.  
Regional Solid and Hazardous Materials Engineer  
NYS Department of Environmental Conservation, Region 2  
47-40 21st Street, 2d Floor  
Long Island City, New York 11101

Re: Fresh Kills Consent Order  
DEC Case No. D2-9001-89-03  
Implementation of  
Leachate Controls at Sections 2/8 and 3/4

Dear Messrs. Nosenchuck and Bruzzone:

In several earlier letters, the Department of Sanitation (DOS) presented a Consent Order modification request to implement additional leachate controls at the closed Sections 2/8 and 3/4 of the Fresh Kills landfill in Staten Island which the Department of Environmental Conservation (DEC) conditionally accepted. The controls would include either leachate recovery wells, if found during tests to operate feasibly, or partial perimeter drains. DOS has now installed the wells and performed the tests in the milestone schedule proposed in that previous correspondence. DOS submitted a report on the pump tests and well yields for Section 2/8 by March 31, 1997 for DEC review and determination of the feasibility of recovery well yields. On or about July 14, 1997, DOS submitted the pump tests and well yields report for Section 3/4, also for DEC review and determination.

Pending DEC's review of the reports and determination of the feasibility of using the leachate recovery wells at Sections 2/8 and/or 3/4, DOS conducted its own evaluations of the alternatives proposed. These are provided to DEC to facilitate the selection of leachate controls at each of the closed landfill sections. As a result of performing these evaluations, DOS has concluded that combining the flows from



leachate recovery wells and partial perimeter drains may best optimize leachate collection and treatment. Based on this information, DOS is proposing this approach, as another option for DEC's consideration.

In the time since the earlier correspondence was exchanged, DEC generated new information or documents relevant to this program. DEC conducted sampling of leachate drawn from the leachate recovery wells installed in the closed sections and performed analyses on the data obtained. On June 6, 1997, DEC issued a notice that the application for a SPDES permit modification to discharge leachate from Sections 2/8 and 3/4 from the Fresh Kills Leachate Treatment Plant (FKLTP) was complete.

In undertaking the additional evaluations related to the feasibility of the leachate controls contemplated at Sections 2/8 and 3/4, DOS incorporated the information presented in the pump tests and well yields reports, the draft SPDES permit contained in the notice of completeness, and DEC's leachate recovery well sampling data and analyses. DOS also utilized information and methodologies presented in older, existing documents, including the engineering report for the FKLTP.

As indicated during technical discussions with respect to these additional evaluations, this letter provides supplemental information which, it is believed, will enable DEC to complete its review and render its determination.

#### The Original Proposal

DOS proposed to install two leachate recovery wells at each closed landfill section with DEC's guidance and approval on the siting and design of the wells. DOS proposed to then conduct a limited period of pump tests on the wells to determine if active leachate recovery could be conducted successfully at the pump wells. If the pump tests were a success, DOS proposed to use the wells to recover leachate. If the recovery wells did not function effectively, as determined by DEC's evaluation of the pump tests, DOS proposed to construct drains around parts of the perimeters of the closed sections, to passively collect leachate. DOS proposed to utilize only the available capacity of the FKLTP by operating it at its maximum flow rate so long as the discharge requirements of the SPDES permit could be met. Consistent attainment of the SPDES permit discharge requirements at the FKLTP remains a fundamental requirement of the proposal presented herein.

#### Available Oxygen Demand and Supply

The FKLTP (which includes the two treatment trains at the Veterans Avenue Leachate Treatment Plant) is designed to provide 2,780 pounds of oxygen per hour during the 17-hour aeration cycle for biological treatment of leachate. Characterization of the leachate at Sections 1/9 and 6/7, flow-weighted for the amount of leachate predicted

to be collected once "steady-state" conditions are achieved, indicates that 2,560 pounds of oxygen per hour will be required to achieve the SPDES discharge limitations for BOD and ammonia. [See Sheet 3 of 12.] Therefore, approximately 220 pounds of oxygen per hour are available at the FKLTP to treat leachate from Sections 2/8 and 3/4. [See Sheet 4 of 12.]

In preparing the SPDES permit modification request for the FKLTP to handle leachate from Sections 2/8 and 3/4, flow-weighted characterization data was based on the then-existing leachate quality data (for the perimeters of the landfill units). Using the same methodologies as had been used in the design of the original leachate treatment plant, the ammonia and BOD concentrations of the leachate were characterized at 549 mg/l and 50 mg/l, respectively. [See Sheet 5 of 12.] Approximately 152 pounds of oxygen per hour would be needed to treat each 100,000 gallons of this leachate. [See Sheet 6 of 12.]

If each partial perimeter drain were to collect 65,000 gallons per day (gpd) of leachate, for a total of 130,000 gpd [See the section below entitled Quantity of Leachate That Could be Collected at the Partial Perimeter Drains for a discussion of the amount of leachate expected to be collected from the partial perimeter drains.], approximately 198 pounds of oxygen per hour would be needed to treat this. This amount is easily available within the design capacity of the treatment plant.

#### Quality of the Leachate from the Recovery Wells

A review of the quality of the leachate recently sampled and analyzed by DEC at the recovery wells installed at Section 2/8 shows that the concentrations of ammonia and BOD are much higher than they are in leachate emanating from the perimeter of the landfill. Higher concentrations can reasonably be attributed to a "younger" leachate that has had a shorter residence time in the landfill, and which has not been as biologically stabilized and/or attenuated by the various sorptive mechanisms within the landfill as leachate that has moved to the perimeter area of the landfill mound. As explained below, treatment of this more concentrated leachate requires the availability of more oxygen at the treatment plant than is required for treatment of perimeter leachate. In making these calculations, we have assumed that the leachate from the recovery wells at Section 3/4 is of similar quality to the leachate from the 2/8 recovery wells. (In recent discussions, however, with DEC technical staff, we have learned that, in fact, the leachate from the recovery wells at Section 3/4 is more highly concentrated than at Section 2/8.)

#### Characterization of and Available Oxygen Demands for Recovery Well Leachate

Applying the methodologies that were used to characterize leachate for the design of the leachate treatment plant to the leachate from the recovery wells yields design

concentrations for ammonia and BOD of 2,028 mg/l and 13,744 mg/l, respectively. [See Sheet 7 of 12.] Approximately 156 pounds per hour of oxygen would be needed to treat 10,000 gpd of this more highly concentrated leachate. [See Sheet 8 of 12.] At just 15,000 gpd, all the excess aeration capacity of the FKLTP would be utilized. [See Sheet 8 of 12.]

#### Quantity of Leachate That Could be Collected at Recovery Wells

The leachate recovery tests conducted at the closed sections indicate that 25,000 to 30,000 gpd of leachate could be collected from the recovery well system of two wells at each section. (See the Pump Test and Well Yield Reports for both landfill sections.) However, based on the leachate characteristics of the leachate from the wells, discussed above, and the available excess aeration capacity of the FKLTP, also discussed above, the leachate flow to the treatment plant would have to be restricted to less than 15,000 gpd to achieve the SPDES permit effluent standards. Based on the most recent information regarding the characteristics of the Section 3/4 recovery well leachate, this amount might have to be further restricted. We believe both DEC and DOS had always intended that the leachate controls to be implemented at the closed sections would collect and treat a greater quantity of leachate than that, at least in the first few years of operation.

#### Quantity of Leachate That Could be Collected at the Partial Perimeter Drains

Based on the designs for the partial perimeter drain option proposed for Sections 2/8 and 3/4, the height of the leachate mound in Section 2/8, and the span of possible hydraulic conductivities of the landfill mounds which range from 0.0001 to 0.0005 cm/sec, we estimate that 30,000 to 180,000 gpd of leachate could be collected at the drains. [See Sheets 9 through 12.] However, since the hydraulic conveyance system for each closed landfill section can handle no more than 65,000 gpd (as explained in the Engineering Report for the 2/8 - 3/4 Leachate System), up to 130,000 gpd from both closed Sections could be conveyed to the leachate treatment plant, as long as the hydraulic flow of leachate drawn from Sections 6/7 and 1/9 is balanced so that the overall hydraulic capacity of the FKLTP is not exceeded. As explained above in the section entitled Available Oxygen Demand and Supply, the pollutant loading of that amount of leachate emanating from the landfill perimeter could be successfully treated at the FKLTP within the SPDES effluent standards.

#### Enhanced Proposal to Implement Leachate Controls at Sections 2/8 and 3/4

In view of the calculated hydraulic and pollutant loadings from the recovery wells and partial perimeter drains, DOS concludes that a system combining the recovery wells with the perimeter drains would best control current leachate flows and expedite the overall stabilization of these sites. Accordingly, DOS proposes to operate a recovery

well at each landfill section in conjunction with the partial perimeter drain. To ensure consistent attainment of the SPDES permit discharge requirements at the FKLTP, the system would initially restrict the pollutant loading to the plant from the recovery wells by limiting the flow. As leachate flows and the associated pollutant loadings to the FKLTP decay over time, the flow from the recovery wells would be increased commensurate with the treatment capacity available at the FKLTP.

#### Start-up Period

Initially, DOS proposes to collect and treat as much leachate as can be collected and conveyed from the partial perimeter drains and to use the balance of the capacity of the FKLTP not reserved for the leachate treatment at Sections 1/9 and 6/7, to treat leachate from the recovery wells.

Based on DEC's characterization data for leachate from the recovery wells, we propose to initialize the flow from a recovery well in each Section at a maximum rate of several gallons per minute, to prevent an excessive pollutant loading to the treatment plant. During the first year of operation, we will monitor the leachate in the recovery wells for the critical parameters of ammonia, TKN, BOD and Alkalinity, to establish a greater statistical population of characterization data. These data, in conjunction with data on the same critical parameters in the influent flow and data on the amount of influent flow to the leachate treatment plant, will be used to reassess the pollutant loadings from the recovery wells and to adjust the flows from these wells.

This conservative approach should ensure that the start-up of these systems concurrent with the start-up of the leachate collections systems at Sections 1/9 and 6/7, will not overtax the treatment capacity of the FKLTP. We anticipate that these dynamic start-up conditions will continue for six to twelve months while leachate collection flows and leachate treatment processes stabilize.

#### Recovery Well Maintenance and Replacement Program

During the start-up period, DOS will implement a management system to minimize down-time incurred at the recovery wells. The management program will include, among other things, a short-term preventative maintenance component and a long-term maintenance and replacement component for the recovery wells. It is expected that operation of the recovery wells will be complicated by the excessive siltation found to occur during the pump tests. The overall approach proposed herein allows DOS to rotate use of one of the two wells at each section while conducting short-term maintenance on the other well at each section. In addition, during the start-up period, DOS will put into place appropriate mechanisms to conduct long-term replacement of the wells, which is also expected to be needed. This will consist, at

a minimum, of a one-time replacement, to DEC-approved specification, of each of the four existing wells. Depending on the long-term viability of the replacement wells, we will work with DEC to determine whether additional well replacement is appropriate.

#### Long-term Operation

After the start-up period, DOS further proposes to balance the amount of leachate drawn from the partial perimeter drains with the amount drawn from the recovery wells, taking into account the aeration capacity of the leachate treatment plant to treat the leachate from the recovery wells and the partial perimeter drains to SPDES-permitted effluent discharge levels. This would be done through an annual reassessment of the hydraulic and pollutant loadings to the leachate treatment plant. This reassessment will be performed on an annual basis because the design of the FKLTP, as approved by DEC, utilizes automatic control systems to operate each of the treatment plant's processes. The reaction times for each of these processes will have to be recalculated and the systems reprogrammed to ensure that the hydraulic and pollutant loadings can consistently meet the plant's SPDES discharge requirements.

#### Environmental Benefits

The partial perimeter drains provide environmental benefits by creating an intragradiant condition, allowing the collection of flows of leachate before such flows can reach the tributaries. In this way, the localized water quality in the immediate areas where the small tributaries discharge to Fresh Kills, Main Creek and Richmond Creek, and the quality of the tributaries themselves will be improved, especially during the next several years, when higher flows of leachate are still expected to drain from the landfill sections.

The recovery wells also have the potential to provide longer term benefits. To the extent that the leachate mounds in Sections 2/8 and 3/4 may be the source of pollution to the small tributaries, source reduction may be accomplished through active collection of the leachate through the recovery wells. In this manner the leachate mound may be drained and stabilized more quickly, and the longer term benefits realized sooner.

Finally, as overall flows and pollutant loadings to the leachate treatment plant begin to decline, periodic adjustments to the leachate treatment processes should be able to take advantage of the plant's full treatment capacity to collect and treat higher flows from the recovery wells.

### Conclusion

If this proposal is acceptable to DEC, DOS will direct its contractors to proceed expeditiously with the construction work. If we commence construction within the next couple of weeks, we should be able to start operating the systems this Spring. Implementation of the operation of these systems is dependent on the availability of the shared leachate conveyance system at Section 6/7. We currently anticipate manual operation of the Section 6/7 system in May. Thus, the expeditious start-up now of the additional construction in the closed sections would result in our being able to schedule a direct transition from construction to operation of these systems with little or no intervening delay.

Please let me know as soon as possible if this proposal is acceptable. If so, DOS will revise its earlier consent order modification request to encompass milestone subjects and dates reflective of this enhanced proposal.

Sincerely,



Phillip J. Gleason  
Director, Landfill Engineering

c: J.J. Doherty  
M. Carpinello  
M.K. Hirst  
L. Allan  
A. Zarillo  
T. Nabavi  
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H. Rubinstein, Law  
J. Nehila, DEC Legal  
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SHEET 2 OF 12

DATE \_\_\_\_\_ BY QV CK \_\_\_\_\_

PROJECT \_\_\_\_\_ CONTRACT \_\_\_\_\_

SUBJECT: Sections 2#8 and 3#4 Leachate Control

LEACHATE LOADINGS FROM Sections 1#9 and 6#7

Flow<sub>W9</sub> - 922,000 gpd (SPDES MODIFICATION)

FLOW WEIGHTED CONCENTRATIONS (mg/l) (SPDES MOD - 2C FOR)

	$\bar{x}$	$\sigma$	DESIGN BASIS $\bar{x} + \sigma$
BOD <sub>5</sub>	75	110	185
NH <sub>3</sub>	485	490	975
TKN	778	1,145	1,923

FLOW WEIGHTED ~~CONCENTRATIONS~~ LOADINGS (lbs/day)

Conc (mg/l)  $\times$  0.922 MG  $\times$  8.34 #/MGD

LOADING (lbs/day)	$\bar{x}$	$\sigma$	$\bar{x} + \sigma$
BOD <sub>5</sub>	577	846	1423
NH <sub>3</sub>	3,329	3768	7497
TKN	46,006	22024	111,007

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SHEET 3 OF 12

DATE \_\_\_\_\_ BY PH CK \_\_\_\_\_

PROJECT \_\_\_\_\_ CONTRACT \_\_\_\_\_

SUBJECT: Section 2+8 and 3+4 Leachate Control

ACTUAL Oxygen Required (AOR) for 922,000 gpd from  
 Sections 1+9 and 6+7

① 1.5 lb  $O_2$  / lb  $BOD_5$

② 4.6 lb  $O_2$  / lb  $NH_3$  as N

③ Add 20% of  $NH_3$  Loading to Account for non- $NH_3$  TKN conversions

AOR (lb $O_2$ /day)	$\bar{X}$	$\sigma$	(DESIGN BASIS) $\bar{X} + \sigma$
BOD	865	1,269	2,134
$NH_3$	17,157	17,334	34,490
TKN	3,431	3,467	6,898
TOTAL	21,453	22,070	43,523

43,523 lbs  $O_2$  / day required

Based on 17 hour process generation cycle AOR is 2560 #  $O_2$  / hour



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SHEET 4 OF 12

DATE \_\_\_\_\_ BY QJ CK \_\_\_\_\_

PROJECT \_\_\_\_\_ CONTRACT \_\_\_\_\_

SUBJECT: Sections 2F8 and 3#4 Leachate CONTROL

Oxygen Available

Based on blower & diffuser design

Veterans Avenue Units

$$2 \text{ units @ } 190 \text{ lb O}_2/\text{hr} = 380 \text{ lb O}_2/\text{hr}$$

Flesh Kills Units

$$3 \text{ units @ } 800 \text{ lb O}_2/\text{hr} = 2,400 \text{ lb O}_2/\text{hr}$$

$$\text{TOTAL O}_2 \text{ Available } 2,780 \text{ lb/hr}$$

AVAILABLE Oxygen Reserve Capacity

$$\begin{array}{rcl} 2,780 \text{ lb O}_2/\text{hr} & - & \text{TOTAL O}_2 \text{ Available} \\ - 2,560 \text{ lb O}_2/\text{hr} & - & \text{AOR} \\ \hline 220 \text{ lb O}_2/\text{hr} & - & \text{Reserve Capacity} \end{array}$$

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SHEET 5 OF 12

DATE \_\_\_\_\_ BY QJ CK \_\_\_\_\_

PROJECT \_\_\_\_\_ CONTRACT \_\_\_\_\_

SUBJECT: Sections 2+8 and 3+4 Leachate Control

LEACHATE LOADINGS from Sections 2+8 and 3+4  
@ Perimeter

FLOW WEIGHTED CONCENTRATIONS (mg/l) (SPDES MOD - Form 2c)

	$\bar{x}$	$\sigma$	$\bar{x} + \sigma$
BOD <sub>5</sub>	23	27	50
NH <sub>3</sub>	289	260	549

~~WATER~~

FLOW WEIGHTED LOADING (lbs/day) AT 100,000 gpd (nom.)

LOADING lbs/day	$\bar{x}$	$\sigma$	(DESIGN BASIS) $\bar{x} + \sigma$
BOD <sub>5</sub>	19.2	22.5	41.7
NH <sub>3</sub>	241.0	216.8	457.8

SUBJECT: Sections 2#8 and 3#4 Leachate Control

ACTUAL Oxygen REQUIRED (AOR) for 100,000 gpd from  
 Perimeter DRAINS at Sections 2#8 and 3#4

- ① 1.5 lb O<sub>2</sub> / lb BOD<sub>5</sub>
- ② 4.6 lb O<sub>2</sub> / lb NH<sub>3</sub> as N
- ③ 20% NH<sub>3</sub> Loading for non-NH<sub>3</sub> TKN conversions

AOR (lb O <sub>2</sub> /DAY)	$\bar{X}$	$\sigma$	(DESIGN BASIS) $\bar{X} + \sigma$
BOD	28.8	37.8	62.6
NH <sub>3</sub>	1108.6	997.3	2105.9
TKN	221.7	199.5	421.2
TOTAL			<u>2589.7</u> lbs O <sub>2</sub> /day

Based on 17 hour process aeration cycle AOR is 152.3 lbs O<sub>2</sub>/h  
 versus 220 lbs O<sub>2</sub>/hr of reserve capacity.

SUBJECT: Sections 2+8 and 3+4 Leachate Control

Leachate Loadings from Sections 2+8 and 3+4  
 @ Recovery Wells

Leachate Characteristics Based on NYSDEC Sampling + Analysis  
 @ Sections 2+8

(mg/l)	$\bar{X}$	$\sigma$	$\bar{X} + \sigma$
BOD <sub>5</sub>	12,194	1,550	13,744
NH <sub>3</sub>	1,880	148	2,028

Loadings (lbs/day) @ 10,000 gpd (nom.)

$$C_{mg/l} \times 8.34 \text{ lb/MG} \times 0.01 \text{ MGD}$$

(Design Basis)

Loadings lbs/day	$\bar{X}$	$\sigma$	$\bar{X} + \sigma$
BOD <sub>5</sub>	1017	129	1146
NH <sub>3</sub>	157	12	169

SUBJECT: Sections 2#8 and 3#4 Leachate Control

Actual Oxygen Required (AOR) for 10,000 gpd from  
 Recovery Wells @ Sections 2#8 and 3#4

- ① 1.5 lb O<sub>2</sub> / lb BOD<sub>5</sub>
- ② 4.6 lb O<sub>2</sub> / lb NH<sub>3</sub>
- ③ 20% NH<sub>3</sub> Loading for non-NH<sub>3</sub> TKN conversions

<u>AOR (lb O<sub>2</sub>/DAY)</u>	<u><math>\bar{X}</math></u>	<u><math>\sigma</math></u>	<u>(DESIGN BASIS)</u> <u><math>\bar{X} + \sigma</math></u>
BOD	1526	193.5	1719
NH <sub>3</sub>	722	55	777
TKN	-	-	155

2651 #O<sub>2</sub>/10,000 gallons

Based on 17 hour process operation cycle AOR (for 10,000 gpd)  
 is 156 lbs O<sub>2</sub>/hr.

~~AOR~~ FLOW RATE (GPD)

AOR (lb O<sub>2</sub>/hr)

10,000

156

15,000

234

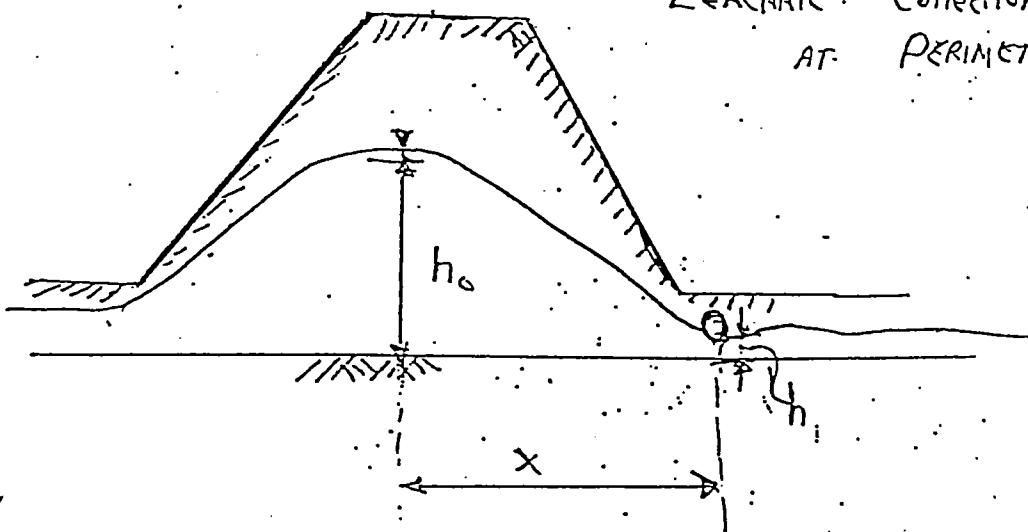
20,000

312

Based on 220 lb O<sub>2</sub>/hr of reserve capacity less than

SUBJECT: SECTIONS 2+8 and 3+4 LEACHATE CONTROL

LEACHATE Collection Flow Rates  
 AT PERIMETER DRAIN



$$q = \frac{K}{2x} (h_0^2 - h^2)$$

Dupuit equation

$q$  = specific flow

$K$  = hydraulic conductivity

$x$  = distance from maximum leachate mound head to drain

$h_0$  = head in leachate mound

$h$  = head at drain

$$Q = qL$$

$Q$  = flow rate

$q$  = specific flow

$L$  = length of drain

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SHEET 10 OF 12

DATE \_\_\_\_\_ BY [Signature] CK \_\_\_\_\_

PROJECT \_\_\_\_\_ CONTRACT \_\_\_\_\_

SUBJECT: Sections 2+8 on 3+4 LEACHATE CONTROL

Sections 2+8

$$K_1 = 0.0001 \text{ cm/sec} \quad (0.2835 \text{ ft/day})$$

to

$$K_2 = 0.0005 \text{ cm/sec} \quad (1.4173 \text{ ft/day})$$

$$X = 900 \text{ ft}$$

$$h_0 = 20 \text{ ft to } 80 \text{ ft}$$

$$h = 2 \text{ ft}$$

$$L = 2200 \text{ ft}$$

$$@ h_0 = 20 \text{ ft}$$

$$Q_1 = \frac{(0.2835 \text{ ft/day})}{2 \times 900 \text{ ft}} \left[ (20 \text{ ft})^2 - (2 \text{ ft})^2 \right] \times 2200 \text{ ft} = 137.214 \text{ ft}^3/\text{d}$$

$$Q_2 = \frac{(1.4173 \text{ ft/day})}{2 \times 900 \text{ ft}} \left[ (20 \text{ ft})^2 - (2 \text{ ft})^2 \right] \times 2200 \text{ ft} = 686.972 \text{ ft}^3/\text{d}$$

$$@ h_0 = 80 \text{ ft}$$

$$Q_3 = \frac{(0.2835 \text{ ft/day})}{2 \times 900 \text{ ft}} \left[ (80 \text{ ft})^2 - (2 \text{ ft})^2 \right] \times 2200 \text{ ft} = 2,216.214 \text{ ft}^3/\text{d}$$

$$Q_4 = \frac{(1.4173 \text{ ft/day})}{2 \times 900 \text{ ft}} \left[ (80 \text{ ft})^2 - (2 \text{ ft})^2 \right] \times 2200 \text{ ft} = 11,080 \text{ ft}^3/\text{d}$$

SUBJECT: SECTIONS 2x8 and 3x4 LEACHATE CONTROL

SECTIONS 3x4

$$K_1 = 0.0001 \text{ cm/sec} \quad (0.2835 \text{ ft/day})$$

$$K_2 = 0.0005 \text{ cm/sec} \quad (1.4173 \text{ ft/day})$$

$$X = 1200 \text{ ft}$$

$$h_0 = 90 \text{ ft}$$

$$h = 2 \text{ ft}$$

$$L = 2800 \text{ ft}$$

$$Q_1 = \frac{(0.2835 \text{ ft/day})}{2 \times 1200 \text{ ft}} \left[ (90 \text{ ft})^2 - (2 \text{ ft})^2 \right] \times 2800 \text{ ft} = 2,677.752 \text{ ft}^3/\text{d}$$

$$Q_2 = \frac{(1.4173 \text{ ft/day})}{2 \times 1200 \text{ ft}} \left[ (90 \text{ ft})^2 - (2 \text{ ft})^2 \right] \times 2800 \text{ ft} = 13,386.87 \text{ ft}^3/\text{d}$$



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SHEET 12 OF 12

DATE \_\_\_\_\_ BY QV CK \_\_\_\_\_

PROJECT \_\_\_\_\_ CONTRACT \_\_\_\_\_

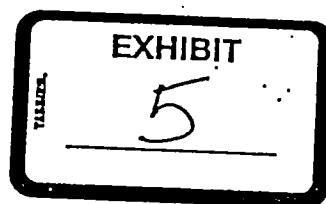
SUBJECT: Sections 2+8 and 3+4

Sections 2+8

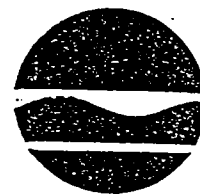
K (cm/sec)	$10^{-4}$	$5 \times 10^{-4}$	$10^{-4}$	$5 \times 10^{-4}$
$h_o$ (ft)	20	20	80	80
Q (gpd)	1,026	5,131	16,577	82,875

Sections 3+4

K (cm/sec)	$10^{-4}$	$5 \times 10^{-4}$
$h_o$ (ft)	90	90
Q (gpd)	20,030	100,134



New York State Department of Environmental Conservation  
Division of Solid and Hazardous Materials, Region 2  
47-49 21st Street, Long Island City, NY 11101  
(718) 482-4996



John P. Cahill  
Commissioner

February 9, 1998

Mr. Philip Gleason, P.E.  
Director of Landfill Engineering  
The New York City Department of Sanitation  
44 Beaver Street  
New York, New York 10004

Ms. Leslie Allan, Esq.  
Deputy Commissioner  
Bureau of Legal Affairs  
The New York City Department of Sanitation  
125 Worth Street, Suite 710  
New York, New York 10013

Re: Fresh Kills Consent Order,  
DEC Case No. D2-9001-89-03;  
Implementation of Leachate Controls at Sections 2/8 and 3/4

Dear Mr. Gleason and Ms. Allan:

Your recent proposal dated January 21, 1998, which regards the above noted subject matter, has been reviewed by NYSDEC.

Upon NYCDOS' agreement to the stipulations which follow, NYSDEC will approve the commencement of construction activities related to the implementation of the leachate controls at Sections 2/8 and 3/4 of the Fresh Kills Landfill noted in your proposal:

1. The leachate collection program at Section 2/8 and 3/4 will proceed in a manner that will dedicate and utilize all available excess leachate treatment capacity in the Fresh Kills Leachate Treatment Plant (up to the limits of leachate transport from those two landfills to the treatment

plant; and, consistent with SPDES permit provisions). NYCDOS is responsible to insure that the hydraulic and pollutant loadings at the leachate treatment plant, caused by these and other leachate sources, do not exceed the plant's hydraulic and pollutant design capacity, and that the SPDES limits are met at all times. Further, it is a program objective to utilize both proposed methods of leachate collection (perimeter trench and center recovery wells), concurrently, at both Section 2/8 and Section 3/4. It is agreed that there will be an initial period during which leachate recovery from the center recovery wells will be maintained at a low rate, during which time temporal characterization of the chemistry of leachates from these wells will be performed to enable more detailed quantification of unit pollutant loads for these leachates, and facilitate proper control and balance of leachate withdrawal from each well.

2. For the start-up period, and at a minimum, for 12 months after leachate collection at Section 2/8 and 3/4 commences, monthly monitoring reports will be prepared by NYCDOS and submitted to NYSDEC and shall include all pertinent information necessary to determine the appropriate control and balancing of leachate collection from various components of the leachate collection system. These reports shall include all monitoring data for discrete components of the collection array (e.g., perimeter trench at Section 2/8; perimeter trench at Section 3/4; center wells at Section 2/8; and, center wells at Section 3/4), including, but not limited to, leachate flow rates and results of chemical analyses. Under the start-up period, NYCDOS had proposed to monitor ammonia, TKD, BOD and alkalinity. It is also required that the parameters of pH and iron be monitored. The monthly monitoring reports should include a description of the mechanism for control/balance of leachates from all sources to assure that the design basis is not exceeded, and that the SPDES discharge limits are met. The reports should use actual data to describe plans which insure that the hydraulic/pollutant design capacity is being fully utilized.
3. After the reporting period noted in point 2 (above) has ended, a minimum of quarterly reporting of the monitoring results for the information described in point 2 is required. Quarterly reporting will be required until a continuous period is achieved during which the leachate collection systems for all sections of the landfill are operating at maximum collection rates, and the leachate is able to be treated in the treatment plant without exceeding the hydraulic and pollutant loading design capacity and the applicable SPDES discharge limits.
4. NYCDOS will prepare and submit to NYSDEC, for approval, an initial report describing the short-term and long-term maintenance programs for the center recovery wells at Section 2/8 and 3/4, prior to the operation of the wells. Following the commencement of the operation of the wells, NYCDOS shall, if necessary, submit an updated maintenance program report to NYSDEC, for approval, based upon its experience in operating the system.
5. A description of NYCDOS' proposal for the optimization of leachate collection shall be submitted for approval by NYSDEC at a date to be determined subsequently, but in no event shall it be later than the conclusion of the start-up period. It shall include plans by NYCDOS to implement changes in the rates of leachate collection from any part of the leachate collection

array, as a means of providing control/balance of leachate entering the leachate treatment plant.

Very truly yours,

*Richard P. Bruzzone* by

Richard P. Bruzzone, P.E.  
Regional Solid and Hazardous  
Materials Engineer

cc: M. Hirst  
R. Orlin  
H. Rubenstein  
G. Nolan  
M.E. Kris  
P. Gallay  
L. Silberfeld  
J. Nehila  
Repository #1  
Repository #2



# sanitation

MARTHA K. HIRST  
Deputy Commissioner

Solid Waste  
44 Beaver Street, 12th Fl  
New York, New York 100  
Telephone (212) 837-800  
Fax (212) 269-0788

February 11, 1998

Mr. Norman H. Nosenchuck, P.E.  
Director, Division of Solid and Hazardous Materials  
NYS Department of Environmental Conservation  
50 Wolf Road, Room 212  
Albany, New York 12233-4010

Mr. Richard Bruzzone, P.E.  
Regional Solid and Hazardous Materials Engineer  
NYS Department of Environmental Conservation, Region 2  
47-40 21st Street, 2d Floor  
Long Island City, New York 11101

Re: Fresh Kills Consent Order  
DEC Case No. D2-8001-88-03  
Implementation of  
Leachate Controls at Sections 2/8 and 3/4

Dear Messrs. Nosenchuck and Bruzzone:

This responds to Mr. Bruzzone's letter dated February 9, 1998 concerning the January 21, 1998 proposal regarding leachate controls at Sections 2/8 and 3/4 of Fresh Kills Landfill. I am writing to affirm the Department of Sanitation's (DOS) agreement to the stipulations in your letter, as set forth below.

1. The leachate collection program at Sections 2/8 and 3/4 will proceed in a manner that will fully utilize the available treatment capacity in the Fresh Kills Leachate Treatment Plant, in accordance with the design capacities of the treatment plant and the collection system and consistent with maintaining compliance with SPDES effluent limits. Leachate will be collected from both the perimeter drain and the center recovery wells, concurrently, at both Sections.

2. For the start-up period, and at a minimum, for 12 months after leachate collection at Sections 2/8 and 3/4 commences, DOS will prepare monthly reports which will include pertinent monitoring data regarding the operation of the leachate collection systems.

3. After the start-up period, DOS will provide quarterly reporting of the monitoring data.

4. DOS will prepare and submit to the Department of Environmental Conservation (DEC) an initial report describing the short-term and long-term maintenance programs for the center recovery wells at Sections 2/8 and 3/4, prior to the operation of the wells, and will update the report, if necessary.

5. By a date to be determined later, and no later than the end of the start-up period, DOS will submit a description of a proposal to optimize leachate collection and flows at Sections 2/8 and 3/4.

During the period of construction, DOS will work closely with DEC to address further the operational and monitoring objectives outlined in the stipulations set forth in the February 9, 1998 letter and to develop appropriate Consent Order milestones for this program. Based on this agreement, DOS is prepared to commence construction immediately.

Sincerely,

*Phillip J. Gleason by HRE*

Phillip J. Gleason, P.E.  
Director, Landfill Engineering

c: J.J. Doherty  
M. Carpinello  
M.K. Hirst  
L. Allan  
A. Zarillo  
T. Nabavi  
T.A. Saunders  
R. Orlin, Law  
H. Rubinstein, Law  
L. Silberfeld, DEC Legal  
J. Nehila, DEC Legal  
D. Walsh, DEC Region 2  
Public Repository

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STATE OF NEW YORK  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

-----X  
In the Matter of the Alleged Violations of Article 17 of the  
Environmental Conservation Law ("ECL") Articles 17, 25  
and 27 and Title 6 of the Official Compilation of Codes,  
Rules and Regulations of the State of New York ("6 NYCRR")  
Parts 360, 661 and 751 by

**FRESH KILLS ORDER  
ON CONSENT  
MODIFICATION #7**

THE CITY OF NEW YORK  
Department of Sanitation  
125 Worth Street  
New York, New York 10013

**CASE # D2-90001-89-03**

Respondent.

-----X  
**WHEREAS:**

1. Respondent, the City of New York ("Respondent," or the "City"), operates the Fresh Kills Landfill (the "Landfill") on Staten Island, N.Y. The City and the New York State Department of Environmental Conservation ("DEC" or the "Department") executed the original version of this order on April 24, 1990 (the "1990 Order"). The 1990 Order was later modified to reflect new and relevant information about the Landfill (much of it produced by the City through investigations required under the 1990 Order), on September 21, 1990, April 22, 1992, November 18, 1993, July 15, 1994, July 26, 1995 and October 20, 1998.

2. Pursuant to the 1990 Order, as modified on July 26, 1995, the City was obligated to deliver a Part 360 landfill operation permit application pertaining to the Landfill, based on investigations mandated under the Order, by March 15, 1996. The City did so and DEC, which had reviewed and commented upon the various investigations incorporated into the application, determined the application to be complete on May 14, 1996.

3. By 1996, the landfill was the sole in-City facility for the disposal of the City's residential and institutional waste. On May 28, 1996, Mayor Rudolph P. Giuliani and Governor George E. Pataki announced their agreement to close the landfill to further receipt of solid waste by December 31, 2001. At the same time, the Mayor and the Governor formed a Task Force to examine alternatives to manage the City's solid waste.



4. On June 2, 1996, Governor Pataki signed Chapter 107 of the Laws of 1996 (Environmental Conservation Law Section 27-0706) barring disposal of waste at the Landfill after January 1, 2002.

5. On September 15, 1996, the New York City Department of Sanitation ("DOS") wrote to DEC to request that it suspend review of the March 15, 1996 Part 360 permit application, in view of the agreement to close the landfill to the further receipt of solid waste by December 31, 2001. The September 15, 1996 letter also stated the City's intention to withdraw the application as soon as this Order was modified to establish, among other necessary provisions, the new date for closure.

6. On November 29, 1996 the Fresh Kills Task Force issued its report: "A Plan to Phase Out the Fresh Kills Landfill." Among other matters, the Report notes that the Task Force had recommended and the City had agreed 1) to make regular reductions in the amount of waste shipped to the landfill in the years prior to its closure; 2) that the annual tonnage goal reductions would be achieved, to the extent practicable, with measures including waste reduction and recycling initiatives, based on studies and pilot projects undertaken as a result of the Task Force report, and 3) to modify the City's solid waste management plan to reflect an overall waste management strategy for the diminution of waste sent to the Fresh Kills Landfill.

7. DEC and the City agree that the City's decision to cease solid waste disposal operations at the Landfill after December 31, 2001, subsequently codified in state law, requires that the 1990 Order be modified once again to establish appropriate measures for the accelerated closure of the Fresh Kills Landfill .

8. The 1990 Order, as modified between 1990 and 1998 (the "Modified Order") contains over 130 "milestones" requiring investigation and remediation of conditions at the landfill. The City had completed most of these milestones, contained in the A-Series Appendices, by the time the City submitted its permit application. The work that continues under the terms of the Modified Order consists primarily of ongoing landfill monitoring and annual (or other periodic) reporting of monitoring results.

9. This seventh modification to the 1990 Order (the "Seventh Consent Order Modification," or "this Order") formalizes the City's withdrawal of the Part 360 application for

the Landfill and memorializes the City's commitment to close the Landfill in accordance with all laws and regulations.

NOW, having considered this matter and being duly advised, **IT IS ORDERED THAT:**

A. Cessation of Disposal Activities and Performance of Necessary Landfill Closure and Post-Closure Measures: Paragraph I of the Modified Order ("Compliance Schedules and Remedial Actions") is modified as follows: The City shall cease disposing of waste at the Fresh Kills Landfill in accordance with Compliance Schedule Appendix A-15. Moreover, the City shall carry out the measures specified in Appendix A-15, attached to and incorporated as part of this Order, to ensure that closure and post-closure monitoring and maintenance of the Landfill occur in compliance with 6 NYCRR Part 360. Finally, the City's March 15, 1996 Permit Application is hereby withdrawn with prejudice to its reintroduction.

Paragraph V of the Modified Order, relating to variances from Part 360 standards for landfill permit issuance, is no longer relevant to this matter and is deleted.

B. State Funding of Closure Under the Clean Water/Clean Air Bond Act of 1996: Pursuant to the New York State Clean Water/Clean Air Bond Act of 1996, Section 56-0407 of the Environmental Conservation Law (ECL) provides authority to the Commissioner of DEC to enter into a contract with the City to provide state assistance payments for the closure of the Landfill. Following execution of this Order and submission of a complete Bond Act funding application by the City, the DEC will prepare and send to the City a contract for the disbursement of state assistance payments for closure of the Landfill. DEC and the City agree to expedite completion of this process.

C. Consent Order Termination: Paragraph IV of the Modified Order is modified as follows:

Consistent with Part 360 and other landfill closure orders entered into by DEC, the City's obligations under this Order shall terminate when the City has successfully completed all obligations pertaining to closure, post closure monitoring and landfill maintenance, according to the terms of Appendix A-15 and 6 NYCRR Part 360.

In the interim, once DEC has approved the City's Final Closure Plan and the City has ceased waste disposal operations as required by law and under this Order, some of the provisions

contained herein will require further modification (or deletion) to reflect the fact that the City is no longer performing disposal operations at the Landfill and DEC no longer need monitor such operations. DEC and the City agree to conclude such a modification expeditiously.

D. **Solid Waste Management Planning** Paragraph VI of the Modified Order, which specifies the City's obligations relative to Solid Waste Management Planning, is modified as follows: The City is in the midst of modifying its Local Solid Waste Management Plan, in response to the fact that the Landfill must cease to accept solid waste after December 31, 2001. The City shall comply with all obligations to submit its Plan Modification for approval to DEC pursuant 6 NYCRR Part 360-15.

E. **Public Participation** Paragraph XXVI of the Modified Order, pertaining to public participation, is modified as follows:  
The City and DEC shall jointly maintain at least one public access document repository within the Borough of Staten Island until three months after the completion of the following:

- i) all closure construction activities required under Appendix A-15 and
- ii) approval of a final end-use plan for the Landfill.

The City shall conduct, during the month of February, every year, a public meeting within the Borough of Staten Island until the February following the completion of all closure construction activities contained in Compliance Schedule Appendix A-15. In recognition of the City's commitment to public participation on activities associated with the landfill and the evolving end-use planning efforts for this facility, the City will utilize a public participation component for all end-use planning development activities.

F. **Incorporation by Reference**: The terms and conditions of this Seventh Consent Order Modification are hereby incorporated by reference into the 1990 Order, as previously modified. All terms or conditions of the 1990 Order, as previously modified, that are not inconsistent with this Seventh Consent Order Modification shall remain in full force and effect.

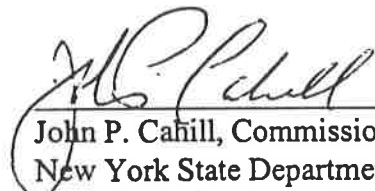
G. **Receipt of Waste/O&M Plan**: This Modification # 7 to the 1990 Consent Order requires the cessation of the disposal of waste by January 1, 2002 (regardless of any statutory requirements otherwise for a later date) at the Fresh Kills Landfill in accordance with law and the subsequent closure of the landfill. It adds Appendix A-15 to the 1990 Consent Order. Milestone

Subject 11 of Appendix A-15 requires submittal of a draft post-closure monitoring and maintenance operations manual by April 1, 2002. Milestone Subject 12 requires submittal of a final acceptable post-closure monitoring and maintenance operations manual 90 days after receipt of Departmental comments on Subject 11. The post-closure monitoring and maintenance operations manual will sufficiently address the landfill's requirements for an operations and maintenance plan and a landfill contingency plan. Accordingly, therefore, Milestone Subject 2 under Appendix A-1, the requirement to submit revisions of the Landfill Operations and Maintenance Plan by January 31 of each year is discontinued after the submittal required by January 31, 2001. Additionally, the annual updating requirement under Milestone Subject 3 under Appendix A-2, the final acceptable landfill contingency plan, is discontinued after the submittal required by July 15, 2001.

H. **Force Majeure**: Subparagraph A. of Paragraph XX. of the 1990 Fresh Kills Order is modified as follows: Respondent shall not suffer any penalty under this Order, or be subject to any proceeding or action, if it cannot comply with any requirement hereof because of circumstances beyond Respondent's control, an act of God, war, insurrection, riot, strikes, floods, fire, judicial injunctions and orders, state or Federal legislation or contractor default (per the terms of Subparagraph B). Respondent shall immediately notify the Department in writing when it obtains knowledge of any such condition and request an appropriate extension or modification of the 1990 Fresh Kills Order as modified.

I. **Effective Date**: This Order shall be effective upon the return of the executed consent form by the City and subsequent execution on behalf of DEC.

DATED: Albany, New York  
April 3<sup>rd</sup>, 2000

  
John P. Cahill, Commissioner  
New York State Department of  
Environmental Conservation

CONSENT BY RESPONDENT CITY OF NEW YORK DEPARTMENT OF SANITATION

Respondent hereby consents to the issuing and entering of the foregoing Modification #7 to the Fresh Kills Landfill Consent Order (DEC File No. D2-9001-89-03).

Dated: New York, New York  
April 18, 2000

A handwritten signature in dark ink, appearing to read "Kevin P. Farrell", is written over a horizontal line.

Kevin P. Farrell, Commissioner  
City of New York Department of Sanitation

Compliance Schedule Appendix A-5  
Waste Transport and Unloading Facilities

<u>Subject</u>	<u>Milestone Date</u>
1. Respondent shall submit to the Department for review and comment, a report containing the proposed actions which have been and/or will be taken to achieve the following:  a. Containment of solid waste which is deposited in the surface waters during barge unloading operations from escaping to the Arthur Kill and removal of waste so contained;  b. Cleaning of all shorelines adjacent to the Fresh Kills Landfill, including Isle of Meadows, of solid waste of the type allowed to be disposed of at the Landfill;  c. Transition to rubber tired vehicles for the transport of solid waste from the barge unloading areas to the working face;  d. Reduction, to the greatest extent practicable, of windblown litter at the barge unloading areas and working faces;  e. Passable roadways for use of rubber tired vehicles from the barge unloading facilities to the appropriate landfill sections;  f. Removal of solid waste released into the Arthur Kill as a result of a contingent failure of the Respondent's solid waste control system; and  g. Installation of fencing or establishment of other means around the perimeter of the Landfill to limit unauthorized access to the Landfill.	12-31-90

The submitted report shall contain, by reference to

maps or other documents, a physical description of the areas Respondent has cleaned, or intends to clean, pursuant to Subject 1.b above. The submission shall recommend additional Subjects and Milestone Dates that will be incorporated into this Compliance Schedule, once accepted by the Department. The Subjects shall include: issuance of bid proposals, contract award, and activity completion dates where appropriate. The additional Subjects and Milestone Dates shall not be repetitive of, nor deemed to be, operational requirements as set forth in Appendices B-1 and B-2.

- |     |  |  |
|-----|--|--|
| 2.  | Respondent shall submit to the Department the acceptable report incorporating Department comments. Upon acceptance by the Department, the Subjects shall be considered incorporated into this Compliance Schedule. | 90 days after the Department submits its comments to the Respondent. |
| 3.  | Purchase and delivery of two skimmer boats.  | 8-15-91  |
| 4.  | Issuance of bid proposals for thirteen additional refuse haulers.  | 10-15-91   |
| 5.  | Contract award for purchase of thirteen additional refuse haulers.   | 10-15-91   |
| 6.  | Contract award for purchase of two hydraulic cranes.   | 11-15-91   |
| 7.  | Initiation of construction of 4,000 linear feet of road across Section 1/9.  | 12-15-91   |
| 8.  | Completion of Stages I and III of paving of Plant 1.   | 2-1-92   |
| 9.  | Completion of Stages I and III of construction of Plant 1 concrete retaining walls.  | 2-1-92   |
| 10. | Initiation of construction of new bridge across Main Creek.  | 2-1-92   |
| 11. | Completion of construction of 4,000 linear feet of road  |  |

	across Section 1/9.	2-15-92
12.	Completion of construction of additional fencing.	3-1-92
13.	Completion of construction of Plant 1 access road.	3-30-92
14.	Delivery of thirteen additional refuse vehicles.	5-15-92
15.	Delivery of two hydraulic cranes.	5-15-92
16.	Institution of refuse hauler loading at Plant 1, First Unloading Pad.	5-30-92
17.	Completion of Stage II of Plant 1 paving.	10-31-92
18.	Completion of Stage II of construction of Plant 1 concrete retaining walls.	10-31-92
19.	Institution of refuse hauler loading at Plant 1, Second Unloading Pad.	11-30-92
20.	Complete final design for the unloading facility.	12-30-94
21.	Complete construction of the unloading facility.	3-31-98
22.	Establish a satisfactory protocol for the operation and maintenance of the unloading facility.	9-30-98

On July 15, 1994, Modification #4 was added to the 1990 Consent Order. Among other things, it added Milestone Subjects 20, 21 and 22. These Milestone Subjects were added to reflect terms of the 1993 Consent Decree of the U.S. District Court for the District of New Jersey in Township of Woodbridge, et. al. vs. City of New York, Civil Action No. 79-1060.

In an Order dated September 16, 1997, New Jersey District Court Judge Barry eliminated the requirements to build an enclosed unloader at the Fresh Kills Landfill from the Consent Decree in the Woodbridge litigation for as long as the City ensures that the amount of debris emanating from the landfill is restricted satisfactorily.

Accordingly, therefore, Milestone Subjects 20, 21, and 22 are deleted.



NOTE: With respect to Subject 1 of this Appendix, the Respondent may request an extension of a Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Date for the noted Subject up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subject are governed by the provisions of paragraph XXIV of the Order.

Compliance Schedule Appendix A-15  
Landfill Closure and Post Closure

The Respondent shall conform to the requirements for landfill closure and post-closure care set forth in 6 NYCRR Part 360 Section 360-2.15 (c)-(l), revised effective November 26, 1996 (hereafter, all such citations are denoted as "Section 360-") and this Compliance Schedule. A series of major information and reporting requirements set forth in Section 360-2.15 are included as Subject Milestones in this Appendix.

As part of the process to ensure proper closure of the Fresh Kills Landfill, the Department and Respondent agree to meet, at a minimum, on a bi-monthly basis to discuss the status of closure field activities by the Respondent and to provide the Department with the opportunity to provide technical/regulatory assistance to the Respondent during the development of all document submittals for this Compliance Schedule Appendix.

Cessation of Waste Disposal Operations

The Respondent shall cease disposal of solid waste at Fresh Kills Landfill, in accordance with the schedule specified below.

Final Cover Design and Construction Reports

The Respondent shall prepare **Final Cover Design Reports** for Sections 1/9 and 6/7 of the landfill which shall provide the detail of the remaining construction work for the closure of each landfill unit in accordance with the specified schedule. The **Final Cover Design Reports** shall include:

- a description of the material and construction methods (i.e., material and execution specifications) used for the placement of all gas venting and final cover systems to demonstrate conformance with the requirements set forth in section 360-2.13;
- an analysis of the structural integrity and overall stability of the landfill and each component of the final cover;
- an erosion and sediment control plan to mitigate erosion and facilitate stormwater control over the immediate cover during post operation and closure construction;
- a stormwater control plan to control erosion and convey drainage over the final cover;
- a presentation of the closure and post-closure maintenance requirements for final cover and drainage systems;

- a landscape plan in accordance with 360-2.6;
- a presentation of the future use of the site, that conforms to the landscape plans and does not adversely affect the final cover system;
- any variance applications in accordance with 360-1.7(c);
- engineering drawings that set forth the operating unit and adjacent lands to the property boundaries; construction detailed drawings depicting the final grades and proposed elevations of the landfill cover system, including the final cover sub-base grading plan, gas venting layer, low permeability barrier; topsoil layers; typical roadway sections and details; diversion berms, swales, drainage channels, culverts and other devices needed to collect and survey surface water run-off; and a landscape plan in accordance with 360-2.6;
- plans depicting phases of construction of the final cover system which will be used for development of individual Closure Certification Reports for submittal to the Department;
- construction quality assurance/construction quality control plan in accordance with 360-2.8;
- an estimate of the inventory of wastes in the landfill;
- a closure construction schedule; and
- a recapitulation of the most recent Financial Assurance costs for the closure, post-closure and corrective measures costs for the landfill.

No final cover construction shall be performed until acceptance by the Department of the Final Cover Design Report and associated construction plans and technical specifications for the applicable section. However, the Respondent may submit for review and acceptance an interim report including final grading plans, plans for the placement of grading material for drainage and achievement of final sub-grades, and associated grading material technical specifications prior to submittal of any Final Cover Design Reports. No placement of grading material for achievement of final sub-grade shall occur until Department acceptance of the interim report.

#### **Post-Closure Monitoring and Maintenance Operations Manual**

In accordance with the schedule specified below, the City must submit a Post-Closure Monitoring and Maintenance Operations Manual for the landfill conforming to the requirements of paragraph 360-2.15(k)(7) and shall provide all information necessary to monitor and maintain the landfill facility for the entire post-closure period. This manual shall contain the components

defined in subparagraphs 360-2.15(k)(7)(i) through (viii), including a description of the sampling, record-keeping and reporting requirements for all environmental monitoring activities, as defined in paragraph 360-2.15(k)(4) and leachate containment/collection systems; a description of all environmental control systems; a description of the nature, location and frequency of all facility maintenance activities, including maintenance of the final cover system (to correct the effects of landfill settlement, subsidence, erosion), leachate containment, collection and treatment systems, and landfill gas control and monitoring systems; a description of the resource requirements, including equipment needs and minimum personnel qualifications; and a contingency plan containing response actions to problems that may arise at the facility, action levels for the leachate containment/collection systems action levels for environmental monitoring and control systems, and a summary of corrective measures to be performed in conformance with section 360-2.20; and a description of the planned uses of the property during the post-closure period.

The Long-Term Groundwater Monitoring Program developed pursuant to Compliance Schedule Appendix A-6, and the Long-Term Surface Water and Sediment Monitoring Program developed pursuant to Compliance Schedule Appendix A-7 shall be used as the basis for development of the post-closure environmental monitoring program. Information contained in the report submittals, revised to reflect current conditions, for Compliance Schedule Appendices A-1, A-2, A-4, A-8 and A-10 should be used as references for completion of this manual.

#### **Annual Landfill Closure Progress Report**

In accordance with the schedule specified below, the City shall submit a Landfill Closure Progress Report on an annual basis and shall describe in each such Report the progress that year toward closure of the landfill as well as closure activities for the coming year. The report must identify where final cover is complete, denoting new final cover placed during the previous calendar year. For the next calendar year, the report must describe the new final cover construction work anticipated.

#### **Closure and Post-Closure Registration Report**

In accordance with the schedule specified below, the City must submit a Closure and Post-Closure Registration Report conforming with the requirements defined in subdivision 360-2.15(l). The Respondent must register with the Department at least one year before the facility is scheduled to cease accepting waste. At a minimum, the report must include the facility name, address, phone number, and the name, address and phone number of the person who will be responsible for closure and post-closure care of the facility. The registration must be renewed every five years until the Department determines that the post-closure monitoring and maintenance period for the facility has ended (minimum thirty years). Registration renewals must include a certification that the facility complies with all applicable closure and post-closure criteria contained in section 360-2.15, financial assurance criteria contained in section 360-2.19; corrective measures report criteria contained in section 360-2.20; and any other information that

the Department determines to be necessary to protect the public health and welfare and the environment or natural resources.

**Closure Construction Certification Report(s)**

In accordance with the schedule specified below, the City must submit Closure Construction Certification Report(s) conforming to the requirements defined in paragraph 360-2.15(d)(7). The report(s) must be submitted by the Respondent to the Department for approval within 180 days after completion of landfill closure construction for each area as defined in the Acceptable Final Cover Design Reports. The report(s) must include the results of all construction quality assurance and quality control testing required in paragraphs 360-2.13(p)-(t). The report(s) must document any failed test results, describe procedures used to correct failures, and state the results of retesting. The report(s) must also include as-built drawings, with notations to identify any deviation from the approved final cover design plans. The Department shall undertake to comment on the Closure Construction Certification Reports within 90 days of receipt and comments shall include whether the reports conform to the certification requirements or which specific deficiencies require correction for satisfactory completion of the reports.

**Final Landfill Closure Plan and Landfill Closure**

The Respondent must submit a Final Landfill Closure Plan for the landfill and close the Landfill, in accordance with applicable regulations and with the schedule specified below. The plan must include a site plan and a description of facility structures; the final cover system; the landfill gas control system; leachate containment, collection and treatment systems; a final end use plan including use of native vegetation for landscaping; and, as necessary, plans for vector control, gas control, including by reference those aspects of landfill gas control related to the on-site landfill gas recovery facility and landfill gas flares. The plan must address potential environmental impacts associated with the Landfill, and provide the following: estimates of the landfill area to be covered and an inventory of wastes in the landfill; a closure construction schedule that conforms with subdivision 360-2.15(d); and amended closure and post-closure monitoring and maintenance cost estimates, in accordance with section 360-2.19. The Final Landfill Closure Plan must meet the requirements for post-closure operation and maintenance defined in subdivision 360-2.15(k). The Final Cover Design Reports and Post-closure Monitoring and Maintenance Operations Manual developed in accordance with this Appendix A-15 shall be deemed a part of the Final Landfill Closure Plan as accepted.

<u>Subject</u>	<u>Milestone Date</u>
1. Initiation of final cover construction of Section 6/7 for Compliance Schedule Appendix A-15 activities	July 1, 2000

- |   |   |
|---|---|
| 2. Draft Section 6/7 Final Cover Design Report  | September 1, 2000   |
| 3. Closure and Post-Closure Registration Report: The Respondent shall submit the Closure and Post-closure Registration Report in accordance with subdivision 360-2.15(l).   | December 31, 2000   |
| 4. Final acceptable Section 6/7 Final Cover Design Report   | *90 days after receipt of Department comments   |
| 5. Draft Section 1/9 Final Cover Design Report  | May 1, 2001   |
| 6. Final acceptable Section 1/9 Final Cover Design Report   | *90 days after receipt of Department comments   |
| 7. Annual Landfill Closure Progress Report  | March 1 of each year beginning March 1, 2001  |
| 8. Cessation of disposal of solid-waste at Fresh Kills Landfill   | January 1, 2002   |
| 9. Closure Construction Certification Report(s): The Respondent shall submit to the Department the Closure Construction Certification Report(s), on a basis defined in the acceptable Final Cover Design Report(s), according to the requirements defined in paragraph 360-2.15(c)(7). The final Closure Construction Certification Report shall include a summary of the preceding reports and portions of the landfill to which they pertain. | 180 days after construction completion of each area as defined on the accepted Final Cover Design Reports |
| 10. Initiation of final cover construction of Section 1/9 for Compliance Schedule Appendix A-15 activities  | February 1, 2002  |
| 11. Draft Post-Closure Monitoring and Maintenance Operations Manual: The Respondent shall submit to the Department for review the draft Post-Closure Monitoring and Maintenance Operations Manual.  | April 1, 2002   |
| 12. Final acceptable Post-Closure Monitoring and Maintenance Operations Manual  | *90** days after receipt of Department comments on Subject 11   |

13. Draft Final Closure Plan for the Landfill

September 1, 2002

14. Final acceptable Landfill Closure Plan for the Landfill

\*90 days after receipt of  
Department comments on  
Subject 12

NOTE\*: With respect to these specified Milestone Date, DOS may request an extension of this indicated Milestone Date according to the terms of this note by:

1. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
2. Communicating the request to the Regional Solid and Hazardous Waste Engineer; and
3. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Waste Engineer may extend the Milestone Date for the noted Subject up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subject are governed by the provisions of paragraph XXIV of the Order.

NOTE\*\*: Upon acceptance of the Post-Closure Monitoring and Maintenance Operations Manual, the requirements for Milestones Subject 2 of Compliance Schedule Appendix A-1 and Milestone Subject 3 of Compliance Schedule Appendix A-2 shall become null and void.

**STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
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In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by

**ORDER****ON****CONSENT****Modification #8**

**THE CITY OF NEW YORK**  
(Department of Sanitation  
125 Worth Street  
New York, New York 10013)

**DEC CASE #**  
**D2-9001-89-03**  
**(Fresh Kills)**  
**EDMS 4434**

**Respondent**

  
-----**WHEREAS:**

1. Respondent, the City of New York ("Respondent," or the "City"), operates the Fresh Kills Landfill (the "Landfill") on Staten Island, New York. The City and the New York State Department of Environmental Conservation ("DEC," or the "Department") executed the original version of this order on April 24, 1990 (the "1990 Order"). The 1990 Order was later modified to reflect new and relevant information about the Landfill (much of it produced by the City through investigations required under the 1990 Order,) on September 21, 1990, April 22, 1992, November 18, 1993, July 15, 1994, July 26, 1995, October 20, 1998 and April 27, 2000.

2. On May 28, 1996, Mayor Rudolph P. Giuliani and Governor George E. Pataki announced their agreement to close the Landfill to further receipt of solid waste by December 31, 2001. Thereafter, on June 2, 1996, Governor Pataki signed Chapter 107 of the Laws of 1996 (Environmental Conservation Law Section 27-0706) barring disposal of waste at the Landfill after January 1, 2002.

3. On September 11, 2001 a terrorist attack destroyed the World Trade Center in New York City. On that day, Governor Pataki signed Executive Order No. 113, which declared a disaster emergency in the State of New York. That Order now has been amended by the Governor (copy attached as Exhibit A), in order to suspend New York City's statutory obligation to cease acceptance of all solid waste material for deposition at the Fresh Kills Landfill in Staten Island, New York. Specifically, New York City is authorized to continue to accept debris from the World Trade Center site, some of which may be disposed of at the Landfill after January 1, 2002. Fresh Kills currently is being used by governmental personnel as the location for further criminal investigation of the



remains from that attack.

4. The DEC Consent Order, as modified in April 2000 by Modification #7, conformed with the closure date in New York State Law. Therefore, New York City was prohibited from accepting any additional waste for deposition after January 1, 2002.

5. DEC Staff considered this matter and concluded that the DEC Consent Order may be modified to extend the Fresh Kills operation beyond January 1, 2002, solely for the acceptance and possible disposal of debris from the site of the World Trade Center attack, in accord with the standards of the Order.

6. Paragraph XXVI of the Order requires public notice and an opportunity for public comment before final DEC action upon certain requests to modify the Order. However, emergency modifications such as this one, require only that DEC Staff provide public notice accompanying its signed modification. Therefore, DEC will publish notice of this modification in the Environmental Notice Bulletin on January 16, 2002, and by mailing a copy of the modification on January 2, 2002 to: the Office of the Staten Island Borough President; the Public Document Repository maintained under the Order; the Staten Island Solid Waste Advisory Board; and, Staten Island Community Board Two.

**NOW, THEREFORE, IT IS ORDERED THAT:**

A. The following revised provisions are hereby incorporated into the April 24, 1990 Consent Order, as previously revised on September 21, 1990, April 22, 1992, November 18, 1993, July 15, 1994, July 26, 1995, October 20, 1998 and April 27, 2000:

1. Paragraph G of the April 27, 2000 Modification of the Order, is modified as follows: a new Line 2 shall be inserted which reads "However, the required cessation of the disposal of waste by January 1, 2002 shall not include the acceptance and disposal of debris received from the site of the World Trade Center disaster of September 11, 2001," and a new Line 3 shall be inserted which reads "The modification adds Appendix A-15 to the 1990 Consent Order." and
2. Milestone No. 8 in Compliance Schedule Appendix A-15 - Landfill Closure and Post Closure, is amended, such that the January 1, 2002 closure date does not apply to the acceptance and disposal of debris received from the site of the World Trade Center disaster of September 11, 2001.

B. Respondent may request an extension of a Milestone Date for Appendix A-15 Subjects numbered 9 through 14 by:

- i. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
- ii. Communicating the request to the Regional Solid and Hazardous Materials

Engineer; and,  
iii. Stating the reason and basis for the extension.

The Regional Solid and Hazardous Materials Engineer may extend the Milestone Dates for the noted Subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of Paragraph XXIV of the Order.

C. This modification shall be effective immediately.

DATED: Albany, NY  
JAN 17 2002 ~~2001~~

Erin Crotty, Commissioner  
New York State Department of  
Environmental Conservation

A handwritten signature in black ink, appearing to read 'Erin Crotty', is written over a horizontal line.

**CONSENT BY RESPONDENT**  
**CITY OF NEW YORK DEPARTMENT OF SANITATION**

Respondent hereby consents to the issuing and entering of the aforementioned Modification #8 to the Fresh Kills Consent Order (DEC File No. D2-9001-89-03), waives its right to a hearing as provided by law, and agrees to be bound by the provisions, terms and conditions contained therein.

By: PETER MONTALBANO  
(Print Name)  
Title: 1st Dep. Commissioner  
Signature: Peter Montalbano  
Date: 1/8/02

**ACKNOWLEDGMENT**

State of New York )  
County of New York ) ss.:

On the 9<sup>th</sup> day of Jan., 2002 before me personally came Peter Montalbano to me known, who being by me duly sworn did depose and say that he maintains an office at 125 W 42nd St in the County of New York and that he was duly authorized to execute the foregoing instrument and did so on behalf of the City of New York.

Annie Marie M. Santangelo  
Notary Public

ANNIE MARIE M. SANTANGELO  
NOTARY PUBLIC, State of New York  
No. 61-4027662  
Qualified in Queens County  
Commission Expires July 21, 102002



State of New York  
Executive Chamber

No. 113.44

EXECUTIVE ORDER

TEMPORARY SUSPENSION AND MODIFICATION OF THE ENVIRONMENTAL  
CONSERVATION LAW RESPECTING THE CLOSURE OF THE FRESH KILLS LANDFILL

WHEREAS, on September 11, 2001, I issued Executive Order  
Number 113 declaring a disaster emergency in the State of New York;

NOW, THEREFORE, I, GEORGE E. PATAKI, Governor of the State  
of New York, by virtue of the authority vested in me by the  
Constitution and Laws of the State of New York, do hereby continue  
Executive Order No. 113, dated September 11, 2001, except that such  
Executive Order is amended to read as follows:

FURTHER, pursuant to the authority vested in me by Section  
29-a of Article 2-B of the Executive Law to temporarily suspend  
specific provisions of any statute, local law, ordinance, orders,  
rules or regulations, or parts thereof, of any agency during a State  
disaster emergency, if compliance with such provisions would prevent,  
hinder or delay action necessary to cope with the disaster, I hereby  
temporarily suspend, from the date the disaster emergency was declared  
until further notice, pursuant to Executive Order Number 113, issued  
on September 11, 2001, the following statute:

Environmental Conservation Law §27-0706(b) to the extent  
that debris removed from the site of the World Trade Center disaster  
may be accepted for disposal at Section 1/9 of the Fresh Kills  
Landfill after January 1, 2002.

G I V E N under my hand and the  
Privy Seal of the State  
in the City of Albany  
this twenty-eighth day of  
December in the year two  
thousand one.

BY THE GOVERNOR

/s/ Bradford J. Race, Jr.

Secretary to the Governor

/s/ George E. Pataki

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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In the Matter of Alleged Violations  
of Environmental Conservation Law ("ECL")  
Articles 27, 17, and 25  
and Title 6 of the Official Compilation  
of Codes, Rules and Regulations of the  
State of New York ("6 NYCRR") Parts 360,  
751, and 661 by:

ORDER

ON

CONSENT

THE CITY OF NEW YORK

(Department of Sanitation  
125 Worth Street  
New York, NY 10013)

DEC CASE #  
D2-9001-89-03  
(Fresh Kills)

Respondent.

---

**WHEREAS:**

1. Respondent, the City of New York ("Respondent," or the "City"), owns the Fresh Kills Landfill (the "Landfill") on Staten Island, New York, which is closed to further receipt of solid waste. The City and the New York State Department of Environmental Conservation ("DEC," or the "Department") executed the original Fresh Kills Order on April 24, 1990 (the "1990 Order"). The 1990 Order was later modified to reflect new and relevant information about the Landfill (much of it produced by the City through investigations required under the 1990 Order), on September 21, 1990, April 22, 1992, November 18, 1993, July 15, 1994, July 26, 1995, October 20, 1998, April 27, 2000, and January 17, 2002.

**Closure of Section 6/7**

2. The 1990 Order, as modified in April 2000 by Modification #7, provided a schedule of activities (Compliance Schedule A-15), which the Respondent has since successfully implemented, to advance the closure and post-closure care of the Landfill. Appendix A-15, Subject 1 required the City to initiate final cover construction of Section 6/7 by July 1, 2000 (Subject 1 Milestone Date). In advance of the requirement of Subject 1, the City initiated final cover construction of Section 6/7 on May 15, 2000.

3. Appendix A-15 activities included Respondent's preparation of "Final Cover Design Reports for Sections 1/9 and 6/7," which reports were to contain the detail of the remaining construction work for the closure of each landfill unit, including "a closure construction schedule." In addition, according to Modification # 7 the City was required to submit a "Draft Section 6/7 Final Cover Design Report" by September 1, 2000 (Subject 2 Milestone). The City timely submitted the Draft Section 6/7 Final Cover Design Report on September 1, 2000. Furthermore, a "Final Acceptable Section 6/7 Final Cover Design Report" was to be submitted to DEC by the Respondent within 90 days after the City's receipt of the Department's comments on the September 1, 2000 draft submittal (Subject 4 Milestone). The City timely submitted the "Final Acceptable Section 6/7 Final Cover Design Report" in January 2001.
4. The Respondent, by the City Department of Sanitation ("DSNY"), submitted modified engineering drawings, specifications and bid documents to DEC in 2006, in regard to the "Final Acceptable Section 6/7 Final Cover Design Report." The bid documents contained a date for the conclusion of closure construction at Section 6/7, which was November 30, 2010.
5. In May 2008, the Respondent, by the City of New York Department of Parks and Recreation ("DPR"), as the Lead Agency for the City Environmental Quality Review, issued the notice of completion for the Draft Generic Environmental Impact Statement ("DGEIS") for Fresh Kills Park. Fresh Kills Park is a 30-year project to transform the Fresh Kills Landfill into a world class park. This would require, among other things, modification of the Fresh Kills Landfill end use plan to accommodate active, passive, and waterfront recreation, an extensive habitat restoration program and public access to and through the site.
6. Among the projects analyzed in the Fresh Kills Park DGEIS were two traverse roads through Section 6/7 of the Landfill. The Reasonable Worst Case Scenario analyzed in the DGEIS for construction of the roads presumed that the roads would be constructed after the closure construction at Section 6/7.
7. After issuance of the DGEIS, the City proposed that the potential impacts of removing final cover could be largely avoided, and the project facilitated, if the roadbed construction was integrated into the closure construction at Section 6/7. The City had determined that altering the approved final cover design would result in fewer and smaller impacts than first closing Section 6/7 in accordance with the approved design and subsequently removing the final cover in order to construct the road base.
8. As a result, in 2008 the Respondent asked for DEC authorization to alter its approved plan for the placement of final cover at Section 6/7, to include the construction of road base for two roads which would traverse Section 6/7 from the west to the east.
9. The Department determined that the road bed construction work proposed by the City could not be done before Respondent's production of a Supplemental Environmental Impact Statement ("SEIS"), which more specifically analyzed the potential

environmental impacts of the road construction than did the City's Generic Environmental Impact Statement ("GEIS") for the Fresh Kills Park.

10. As a result of the City's request to initiate road bed construction at Section 6/7 and the Department's determination that such construction requires the prior production of a SEIS, Respondent cannot complete placement of final cover at Section 6/7 by November 30, 2010. DPR initiated the SEIS process by producing a draft scoping document on February 24, 2009.
11. Therefore, Respondent has asked to extend the completion date for the placement of final cover at Section 6/7 until December 31, 2011.
12. In accordance with Paragraph XXVI of the 1990 Order, which was added by Modification #1 on September 21, 1990, public notice of this modification was published in the Environmental Notice Bulletin on September 23, 2009, with a comment deadline of October 23, 2009.
13. The Department has concluded that Respondent's request may be granted, provided that its construction activities comply with requirements of this modified Order, as well as the Environmental Conservation Law ("ECL") and DEC's Regulations.

#### **Closure of Section 1/9**

14. As stated in Paragraph 3 above, Compliance Schedule Appendix A-15 activities included Respondent's preparation of "Final Cover Design Reports for Sections 1/9 and 6/7," which reports were to contain "a closure construction schedule."
15. The City was required to submit by May 1, 2001, a "Draft Section 1/9 Final Cover Design Report" (Subject 5 Milestone) to provide the detail of the remaining construction work for the closure of the landfill unit. The City timely submitted the "Draft Section 1/9 Final Cover Design Report," which was received by DEC on April 30, 2001.
16. The original due date for the "Final Acceptable Section 1/9 Final Cover Design Report" (Subject 6 Milestone) was in November 2001, 90 days after the City's receipt of DEC's comments on the April 30, 2001 submittal.
17. A component of the closure design presented in the Draft Section 1/9 Final Cover Design Report included a consolidation of the landfill footprint, which would remove and relocate more than three million cubic yards of waste from approximately 60 acres of the landfill unit, and use the excavated waste to complete the minimum closure grades as required under the Part 360 regulations.
18. On September 11, 2001, a terrorist attack destroyed the World Trade Center in New York City. Modification # 8 of the 1990 Order, issued as an emergency modification, provided that materials from the site of the World Trade Center could be accepted and possibly

Modification # 8 further provided that "Respondent may request an extension of a Milestone Date for Appendix A-15 Subjects number 9 through 14 by:

- i. Requesting, in writing, the extension at least two (2) weeks before the applicable Milestone Date;
- ii. Communicating the request to the Regional Solid Engineer; and,
- iii. Stating the reason and basis for the extension.

The Regional Solid Materials Engineer may extend the Milestone Dates for the noted subjects up to two months upon his/her discretion based upon a reasonable showing by the Respondent, and such extension shall not be unreasonably withheld. The extended date shall become the new Milestone Date for the specific Subject. Modifications beyond two months of the noted Subjects are governed by the provisions of Paragraph XXIV of the Order."

19. Following implementation of the World Trade Center investigation and recovery efforts at the Fresh Kills Landfill, the Respondent notified the Department on October 1, 2001 that the magnitude of the operation would require significant changes to the final grading plan for Section 1/9, and would thereby require additional modification to the "Section 1/9 Final Cover Design Report." In order to assess these impacts and incorporate the necessary changes, the Respondent requested a two month extension of time, pursuant to the extension provision in Modification # 8, for the preparation and submittal of the "Final Acceptable Section 1/9 Final Cover Design Report." The Regional Solid and Hazardous Materials Engineer granted the Respondent's extension request and the Respondent timely submitted the "Final Acceptable Section 1/9 Final Cover Design Report," which was received by DEC on January 7, 2002.
20. In October 2002, the Respondent proceeded to solicit bids from contractors to initiate the footprint consolidation construction activities for the closure of Section 1/9. However, following an outcry of public objections that this work would bury the World Trade Center materials under and adjacent to millions of cubic yards of garbage, the Respondent cancelled the bid solicitation, and proposed to develop an alternate closure plan. After consultations with DEC, the Respondent submitted an alternate Section 1/9 Final Cover Design Report to the Department on September 23, 2004. On November 15, 2006, the Department approved the alternate Section 1/9 Final Cover Design Report.
21. Also pursuant to the extension procedure provided in Modification #8, on January 11, 2002 DSNY requested a two month extension of the February 1, 2002 date for the initiation of final cover construction at Section 1/9 (Appendix A-15, Subject 10 Milestone Date).
22. DSNY timely initiated construction of final cover at Section 1/9 in mid-March 2002. A total of approximately 1.5 million tons of material from the World Trade Center was delivered to the Landfill through mid-2002, and, after examination, the majority of it was placed in Section 1/9 of the Landfill, generally following the sequence of construction for



final cover sub-base grading set forth in the "Draft Section 1/9 Final Cover Design Report."

23. In August, 2005 an action was commenced in United States District Court, Southern District of New York, captioned *World Trade Center Families for Proper Burial, Inc., et al. v. The City of New York, et al.* (05 cv 7243). The WTC Families group and other individually named plaintiffs sought declaratory and injunctive relief relating to the placement of the WTC material placed in Section 1/9, and specifically sought to enjoin the New York City Department of Sanitation ("DSNY") from proceeding further with the closure and redevelopment plans for Fresh Kills. Additionally, the plaintiffs sought to compel the City to excavate, resift and relocate the WTC material. In June, 2006, the plaintiffs amended their complaint to allege that the WTC material was not properly searched at Fresh Kills and that human remains of WTC victims were left interspersed among the WTC material. In October, 2006 the City moved to dismiss plaintiffs' amended complaint. The District Court granted the City's motion on July 7, 2008. Plaintiffs have appealed the District Court's decision to the Second Circuit, and an oral argument date is pending. Closure work at Section 1/9 has been limited pending the resolution of this litigation. In addition, WTC material retrieved from locations in lower Manhattan since the commencement of the WTC Families lawsuit is being stored at Fresh Kills. Placement of this material in Sections 1/9 or elsewhere is being deferred pending resolution of the lawsuit.

24. As a result the City has requested the extension of the completion date for the placement of final cover at Section 1/9 of the Landfill until December 31, 2018, contingent upon the following:

- a. The WTC Families litigation is timely resolved;
- b. The outcome of the litigation will not necessitate major design changes;
- c. No major design changes will be required by changes in NYSDEC's regulations or changes in permit requirements;
- d. Completion of final cover is dependent on several permit actions, to wit:
  - i. As presented in the Section 1/9 Final Cover Design Report, stormwater drainage on the western side slopes of the landfill section will require construction of several stormwater outfalls into the Arthur Kills;
  - ii. These outfalls will require modification to the State Pollutant Discharge Elimination System ("SPDES") permit for the Fresh Kills Landfill leachate treatment plant and stormwater basins as well as a Tidal Wetlands permit;
  - iii. In addition, Part 360 and Title V permits for the Section 1/9 Landfill Gas Processing Plant will need to be modified.

A The Department shall endeavor to respond concerning the administrative completeness or incompleteness of any permit application submitted by Respondent within 60 days of receipt of each such submission.

- B The Department shall endeavor to complete its review of any administratively complete permit application, issue a draft permit, and determine whether or not a public hearing shall be held within 60 days of the issuance of the notice of complete application.
- C The Department shall endeavor to issue a final permit within 90 days of the completion of the permit application, unless the Department decides that a public hearing should be held. In addition, for Title V facility permits the US Environmental Protection Agency ("EPA") must be provided 45 additional days to review the proposed final permit.

To the extent that:

- i the Department's response to any permit application does not provide a description of all deficiencies and a listing of all areas of incompleteness of such permit application within such 60 day period, or
- ii the Department does not complete its review of an administratively complete permit application, issue a draft permit and determine whether to hold a public hearing within 60 days of the issuance of the notice of complete application, or
- iii the Department fails to issue a final permit within 90 days of the completion of the permit application,

the Department shall favorably consider and not unreasonably withhold approval of request(s) for extension(s) of the date for complete placement of final cover at Section 1/9; provided that no such extension shall be required to be granted if the delay is due to Respondent's conduct in not meeting its obligations under this Order.

25. In accordance with Paragraph XXVI of the 1990 Order, which was added by Modification #1 on September 21, 1990, public notice of this modification was published in the Environmental Notice Bulletin on September 23, 2009, with a comment deadline of October 23, 2009.

26. The Department has concluded that Respondent's request may be granted, provided that site conditions and construction activities comply with requirements of this modified Order, as well as the Environmental Conservation Law ("ECL") and DEC's Regulations.

**NOW, THEREFORE, IT IS ORDERED THAT:**

A. The following revised provisions are hereby incorporated into the April 24, 1990 Consent Order, as previously revised on September 21, 1990, April 22, 1992, November 18, 1993, July 15, 1994, July 26, 1995, October 20, 1998, April 27, 2000 and January 17, 2002:

- 1. Appendix A-15 of Modification # 7 of the Order is amended such that the "closure construction schedule" for the complete placement of final cover at Section 6/7 provides that such work must be accomplished no later than December 31, 2011.

2. The City must maintain compliance with the Landfill's DEC Air, Solid Waste and Water Permits during any construction of road beds at Section 6/7. In addition, the City must remain in compliance with its approved closure plans and corrective measures. Furthermore, the City must comply with any mitigation measures that are required in the SEIS to mitigate significant environmental impacts from such road bed construction, including the potential escape of methane and other gases through the uncapped areas, the potential additional leachate build-up in these areas, and the increased potential for erosion.
3. The City must conclude the SEIS process with the release of a Statement of Findings by October 30, 2009, except Respondent may request extension(s) of the October 30, 2009 date by:
  - i. Requesting, in writing, the extension by no later than October 16, 2009;
  - ii. Communicating the request to the Regional Director; and,
  - iii. Stating the reason and basis for the extension.

The Regional Director may upon her discretion extend the October 30, 2009 date for up to two months (to no later than December 31, 2009). The Regional Director shall, based upon a reasonable showing by Respondent, favorably consider and not unreasonably withhold extension(s) of the October 30, 2009 date.

4. Appendix A-15 of Modification #7 of the Order, is amended such that the "closure construction schedule" for the complete placement of final cover at Section 1/9 provides that such work must be accomplished no later than December 31, 2018 with the contingencies and provisions set forth in paragraph 24 of this Modification #9.

5. This modification shall be effective immediately.

DATED: Long Island City, NY  
December 17, 2009

Alexander B. Grannis, Commissioner  
New York State Department of  
Environmental Conservation

By:

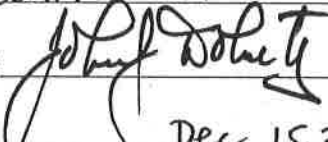
  
Suzanne Y. Mattei, Regional Director  
New York State Department of  
Environmental Conservation

**CONSENT BY RESPONDENT**  
**DEPARTMENT OF SANITATION OF THE CITY OF NEW YORK**

Respondent hereby consents to the issuing and entering of the aforementioned Modification #9 to the Fresh Kills Consent Order (DEC File No. D2-9001-89-03), waives its right to a hearing as provided by law, and agrees to be bound by the provisions, terms and conditions contained therein.

By: JOHN J. DOHERTY  
(Print Name)

Title: COMMISSIONER

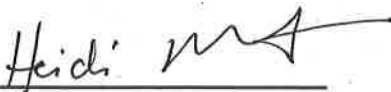
Signature: 

Date: Dec 15, 2009

**ACKNOWLEDGMENT**

State of New York     )  
County of New York     ) ss.:

On the 15 day of December, 2009 before me personally came John J. Doherty to me known, who being by me duly sworn did depose and say that s/he maintains an office at 125 Worth Street in the County of New York and that s/he was duly authorized to execute the foregoing instrument and did so on behalf of the City of New York.



Notary Public

HEIDI RUBINSTEIN  
NOTARY PUBLIC - STATE OF NEW YORK  
NO. 02RU4966536  
QUALIFIED IN QUEENS COUNTY  
COMMISSION EXPIRES MAY 7, 2010