

TABLE OF CONTENTS

Executive Summary	i
Table of Contents	vi
List of Tables and Figures	x

PART I. GENERAL INFORMATION

Chapter 1. Introduction

1.1 Purpose of the Environmental Monitoring Plan	1-1
1.2 Organization of the Environmental Monitoring Plan	1-1
1.3 Environmental Monitoring at BNL	1-2
1.3.1 Compliance Monitoring.....	1-3
1.3.1.1 Air Emissions Monitoring	1-3
1.3.1.2 Wastewater Discharge Monitoring.....	1-3
1.3.1.3 Groundwater Monitoring.....	1-4
1.3.2 Restoration Monitoring	1-4
1.3.3 Surveillance Monitoring.....	1-4
1.4 Environmental Data Review.....	1-4
References	1-5

Chapter 2. Laboratory Setting

2.1 Introduction	2-1
2.2 Site Location and Local Population.....	2-1
2.3 Facilities and Operations	2-1
2.4 Geology and Hydrogeology.....	2-1
2.5 Meteorological Data	2-3
2.6 Natural Resources.....	2-8
References and Bibliography	2-9

Chapter 3. Emission/Effluent Sources and Pathways

3.1 Introduction	3-1
3.2 Pathways.....	3-1
3.3 Sources	3-2
3.3.1 Airborne Emissions – Radioactive	3-2
3.3.1.1 High Flux Beam Reactor	3-4
3.3.1.2 Brookhaven Linac Isotope Producer	3-5
3.3.1.3 RRPL Target Processing Laboratory.....	3-5
3.3.1.4 Additional Minor Sources	3-5
3.3.2 Airborne Emissions – Nonradioactive.....	3-5
3.3.3 Liquid Effluents.....	3-6
3.3.3.1 BNL Sewage Treatment Plant (Outfall 001)	3-6
3.3.3.2 BNL Recharge Basins and Stormwater (Outfalls 002-008, 010-012).....	3-6
3.3.3.3 Assessments of Process-Specific Wastewater	3-7
3.4 Environmental Restoration Monitoring.....	3-8
References	3-9

Chapter 4. Quality Assurance

4.1 Introduction	4-1
4.2 Environmental Sample Analysis and Qualifications	4-1

4.3	Data Quality Objectives.....	4-2
4.4	Sample Collection.....	4-2
4.5	Data Management.....	4-2
4.6	Electronic Data Quality Assurance.....	4-2
4.7	Verification, Validation, and Usability of Analytical Results	4-3
4.8	Data Quality Process.....	4-3
	References	4-5

PART II. DATA QUALITY OBJECTIVE STATEMENTS (DQOs)

Chapter 5. Air Emissions Source

5.1	Ambient Air Quality	5.1-1
5.2	Central Steam Facility Emissions	5.2-1
5.3	Air Monitoring at the Brookhaven LINAC Isotope Producer	5.3-1
5.4	Air Monitoring at the Radionuclide Research and Production Laboratory (RRPL)	5.4-1

Chapter 6. Air Surveillance

6.1	Radiological Air Monitoring at the BNL Site	6.1-1
-----	---	-------

Chapter 7. Direct Radiation

7.1	Thermoluminescent Dosimeters	7.1-1
-----	------------------------------------	-------

Chapter 8. Flora, Fauna, Precipitation, Soils, and Peconic River

8.1	Peconic River Fish Surveillance Monitoring.....	8.1-1
8.2	Precipitation Monitoring.....	8.2-1
8.3	Terrestrial Vegetation and Soil Monitoring	8.3-1
8.4	Deer Sampling	8.4-1

Chapter 9. Liquid Effluents

9.1	Groundwater Water Recharge Basins.....	9.1-1
9.2	Sewage Treatment Plant	9.2-1

Chapter 10. Surface Water

10.1	Peconic River Water Quality Surveillance	10.1-1
------	--	--------

Chapter 11. Potable Water

11.1	Potable Water Monitoring	11.1-1
------	--------------------------------	--------

Chapter 12. Groundwater Data Quality Objectives Table of Contents

12.1	Introduction and Monitoring Schedule	12.1-1
12.2	OU I South Boundary (RA V Remedial Action).....	12.2-1
12.3	OU III Building 96 Area.....	12.3-1
12.4	OU III Middle Road Pump and Treat System	12.4-1
12.5	OU III South Boundary Pump and Treat System	12.5-1
12.6	OU III Western South Boundary Pump and Treat System.....	12.6-1
12.7	OU III Industrial Park	12.7-1
12.8	OU III North Street	12.8-1
12.9	OU III North Street East.....	12.9-1
12.10	OU III Long Island Power Authority.....	12.10-1
12.11	OU III Airport.....	12.11-1
12.12	William Floyd Sentinel Monitoring.....	12.12-1

12.13	OU III South Boundary Radionuclide	12.13-1
12.14	BGRR/WCF Strontium-90	12.14-1
12.15	Chemical/Animal Holes Strontium-90	12.15-1
12.16	OU III High-Flux Beam Reactor	12.16-1
12.17	OU IV AOC 6-Building 650 Sump Outfall Area	12.17-1
12.18	OU VI Ethylene Dibromide.....	12.18-1
12.19	Site Background	12.19-1
12.20	Current Landfill Post-Closure	12.20-1
12.21	Groundwater Elevation Monitoring	12.21-1
12.22	Facility Groundwater Monitoring Schedule	12.22-1
12.23	Groundwater Monitoring at the Alternating Gradient Synchrotron	12.23-1
12.24	Groundwater Monitoring at the Brookhaven Linac Isotope Producer	12.24-1
12.25	Groundwater Monitoring at the Relativistic Heavy Ion Collider	12.25-1
12.26	Groundwater Monitoring at the Waste Management Facility	12.26-1
12.27	Groundwater Monitoring at the Brookhaven Medical Research Reactor.....	12.27-1
12.28	Groundwater Monitoring at the Sewage Treatment Plant	12.28-1
12.29	Groundwater Monitoring at the BNL Motor Pool Facility.....	12.29-1
12.30	Groundwater Monitoring at the Upton Service Station	12.30-1
12.31	Groundwater Monitoring at the Major Petroleum Facility.....	12.31-1
12.32	Groundwater Monitoring for the g-2 Tritium Source Area and Plume	12.32-1
12.33	Groundwater Monitoring at the National Synchrotron Light Source II	12.33-1
12.34	OU X Former Firehouse.....	12.34-1
12.35	OU X Current Firehouse.....	12.35-1

Chapter 13. Groundwater

13.1	Landfill Soils Gas Monitoring.....	13.1-1
------	------------------------------------	--------

Appendix A	Acronyms and Technical Terms.....	A-1
-------------------	-----------------------------------	-----

Appendix B	Environmental Monitoring Matrix	B-1
-------------------	---------------------------------------	-----

Intentionally Left Blank