Mayor and Council
City of New Brunswick
78 Bayard Street
New Brunswick, New Jersey 08901

RE: New Brunswick Water Department
Administrative Order
PWID No. 1214001
EA ID #: PEA130001
New Brunswick City / Middlesex County

Dear Mayor and Council:

Enclosed for service upon you is an Administrative Order issued by the Department. If you have any questions concerning the enclosed document, you may contact Greg Schussler of my staff at (609) 292-3010 or by letter at the above address.

Sincerely,

Marcedius T. Jameson, Director
NJDEP Compliance & Enforcement
Water & Land Use Enforcement

Enclosure

C: Douglas McKenna, Chief, Water Compliance Branch, USEPA, Region 2
NJDEP, Division of Water Supply and Geoscience
IN THE MATTER OF
NEW BRUNSWICK WATER DEPARTMENT
PWID NO. 1214001
NEW BRUNSWICK CITY / MIDDLESEX COUNTY

This Administrative Order is entered into pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection ("Department") by N.J.S.A. 13:1D-1 et seq., the New Jersey Safe Drinking Water Act N.J.S.A. 58:12A-1 et seq., and the implementing regulations, N.J.A.C. 7:10-1 et seq., and duly delegated to the Director of Water and Land Use Enforcement, pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. The New Brunswick Water Department ("New Brunswick") owns and operates a public community water system ("system") as defined by N.J.A.C. 7:10-1.3, Potable Water Identification Number 1214001, that serves a population of approximately 50,000, located in New Brunswick City, Middlesex County, New Jersey.

2. New Brunswick treats water from two surface water sources, Weston's Mill Pond and the Delaware and Raritan Canal, at its Comstock Street Water Treatment Plant ("treatment plant"). New Brunswick currently provides conventional filtration (through the use of gravity filters) and membrane filtration of the source water. The water is currently disinfected through the use of sodium hypochlorite at two locations in the treatment plant.

3. New Brunswick is subject to the provisions of the New Jersey State Safe Drinking Water Act Regulations, N.J.A.C. 7:10-1 et seq.

4. Pursuant to N.J.A.C. 7:10-5.1, the Department adopts and incorporates herein by reference the National Primary Drinking Water Regulations ("national regulations"), 40 CFR 141, as amended and supplemented, including all siting requirements, filtration and disinfection requirements, treatment techniques, maximum contaminant levels, monitoring and analytical requirements, reporting requirements, public notification requirements, recordkeeping requirements, and the National Primary Drinking Water Regulations Implementation, 40 CFR 142 Subparts E, F, G and K, for variance and
exemption requirements as the New Jersey Primary Drinking Water Regulations, applicable to all public water systems.

5. The Department conducted inspections ("NJDEP inspections") of New Brunswick’s treatment plant on June 13, June 21, and July 2, 2013 to review the operation of the conventional (gravity) filters and disinfection treatment systems and to review New Brunswick’s turbidity and disinfection monitoring and reporting procedures.

6. The Department and the U.S. Environmental Protection Agency ("USEPA") conducted a full Sanitary Survey beginning July 15, 2013, which included a review of New Brunswick’s monitoring data from January 1, 2010 to June 30, 2013. The monitoring data reviewed included, but was not limited to, analytical results, chain of custody forms, daily monitoring records and logbooks, and Department monitoring report forms.

7. As a result of the Department’s inspections and subsequent Sanitary Survey, the Department determined that New Brunswick repeatedly violated national drinking water quality standards for turbidity, *Giardia lamblia* cysts, total coliforms, and residual disinfectant levels between January 2010 and June 2013. New Brunswick covered up these violations by submitting false information in reports to the Department, and failed to issue mandatory public health and safety notices when these violations occurred.

**Turbidity Monitoring & Reporting:**

8. Pursuant to N.J.A.C. 7:10-9.6(a), each supplier of water with an existing surface water filtration plant shall install a continuous analyzer/recorder to monitor the turbidity of the combined filter effluent or plant effluent by June 30, 1997 and shall install a continuous analyzer/recorder to monitor the turbidity of the effluent from each individual filter by December 31, 2000.

9. Pursuant to 40 CFR 141.174(a), a public water system that provides conventional filtration treatment must conduct continuous monitoring of turbidity for each individual filter and must record the results of individual filter monitoring every 15 minutes.

10. New Brunswick installed turbidity meters on each membrane filter’s effluent, each gravity filter’s effluent and the combined filter effluent at its treatment plant. New Brunswick manually recorded hourly CFE turbidity readings, obtained by visually observing the CFE turbidity meter readout, in its daily operating logs.

11. New Brunswick failed to continuously record the combined filter effluent ("CFE") turbidity for the period of January 2010 through May 2013, in violation of N.J.A.C. 7:10-9.6(a).
12. New Brunswick failed to continuously record the individual filter effluent ("IFE") turbidity of each gravity filter for the period of January 2010 through May 2013, in violation of 40 CFR 141.174(a).

13. Pursuant to 40 CFR 141.173(a)(1), for systems using conventional filtration, the turbidity level of representative samples of a system's filtered water (CFE) must be less than or equal to 0.3 Nephelometric Turbidity Unit ("NTU") in at least 95 percent of the measurements taken each month. In addition, pursuant to 40 CFR 141.173(a)(2), the turbidity level of representative samples of a system's filtered water (CFE) must at no time exceed 1 NTU.

14. Pursuant to 40 CFR 141.175(a), for systems that provide conventional filtration treatment, turbidity measurements as required by 40 CFR 141.173 must be reported within 10 days after the end of each month the system serves water to the public, and information that must be reported includes (1) the total number of filtered water turbidity measurements taken during the month, (2) the number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 40 CFR 141.173(a), and (3) the date and value of any turbidity measurements taken during the month which exceed 1 NTU.

15. The Department requires surface water systems to submit CFE and IFE turbidity results to the Department on State Form BSDW-22 entitled "IESWTR Turbidity Report".

16. New Brunswick completed and submitted State Form BSDW-22 to the Department for the period of January 2010 to February 2013, certifying that no CFE turbidity results exceeded 0.3 NTU and that IFE turbidity monitoring had been conducted in accordance with 40 CFR 141.174.

17. A review of New Brunswick's daily operating logs, which include hourly CFE turbidity readings, during the NJDEP inspections and the Sanitary Survey revealed that New Brunswick failed to maintain turbidity levels at the CFE monitoring point at less than or equal to 0.3 NTU in at least 95 percent of the measurements in December 2011 and January 2012, in violation of 40 CFR 141.173(a)(1). These events constitute violations of a Treatment Technique requirement, as defined by 40 CFR 142.2.

19. Based on the information provided above, the Department has determined that New Brunswick submitted false information to the Department on State Form BSDW-22 for the six months of March 2010, March 2011, December 2011, January 2012, October 2012, and February 2013.

20. Pursuant to 40 CFR 141.203(a)(1), a Tier 2 Public Notice is required for each violation of the Treatment Technique requirement to maintain turbidity levels at the CFE monitoring point at less than or equal to 0.3 NTU in at least 95 percent of the measurements in a month.


22. Pursuant to 40 CFR 141.175(c)(1), if at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment, the system must inform the State as soon as possible, but no later than the end of the next business day.

23. New Brunswick failed to notify the Department of the CFE turbidity violations referenced in Paragraph 18 by the next business day, in violation of 40 CFR 141.175(c)(1).

24. Pursuant to 40 CFR 141.202(a)(6), a Tier 1 Public Notice is required for each violation of the Interim Enhanced Surface Water Treatment Rule (IESWTR) treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit, where the Department determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 hours after the system learns of the violation.

25. Pursuant to 40 CFR 141.202(b)(1), public water systems must provide a Tier 1 public notice as soon as practical but no later than 24 hours after the system learns of the violation.

26. New Brunswick failed to provide a Tier 1 Public Notice within 24 hours for the violations referenced in Paragraph 18, in violation of 40 CFR 141.202(a)(6) and 40 CFR 141.202(b)(1).

27. Pursuant to N.J.A.C. 7:10-9.6(b), the accuracy of performance of each continuous analyzer/ recorder used to monitor the turbidity of the CFE or plant effluent shall be verified by taking a grab sample of the effluent at least once in every 24-hour period.
28. New Brunswick failed to routinely conduct a daily grab sample of EFE turbidity for the period of January 2010 through May 2013, in violation of N.J.A.C. 7:10-9.6(b).

Giardia Inactivation Monitoring & Reporting:

29. Pursuant to 40 CFR 141.72(b)(1), each system that provides filtration treatment must provide disinfection treatment sufficient to ensure that the total treatment processes of that system achieve at least 99.9 percent (3 log) inactivation and/or removal of *Giardia lamblia* cysts.

30. In accordance with the USEPA March 1991 “Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources,” conventional filtration plants that are meeting the minimum performance criteria are achieving at least a 2.5 log removal of *Giardia lamblia* cysts, and must achieve 0.5 log inactivation of remaining *Giardia lamblia* cysts through disinfection. In addition, pursuant to N.J.A.C. 7:10-9.6(f)(1), for treatment plants that use conventional filtration treatment, the supplier of water shall provide sufficient disinfection to achieve a minimum of 0.5 log inactivation of *Giardia lamblia* cysts.

31. Pursuant to N.J.A.C. 7:10-5.4(e), the owner or operator of a public community water system shall submit a Monthly Operating Report of Water Treatment Plants (“Monthly Operating Report”), on the form provided by the Department, to the Department before the 10th day of the month following each month for which the data is collected. The system’s disinfection log inactivation data is required to be submitted in the Monthly Operating Report.

32. New Brunswick submitted Monthly Operating Reports to the Department for each month between January 2010 to May 2013, certifying New Brunswick achieved at least 0.5 log inactivation of *Giardia lamblia* cysts through disinfection during this period.

33. A review of New Brunswick’s daily monitoring records entitled “Giardia and Virus Inactivation by Disinfection Worksheet” during the NJDEP inspections revealed that New Brunswick incorrectly calculated its disinfection log inactivation results. Correcting for the errors, the Department determined that New Brunswick failed to achieve the required 0.5 log inactivation through disinfection of *Giardia lamblia* cysts in four separate months: December 3-31, 2010, February 1-19, 2011, November 26-30, 2012, and March 1-13, 2013, in violation of 40 CFR 141.72(b)(1) and N.J.A.C. 7:10-9.6(f)(1). These events constitute violations of a Treatment Technique requirement, as defined by 40 CFR 142.2.

34. Pursuant to 40 CFR 141.203(a)(1), a Tier 2 Public Notice is required for each violation of the Treatment Technique requirement to maintain at least 3 log removal and/or inactivation of *Giardia lamblia*.
35. New Brunswick failed to provide a Tier 2 Public Notice for the Treatment Technique violations referenced in Paragraph 33, in violation of 40 CFR 141.203(a)(1).

**Disinfectant Residuals (entering the distribution system) Monitoring & Reporting:**

36. Pursuant to 40 CFR 141.74(c)(1), the residual disinfectant concentration of the water entering the distribution system must be monitored continuously and the lowest value must be recorded each day, except if there is a failure in the continuous monitoring equipment, grab sampling every 4 hours may be conducted in lieu of continuous monitoring, but for no more than 5 working days following the failure of the equipment.

37. Pursuant to N.J.A.C. 7:10-9.6(h), each supplier of water shall install a continuous analyzer/recorder on each filtration plant to monitor the disinfectant residual entering the distribution system.

38. New Brunswick installed an analyzer at its treatment plant to monitor chlorine levels entering the distribution system, but failed to continuously monitor it. New Brunswick manually recorded hourly disinfectant residual levels entering the distribution system, obtained by visually observing the chlorine residual meter readout, in its daily operating logs.

39. New Brunswick failed to continuously record the disinfectant residual entering the distribution system for the period of January 2010 through May 2013, in violation of N.J.A.C. 7:10-9.6(h) and 40 CFR 141.74(c)(1).

40. Pursuant to 40 CFR 141.72(b)(2), each public water system that provides filtration treatment must provide disinfection treatment such that the residual disinfectant concentration in the water entering the distribution system cannot be less than 0.2 mg/l for more than 4 hours.

41. Pursuant to 40 CFR 141.75(b)(2)(ii), a public water system that provides filtration treatment must report to the State certain disinfectant information within 10 days after the end of each month, including the date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/l.

42. The Department requires water systems to submit the results of disinfectant residuals monitoring to the Department on State Form BSDW-25 entitled “Disinfectant Residuals Reporting Form”.
43. New Brunswick completed and submitted State Form BSDW-25 to the Department for each month between January 2010 to June 2013 certifying the disinfectant residual entering the distribution system was not less than 0.2 mg/l for more than 4 hours at any time during this period.

44. A review of New Brunswick's daily operating logs, which include hourly disinfectant residual levels entering the distribution system, during the NJDEP inspections and the Sanitary Survey revealed that New Brunswick provided disinfectant treatment such that the residual disinfection concentration entering the distribution system was less than 0.2 mg/l for more than 4 hours on multiple occasions in five separate months: March 2010, September 2010, November 2010, December 2010, and April 2011, in violation of 40 CFR 141.72(b)(2). These events constitute violations of a Treatment Technique requirement, as defined by 40 CFR 142.2.

45. Based on the information provided above, the Department has determined that New Brunswick submitted false information to the Department on State Form BSDW-25 for the five months of March 2010, September 2010, November 2010, December 2010, and April 2011.

46. Pursuant to 40 CFR 141.75(b)(3)(iii), if at any time the residual falls below 0.2 mg/l in the water entering the distribution system, the system must notify the State as soon as possible, but no later than by the end of the next business day. The system also must notify the State by the end of the next business day whether or not the residual was restored to at least 0.2 mg/l within 4 hours.

47. New Brunswick failed to notify the Department of the disinfectant residuals treatment technique violations referenced in Paragraph 44 by the next business day, in violation of 40 CFR 141.75(b)(3)(iii).

48. Pursuant to 40 CFR 141.203(a)(1), a Tier 2 Public Notice is required for each violation of 40 CFR 141.72(b)(2).

49. New Brunswick failed to provide a Tier 2 Public Notice for the Treatment Technique violations referenced in Paragraph 44, in violation of 40 CFR 141.203(a)(1).

Disinfectant Residuals (within the distribution system) Monitoring & Reporting:

50. Pursuant to 40 CFR 141.72(b)(3)(i), each public water system that provides filtration treatment must provide disinfection treatment such that the residual disinfectant concentration within the distribution system cannot be undetectable in more than 5 percent of the samples each month for any two consecutive months.
51. Pursuant to N.J.A.C 7:10-1.3, "detectable disinfectant residual" is defined as a chlorine residual of at least 0.05 mg/l (free chlorine, combined chlorine or chlorine dioxide), or a heterotrophic plate count of 500/ml or less, at the point of collection.

52. Pursuant to 40 CFR 141.74(c)(3)(i), the residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled.

53. Pursuant to 40 CFR 141.75(b)(2)(iii)(C), a public water system that provides filtration treatment must report to the State certain disinfectant information within 10 days after the end of each month, including the number of instances where the residual disinfectant concentration is measured within the distribution system but not detected and no heterotrophic plate count is measured.

54. The Department requires water systems to submit the results of disinfectant residuals monitoring to the Department on State Form BSDW-25 entitled "Disinfectant Residuals Reporting Form".

55. New Brunswick completed and submitted State Form BSDW-25 to the Department each month for the period of January 2010 to May 2013 certifying the system maintained a detectable disinfectant residual in all samples during this period.

56. A review of New Brunswick's total coliform monitoring chain of custody forms, which include residual disinfectant concentrations measured in the distribution system at the same time and locations as total coliforms are sampled, during the NJDEP inspections and the Sanitary Survey revealed that New Brunswick did not provide disinfectant treatment such that the residual disinfection concentration in the distribution system was detectable in at least 95% of the samples collected each month for the months of February 2010, April 2010 to January 2011, March 2011 to January 2012, and April 2012 to November 2012, in violation of 40 CFR 141.72(b)(3)(i). These events constitute violations of a Treatment Technique requirement, as defined by 40 CFR 142.2.

57. Based on the information provided above, the Department has determined that New Brunswick submitted false information to the Department on State Form BSDW-25 for the months of February 2010, April 2010 to January 2011, March 2011 to January 2012, and April 2012 to November 2012.

58. Pursuant to 40 CFR 141.203(a)(1), a Tier 2 Public Notice is required for each violation of 141.72(b)(3)(i).

59. New Brunswick failed to provide a Tier 2 Public Notice for the Treatment Technique violations referenced in Paragraph 56, in violation of 40 CFR 141.203(a)(1).
Total Coliform Monitoring & Reporting:

60. Pursuant to 40 CFR 141.21(a)(2), the monitoring frequency for total coliforms for community water systems is based on the population served by the system. New Brunswick is required to collect and analyze 50 total coliform samples per month, based on a reported population of 50,000.

61. New Brunswick operates a certified environmental laboratory ("laboratory") as defined by N.J.A.C. 7:18-1.7, Laboratory Certification Number 12065, which is located at New Brunswick's treatment plant. Prior to December 2012, New Brunswick's laboratory analyzed the total coliform samples collected in the system.

62. Pursuant to N.J.A.C. 7:10-5.4(a), except where a shorter reporting period is required by the national regulations, each supplier of water shall submit a compliance sampling report to the Department within the first 10 calendar days of the month following the month in which any test, measurement or analysis is made.

63. The New Brunswick Water Department laboratory submitted monthly total coliform sampling results to the Department for the period of January 2010 to November 2012. A review of Department records indicate that New Brunswick reported that they collected and analyzed at least 50 total coliform samples per month during the period of January 2010 to November 2012.

64. During the NJDEP inspections and the Sanitary Survey, the Department determined that New Brunswick failed to collect and analyze at least 50 total coliform samples per month in eight months: October 2010, May 2011, June 2011, December 2011, March 2012, July 2012, August 2012 and November 2012, in violation of 40 CFR 141.21(a)(2).

65. Based on the information provided above, the Department has determined that New Brunswick submitted false total coliform monitoring information to the Department for the eight months of October 2010, May 2011, June 2011, December 2011, March 2012, July 2012, August 2012 and November 2012.

66. Pursuant to 40 CFR 141.204(a)(1), a Tier 3 Public Notice is required for each monitoring and reporting violation.

67. New Brunswick failed to provide a Tier 3 Public Notice for the monitoring and reporting violations referenced in Paragraph 64, in violation of 40 CFR 141.204(a)(1).

68. Pursuant to 40 CFR141.21(a)(1), public water systems must collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan.
69. New Brunswick has prepared a total coliform sampling plan.

70. The Department determined during the NJDEP inspections and the Sanitary Survey that New Brunswick failed to collect total coliform samples at sites which are representative of water throughout the distribution system according to its written sample siting plan during the period of January 2010 through May 2013, in violation of 40 CFR 141.21(a)(1).

71. Pursuant to a June 20, 2013 letter from the Department, due to the elevated CFE turbidity measurements which resulted from the IFE turbidity exceedances, New Brunswick was required to immediately commence a Comprehensive Performance Evaluation ("CPE") within 30 days and complete the CPE within 90 days, in accordance with 40 CFR 141.175(b)(4). In addition, New Brunswick’s CPE must include a plan to complete a Comprehensive Technical Assistance ("CTA") project of the system.

72. New Brunswick performed the CPE on August 27 – 30, 2013. The CPE Final Report, which includes a list of Performance Limiting Factors that limit the performance of New Brunswick’s treatment plant, was submitted to the Department on September 27, 2013. In addition, New Brunswick commenced the CTA in September 2013. The CTA is anticipated to continue until approximately April 2014.

73. Based on the facts set forth in these FINDINGS, the Department has determined that the New Brunswick Water Department has violated the New Jersey Safe Drinking Water Act, N.J.S.A. 58:12A-1 et seq. and the Department's implementing regulations N.J.A.C. 7:10A-1 et seq.

74. The Department reserves the right to assess civil administrative penalties pursuant to N.J.S.A. 58:12A-10 and N.J.A.C. 7:10-3.1 et seq. for the violations alleged herein.

ORDER

NOW, THEREFORE, IT IS HEREBY ORDERED THAT:

75. New Brunswick shall comply with the New Jersey Safe Drinking Water Act, N.J.S.A. 58:12A-1 et seq. and its implementing regulations N.J.A.C. 7:10-1 et seq.

76. New Brunswick shall prepare a Tier 2 Public Notice for all violations listed in the FINDINGS section above, in accordance with 40 CFR 141.203. A draft copy of the Public Notice, along with a plan for the distribution of the Public Notice, shall be submitted to the Department for review and approval within 14 days of the effective date of this Order. New Brunswick shall subsequently distribute the Public Notice, in accordance with 40 CFR 141.203(c)(1), within 14 days of Department approval.
77. New Brunswick shall submit monthly CTA progress reports to the Department. Each progress report shall be submitted to the Department by the fifteenth day of the month following the month being reported. New Brunswick’s first progress report shall be submitted to the Department by December 15, 2013 and shall include all work completed since the commencement of the CTA. Each progress report shall explain the status of all work completed by New Brunswick for the CTA project, and shall include, but not be limited to, the following:

a. A list of which Performance Limiting Factors were assessed during the reporting period;
b. Progress made in addressing the identified Performance Limiting Factors and any resulting improvements in performance of the treatment plant;
c. Difficulties or problems encountered during the reporting period which have prevented improvements; and
d. Actions taken or to be taken to rectify difficulties or problems.

78. New Brunswick shall prepare a revised total coliform sampling plan in accordance with 40 CFR 141.21(a)(1) and submit the plan to the Department for review within 30 days of the effective date of this Order.

79. The draft Tier 2 Public Notice and distribution plan, CTA progress reports and revised total coliform sampling plan shall be submitted by certified mail, return receipt requested or by hand delivery to:

Karen M. Fell, Assistant Director
New Jersey Department of Environmental Protection
Water System Operations Element
Mail Code 401-04Q, P.O. Box 420
Trenton, NJ 08625-0420

With copies at the same time to:

A Raimund Belonzi, Bureau Chief
New Jersey Department of Environmental Protection
Central Bureau of Water Compliance and Enforcement
Mail code 44-03, PO Box 420
Trenton, NJ 08625-0420

80. Pursuant to 40 CFR 141.33, New Brunswick shall preserve and make available for inspection by the Department at any time all electronic records and paper copies of all treatment plant and system records, reports, correspondence, and monitoring data including, but not limited to:
a. "New Brunswick Water Treatment Plant Daily Record" forms;
b. "City of New Brunswick Water Utility — Giardia and Virus Inactivation by Disinfection Worksheet" forms;
c. Chain of Custody forms for all sampling;
d. Sampling results, including all records of operational samples;
e. Instrument calibration records; and
f. Laboratory records including but not limited to "Daily Bacteriological Analysis (New Brunswick Water Laboratory) Membrane Filter Analysis" forms, "Daily Analysis Log" forms, and all other laboratory records.

81. This Order shall be effective upon receipt by New Brunswick or someone on the violator's behalf authorized to accept service.

DATE: Nov 6, 2013

BY: [Signature]
Marcedius T. Jameson, Director
NJDEP Compliance & Enforcement
Water & Land Use Enforcement

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION