AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
1 NATIONAL LIFE DRIVE
MONTPELIER, VERMONT 05620-3521

DRAFT
INDIRECT DISCHARGE PERMIT

File No. DER-9-0074

Permit No.: ID-9-0074
PIN: NS95-0155

SECTION A - "ADMINISTRATION"

In compliance with provisions of 10 V.S.A. §1263, and in accordance with the following conditions, the permittee:

North Branch Fire District #1
78 Dorr Fitch Road
West Dover, Vermont 05356

is authorized to indirectly discharge treated domestic sewage from a spray disposal system and a subsurface disposal system serving the North Branch Fire District to the ground water and indirectly into Ellis Brook and the Deerfield River (Deerfield River Drainage Basin) in the Towns of Dover and Wilmington, Vermont. ***This is a permit renewal.***

A1. Permit Summary:

Expiration Date	June 30, 2021	
Type of Waste	Domestic Sewage	
Treatment System	Activated Sludge	
Disposal Systems	Sprayfield; Subsurface Disposal	
Drainage Basin	Deerfield River	
Treatment Volume	725,000 gpd	
Disposal Volume	475,000 gpd	
Receiving Streams	Ellis Brook and Deerfield River	
Drainage Areas	Ellis Brook	7.44 sq. mi.
	Deerfield River	10.93 sq. mi.
Low Median Monthly Stream Flow	Ellis Brook	Est. 980,900 gpd
	Deerfield River	Est. 1,441,000 gpd
7Q10 Stream Flow	Ellis Brook	Est. 135,593 gpd
	Deerfield River	Est. 199,198 gpd
365 Day Capacity	475,000 gpd	

A1. Permit Summary (continued):

Dilution Ratio (at Low Median Monthly Stream Flow)	
Stream Flow: Effluent	3.9:1 for Ellis Brook *
	6.4:1 for Deerfield River*
Dilution Ratio (at 7Q10 Stream Flow)	
Stream Flow: Effluent	0.5:1 for Ellis Brook*
	0.9:1 for Deerfield River*

Assumes 47% effluent flow towards Deerfield River and 53% effluent flow towards Ellis Brook based on spray nozzle distribution. Annual reports detail the volume of treated effluent directed to each stream.

A2. Compliance Schedule Summary:

The following schedule summarizes the actions and requirements necessary for compliance with the conditions of this permit. The permittee shall complete the requirements in accordance with the dates indicated. See the designated section for specific details.

	Condition # & Description	Schedule Date
A3.	Apply for renewal of indirect discharge permit	March 31, 2021
A13.	Submit connection letter to Secretary	Annually, by March 1st
D6(A).	Have a Vermont Registered Professional engineer complete an inspection of sewage collection, treatment and disposal system	Annually in April
D6(B).	Submit Annual Inspection Report	Annually prior to July 1st
D6(C).	Submit schedule for implementing engineer's recommendations	Annually prior to July 1st
D8.	Biosolids Disposal Modifications	As Specified
D9.	Complete revisions to Operations and Maintenance Manual	By August 1, 2016
E1.	Collect and analyze effluent samples	Monthly

A2. Compliance Schedule Summary (continued):

Condition # & Description	Schedule Date
E2(A) Collect and analyze groundwater monitor samples	Monthly
E2(B) Measure and record the depths to groundwater in the monitor wells	Weekly
Check observation wells	At least monthly
E3(A) Collect and analyze receiving stream	Monthly
E3(C) Start biological sampling of receiving waters.	August - September, 2019 and 2020
E1(A), E2(A), E2(B), E3(A) Submit results of monitoring and analyses to the State.	By the 15th of the second month following the date of sampling.
E4. Submit evaluation by a water quality specialist of all ground and surface water quality data and biological monitoring data	Annually by March 31st

A3. Expiration Date:

This permit, unless revoked, or amended shall be valid until June 30, 2021 despite any intervening change in Water Quality Standards or the classification of receiving waters. Renewal of this Indirect Discharge Permit will be subject to all rules applicable at the time of renewal, including biological standards to determine significant alteration of aquatic biota.

The permittee shall apply for an Indirect Discharge Permit renewal by March 31, 2021. For the purposes of Title 3, an application for renewal of this indirect discharge permit will be considered timely if a complete application is received by the expiration date.

A4. Effective Date:

This permit becomes effective on July 1, 2016.

A5. Revocation:

The Secretary may revoke this permit in accordance with 10 V.S.A. §1267.

A6. Transfer of Permit:

This permit is not transferable without prior written approval of the Secretary. The permittee shall notify the Secretary immediately, in writing, before any sale, lease or other transfer of ownership of the property from which the permitted discharge originates. The proposed transferee shall make application for a permit to be reissued in their name. Failure to apply shall be considered a violation of this permit. Responsibility for compliance with the conditions of this permit shall be the burden of the permittee until such time as transfer of the permit to the transferee is complete. All application and operating fees must be paid in full prior to transfer of this permit. This permit shall be transferred only upon showing by the permittee or proposed transferee of compliance with the following conditions:

a. The transferee shall be a legal entity, financially and technically competent to operate, inspect, maintain and replace the systems.

b. The transferee shall demonstrate that they have the legal authority to raise revenues for the proper operation, inspection, and maintenance of the system.

c. The transferee shall provide a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees to the Secretary.

A7. Minor Modifications of Permits:

The Secretary may modify this permit without requiring a permit application, a public notice, or a public hearing to correct typographical errors, or to increase the monitoring frequency in accordance with Condition E(7) of this permit.

A8. Wastewater System and Potable Water Supply Permits:

Wastewater System and Potable Water Supply Permits are required before construction of all buildings to be connected to the system, except for pre-existing lots.

A9. Indirect Discharge Rules:

This permit authorizes an existing indirect discharge.

This indirect discharge was reviewed and qualified for an Indirect Discharge Permit in accordance with Section 14-603 (b) of the Indirect Discharge Rules for existing indirect discharges of sewage. No increase in sewage volume is allowed without the written approval of the Secretary.

A10. Right of the Agency to Inspect:

The permittee shall allow the Secretary or the Secretary's authorized representative upon the presentation of their credentials and at reasonable times:

a. To enter upon permittee's premises in which any effluent source, treatment or disposal system is located or in which any records are required to be kept under the conditions of the permit;

b. To have access to and copy any records required to be kept under conditions of this permit;

c. To inspect any monitoring equipment or method required in this permit;

d. To sample any discharge of waste, groundwater or surface water; and

e. To inspect any collection, treatment, pollution management and disposal facilities required by this permit.

A11. Permit Availability:

A copy of this permit shall remain at the office of the permittee and upon request shall be made available for inspection by the Secretary.

A12. Minor Modifications To System:

Minor modifications of the engineering design which do not reduce the treatment effectiveness or increase the capacity of the system may be approved in writing by the Secretary without permit amendment.

Before making modifications to the treatment and/or disposal system the permittee shall submit plans to the Secretary for review and approval. These plans must be approved before any of the modifications or additions are made.

A13. Uncommitted Reserve Connection Capacity:

The sewage treatment and disposal system is spray disposal limited to 475,000 gpd.

The **reserve capacity** available in the North Branch Fire District sewage treatment and disposal facility in gpd shall be calculated in March each year by determining the average annual influent flow to the treatment facility for the previous calendar year and subtracting that flow from 475,000 gpd. The **uncommitted reserve capacity** shall be calculated by subtracting the design flow of all connections approved by the Fire District, but that have not been connected to the collection system during the previous calendar year.

A13. Uncommitted Reserve Connection Capacity (continued):

Connections are assumed not to have been constructed/connected until the permittee notifies the Secretary in writing that they have been constructed and connected.

By March 1st each year the permittee shall submit a letter to the Secretary indicating the connections approved in the previous calendar year and provide any updates on previously approved connections.

A14. Operating Fees:

This indirect discharge is subject to operating fees. The permittee shall submit the operating fees in accordance with procedures provided by the Secretary.

SECTION B "INDIRECT DISCHARGE"

B1. Location of Indirect Discharges:

The existing indirect discharge is located on Ellis Brook and the Deerfield River in the Towns of Dover and Wilmington, Windham County, Vermont. Ellis Brook has a drainage area of 7.44 square miles at the point of compliance. The Deerfield River has a drainage area of 10.39 square miles at the point of compliance. This indirect discharge can be located on the USGS Wilmington 15' quadrangle map at approximately Latitude N 42° 55' 37" and Longitude W 72° 50' 37" for the portion of the sprayfield discharging to Ellis Brook and approximately Latitude N 42° 55' 36" and Longitude W 72° 50' 47" for the portion of the sprayfield discharging to the Deerfield River. The spray disposal laterals are located between elevations 1625' and 1720'. The proposed subsurface disposal fields are located in the so-called Howe field (in the Town of Wilmington) which is due south of the polishing and effluent storage ponds. The subsurface disposal fields can be located on the USGS Wilmington 15' quadrangle map at Latitude N 42° 55' 19" and Longitude W 72° 50' 28".

B2. Nature of Indirect Discharge:

Upgrades to the wastewater treatment facility were constructed in 2012. The wastewater is now treated by passage through an anaerobic selector and continuous loop reactors followed by two secondary clarifiers. After passage through the clarifiers the effluent passes through an ultraviolet disinfection system for disinfection prior to discharge to the subsurface disposal fields. The capacity of the disposal fields is set at 136,172 gallons per day, maximum,

B2. Nature of Indirect Discharge (continued):

based on a January 26, 2015 approval letter from the Secretary. Alternatively, following the clarifiers the wastewater may still be chlorinated for disinfection prior to discharge to the polishing and effluent storage ponds. From the ponds the wastewater can be pumped to the existing spray disposal area. The treated wastewater is pumped to a spray disposal area with a wetted area of approximately 34 acres at a previously approved loading rate of 3.6" per week.

SECTION C "SYSTEM CONSTRUCTION"

C1. Previous Approvals:

In a June 14, 1983 letter, the Secretary authorized an increase in the application rate from 2.5 inches/week to 3.6 inches per week. This increased the sprayfield capacity from 317,000 gpd to 475,000 gpd.

The North Branch Fire District Wastewater Treatment Facility, is an activated sludge plant consisting of a two anaerobic selectors, two closed loop reactors, two clarifiers, dual chlorine contact chambers, UV disinfection, a 2.1 million gallon polishing pond, a 27.1 million gallon effluent storage pond, chlorinators, a 34 acre sprayfield which consists of 10 spray lines and 266 spray nozzles and a subsurface disposal area with a disposal capacity of 136,172 gpd at a loading rate of 12.5 gallons per square foot. The sewage treatment and disposal system was originally approved in Certificate of Compliance #2WO052-1 on August 4, 1986 for the treatment of 725,000 gpd and spray disposal of 475,000 gpd. The overall capacity of the system is spray disposal limited to 475,000 gpd.

C2. Approved Plans for Subsurface Effluent Disposal Option:

The Subsurface Effluent Disposal Option for the North Branch Fire District No. 1 Wastewater Treatment Facility was reportedly constructed in accordance with the following plans and specifications prepared by Edward H. Floyd, P.E. of Technicon which were stamped “Approved” by the Department of Environmental Conservation.

C2. Approved Plans for Subsurface Effluent Disposal Option (continued):

Sheet #	Title	Date	Last Revised
2 of 16	Overall Site Plan	8-18-09	
3 of 16	Wastewater Treatment Facility Site Plan	8-18-09	
4 of 16	Site Grading Plan	8-18-09	
5 of 16	Yard Piping Plan	8-18-09	
6 of 16	Site Sections	8-18-09	
7 of 16	Process Piping Profiles	8-18-09	
8 of 16	Effluent Force Main Site Plan and Profiles	8-18-09	
9 of 16	Disposal Area Site Plan	8-18-09	11-30-09
10 of 16	Disposal Area Cross Sections and Details	8-18-09	11-30-09
11 of 16	New Ultra-Violet System; Existing Chlorine Contact Tank; Floor Plan and Sections	8-18-09	
12 of 16	Existing Clarifier Plan and Details	8-18-09	
13 of 16	Existing Control Building First Floor and Sections	8-18-09	
14 of 16	Existing Control Building Basement and Sections	8-16-09	

C3. Approved Plans for Facility Upgrade:

The Facility Upgrades to the North Branch Fire District No. 1 Wastewater Treatment Facility were reportedly constructed in accordance with the following plans and specifications prepared by Edward H. Floyd, P.E. of Technicon which were stamped "Approved" by the Department of Environmental Conservation.

Sheet #	Title	Date	Last Revised
2	Overall Site Plan	1-28-10	2-19-10
3	Wastewater Treatment Facility Site Plan	1-28-10	2-19-10
4	Site Grading Plan	1-28-10	2-19-10
5	Yard Piping Plan	1-28-10	2-19-10
6	Hydraulic Profile	1-28-10	2-19-10
7	Site Sections	1-28-10	2-19-10
8	Process Piping Profiles and Details	1-28-10	2-19-10
9	Existing Headworks Plan and Details	1-28-10	2-19-10
10	New Headworks and Anaerobic Selector Plan and Details	1-28-10	2-19-10

C3. Approved Plans for Facility Upgrade (continued):

Sheet #	Title	Date	Last Revised
11	Existing Oxidation Canals Plan and Details	1-28-10	2-19-10
12	New Continuous Loop Reactors Plan and Details	1-28-10	2-19-10
13	Existing Clarifiers Plan and Details	1-28-10	2-19-10
14	Upgraded Clarifiers Plan and Details	1-28-10	2-19-10
15	Existing Control Building First Floor Plan and Sections	1-28-10	2-19-10
16	Existing Control Building Basement Floor Plan and Sections	1-28-10	2-19-10

C4. Construction Inspection – Subsurface Effluent Disposal Option:

The construction of the Subsurface Effluent Disposal Option (Contract #1) for the North Branch Fire District No. 1 Wastewater Treatment Facility was reportedly completed in accordance with the approved plans and under the inspection of a Vermont Registered Professional Engineer. Upon completion of construction the inspecting engineer shall make written certification to the Secretary that the work was completed in accordance with the approved plans and specifications and under his inspection. The engineer shall submit Record Drawings plans for the new subsurface disposal system within 60 days of the completion of construction. The engineer's certification of construction and the Record Drawings shall be subject to the review and acceptance of the Secretary. **The Certification of Construction was received on June 22, 2012.**

C5. Construction Inspection – Facility Upgrades:

The construction of the Facility Upgrades to the North Branch Fire District No. 1 Wastewater Treatment Facility (Contract #2) was reportedly completed in accordance with the approved plans and under the inspection of a Vermont Registered Professional Engineer. Upon completion of construction the inspecting engineer shall make written certification to the Secretary that the work was completed in accordance with the approved plans and specifications and under his inspection. The engineer shall submit Record Drawings for the facility upgrades within 60 days of the completion of construction. The engineer's certification of construction and the Record Drawings shall be subject to the review and acceptance of the Secretary. **The Certification of Construction was received on June 22, 2012.**

SECTION D "SYSTEM OPERATION"

D1. General Operating Requirements – Treatment and Spray Disposal:

The sewage treatment and spray disposal system shall be operated at all times in a manner that will: (1) not permit the discharge of untreated sewage onto the surface of the ground; (2) not result in the surfacing of sewage; (3) not result in the direct discharge of sewage into the waters of the State; and (4) not result in a violation of the Vermont Water Quality Standards.

The wastewater collection, treatment, and spray disposal system shall be operated and maintained at all times in a manner satisfactory to the Secretary so as not to cause health hazards or contamination of drinking water supplies, ground water, or surface water.

The spray disposal fields shall be operated at all times in accordance with the following limits:

1. The groundwater table shall not rise closer than one foot to the ground surface in the disposal area as a result of spraying.

2. No spraying shall be conducted when air temperature is below 10°F or when groundwater is within one foot of ground surface, or when surface runoff is occurring. Monitoring wells #19 and #21 shall not be used for determining compliance with this requirement.

3. The total wastewater applied to the sprayfields shall not exceed 3.6 inches in any consecutive seven (7) day period. In any consecutive seven (7) day period, the permittee shall not dispose of more than 3,325,000 gallons in the sprayfield.

4. The actual maximum hourly rate of wastewater application shall not exceed 0.25 inches per hour.

5. There shall be a minimum of a 24-hour rest period between spray applications for any spray line.

6. Spraying in winter shall be conducted during daylight hours only.

7. The effluent shall have a minimum of 4.0 mg/l total chlorine residual (or 1 mg/l free chlorine residual) at the spray nozzle at all times unless the permittee chooses to utilize disinfection prior to effluent storage as allowed under §14-1705(a)(2) of the Indirect Discharge Rules, effective April 30, 2003.

D2. General Operating Requirements – Treatment and Subsurface Disposal:

The sewage treatment and disposal system shall be operated at all times in a manner that will (1) not permit the discharge of sewage onto the surface of the ground; (2) not result in the surfacing of sewage; and (3) not result in the direct discharge of sewage into the waters of the State; and (4) not result in a violation of the Vermont Water Quality Standards.

An unsaturated zone of a minimum of 12" must be maintained at all time between the infiltrative surface beneath the effluent disposal chambers and the groundwater beneath the disposal fields when the disposal fields are in use.

The effluent shall be discharged to the subsurface disposal fields in discrete doses with no more than 34,043 gallons per dose. The time period between doses should initially be at least the same length of time as the dose itself.

D3. Spray Effluent Limits:

The treated effluent to be sprayed on the disposal field shall comply with the following limits at all times:

Parameter	Maximum in 7 Day Period	Maximum at Anytime
Flow	3,325,000 gallons	N/A
BOD_5	N/A	30 mg/l
TSS	N/A	30 mg/l
Escherichia coli	N/A	77 col/100 ml
Chlorine Residual (at spray nozzle)	N/A	4 mg/l (minimum - total) or 1 mg/l (minimum - free) (1)

(1) Unless the permittee chooses to utilize disinfection prior to effluent storage as allowed under §14-1705(a)(2) of the Indirect Discharge Rules, effective April 30, 2003.

D4. Subsurface Disposal Limits:

The treated effluent to be directed to the effluent disposal chambers shall comply with the following limits at all times:

Parameter	Daily Maximum	Monthly Average
Flow	136,172 gallons(1)	N/A
BOD_5	18 mg/L	10 mg/L
TSS	18 mg/L	10 mg/l
Total Dissolved Phosphorus	1.0 mg/L	0.5 mg/L
Total Kjeldahl Nitrogen	10 mg/L	5.0 mg/L
Ammonia (as N)	2.0 mg/L	1.0 mg/L
Nitrate nitrogen	10 mg/L	5.0 mg/L
Escherichia coli	77 col/100 ml	N/A

(1) The discharge to the subsurface disposal fields, when combined with any discharge from the sprayfield, shall not cause an exceedence of the 3,325,000 gallons per 7-day effluent discharge maximum.

D5. Polishing Pond and Storage Pond Freeboard Requirements:

A minimum three feet of freeboard shall be maintained in the polishing pond and effluent storage pond at all times.

D6. Annual Inspection, Report and Implementation Schedule:

A. Annual Inspection:

Annually during the month of April, the permittee shall engage a professional engineer registered in the State of Vermont to supervise a thorough inspection, evaluation, and report of the complete treatment and spray disposal system. The engineer's inspection shall include, but not be limited to the following:

1. Verification of the proper operation of all lift station pumps and alarms;

2. As part of the Inflow/Infiltration reduction and inspection plan for the collection system, the engineer shall review the results of operator inspections of high, average and low risk manholes conducted in the previous year. In the annual inspection report, the engineer shall make recommendations as to manholes which need repairs/maintenance based on that review.

D6. Annual Inspection, Report and Implementation Schedule (continued):

3. Inspecting and verifying the proper operation of the oxidation canals and clarifiers, RAS/WAS pumps, chlorination equipment, spray pumps, plant water pumps, influent and effluent meter calibration, sludge handling equipment and structures;

4. Walking each spray lateral in the spray fields and checking for the proper operation of the spray system, noting any repairs needed and any areas of erosion or concentrated surface runoff; and

5. Noting any additional repairs, or maintenance that needs to be performed.

6. Inspecting and verifying the proper operation of the new headworks, new anaerobic selector, new continuous loop reactors, modified secondary clarifiers, ultraviolet disinfection unit, alum feed system and pumps, alarms and controls associated with these components;

7. Walking the disposal area during and shortly after a dose to check for surfacing of effluent; and

8. Measuring the depth of ponding in all observation wells within one hour of the end of a dose to check for ponding and recording the measured levels of ponding in those wells.

B. Annual Inspection Report:

Before July 1st each year the permittee shall have a professional engineer submit an annual report including the following items:

1. a complete list of the items inspected and the results of the inspection;

2. a discussion of the recommended repairs and maintenance required; and

3. an evaluation of the past year's influent flow records, effluent quality, spray records, subsurface discharge records and the groundwater levels in the spray fields and subsurface disposal fields to verify compliance with the permit requirements.

C. Implementation Schedule:

Before July 1st each year the permittee shall notify the Secretary in writing stating how the engineer's recommendations are to be implemented and including a schedule for the required repairs and maintenance.

D7. Wastewater Treatment Plant Operator Qualifications:

The permittee is required at all times to employ a wastewater treatment plant operator and assistant operator, each with a minimum Grade II operator certificate from the Vermont Water Pollution Control Operator Certification Program to operate the treatment and disposal system. The permittee shall notify the Agency in writing of any change in the operator and/or assistant operator employed to operated the treatment facility and shall submit their names to the Secretary in writing.

D8. Biosolids Disposal:

Any modifications to the biosolids handling facilities at the North Branch Fire District #1 requires amendment of the Solid Waste Certification or approved Biosolids Management Plan.

All biosolids removed from the sewage treatment facility shall be disposed of at locations approved by the Residual Management Section of the Department of Environmental Conservation. The permittee shall comply with the reporting procedures specified in the Solid Waste Certification issued by the Residuals Management Section or Biosolids Management Plan approved by the Residuals Management Section.

D9. Update to Operations and Maintenance Manual:

By August 1, 2016 the permittee shall have a Vermont registered professional engineer submit a complete update to the NBFD #1 O&M Manual to the Secretary for review and approval. The update shall address all new and upgraded components of the WWTF including the subsurface disposal option**.**

D10. Reporting of Failures:

The permittee shall immediately report any failure of the sewage collection, treatment, or disposal systems to the Secretary, first by telephone within 24 hours of the failure and then in writing within 5 days of the failure. The written notice shall include a discussion of the actions taken or to be taken to correct the failure and prevent a similar recurrence.

D11. Discharge Restrictions:

The permittee shall not allow any person to discharge or cause to be discharged anything other than sanitary sewage to this collection, treatment and disposal system.

SECTION E "MONITORING"

E1. Sewage Treatment and Disposal System Monitoring:

A. Chemical

The influent to and effluent from the treatment system shall be sampled and analyzed as follows:

Parameter	Measurement Location	Sample Frequency	Sample Type
Flow Volume	influent, effluent(1)	continuous	Daily Total
BOD_5	influent	weekly	8 hour composite(2)
	spray effluent	weekly	Grab
	subsurface disposal effluent	weekly	Grab
Total Suspended Solids (TSS)	influent	weekly	8 hour composite(2)
	spray effluent	weekly	Grab
	subsurface disposal effluent	weekly	Grab
Escherichia coli	spray effluent	monthly	Grab(3)
	subsurface disposal effluent following UV	once every two weeks	Grab
pH	influent	daily	Grab
	spray effluent	monthly	Grab
	subsurface disposal effluent	monthly	Grab
Total or Free Chlorine Residual	spray effluent	2 x daily when spraying	Grab(3)
Total Kjeldahl Nitrogen	spray effluent	monthly	Grab
	subsurface disposal effluent	monthly	Grab
Ammonia (as N)	spray effluent	monthly	Grab
	subsurface disposal effluent	monthly	Grab

E1. Sewage Treatment and Disposal System Monitoring (continued):

A. Chemical

Parameter	Measurement Location	Sample Frequency	Sample Type
Nitrate (as N)	spray effluent	monthly	Grab
	subsurface disposal effluent	monthly	Grab
Nitrite (as N)	spray effluent	monthly	Grab
	subsurface disposal effluent	monthly	Grab
Total Phosphorus	spray effluent	monthly	Grab
	subsurface disposal effluent	monthly	Grab
Total Dissolved Phosphorus	spray effluent	monthly	Grab
	subsurface disposal effluent	monthly	Grab
Chloride (Cl-)	spray effluent	monthly	Grab
	subsurface disposal effluent	monthly	Grab
Polishing Pond and Effluent Storage Pond Levels	Staff Gauge	daily	
Air Temperature	in spray field	At start and end of spray period	

(1) Continuous influent metering and effluent metering when spraying.
Continuous influent metering and effluent metering when utilizing the subsurface disposal fields

(2) Composite samples shall be taken during the hours 6:00 am and 6:00 pm, unless otherwise specified.

(3) On the day that the E. coli grab sample is collected, the daily residual chlorine sample for that day shall be collected at the same time and location as the E. coli sample. Both shall be collected after spray system has been operating that day for a minimum of 30 min. [Sampling frequency may be modified if the permittee chooses to utilize disinfection prior to effluent storage as allowed under §14-1705(a)(2) of the Indirect Discharge Rules, effective April 30, 2003].
The results of all effluent analyses shall be submitted to the Secretary prior to the 15th day of the second month following the date of sampling.

E2. Groundwater Monitoring:

A. Chemical & Bacteriological Monitoring:

Groundwater monitoring wells #1, 2, 3, 16, 17, 19, 20 and 21 in the sprayfield and new monitoring wells #A. B, C, D and E, in and around the subsurface disposal fields, shall be sampled and analyzed for the following parameters:

Parameter	Measurement Units	Sample Type	Sample Frequency
Nitrate Nitrogen (NO3-N)	mg/L	Grab	Monthly
Total Dissolved Phosphorus (TDP)	mg/L	Grab	Monthly
Chlorides (Cl-)	mg/L	Grab	Monthly
pH	S.U.	Grab	Monthly
Depth to groundwater (below ground surface)	Feet and tenths of feet	----	Weekly

Because of changing water table conditions, the samples from the groundwater monitors might not be collected on the same day or in the same week. If a monitor has water at any time during the month then the single sample from that well for the month is required to be collected and analyzed.

New monitoring wells #A, B, C, D and E shall be installed such that they intercept groundwater at all times of the year.

During those months when the spray disposal system is not in use at any time during the month, groundwater samples from wells #1,2,3,16,17,19, 20 and 21 are not required.

During those months when the subsurface disposal system is not in use at any time during the month, groundwater samples from monitoring wells #A, B, C, D and E in and around the subsurface disposal fields are not required. When a discharge to the disposal fields occurs in any given month, sampling of the monitoring wells shall occur after the first discharge to the fields or later but not earlier than the first discharge in the month.

E2. Groundwater Monitoring (continued):

B. Groundwater Levels:

The depth to ground water (below ground surface) in all monitoring wells shall be measured and recorded weekly. Dry wells shall be recorded as "no water to depth of well".

At least once per month the permittee shall check the observation wells in the leachfields for evidence of ponding within 30 minutes of the end of a dose.

The results of these analyses and measurements shall be submitted to the Secretary prior to the 15th day of the second month following the date of sampling.

E3. Receiving Stream Monitoring:

A. Chemical

The receiving streams shall be sampled at locations approved by the Secretary. These locations shall include Ellis Brook and the Deerfield River at points upstream and downstream of the indirect discharges ***(Stations WQ 1-6).***

Samples shall be collected from these locations and analyzed for the following:

Parameter	Measurement Units	Sample Type	Sample Frequency
Nitrate Nitrogen (NO_3-N)	mg/L	Grab	Monthly in February, June - October
Total Phosphorus (TP)	mg/L	Grab	Monthly in February, June - October **(see Note #1)**
Total Dissolved Phosphorus (TDP)	mg/L	Grab	Monthly in February, June - October **(see Note #1)**
Chlorides (Cl-)	mg/L	Grab	Monthly in February, June - October
pH	S.U.	Grab	Monthly in February, June - October
Temperature	Degrees Centigrade	Grab	Monthly in February, June - October

E3. Receiving Stream Monitoring (continued):

Parameter	Measurement Units	Sample Type	Sample Frequency
Escherichia coli	Colonies per 100 ml	Grab	Monthly in February, June - October
Dissolved Oxygen	mg/L	Grab	Monthly in February, June - October
Turbidity	NTU	Grab	Monthly in February, June - October

#1 Two independent samples shall be taken and analyzed on each sampling date.

The results shall be submitted to the Secretary prior to the 15th day of the second month following the date of sampling.

The permittee shall not sample either receiving stream within 24 hours of any storm event affecting the watershed of that stream.

B. Monitoring Stations for Subsurface Disposal Fields:

The permittee shall have a qualified water quality specialist evaluate the existing water quality monitoring stations on the Deerfield River and Ellis Brook and make recommendations for the location of a new additional monitoring station(s) to evaluate the discharge from the subsurface disposal fields and their impact on surface water quality. The specialist shall submit a report by September 1, 2011 addressing this matter which shall be subject to the review and approval of the Secretary. The Secretary may agree with the recommendations and/or require the permittee to establish new station(s) to accomplish this goal. ***Report received September 15, 2011.***

C. Biological Monitoring:

During August - September of 2019 and 2020, the permittee shall conduct biological sampling in the receiving streams in accordance with procedures approved by the Secretary. Ellis Brook shall be sampled in 2019 and the Deerfield River sampled in 2020. An additional biomonitoring station may be required on the Deerfield River (based on a written request from the Secretary) to bracket the impact from the discharge from the disposal fields.

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E4. Summary Water Quality Evaluation:

By March 31st of each year, beginning in 2017, the permittee shall have a qualified water quality specialist submit an evaluation to the Secretary of all the past ground and surface water quality data and determine what, if any, short or long term impacts there have been on ground or surface water quality. The biological monitoring data shall also be included. The biological data, when applicable, shall be subjected to analysis by the Secretary. The evaluation due on March 31, 2021 shall include an evaluation of the past five years of chemical and biological monitoring data so as to comply with permit renewal requirement in effect at that time.

E5. Sampling and Testing Procedures:

All wastewater, groundwater and surface water sampling, preservation, handling and test procedures used to comply with the monitoring requirements herein shall conform to procedures specified in the most current edition of Standard Methods for the Examination of Water and Wastewater APHA - AWWA - WPCF, and the Vermont Water Quality Standards unless written approval of an alternate method is received from the Agency.

E6. Miscellaneous:

If the permittee monitors any required parameter set forth in this permit for this treatment and disposal system more frequently or at additional locations outside the treatment facility than required by this permit, the results of such monitoring shall also be provided in the appropriate monthly reports, and analyzed in the engineer's annual inspection report.

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Secretary. Records shall include laboratory bench sheets showing exact location, time and composites of sample as well as analytical procedures used, interim results obtained and all calculations supporting the reported test results.

E7. Additional Monitoring Requirements:

No other water quality monitoring of the system is required under this permit. However, the Secretary reserves the right to require additional monitoring of the system in accordance with Condition A(7) should operation of the system fail to meet the requirements of Conditions D(1) and D(2).

SECTION F - "COMPLIANCE REVIEW"

If the results of any inspection or monitoring indicate that a violation of the effluent disposal rate, or a violation of the Vermont Water Quality Standards, is occurring, or is likely to occur, the Secretary may require the permittee to take appropriate corrective actions to eliminate or reduce the possibility of a violation.

The issuance of this permit, ID-9-0074, to the North Branch Fire District No. 1 by the Secretary relies upon the data, designs, judgement and other information supplied by the applicant, his consultants and other experts who have participated in the preparation of the application. The Secretary makes no assurance that this system will meet the performance objectives of the applicant and no warranties or guarantees are given or implied.

SECTION G - "EFFECTIVE DATE"

This Indirect Discharge Permit, ID-9-0074, issued to the North Branch Fire District No.1 for the discharge of wastewater from a spray disposal system in Dover, Vermont and proposed subsurface disposal fields located in Wilmington, Vermont is effective on July 1, 2016.

Alyssa B. Schuren, Commissioner
Department of Environmental Conservation
Agency of Natural Resources

DRAFT

By: _____ Date: _____

George Desch, Acting Director
Drinking Water and Groundwater Protection Division