

**INDIRECT DISCHARGE PERMIT
FACT SHEET**

April, 2017

PERMIT NO.: ID-9-0260

APPLICANT: Summit Ventures NE, LLC
1840 Sugarbush Access Road
Warren, Vermont 05674

NATURE OF WASTE: Treated Domestic Sewage from the Lincoln Peak Base Area of the Sugarbush Ski Area

LOCATION: The indirect discharge is located on Clay Brook in the town of Warren, Vermont with a drainage area of 1.97 square miles at the point of compliance. The indirect discharge can be located on the USGS Mount Ellen, Vermont 7.5' quadrangle map at Longitude W 72°53'30" and Latitude N 44°07'45".

RECEIVING WATERS: Clay Brook

DISPOSAL CAPACITY: 79,210 gallons per day

DEMONSTRATION OF COMPLIANCE

Influent Limits

Based on the monthly reports for the period January 1, 2012 – December 31, 2016, influent flow limits were not exceeded, as follows:

Parameter	Permit Limits	Number of Exceedences
Flow	66,600 gallons per day	0

Effluent Limits

Based on monitoring data for the period January 1, 2012 – December 31, 2016, effluent limits were exceeded as follows:

Parameter	Permit Limits	Number Samples	Number of Exceedances
Flow	79,210 gallons per day	-	0
Biochemical Oxygen Demand (5-day)	18 mg/l daily maximum	262	5
	15 mg/l weekly average		8
	10 mg/l monthly average		3
Total Suspended Solids	18 mg/l daily maximum	261	8
	15 mg/l weekly average		15
	10 mg/l monthly average		7
Total Dissolved Phosphorus	0.06 mg/l monthly average	83	38
Total Kjeldahl Nitrogen (TKN)	5 mg/l monthly average	81	14
Ammonia	1 mg/l monthly average	81	25
Nitrate	5 mg/l monthly average	86	0
Total Nitrogen	12.2 mg/l daily maximum	-	13
Escherichia coli (e-coli)	77 col/100 ml daily max.	63	4

Note: Compliance with daily maximum limits for biochemical oxygen demand and total suspended solids are based on weekly sampling results of the effluent. Compliance with daily maximum limits for total nitrogen are based on monthly sampling results for TKN, nitrite and nitrate. Compliance with daily maximum limits for e-coli are based on monthly sampling results.

Aquatic Permitting Criteria

Based on monitoring data for the period January 1, 2012 – December 31, 2016, the following table indicates that the indirect discharge meets the aquatic permitting criteria of the Indirect Discharge Rules in Clay Brook:

Parameter	Mean Discharge Conc. (a)	Upstream Conc. (b)	Calculated Downstream Conc. (c)	Downstream Conc. (d)	IDR Limits
TDP	0.029 mg/l	0.006 mg/l	0.009 mg/l	0.006 mg/l	0.007 mg/l (e)
NO3	1.2 mg/l	0.34 mg/l	0.46 mg/l	0.36 mg/l	2.0 mg/l
pH	-	6.69 S.U.	-	6.67 S.U.	5.59 - 7.48 (f)

Notes:

All Total Dissolved Phosphorus (TDP) and Nitrate (NO3) mean values based on normal distribution of raw or transformed data, or best fit.

- (a) Based on monitoring results from 236 groundwater samples collected from 4 monitoring wells downgradient of leachfields.
- (b) Based on monitoring results from 60 stream samples collected at station BIO 2.1.
- (c) Based on maximum allowable discharge of 79,210 gallons per day and a low median monthly flow of 499,480 gallons per day for Clay Brook.
- (d) Based on monitoring results from 60 stream samples collected at station BIO 2.0.
- (e) Reflects 0.001 mg/l allowed increase above mean background concentration.
- (f) Based on background pH range.

Moir Spring Water Quality

Based on monitoring data from 60 sampling events during the period January 1, 2012 – December 31, 2016, water quality at Moir Spring, located downgradient of the indirect discharge, is consistent with the downgradient groundwater monitoring results. The mean value for nitrate is 1.2 mg/l, the same value as for the groundwater mean from the downgradient monitoring wells. The mean value for total dissolved phosphorus is 0.007 mg/l, slightly higher than the value for the groundwater mean from the downgradient monitoring wells.

Biomonitoring Sampling

Biomonitoring assessments were conducted annually in August and September to determine whether the indirect discharge was altering the aquatic biota in Clay Brook. The following tables provide a summary of these results:

Sampling Period	Macroinvertebrate Community Assessment Results
Aug./Sept. 2012	No Significant Alteration of Aquatic Biota
Aug./Sept. 2013	Significant Alteration of Aquatic Biota ¹
Aug./Sept. 2014	Significant Alteration of Aquatic Biota ²
Aug./Sept. 2015	No Significant Determination
Aug./Sept. 2016	No Significant Alteration of Aquatic Biota

Sampling Period	Upstream Kick Net Results	Downstream Kick Net Results
Aug./Sept. 2012	Class B2-3 criteria not met	Indeterminate
Aug./Sept. 2013	Class B2-3 criteria not met	Class B2-3 criteria not met ³
Aug./Sept. 2014	Class B2-3 criteria not met	Class B2-3 criteria not met ³
Aug./Sept. 2015	Class B2-3 criteria not met	Class B2-3 criteria not met ³
Aug./Sept. 2016	Class B2-3 criteria not met	Class B2-3 criteria not met ³

Sampling Period	Periphytic Community Assessment Results
Aug./Sept. 2012	No significant difference between upstream and downstream
Aug./Sept. 2013	No significant difference between upstream and downstream
Aug./Sept. 2014	Significant decrease at downstream location
Aug./Sept. 2015	No significant difference between upstream and downstream
Aug./Sept. 2016	No significant difference between upstream and downstream

Notes:

- 1 Better water quality downstream
- 2 Not due to nutrient enrichment
- 3 Passing results for several bio-criteria indicate good water quality with no nutrient enrichment

PROPOSED ACTION

The Drinking Water and Groundwater Protection Division intends to issue a permit renewal to Summit Ventures NE, LLC for the discharge of treated domestic sewage from the Lincoln Peak Base Area of the Sugarbush Ski Area. Although there have been several exceedances of effluent limits, water quality monitoring data and biomonitoring results indicate that there has not been any impact to water quality in Clay Brook related to the indirect discharge.

The following substantive changes to indirect discharge permit ID-9-0260 are proposed:

Condition D4C:

The implementation schedule due date has been changed from July 1st to August 1st to allow the permittee time to respond to the recommendations in the annual inspection report.

Condition D7:

This condition has been expanded to include the requirements of Act 86 relating to untreated discharges that reach Vermont's surface waters.

Condition E2:

The frequency for biochemical oxygen demand (BOD) and total suspended solids sampling and analyses has been reduced from weekly to monthly due to an abundance of historic data. Nitrite has been removed from the analyte list because it typically is not detected.

Condition E4:

This condition has been removed from the permit because groundwater levels are consistently and significantly deeper than the required 3' to seasonal high groundwater.

Condition E5:

This condition has been revised to require observation well measurements on a monthly basis instead of weekly because ponding has not been occurring in the leachfields.

Condition E8:

This condition has been revised to require the submittal of the annual water quality evaluation by December 31st each year to coincide with the submittal of the 5-year water quality evaluation for permit renewal by December 31, 2022.

Tentative determinations regarding conditions to be included in the pending Vermont Indirect Discharge Permit have been made by the Vermont Agency of Natural Resources, Department of Environmental Conservation. The conditions imposed will assure that the Vermont Water Quality Standards and applicable provisions of 10 V.S.A. Chapter 47 will be met.