

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
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Montpelier, VT 05620-3521

INDIRECT DISCHARGE PERMIT
FACT SHEET

October, 2016

PERMIT NO.: ID-9-0050
APPLICANT: Basin Harbor Club
NATURE OF WASTE: Treated domestic sewage
DISPOSAL METHODS: Evaporation/percolation Lagoons and Sprayfield
DISPOSAL LOCATION: Between Basin Harbor Club and Button Bay State Park
RECEIVING WATER: Lower Lake Champlain

COMPLIANCE WITH SPRAY EFFLUENT LIMITS

For the period August 1, 2013 – July 31, 2016 the following limits were exceeded for spray effluent discharged to the existing sprayfield:

Parameter	Permit Limits	Number of Exceedances	Number Samples/ Days
Discharge Flow	15,000 gallons/zone/day ¹	158	222
	90,000 gallons/7 consecutive days ¹	154	222
Discharge Flow	1" applied on wetted area/day ²	15	222
BOD5	30 mg/L	0	5
TSS	30 mg/L	1	5
E. coli	77 col/100 mL	0	5
Chlorine Residual	4 mg/L total or 1 mg/L free (min.)	Not reported	

BOD5 = Biochemical Oxygen Demand (5-day)

TSS = Total Suspended Solids

Notes:

1. In accordance with limits specified in Conditions B2 and D1 of the indirect discharge permit, effective July 1, 2011. The permittee has indicated that they operated in accordance with the higher 1 inch per 7 consecutive day limit in Condition D2.
2. Consistent with the 1 inch per 7 consecutive days limit specified in Condition D2 of the indirect discharge permit. Exceedances were only slightly above 1" per day.

COMPLIANCE WITH LAGOON EFFLUENT LIMITS

For the period July 1, 2012 – July 31, 2016 the following limits were exceeded for effluent discharged to the evaporation/percolation ponds:

Parameter	Permit Limits	Number of Exceedances	Number Samples
BOD5	30 mg/l monthly, 45 mg/l weekly, 50 mg/l daily	0	9
TSS	30 mg/l monthly, 45 mg/l weekly, 50 mg/l daily	9	9
E. coli	77 col/100 ml	3	9
BOD5 = Biochemical Oxygen Demand (5-day) TSS = Total Suspended Solids			

SPRAYFIELD GROUNDWATER QUALITY

The following table summarizes groundwater quality downgradient of the sprayfield for the period July 2012 – July 2016.

Parameter	Downgradient		
	Samples	Mean	Range
Nitrate (mg/L)	24	0.049	0.020 – 0.230
Total Dissolved Phosphorus (mg/L)	20	0.045	0.010 – 0.110
Chloride (mg/L)	24	46	3 – 190
E-coli (colonies/100 ml)	24	39	1 – 370
Conductivity (uS/cm)	18	1,015	277 – 3,238

The monitoring results indicate that groundwater quality is fairly consistent between the three downgradient monitoring locations. Chloride concentrations are higher in MW-127 than the other two wells. Elevated conductivity readings have been measured in MW-127 and MW-128.

LAGOON GROUNDWATER QUALITY

The following table summarizes groundwater quality around the evaporation/percolation lagoons for the period July 2012 – July 2016.

Parameter	Upgradient		Downgradient	
	Samples	Mean	Samples	Mean
Nitrate (mg/L)	9	0.083	26	0.112
Total Dissolved Phosphorus (mg/L)	8	0.360	23	0.122
Chloride (mg/L)	9	37	26	35
E-coli (colonies/100 ml)	9	257	26	433
Conductivity (uS/cm)	8	669 ¹	21	1,721 ²
<u>Notes:</u> 1. Range of conductivity at MW-4 (upgradient well): 240 – 1,082 uS/cm 2. Elevated conductivity at MW-2 and MW-3 (downgradient wells). Mean = 2,358 uS/cm; Range = 228 – 6,503 uS/cm.				

In general, the monitoring results obtained during the period July 2012 – July 2016 are consistent with historic results from the lagoon site, which has been monitored since 1991. The most notable indicator of influence to groundwater quality has been higher conductivity readings in MW-2 and MW-3. Total dissolved phosphorus concentrations are highest in upgradient well MW-4 and have increased slightly at that location over time. Nitrate concentrations are the highest in MW-1, but chloride concentrations have decreased in that well over time. E-coli levels continued to be elevated in three monitoring wells around the lagoons.

SURFACE WATER QUALITY

No water quality monitoring of Lake Champlain was required by previous indirect discharge permits; therefore, no surface water quality data is available.

PROPOSED ACTION

The Department of Environmental Conservation intends to issue a permit renewal to the Basin Harbor Club. The permittee is not required to meet the Aquatic Permitting Criteria of the Indirect Discharge Rules because the lagoons and sprayfield are considered existing indirect discharges as defined in §14-300 of the Indirect Discharge Rules.

CHANGES TO THE EXISTING PERMIT

The following substantive changes to indirect discharge permit ID-9-0050 have been made:

1. The spray application limit discrepancy in the previous permit for the Lower Sprayfield has been eliminated. The limit is now based on a maximum application rate of 1" of effluent over the wetted area of each spray zone (23,695 gallons per zone) in any 7 consecutive day period. The application rate for the Upper Sprayfield has also been revised accordingly.
2. The maximum application rate has been reduced to 0.5" in any 7 consecutive day period when groundwater levels in the sprayfields are between 1.25' and 1.0' of ground surface.
3. The permit states that the permittee may submit an operational plan to the Secretary for review and approval to evaluate an increase in the application rate in the Lower Sprayfield.
4. Weekly effluent limits for biochemical oxygen demand and total suspended solids have been removed from the permit because the limits are essentially redundant with daily limits given the turnaround time to receive laboratory results, and the fact that effluent samples are only required to be collected on a monthly basis.
5. The design flow for the facility has been increased to 67,071 gallons per day to accommodate design flows which existed prior to the adoption of the Indirect Discharge Rules but were never included in the original indirect discharge permit. For purposes of 14-300 of the Indirect Discharge Rules, this modification does not constitute an increase in flows.

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.