

CZM PERMIT MODIFICATION

LINED EVAPORATION POND

Applicant: DIAGEO USVI, INC

APRIL 30, 2021

1. INTRODUCTION

Diageo USVI, Inc. (Diageo) operates a rum distillery on St. Croix, US Virgin Islands (USVI), with a design production capability of 20 million proof gallons per year. Diageo's rum is derived from molasses feedstock that undergoes fermentation and distilling processes. During the distillation process, the spent molasses, known commonly as vinasse, is separated out and fed into thin-film evaporation columns. The evaporation process heats the Vinasse and concentrates the material to a 50-60% solid stream known as Concentrated Molasses Stillage (CMS). This CMS stream is shipped off island for re-use as animal feed and for land application as a fertilizer. The condensate that is extracted during the evaporation process is known as biocondensate. Biocondensate is sent to the existing Wash Water Treatment Plant for treatment, and a portion of the treated biocondensate is re-used at the facility.

There have been a number of instances in the 10 years since the distillery's commissioning in which upsets in the Wash Water Treatment Plant have caused operational interruptions to the rum distilling process. Interruptions with origins in the Wash Water Treatment Plant can be due to biological or mechanical challenges. Diageo's current Wash Water Treatment Plant is undergoing optimizations permitted under CZM Permit CZX-10-09L. These optimizations will allow for more reliable management of its non-hazardous Process Water in its Wash Water Treatment Plant but will not fully eliminate the potential for upsets. To drive resiliency and reliability in the facility, Diageo is proposing a modification to this CZM Permit which will allow for the installation of a Lined Evaporation Pond (LEP) to be a key component of the Wash Water Treatment Plant. This LEP will be used to responsibly manage (1) any treated biocondensate that is not re-used at the facility and a continuous small stream of wastewater resulting from the site's reverse osmosis systems and unit blowdowns.

Installation of this pond will also allow for on-site management of wastewater, as opposed to conveyance to the ocean, a Water of the USVI (USVI Waters). Because evaporation is not considered discharge under federal or USVI regulations, the facility will eliminate all non-stormwater discharges regulated by the Territorial Pollution Discharge Elimination System (TPDES) Program and will allow Diageo to minimize environmental impacts to USVI Waters.

The overall project approach is to use an existing unused pond, the St. Croix Renaissance Group, LLLP (SCRG) Upper Cooling Pond (UCP), to operate a 10-acre pond designed for 30-days of storage based on a design influent flow rate of 170 gpm. To minimize the hydraulic retention time that would be required for evaporation, 18 mechanical sprayers will be installed to enhance the evaporative process. The sprayer design chosen is the SMI Model 420F, an in-water floating unit that can aerate up to 25 gpm per unit. The design evaporation rate, based on the aggregate of the pan evaporation of the basin and the mechanical sprayer enhancement, will be capable of providing continuous evaporation of current process water production, as well as additional performance capability for unexpected upset events or routine maintenance operations that require increased evaporation.