

### **Addendum to Phase 2 Flaring Plan**

This addendum supplements and amends the Phase 2 Flaring Plan and attachments that Limetree Bay Refining (“LBR”) submitted to the United States Environmental Protection Agency (“EPA”) and the U.S. Virgin Islands between August 18-23, 2021. EPA has agreed to finalize approval of LBR’s Phase 2 purge plan following submission of this addendum and the supplemental addendum documents identified in EPA’s letter to LBR dated August 23, 2021.

#### **Certification of Training**

Limetree Bay is conducting operator refresher training on the applicable procedures for decommissioning the hydrocarbon containing units. Certification of training is included as Attachment 1A (Confidential Business Information). Limetree certifies that every LBR operator will be trained on the applicable protocols prior to the operator’s participation in Phase 2 decommissioning of any unit including flaring operations.

#### **Nitrogen Purging and Blanketing**

LBR will blanket and preserve Refinery process units under inert gas (nitrogen) after the hydrocarbons are removed through purging. *See* “Refinery Decommissioning Stages,” provided herein as Attachment 2A. The nitrogen blanketing process will include several precursor steps:

1. The first step LBR will undertake in removing hydrocarbons is flushing the units that contain heavy oils (i.e., Crude unit, Vacuum unit, Coker) with diesel to dilute and remove heavy hydrocarbons. This step will include cold circulation as further described in the Phase 2 Flaring Plan, followed by a warm circulation flush involving heating the oil up to 200- 250 degrees Fahrenheit. Units that contain lighter oils (e.g., Hydrotreaters, Platformer, Hydrobon) will not require either a warm or cold diesel flush.
2. LBR will then pump out the hydrocarbons to downstream units and eventually to storage.
3. LBR will de-pressure the units and purge them with steam and nitrogen to Flare #8 under controlled conditions. *See* “Execution Control,” provided herein as Attachment 2A, for further details. One unit valve will be manually opened at a time. The field operator will slowly de-pressure the process unit while remaining in constant radio contact with the console operator and a supervisor. It should be noted that during the purge:
  - a. The hydrogen sulfide (“H<sub>2</sub>S”) concentration in the Flare #8 header will be continuously monitored with the existing Continuous Emission Monitoring System (“CEMS”).
  - b. No hydrocarbons will be vented to the atmosphere during the purge.
  - c. No liquid hydrocarbon will be sent to Flare #8 during the purge.
4. The process to bring the units under a nitrogen blanket (as further described in Attachment 2A “Execution Control”) may require purging the units several times to bring the units to acceptable lower explosive limit (“LEL”) levels. This will be accomplished

by de-pressuring the unit to 5 psig and pressuring up to 10–15 psig with nitrogen. There will be a standing order to pressure up the units and to de-pressure the system to 5 psig during the purging steps. The pressure of 5 psig was selected by LBR’s engineering staff to ensure that the system(s) are always kept under positive pressure and to avoid the possibility of allowing oxygen into the system.

5. The final step is to preserve the units under a nitrogen blanket at 10–15 psig pressure. The nitrogen comes from an onsite source. It will be supplied into the units through pre-existing, dedicated piping.

During the steam and nitrogen purge step of the unit, hydrocarbon gas will be displaced to Flare #8. The amount of nitrogen to be used during this step will depend on the size of the equipment purged and the percent of hydrocarbons in each unit. The final nitrogen amount in the unit will be equivalent to the total estimated volume based on the size of the vessels listed in the table addressing the total hydrocarbons to be displaced to Flare #8. Estimated nitrogen volumes are shown in the table that indicates the volume of hydrocarbons to Flare #8, provided herein as Attachment 3A (Confidential Business Information).

### **Long term Integrity and Maintenance of the Nitrogen Blanket**

Upon completion of the units’ decommissioning, LBR is planning to have personnel monitor the units’ preservation under nitrogen. While LBR has not determined what personnel are available for monitoring, LBR anticipates that it will undertake the following steps to monitor and preserve the nitrogen blanket: (1) reading and logging pressure gauges at key locations of the units; (2) reviewing pressure monitors at least twice per work shift; and (3) if pressure drops below 10-15 psig, the operator will troubleshoot the system and add nitrogen as necessary. Natural losses of small amounts of nitrogen are expected to occur over time. The nitrogen blanket will be maintained indefinitely until a final decision is made regarding the future of the Refinery.

### **Schedule and Visibility of Flaring**

The purging operation will be maintained seven (7) days a week and twenty-four (24) hours a day, requiring Flare #8, which operates as a safety device, to be lit throughout the entire decommissioning period of all the process units. The work period that will cover the decommissioning activities will almost exclusively be maintained during the day shift (0600 am to 0600 pm). Steady state purging to Flare #8 will be maintained through the night, but no process changes are scheduled for the night shift. A visible flare or pilot flare may be observed during the nighttime from outside the Refinery, but may not be visible during the day due to the low flow to the flare.

During some periods a plume of steam may also be observed at the Flare #8 stack. Steam will be visible at the flare tip during start-up functional testing of the control system to ensure that it is functioning. During normal operation of Flare #8, steam may be injected into the flare tip to help ensure complete combustion of hydrocarbons and reduce opacity. Steam injection is not necessary on a continuous basis during flare operation.

### **Precursor Safety Controls**

As part of the preparation to initiate Phase 2, LBR is implementing a number of additional safety controls including: (1) validating process equipment systems for flushing, steam out, and blanketing; (2) reviewing and implementing management of change (“MOC”) protocol to install temporary piping to flush and steam out hydrocarbons; (3) providing operator refresher training on the steps addressed in Attachment 2A and “Unit Shutdown for Turnaround Procedures;” (attached as Attachments 4-22 to the Phase 2 Flare Plan) (Confidential Business Information); (4) implementing operator monitoring of vessel levels and pressures; and (5) integrating operations, maintenance, safety and environmental protocols with safety walk down of the units.

### **Monitoring of H<sub>2</sub>S at Flare #8**

LBR has set an internal control threshold value of 80 ppm for H<sub>2</sub>S at the Flare #8 CEMS. *See* Attachment 2A. This control point was set up to stop and reevaluate process conditions and adjust the purging of the units, if required, to assure that the H<sub>2</sub>S concentration at Flare #8 does not reach the emissions limit of 162 ppm. A value of 80 ppm does not indicate that there is a problem with decommissioning activities but instead is an internal control threshold.

Preparations and control of the H<sub>2</sub>S at the flare will include, but not be limited to: (1) maintaining at least one H<sub>2</sub>S scavenger injection pump in service at all times; (2) setting the other H<sub>2</sub>S scavenger pumps to start automatically if H<sub>2</sub>S levels reach 80 ppm; and (3) adjusting the flow of hydrocarbon from the process units either downward or upward in response to the levels of H<sub>2</sub>S. Downward adjustments will be made by operators at the process units closing valves in response to radio communications from the control room, where H<sub>2</sub>S flow is continuously monitored. Limetree Bay operators and supervisors will exercise appropriate operational judgment to determine which units to slow or stop purging activities in response to reaching the internal control threshold of 80 ppm, such as by adding additional sweet gas to the process from an appropriate process unit or reducing flow from a process unit containing H<sub>2</sub>S.

### **Telemetry**

LBR has purchased five (5) telemetry units from Safe Environmental Engineering, which will be used in conjunction with the Refinery’s new emissions monitors. The purchase order has been approved and is attached herein as Attachment 4A (Confidential Business Information). LBR anticipates delivery of the telemetry units as early as the week of August 30, 2021.