

## **Summary of Phase 2 Decommissioning Plan: Decommissioning of Refinery Process Units**

This Phase 2 Plan covers the second stage of operational testing of Flare #8 and activities necessary to bring inside battery limits (“ISBL”) hydrocarbon-containing process equipment in Complexes 1 and 2 of the Limetree Bay Refinery (“Refinery”) to an inert condition during Refinery decommissioning. An updated definitions and scope of work is attached as **Attachment 1**. Limetree Bay expects Phase 2 to take approximately five weeks, beginning on or around August 23, 2021, with the goal of completing Phase 2 by the end of September. During that time, the pilots at Flare #8 may be visible and the flare will intermittently combust hydrocarbons within applicable emission limits. In total, Limetree Bay conservatively estimates that it will purge approximately 314,400 lbs. of hydrocarbons. A worksheet detailing Limetree Bay’s estimated emissions calculation by process unit is attached as **Attachment 2**. A detailed timeline setting forth Limetree Bay’s current goals for decommissioning operations is attached as **Attachment 3**. Please be advised that the actual time necessary to decommission each unit, and hence to decommission the Refinery as a whole, will vary based on factors such as weather conditions, the quantity and composition of hydrocarbons in the units, the potential need to apply internal controls on an as-needed basis to ensure that the decommissioning process proceeds appropriately, and the availability of workers and contractors to complete Phase 2.

The Phase 2 Plan includes decommissioning only of hydrocarbon-containing ISBL process units and limited outside battery limits (“OSBL”) piping appurtenant to those units. Following EPA’s review and acceptance of this Phase 2 Plan, Limetree Bay will submit to EPA a Phase 3 Decommissioning Plan, which will address the next stage of purging the non-hydrocarbon containing ISBL process units of gas and acid gas from the amine units caustic system, ammonia storage, sour water, and other associated units. It is anticipated that Phase 3 purging will overlap with the Phase 2 purging, but Phase 3 will not commence until Limetree Bay obtains EPA’s approval of the Phase 3 Plan. Likewise, Limetree Bay will submit a Phase 4 Decommissioning Plan for outside battery limits (“OSBL”) units at a future date.

## **General Refinery Decommissioning Description for Hydrocarbon Process Units**

Limetree Bay will begin decommissioning each hydrocarbon process unit in accordance with the following “Shutdown for Turnaround” procedures for each unit. These “Shutdown for Turnaround” procedures apply to all supervisory and operating personnel involved in the decommissioning of the process units and set forth detailed procedures for decommissioning the units. These procedures include required safety equipment and safety systems and a detailed checklist of safety and operational steps requiring a dated operator sign-off. This checklist, which can be called a “Safety Review,” will be prepared for each unit throughout the decommissioning process and will be submitted to EPA on an ongoing basis as set forth in the “Reporting” section of this Plan.

The units listed below are hydrocarbon-containing ISBL process units that will be purged during Phase 2:

| <b><u>Complex 1</u></b> |   |            |                      |
|-------------------------|---|------------|----------------------|
| Unit No.                | Unit/System Description                   | Procedure  | Attachment           |
| 3100                    | Crude Unit No. 5                          | 3100-201   | <b>Attachment 4</b>  |
| 3200                    | No. 6, 7, and 9 Vaporizers                | 3200-201   | <b>Attachment 5</b>  |
| 3201                    | LPG Treater No. 1                         | 3201-201   | <b>Attachment 6</b>  |
| 3202                    | Deisopentanizer/IC <sub>5</sub> Sweetener | 3202-201   | <b>Attachment 7</b>  |
| 4100                    | Crude Unit No. 6                          | 4100-201   | <b>Attachment 8</b>  |
| 4200                    | Vacuum Unit No. 3                         | 4200-201   | <b>Attachment 9</b>  |
| 4810                    | Lean Oil Absorber/Disulfide Oil Recovery  | 4810-201   | <b>Attachment 10</b> |
| 4820                    | LPG Treater No. 2                         | 4820-201   | <b>Attachment 11</b> |
| 4840                    | H.P. Fuel Gas Treater                     | 4840-201   | <b>Attachment 12</b> |
| 4850                    | Gas Recovery Unit No. 2                   | 4850-201   | <b>Attachment 13</b> |
| 4860                    | LPG Fractionation Unit No. 3              | 4860-201   | <b>Attachment 14</b> |
| 8500                    | Coker Unit                                | DCU-SD-242 | <b>Attachment 15</b> |

| <b><u>Complex 2</u></b> |                                      |           |                      |
|-------------------------|--------------------------------------|-----------|----------------------|
| Unit No.                | Unit or System Description           | Procedure | Attachment           |
| 2100                    | No. 5 Vaporizer                      | 2102-201  | <b>Attachment 16</b> |
| 3312                    | No. 8 Vaporizer                      | 3312-201  | <b>Attachment 17</b> |
| 4300                    | Distillate Desulfurizer No. 7        | 4300-201  | <b>Attachment 18</b> |
| 4400                    | Platformer No. 3 (hydrobond section) | 4400-201  | <b>Attachment 19</b> |
| 4600                    | Distillate Desulfurizer No. 6        | 4600-201  | <b>Attachment 20</b> |
| 5300                    | Distillate Desulfurizer No. 9        | 5300-201  | <b>Attachment 21</b> |
| 5400                    | Platformer No. 4                     | 5450-201  | <b>Attachment 22</b> |

Although each procedure differs in its specifics, the decommissioning process generally proceeds through a series of four progressive steps that first remove liquid hydrocarbons from the process unit, then remove gaseous hydrocarbons, and then place the unit in an inert state: (a) cold circulation; (b) warm circulation; (c) degassing; and (d) introduction of nitrogen. In this process, for each individual hydrocarbon unit, Limetree Bay will begin the cold-circulation process by blending heavy oils with light oils, circulating liquid oil in the process unit, and then emptying the liquid oils from the process tank. Depending on whether the liquid oils retain the ability to absorb additional hydrocarbons, they will then be either returned to the process unit for the warm circulation process, used in another process unit for circulation, or sent to a storage tank if they are spent and are of no further use in the decommissioning process. Following cold circulation, Limetree Bay will begin a warm circulation process in the unit, where Limetree pumps liquid oils back into the hydrocarbon unit, lights the furnace pilots, warms the remaining liquid hydrocarbons in the process units to 200-250 degrees Fahrenheit, where applicable (e.g., No 4 Platformer will not require heat-up to flush hydrocarbon because the unit is liquid free), and circulates the liquid oils. At the conclusion of this process, Limetree Bay will

again empty the process unit of liquid oils and either use those oils for circulation in a different process unit or will send them to a storage tank if they cannot be used in further decommissioning. At this point, Limetree Bay will de-gas the hydrocarbon process unit to the flare. Here, Limetree Bay will de-pressure the process unit from approximately 20 psig to 5 psig, introduce steam into the process unit, and then purge the unit with nitrogen. During this step, Flare #8 will combust certain hydrocarbons within applicable legal limits. The process of degassing the hydrocarbon process units to flare is discussed below. Finally, each process unit will be blanketed in N<sub>2</sub> at around 10 psig.

Limetree Bay intends to begin Phase 2 decommissioning activities with Crude Distillation Unit No. 5 and to proceed generally in the order in which the units are listed in the tables above, e.g., Distillate desulfurizer, Vacuum unit, then to LPG Treater No. 1, etc. Limetree Bay intends to decommission multiple units at a time in order to hydrocarbon-free the refinery in a safe and expeditious manner. In general, it will take approximately 4-15 days to fully hydrocarbon-free an individual process unit, although the time for decommissioning will vary depending on the quantity and composition of hydrocarbons in the unit, as well as any restrictions on flow necessitated by overall decommissioning activities at the unit and at the refinery. The timeline included as **Attachment 3** indicates Limetree Bay's current estimate for the time necessary to purge each process unit.

### **Cold Circulation of Process Units**

The first step in preparation of the heavy oils processing units (No 5 and 6 Crude, No. 3 Vacuum unit and the Coker) subject to the Phase 2 Plan hydrocarbon free is through cold circulation. The goal of the cold circulation is to remove (blend down) any heavy hydrocarbon that might be in the unit through the introduction and internal circulation of diesel.

In the cold-circulation process, Limetree Bay will introduce diesel to the front end of the unit and circulate the liquids through the process equipment utilizing the unit's internal pumps and circulate through their spillback system. The diesel will also serve as sponger of gases present in the unit. At the completion of the cold circulation process, Limetree Bay will pump out the liquids from one unit to another unit (e.g., Crude unit to Vacuum Unit and to the Coker). If the resulting product is "spent" and cannot be used to further dilute heavy hydrocarbons, Limetree Bay will pump it into a tank and will attempt to sell it. (Given Limetree Bay's obligations to various stakeholders in the bankruptcy process, it is obligated to attempt to sell such products.) No heat will be introduced into the process unit during cold circulation. Accordingly, cold circulation may be safely performed before Flare #8 is operational and Limetree Bay intends, subject to EPA's approval, to begin the cold circulation process upon receiving approval for this step of the Phase 2 process or upon approval of the Phase 2 Plan as a whole.

### **Operational Testing of Flare #8**

Flare #8 was successfully tested under the EPA-approved Phase 1 Test Plan on July 31, 2021. Subsequently, Limetree Bay extinguished the pilots and disassembled the scaffolding

surrounding Flare #8. Before Limetree Bay engages in any warm circulation or degassing activities, it will need to resume operations at Flare #8. The first step is “re-testing” the pilots, which will be performed in accordance with the established “No. 8 Flare—Pilot Flame Out” procedure that is **Attachment 23** to the Phase 2 Plan. (This same document was Attachment 8 to the Phase 1 Plan.) After Flare #8 is “re-tested,” Limetree Bay will remove the blinds separating Flare #8 from the Refinery and return the Flare to operation servicing the process units. The procedure for removing the blinds is “Maintenance General—Equipment Blinds—Remove and Install” and is **Attachment 24** to the Phase 2 Plan. (This same document was Attachment 15 to the Phase 1 Plan.)

### **Warm Circulation of Process Units**

Warm circulation of process units will begin only after Limetree Bay has successfully restarted Flare #8, as Flare #8 is a necessary safety device for this step of the decommissioning process. The warm circulation process will proceed similarly to the cold circulation process, except that Limetree Bay will light the furnace pilots applicable to the process unit being decommissioned and will warm the remaining liquid hydrocarbons in the process units to 200-250 degrees Fahrenheit. This warm circulation process will allow Limetree Bay to collect additional hydrocarbons not captured during cold circulation. As with the cold circulation process, at the conclusion of warm circulation Limetree Bay will pump out the liquids in the process unit and either use them for circulation in a different unit or direct them to a storage tank if they cannot be used for decommissioning.

### **De-Gassing Hydrocarbon Process Units to Flare**

The only part of the Phase 2 Plan that is expected to result in use of Flare #8 in a capacity other than as a safety device is de-gassing the hydrocarbon process units. In this step, Limetree Bay will first complete the Flare #8 startup according to the Startup After Turnaround Procedure (7940-12), which is **Attachment 25**. Under this procedure, the Flare #8 startup will include lighting the pilots, ensuring that CEMS are in service, introducing steam to the flare tip and sweeping gas to the flare header, and ensuring that the H<sub>2</sub>S scavenger injection system (e.g., Sulfix) is operable. Limetree Bay will also introduce supplemental gas (purchased propane) to the flare tip as required to ensure heating value.

When de-gassing a hydrocarbon process unit, Limetree Bay will follow the individual unit procedures for each individual unit for de-gassing the unit to the Flare. These procedures are included in the table above. During the implementation of the procedure for each unit Limetree Bay will slowly de-pressure the process unit through a single selected valve. While the valve is open, the field operator will remain in position and will maintain constant radio contact with the operator at the manual valve, the console operator at the Flare, and his supervisor. The console operator will monitor the Flare #8 CEMS, ensuring that the flare supplemental gas is being introduced as per procedure and confirming the functioning of the H<sub>2</sub>S scavenger system. If at any time the CEMS indicate that H<sub>2</sub>S emissions will exceed 80 ppm—an internal

control threshold that is less than applicable permit limits—Limetree Bay will close the valve. During this time, Limetree Bay also will monitor the ambient monitors (discussed below) to ensure that no applicable legal limits are exceeded.

### **Phase 2: Operator Training and Staffing**

Limetree Bay has trained, and will staff, its employees appropriately for the safe and timely completion of the Phase 2 process. Limetree Bay intends to employ a “four on, four off” shift schedule that should prevent any concerns associated with worker fatigue by ensuring that workers are performing day shift work and that employees have sufficient rest between working periods. Complex shift schedules detailing the schedule for work during the Phase 2 period are included as **Attachments 26 and 27** to the Phase 2 Plan. (These same documents were Attachments 4 and 5 to the Phase 1 Plan.) The typical day shift at Limetree Bay is from 6 a.m. to 6 p.m. Moreover, Limetree Bay certifies that it has conducted, or will conduct, additional operator refresher training before Phase 2 operations begin. **Attachments 28-30** describe the training that the personnel assigned to work in each Complex began on July 15, 2021, and that training will conclude on or before August 23 for Complex 1 and 2. In appropriate circumstances, Limetree Bay may authorize overtime work during Phase 2. Without limitation, an appropriate circumstance where Limetree Bay may authorize overtime work is where purging in a process unit is nearly complete at the 6 p.m. end of the day shift and it would be more appropriate to complete purging that unit employing the same personnel such that there is no change in personnel for purging that unit and Limetree Bay can begin purging a new unit the following morning.

### **Phase 2: Subpart Ja and CC Compliance (Including Continuous Monitoring)**

Limetree Bay intends to comply with all applicable requirements of 40 C.F.R. Part 60 Subpart Ja and 40 C.F.R. Part 63 Subpart CC. Limetree Bay’s Flare Management Plan, which describes the Subpart Ja/CC monitors and instrumentation, the programming of the data acquisition system for Subpart Ja/CC compliance, and Subpart Ja/CC compliance generally, is included as Attachment 14C to the Phase 1 plan. Information regarding the calibration of instrumentation and the operation of continuous monitors is included in Limetree Bay’s CEMS Quality Assurance Plan, Continuous Parameter Monitoring System Monitoring Plan, and CEMS/COMS Analyzer Maintenance procedures, which are **Attachments 31-33** to the Phase 2 Plan. (These same documents were Attachments 14A, 14B and 18 to the Phase 1 Plan.) These plans explain how Limetree Bay will ensure that all instrumentation and controls necessary for compliance with the applicable NSPS Ja and MACT CC flare requirements are installed, maintained, and have been verified to be in working order prior to the start of Phase 1, as well as provide information relative to how Limetree Bay will comply with NSPS Ja and MACT CC flare requirements during Phase 2.

## **Phase 2: Ambient Monitoring**

Limetree Bay intends to employ eight Radius BZ1 Monitors to monitor H<sub>2</sub>S and SO<sub>2</sub> at the following locations during Phase 2: Downwind of Tank 7401 North West Area (Latitude 17.715624 longitude - 64.755629); Southwest of Tank 7507 (Latitude 17.708401 longitude - 64.766396); SCPC Laydown Yard West Fence Area (Latitude 17.713110 Longitude -64.768327); Blessing Hill NE of Tank 1236 (Latitude 17.717993 Longitude -64.767262); SE of Blessing Hill Gate Entrance (Latitude 17.718060 Longitude -64.765105); NE of QC Lab, South East of Administration Building (Latitude 17.714433 Longitude -64.755747); Diageo Building South East Entrance (Latitude 17-714116 Longitude -64.775331); and Northwest of Tank 7501 (Latitude 17.701118 Longitude -64.754861).

Additionally, ambient Honeywell SPM SO<sub>2</sub> and H<sub>2</sub>S monitors will be employed at the following locations during Phase 2: West Gate Martin Marietta (Latitude 17.706014, Longitude - 64.781737); East Anguilla, The Ruins (Latitude 17.717197, Longitude -64.774590), Plot 25 Estate Clifton Hill (Latitude 17.718683, Longitude -64.776514), Plot 487 Estate Barren Spot (Latitude 17.732244, Longitude -64.765214), Plot 214 Estate Ruby (Latitude 17.736911, Longitude - 64.751889).

Currently, EPA is operating Honeywell SPM SO<sub>2</sub> and H<sub>2</sub>S monitors at these locations. Limetree Bay has purchased replacement Honeywell SPM SO<sub>2</sub> and H<sub>2</sub>S monitors for use during decommissioning activities. A copy of Limetree Bay's payment documents for the Honeywell ambient monitors is **Attachment 34** to the Plan. Limetree Bay expects the replacement Honeywell SPM SO<sub>2</sub> and H<sub>2</sub>S monitors to arrive around October 1, 2021, and to be functionally in service in approximately 2 weeks. Following installation, EPA will continue to operate its Honeywell SPM SO<sub>2</sub> and H<sub>2</sub>S monitors in parallel for a period of time determined necessary by the Agency to verify the appropriate functioning of the replacement Honeywell SPM SO<sub>2</sub> and H<sub>2</sub>S monitors. Limetree Bay also intends to procure a digital wireless telemetry system to accompany the monitors.

A map showing the locations of the Honeywell SPM SO<sub>2</sub> and H<sub>2</sub>S monitors is provided as **Attachment 35** to the Phase 2 Plan. (This same document was Attachment 9 to the Phase 1 Plan.). Likewise, a visible emissions monitoring plan is included as **Attachment 36** to the Phase 2 Plan. (This same document was Attachment 10 to the Phase 1 Plan.)

## **Independent Observer**

With the approval of the bankruptcy court, Limetree Bay has retained ioMosaic as an independent observer for Phase 2. Under the scope of ioMosaic's retention, it will have the ability to participate in the review of procedures, meetings, and activities such as PSSR reviews, as well as to observe decommissioning activities. A representative of ioMosaic arrived at Limetree Bay on August 9 and has been provided with the Phase 2 Plan for his review. ioMosaic is subject to the independence requirement in Paragraph 115(e) of the Section 303 Order. EPA

has been provided with the contact information for ioMosaic and has the ability to communicate directly with ioMosaic at any time.

## **Phase 2: Reporting**

Limetree Bay will provide multiple periodic reports applicable to Phase 2 activities. The only activity that Limetree Bay expects to result in a pre-startup safety review (“PSSR”) is the startup of Flare #8, and Limetree Bay will submit the completed PSSR to EPA within twenty-four (24) hours of its completion. As discussed above, the standard operating procedure for the decommissioning of each process unit listed above entails a Safety Review, and Limetree Bay will provide the Safety Review checklist for each such operation within twenty-four (24) hours of its completion. Limetree Bay will likewise report to EPA as soon as practicable where any weather conditions are likely to substantially delay decommissioning activities. If any Phase 2 activities necessitate the creation of management of change (“MOC”) documentation, Limetree Bay will provide that documentation to EPA. Limetree Bay will also work with EPA to configure the Honeywell SPM telemetry system to provide daily ambient monitoring values to EPA. Limetree Bay will also submit biweekly reports detailing the decommissioning activities subject to this plan on the third business day after the close of such period as well as CEMs data during this period. For the avoidance of doubt, if Phase 2 begins on August 23, 2021, the first biweekly period will run from August 18-September 1 and the first biweekly report will be submitted September 3. Finally, after Phase 2 is complete, Limetree Bay will submit a report summarizing the results of CEMS and ambient monitoring during Phase 2.