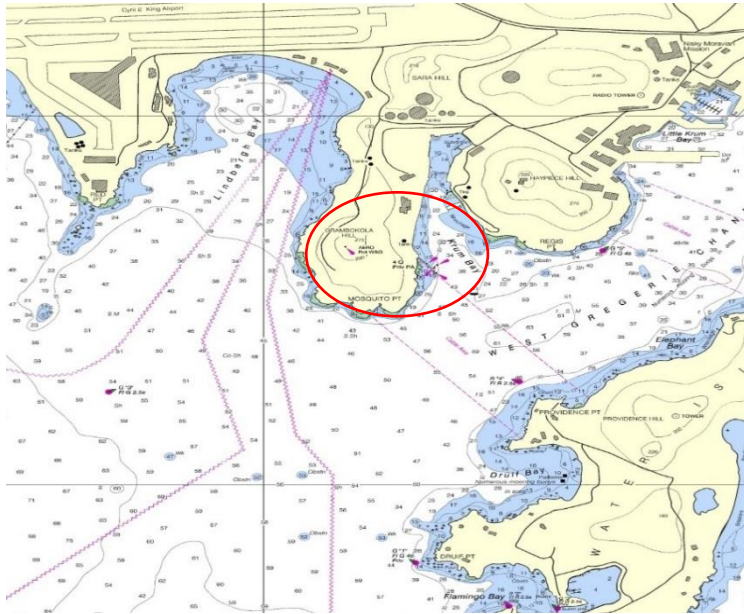


## APPENDIX B - Delivery, Storage, and Handling Requirements, St Thomas

**Facility Location:** The St Thomas propane storage facility is situated adjacent to the Richmond Power Station, whilst the fuel gas vaporisation plant is located within the WAPA power station footprint adjacent to the recently installed Wartsila power generation plant. The LPG plant facility occupies approximately 1.5 acres.

**Fig 1a- Facility Location:** Randolph Harley Power Station  $18^{\circ} 19' 42.24''$  North  $064^{\circ} 54' 41.96''$  West



**Fig 1B**



**Facility overview-** The propane storage facility comprises of the following major equipment

**Dock facilities** – for offloading of supply and shuttle propane carrier ships, Figure 2 below. The dock facilities have been upgraded to support the offloading of supply and shuttle propane carrier ships. The original unloading facility consisted of a single-pile trestle T-jetty with outboard walkways leading to breasting dolphins. As part of the enhancements, the trestle walkway pipe racks were upgraded to accommodate a 6-inch liquid propane offloading line and a 4-inch vapor return line, both constructed from low-temperature carbon steel. Additionally, a 6-inch firewater main was installed, supplied by a new firewater pumping deck located midway along the jetty access walkway.

To improve berthing capabilities, new monopile breasting dolphins with a fender system were installed, along with two monopile mooring points, enabling safe berthing of vessels with a length overall (LOA) of 128 meters, a beam of 20.4 meters, a draft of 8.71 meters, and a summer deadweight tonnage (SDWT) of 13,104 tons. These upgrades ensure that vessels can berth at a controlled speed of 1ft/s, enhancing the efficiency and safety of propane offloading operations.

**Figure 2-** Propane receiving facilities



**Propane storage vessels:** The St. Thomas storage facility comprises of ten (10) storage vessels, two (2) mounds each containing five (5) storage pressure vessels, for a total storage capacity of 14000 cubic meters. Eight of the tanks are used for storage and two are used for exporting fuel to the Power Plant for daily use. The storage vessels are buried within concrete walled storage mounds. Please see Figure 3 below.

**Fig 3-** LPG Storage tanks on St. Thomas



Each propane storage vessel is constructed in accordance with ASME Section VIII Div. 2 standards, with a design pressure of 17.5 bar at 52°C, making it suitable for HD-5 propane operation under ambient conditions.

Each vessel is equipped with manifolded thermal relief valves set at 15.5 barg and a fire-case relief valve set at 17.5 barg, which vents to the atmosphere. All liquid and gaseous propane connections are fitted with Remote Operated Solenoid Valves (ROSoV), which are integrated into the facility's safety system. These valves automatically close upon detection of hazardous conditions, functioning as part of the facility's hardwired automated Emergency Shutdown (ESD) system and its ESD cause-and-effect logic.

**Storage Vessel Specifications:**

- Dimensions: 6.35 meters in diameter x 47 meters in length (with dished ends).
- Capacity: 1,379 m<sup>3</sup> at 85% fill level.

Each bullet vessel is equipped with:

- Two independent level transmitters using different technologies.
- A high- level switch (ESD function).
- Pressure and temperature transmitters for operational monitoring.

The propane storage tanks undergo planned periodic internal Non-Destructive Testing (NDT) inspections as part of a risk-based inspection program to ensure continued integrity and safe operation.

### Propane handling (pumps / compressors).

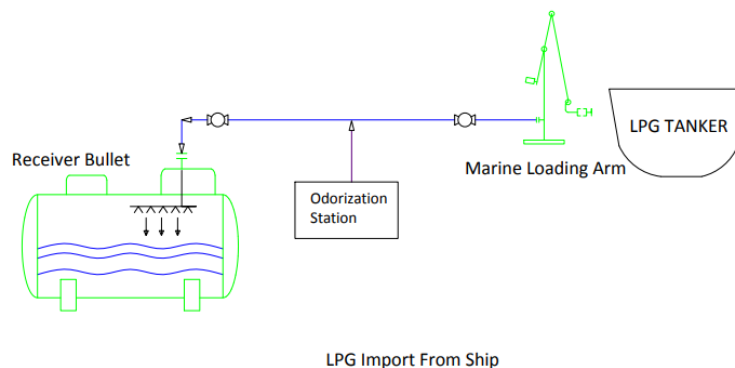
Each site is equipped with two (2) horizontally oriented, 100% capacity, variable-speed, electric motor-driven, seal-less (magnetic drive) centrifugal pumps, rated at 60 m<sup>3</sup>/hr at 40 m head.

Key features include:

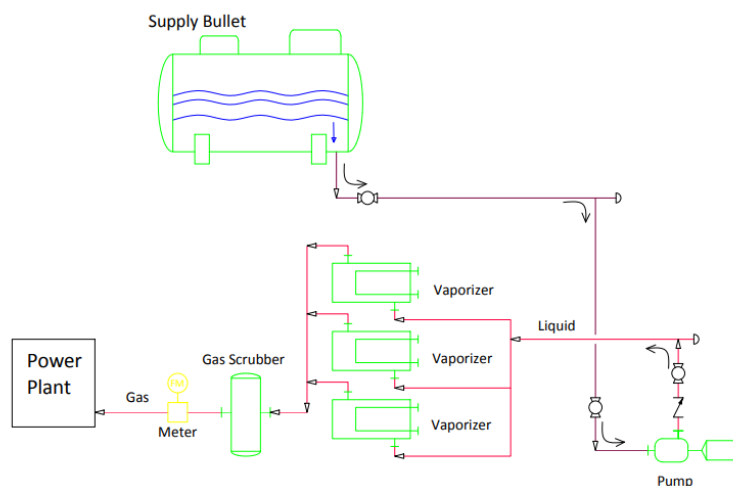
- Inductor-equipped impeller assembly to maintain consistent flow and minimize cavitation at low tank levels and high flow demands.
- Variable-speed drives to optimize flow and pressure head based on vaporizer fuel gas requirements and ambient tank conditions.
- Magnetic drive seal-less design, eliminating the need for mechanical seals while preventing external propane leaks and fugitive emissions.

### Process Flow Diagrams

**Figure 4a-** LPG import from Ship



**Figure 4b-** LPG export to Power Plant

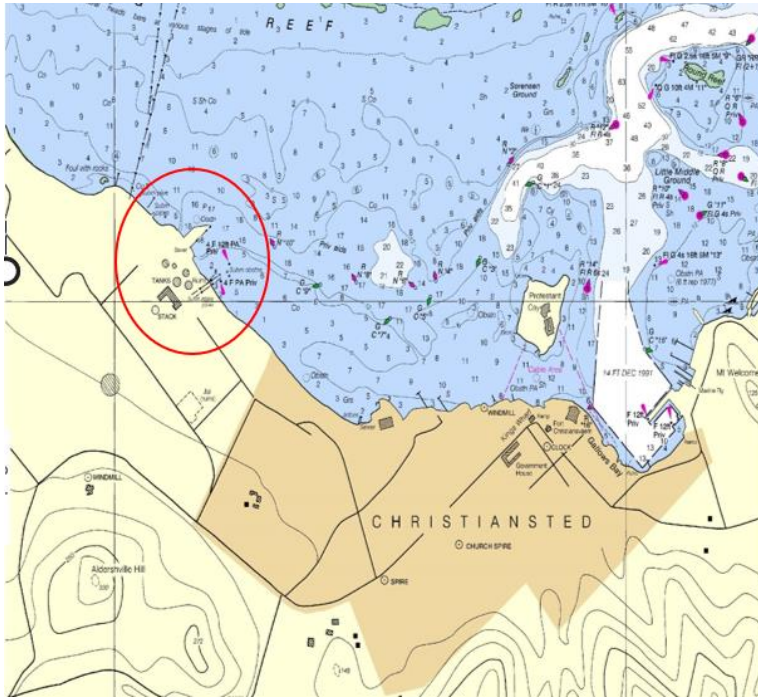




## APPENDIX B - DELIVERY, STORAGE, AND HANDLING REQUIREMENTS, ST CROIX

**Location:** The St Croix propane storage and fuel gas vaporisation facility is situated adjacent to the Richmond Power Station and the recently installed Aggreko power generation plant. The VITOL facility occupies approximately 1.5 acres however the site, which was formally used as a cement works, extends to over 2.5 acres, part of which now forms the Aggreko power generation site.

**Figure 5-** Richmond Power Station, 17o 45' 00.00" North 064o 42' 35.88" West



## Facilities overview:

The propane storage and propane fuel gas vaporisation facilities on St Croix comprise the following major equipment:

**Dock facilities-** for offloading of supply and shuttle propane carrier ships. The dock facilities for offloading supply and shuttle propane carrier ships were originally constructed using a sheet pile cofferdam, driven to a depth of 25 feet, backfilled, and partially capped with a concrete working deck. As part of the propane offloading conversion, a 6-inch liquid propane offloading line and a 4-inch vapor balance line, both made from low-temperature carbon steel, were installed. Additionally, a new firewater pumping deck was constructed midway along the jetty, equipped with a 6-inch firewater main designed to provide a ship berthing firewater curtain, firewater cannon, and hose monitors for enhanced fire suppression.

To improve berthing capabilities, new monopile breasting dolphins with a fender system were installed, along with two monopile turning dolphins and new dockside mooring bollards, allowing vessels with a length overall (LOA) of 95 meters, a beam of 15.98 meters, a draft of 5.5 meters, and a summer deadweight tonnage (SDWT) of 3,190 tons to safely berth. Propane offloading is conducted using the ship's onboard cargo pumps once the receiving storage tanks are properly aligned. Operations are coordinated by a Person In Charge (PIC) stationed at the jetty or dockside, who communicates with the facility's control room via radio transmission to ensure safe and efficient offloading procedures.

**Figure 6- St. Croix LPG Jetty**



**Propane storage vessels:** The St. Croix storage facility comprises of eight (8) storage vessels, two (2) mounds each containing four (4) storage pressure vessels, for a total storage capacity of 10400 cubic meters. Six of the tanks are used for storage and two are used for exporting fuel to the Power Plant for daily use. The storage vessels are buried within concrete walled storage mounds. Please see Figure 6 below.



**Figure 7-** Propane Storage St. Croix



**Propane pumping facilities:** 2 x 100% capacity propane transfer pumps (transfer from storage to export vessels) and 2 x 100% capacity propane export pumps (propane liquid supply to propane fuel gas vaporiser).

**Figure 8a-**Propane Transfer Pumps



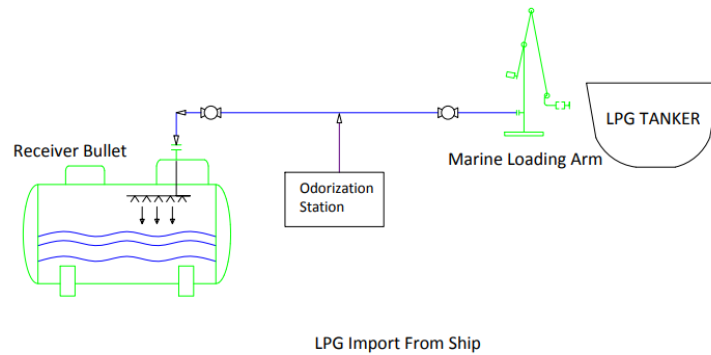
**Figure 8b-**Propane Export Pumps



Note- Propane offloading is achieved using the delivery ships onboard cargo pumps after the receiving storage tanks are aligned through operations coordinated by an operations Person In Charge (PIC) located at the jetty / dockside and with the facilities control room via radio communication

### Process Flow Diagrams:

Figure 9a- LPG import from Ship



Note - the MLA is currently not in service. Discharge is made by flanged connections on both sites.

Figure 9b- LPG export to Power Plant

