

Variable Frequency Drive Renewal and Replacement Project

C800801
WP U0332



What is a Variable Frequency Drive (VFD) & what does it do

- A VFD is a type of motor controller that drives an electric motor by varying the frequency and voltage of its power supply. The primary purpose of a VFD is precise **SPEED CONTROL** so that motor speeds can be ramped up and ramped down thus using less energy by running the electric motor efficiently

What does a VFD look like



In this picture a Variable Frequency Drive powering a Main Terminal Air Handling Unit fan running at 350 Horsepower

Where are these old VFDs



VFDs are in multiple locations

The problem

- American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) recommends a VFD life span of 10-12 years.
- 131 VFDs have outlived their useful life and are considered obsolete by ASHRAE standards.

This project was deferred in 2016

Scope of work solution

- Replace the 47 oldest Variable Frequency Drives with this project in order to avoid failures.
- Salvage components from these 47 VFDs and add those components to the Port's spare parts inventory.

Extends the useful life of the 87 remaining obsolete VFDs

Project schedule

- Request Commission Authorization for Construction 3rd QTR 2018
- Construction Starts 1st QTR 2019
- In-Use Date 3rd QTR 2019 (1st group of VFDs)
 - Due to complexity the construction duration is 18 months

Construction durations

Project Budget

- Design: \$1,175,000
- Construction: \$2,820,000
- Total Project: \$3,995,000

This request is for construction authorization and budget