



Valero partners with Eaton to improve personnel safety and equipment reliability

Location:

Louisiana, U.S.

Segment:

Oil and gas

Problem:

Enhance personnel safety during maintenance operations

Solution:

Eaton FlashGard® motor control center

Results:

Enhanced personnel safety, improved equipment reliability in a range of new and traditional processes

Background

The risk of an arc flash event is real and can instantaneously generate temperatures that can reach four times the temperature of the sun.

An arc flash is associated with the explosive release of energy caused by an electrical arc, due to either a phase-to-ground or phase-to-phase fault. This kind of fault can result from many factors: a dropped tool, accidental contact with electrical conductors, conductive dust buildup, corrosion or improper work conditions.

In 2012, Valero's St. Charles Petroleum Refinery sought to enhance personnel safety and equipment reliability at its Louisiana facility by using industry-leading solutions engineered to reduce arc flash risks. Valero keyed into Eaton's

FlashGard motor control centers (MCCs), which are designed to prevent and protect personnel and equipment from the dangers of arc flash, especially during routine maintenance operations.

Safe, dependable power is crucial in the oil and gas industry and improving personnel and equipment safety is a top priority. At the same time, equipment needs to be up and running without interruption. Due to the vast array of renewable, hydrocracking, water and wastewater processes within the Valero refinery, it was a priority to reduce the risks associated with an arc flash event.

Challenges

Motor control centers are routinely accessed during maintenance. As personnel perform regular maintenance on electrical equipment, it's crucial that they're aware of arc flash dangers, know how to avoid them and use equipment designed to minimize arc flash risks. Valero sought proven arc-preventative motor control center technology that lowered the probability of electrical shock and enhance personnel safety.

Operations at the St. Charles refinery run continuously, so the systems powering them must also run 24 hours a day, 7 days a week. Valero required MCCs with demonstrated performance and reliability to enhance employee safety and protect equipment from arc flash dangers.

Solution

The solution was a comprehensive program to install and standardize Eaton's FlashGard MCCs to new and existing equipment; 285 structures of Freedom Series™ FlashGard MCCs were installed throughout the St. Charles refinery. Unlike conventional MCCs, the FlashGard design enables units to be disconnected and reconnected to the vertical bus with the unit door closed—and maintaining a closed door during these operations increases operator safety.

Valero also saw the value of the Eaton remote-racking system, which it employed to extend an operator's safety zone to a maximum of 15 feet, while disconnecting or reconnecting the unit power stabs to the vertical bus during maintenance or bucket replacement.



Powering Business Worldwide

The FlashGard MCCs incorporate many features unique to the electrical industry that have proven to be reliable and effective means of providing enhanced electrical safety to minimize the dangers of arc flash:

- Multiple insulation and isolation features enable arc flash prevention.
- Unlike conventional MCCs, the FlashGard MCC's arc-preventive design enables units to be disconnected and reconnected to the vertical bus with the unit door closed, increasing operator safety.
- A series of safety interlocks ensures that doors can't be opened and units can't be removed from the structure while the stabs are connected to the vertical bus.
- Each unit contains visual indicators that report the position of the isolation shutters and stabs, providing maintenance personnel with additional assurance that dangerous voltages aren't present inside the unit when service is required.

Results

With Eaton's MCCs in place at the Valero facility, equipment and personnel have added protection from the dangers of an arc flash by:

- Decreasing direct cost of employee incidents.
- Reducing number of injury-related incidents.
- Lowering the probability of the creation of a short circuit phase-to-phase or phase-to-ground and electrical shock.



Newly refurbished fluid catalytic cracking unit at the Valero St. Charles Refinery

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

© 2013 Eaton
All Rights Reserved
Printed in USA
Publication No. CS083012EN / BC-176
June 2013

Eaton is a registered trademark.

All other trademarks are property of their respective owners.