

Superior Fabrication, Inc.

Presents The

Emissions, Volatiles and Aromatics Control System

EVAC System

SCOPE:

EVAC is Superior Fabrication's answer to the ever-increasing need for an environmentally safe way of disposing BTEX and VOC from glycol regeneration units. The basic EVAC System meets the requirements of CFR title 40, §63.771(d)(1)(ii) as a vapor recovery device (condenser) by reducing the mass content of total HAP by 95% or more. The type of condenser we incorporate is either natural draft, which is typically used on small to medium sized units, or a forced air unit. Tests have been completed as well as sample modeling using GRI-GLYCalc to confirm the mass reduction efficiency. Since many dehydrators operate in regions that have a wide variety of ambient conditions, thus making it difficult to maintain constant control, it may be necessary to add the optional Enclosed Flare.

PROCESS:

Overhead vapors, which have previously been vented to the atmosphere, are piped through a condenser into an accumulator vessel. Water vapor and condensable hydrocarbons are condensed then separated from the gasses in the accumulator vessel. If the regeneration unit is equipped with a still column type skimmer or aromatic separator, the hydrocarbon line from such may be tied into the inlet of the accumulator.

The condensed liquids are pumped or "boosted" to a slop tank or other collection point for disposal.

The non-condensable vapors are then vented, or piped through an in-line flame arrester and into the optional enclosed flare.

Enclosed Flare Option:

While the flare could be used without the aid of the condenser and accumulator, SFI insists on installing the condenser ahead of the flare to prevent introduction of any hydrocarbon liquids into the flare. The Enclosed Flare is sometimes referred to as a ground flare, as in the case of API publication 931 chapter 15. It is simply a flare that

has been surrounded by an insulated barrier. As opposed to an elevated flare, the enclosed flare has little to no heat radiation on personnel and adjacent equipment. Since the flare is at ground level, maintenance is much easier and safer. The enclosure also limits the affects of wind and downdrafts.

The enclosed flare meets the requirements of CFR title 40 §63.771(d)(1)(iii) as a "Flare" per §63.11(b).

§63.11(b)(1) Operator shall monitor and operate the control device.

§63.11(b)(2) The SFI flare is a non-assisted, natural draft type.

§63.11(b)(3) The flare is operated continuously.

§63.11(b)(4) The flare is designed to have no visible emissions, except for a maximum total of 5 minutes in any 2 hour period. Test Method 22 in appendix A of part 60 is to be used in determining visible emissions.

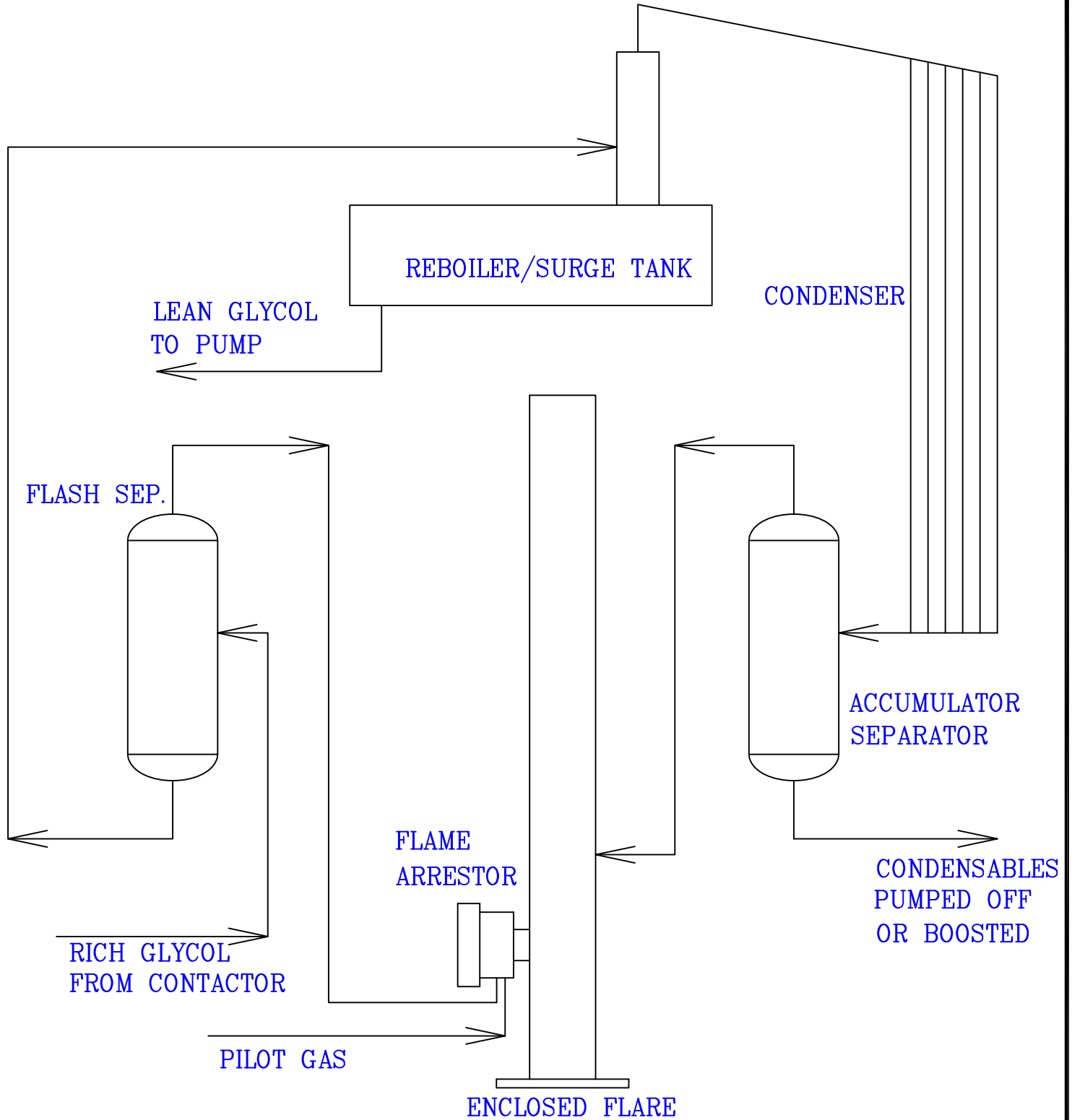
§63.11(b)(5) The flare is equipped with a constant pilot flame monitored by a thermocouple. The thermocouple causes instant re-light should there be a pilot outage.

§63.11(b)(6) Refer to §63.11(b)(7)(i) The SFI flares are sized for 10 ft/sec based on anticipated flow rates but have been designed for a maximum velocity of 60 ft/sec. Flares that operate over the 10 ft/sec may show visible flame above the enclosure as velocities approach 60 ft/sec. This is natural and acceptable, even on a continuous basis as long as the flare remains without visible emissions as noted above.

It should be noted that the flare is actually a secondary control device since the condenser is designed to remove the majority of the HAP. The Flare has an efficiency rating of 98%.

Installation and operating instructions are covered under separate documents.

Superior Fabrication, Inc. (580) 243-5693 phone
801 S. Eastern (580) 243-5507 fax
Elk City, Oklahoma 73644 superiorfab@superiorfab.com e-mail
Visit our web site: superiorfab.com



DWN: T. RICKEL
 DATE: 18 NOV 97
 CHKD: T. RICKEL
 MODEL: ~~XXXX~~
 SERIAL: NONE
 B.M. YES NO

SF SUPERIOR FABRICATION, INC.
 ELK CITY, OKLAHOMA
 SCALE: NONE CUSTOMER: STANDARD
 EVAC SYSTEM - FLOW DIAGRAM

DRAWING NO:
 EVAC-1
 18 NOV 97