PLAINTIFF'S EXHIBIT

DOW-2109

ST0496065

HE DOWTHERM SYSTEM

DOWTHERM systems are very similar to steam systems and are operated in much the same way. The reason for using DOWTHERM instead of steam is that DOWTHERM boils at a much higher temperature (500°F) than water (212°F) and much higher temperatures can be attained with lower system pressures than can be attained using water.

Looking at the sketch "DOWTHERM A SYSTEM", the heat input to the system is accomplished in the vaporizer (DTU-301). Natural gas is burned in DTU-301 as DOWTHERM liquid is circulated through DTU-301 by pumps P-319A/B and back to D-319 "Flash Tank". In the flash tank, the superheated DOWTHERM vaporizes and that which does not, is recirculated through the vaporizer again.

The vapor generated by the vaporizer is piped away from D-319 in vapor headers where it is controlled into various plant heaters and reboilers. Here the vapor is condensed back into liquid after giving up its heat and flows out of the heater or reboiler into a float trap.

The float trap on the heat exchangers only allows the liquid DOWTHERM to return back into condensate headers and then into D-19 condensate tank. The liquid is collected in D-19 and pumped back into D-19C.

A control valve on the inlet of D-19C controls the level of D-19 and the control valve on the outlet of D-19C controls D-319's level. This makes D-19C a "floating" level tank and any changes in DOWTHERM inventory will show up here.

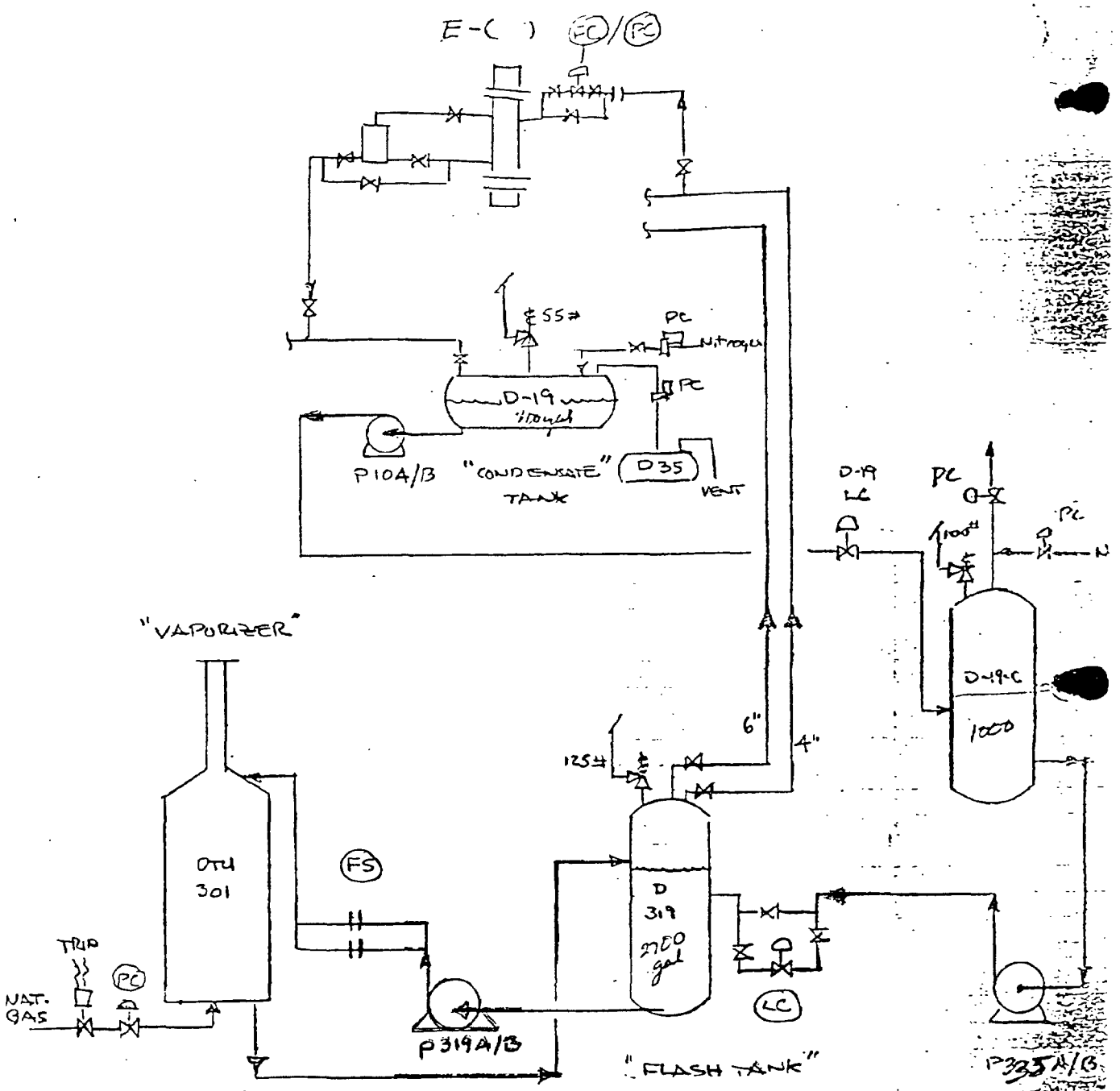
Controls: The system vapor pressure is controlled by the amount of heat added to the vaporizer - the gas control valve at DTU-301. The pressure is backed up on the other end of the vapor system by the condensate traps, which only allow liquid through.

D-319 level is controlled by throttling the inlet liquid condensate at D-319.

D-19 level is controlled by throttling the level inlet to D-19C.

1/26/78 rw

ST0496066



SYSTEM TRIPS

1. FLAME OUT - UV DETECTORS
2. LOW FLOW TO DTH 301
3. LOW GAS PRESS (3#)
4. HIGH GAS PRESS (40#)
5. HIGH DOWTHERM VAPOR PRESS.
6. PANIC BUTTON

DOWTHERM "A" SYSTEM

10/77 ETW

ST0496066