6 SUMMARY AND RESULTS

6.1 SETTLE OUT PRESSURE RESULTS

The settle out pressure was determined as 5.03 bar and the settle out temperature was 52 °C in the section 5.3.

There is no propane condensation in the recyle line because the temperature is far away from the dew point.

In the case of the suction drum filled with liquid in the section 5.9, the settle out pressure was 3.02 bar and the settle out temperature was –13.75 °C for V-2519 and –14.06 °C for V-2520 when the level of V-2519 was changed from 13.5 % to 18.1% and one of V-2520 from 14.5% to 9.02%.

6.2 START-UP RESULTS FROM SETTLE OUT CONDITIONS

Dynamic simulation in section 5.4 show that the compressure could be started up from the above settle out conditions and entered to the full recycle mode.

The anti-surge control valve opening was 23% for FV-440 (1st-stage valve) and 82% for FV-444 (2^{nd}-stage valve).

The pressure of V-2519 (1st suction drum) was 1.4 bar and one of V-2520 (2^{nd} suction drum) was 4.1 bar.

The temperature of V-2519 (1st suction drum) was 50.0 °C and one of V-2520 (2^{nd} suction drum) was 53.4 °C.

The outlet temperature of desuperheater (E-2512) was 77.1 °C and the outlet pressure was 21.7 bar in which there is no propane condensation.

6.3 LOAD TRANSFER RESULTS

Dynamic simulation in section 5.5 (52 °C holding case) show that the service compressor (K-2509A) could be replaced by he stand-by compressor (K-2509B) safely.

The load of the service compressor could be transferred to the stand-by compressor in full recycle mode as opening the block valves of the stand-by compressor and closing the block valves of the service compressor.

The discharge pressure of K-2509A was changed from 22.47 bar to 10.99 bar while one of K-2509B was changed from 10.99 bar to 22.47 bar.

The discharge tempearture of K-2509A was changed from 109.2 °C to 160.3 °C while one of K-2509B was changed from 160.3 °C to 109.2 °C.

The pressure of V-2519A was changed from 0.652 bar to 0.652 bar while one of K-2509B was changed from 0.652 bar to 0.652 bar.

The temperature of V-2519A was changed from -47.91°C to 30.26 °C while one of K-2509B was changed from 30.26 °C to –47.91°C.

The pressure of V-2520A was changed from 2.03 bar to 2.91 bar while one of K-2520B was changed from 2.91 bar to 2.03 bar.

The temperature of V-2520A was changed from –15.06 °C to 42.64 °C while one of K-2520B was changed from 42.64 °C to –15.06 °C.

6.4 CASE STUDY RESULTS

Transient behaviours of operation changes were studied in the section 5.6, 5.7 and 5.8.

As the propane boil-off condensing duty is decreased from Case 1 to Case 4, the recycle rate is increased and the operating conditions go near to the full recycle conditions.

Table 6.4.1 shows the summary of results of all case studies.

Table.6.4.1 Summary of case study results

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	Case 1	Case 2	Case 3	Case 4	**Recycle**
Discharge P (bar)	22.88	22.21	22.19	22.05	**22.47**
Discharge T (°C)	109.5	127.8	140.9	164.2	**160.3**
V-2519 T (°C)	-48.03	-25.44	-3.08	30.0	**30.26**
V-2519 P (bar)	0.674	0.717	0.881	1.172	**0.652**
V-2520 T (°C)	-16.18	-6.502	-4.734	30.4	**42.64**
V-2520 P (bar)	2.846	2.869	3.192	3.735	**2.907**
1st Antisurge Valve Open %	0	14.04	29.59	59.87	**78.01**
2nd Antisurge Valve Open %	0	6.76	11.18	19.07	**21.03**