

	<b>PROGETTISTA</b>	<b>COMMESSA</b>	<b>UNITA'</b> -
	<b>LOCALITA'</b> REGIONE LIGURIA		
	<b>PROGETTO / IMPIANTO</b> FSRU Alto Tirreno e Collegamento alla Rete Nazionale Gasdotti		<b>Rev.</b> 0

Rif. TRR: 72438

**EMERGENZA GAS  
INCREMENTO DI CAPACITÀ DI RIGASSIFICAZIONE (DL 17.05.2022, n. 50)**

**FSRU Alto Tirreno e Collegamento alla Rete Nazionale Gasdotti**

**Rapporto Preliminare di Sicurezza  
per la fase di Nulla Osta di Fattibilità (NOF)  
ai sensi del D.Lgs. 105/15**

**Allegato C.7.10  
Matrice Causa-Effetti E Dettagli Sistema Di Controllo terminale**

0	Emissione			G. Lanza	Giugno 2023
<b>Rev.</b>	<b>Descrizione</b>	<b>Elaborato</b>	<b>Verificato</b>	<b>Approvato</b>	<b>Data</b>

Illustration 4.14.1b Control Flow for ESD and Tank Protection System (FSRU Mode)

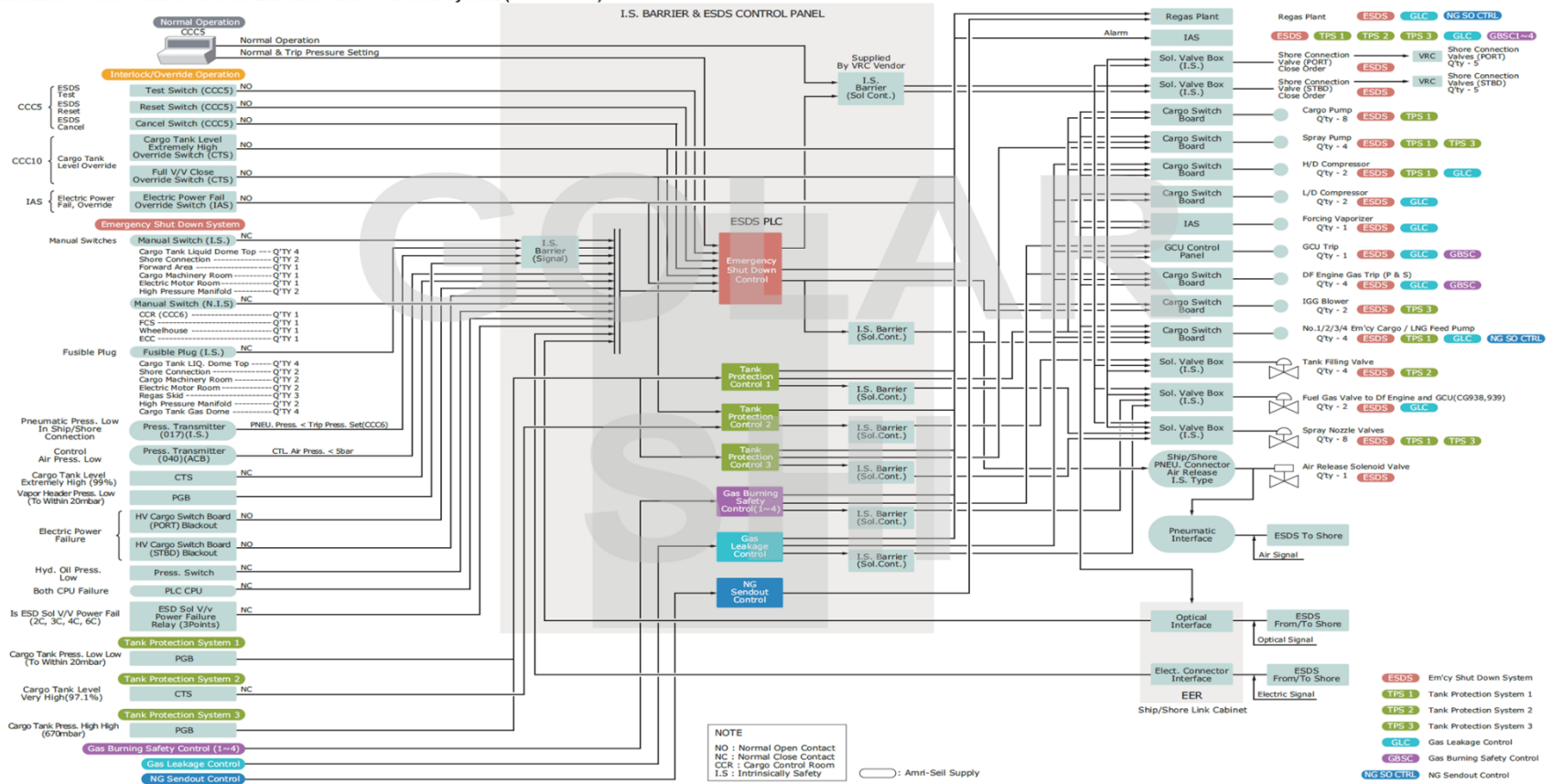


Illustration 4.14.1c ESDS Screen Shot

## EMERGENCY SHUTDOWN SYSTEM

ESDS FSRU MODE
Home Page

**Cause Of ESD Trip**

- ESD Total Alarm
- Hydr Oil Press Low
- 1 Cargo Tank level Extreme High
- 2 Cargo Tank level Extreme High
- 3 Cargo Tank level Extreme High
- 4 Cargo Tank level Extreme High
- Vapor HDR Press LL
- CTL Air Pressure Low < 5bar
- IS ESD Sol VV Power Fail (3C)
- IS ESD Sol VV Power Fail (4C)
- IS ESD Sol VV Power Fail (8C)
- ELECTRIC POWER FAIL (CSBD 1/2)

**Manual Push Button Station(No Delay)**

- ESD Manual Activated

**Shore Activated ESD**

- SHORE TO SHIP LNG ESD
- SHORE TO SHIP CNG ESD
- ESD Pneumatic Press Low Alarm

CTL Air Pressure(PT040) 0.00

**ELECTRIC POWER FAIL OVERRIDE**

Override

**DFDE P&S Gas Trip Reset**

Reset

**Tank Protection TPS1**

- 1 Cargo Tank Press LowLow(TPS1)
- 2 Cargo Tank Press LowLow(TPS1)
- 3 Cargo Tank Press LowLow(TPS1)
- 4 Cargo Tank Press LowLow(TPS1)

**Tank Protection TPS2**

- 1 Cargo Tank Level Very High(TPS2)
- 2 Cargo Tank Level Very High(TPS2)
- 3 Cargo Tank Level Very High(TPS2)
- 4 Cargo Tank Level Very High(TPS2)

**Tank Protection TPS3**

- 1 Cargo Tank Press High High(TPS3)
- 2 Cargo Tank Press High High(TPS3)
- 3 Cargo Tank Press High High(TPS3)
- 4 Cargo Tank Press High High(TPS3)

**Important Alarms (Not ESD)**

- BC CPU Fail Alarm (Both CPU Fail>ESD)
- 3C Sol VV Box Hyd Press
- 4C Sol VV Box Hyd Press
- 8C Sol VV Box Hyd Press
- 8C Sol VV Box Hyd Press

**ESD Override**

- ESD Total Alarm Override
- Electrical Power Fail ESD Override
- Shore To SHIP ESD Override
- Pneumatic Press Low ESD Override
- 1C TK Level EH ESD Override
- 2C TK Level EH ESD Override
- 3C TK Level EH ESD Override
- 4C TK Level EH ESD Override
- 1C TK level VH(FILL VV Close) Override
- 2C TK level VH(FILL VV Close) Override
- 3C TK level VH(FILL VV Close) Override
- 4C TK level VH(FILL VV Close) Override

**Gas Burning Safety Control**

- Gas Burning Safety Controller 1 Activated P DFDE
- Gas Burning Safety Controller 2 Activated S DFDE
- Gas Burning Safety Controller 3 Activated P&S DFDE
- Gas Burning Safety Controller 4 Activated GCU

**Gas Leakage Control**

- Gas Leakage Controller Activated IN EMR Or CMR
- Port DFDE RM Or GVU RM Gas Leakage
- Stbd DFDE RM Or GVU RM GAS Leakage
- GCU AREA GAS Leakage

**Misc Alarms**

- Master Gas VV(CG938(DFDE))
- Master Gas VV (CG639(GCU))
- Port DFDE Fuel Gas Valve (CG946) Trip
- Stbd DFDE Fuel Gas Valve (CG947) Trip
- LNG / Forcing Vaporizer Stop
- NO 2 & NO 3 EIR Supply Fans Stop(P&S)
- Port GVU RM Or NO 3 EIR Fans Stop
- Stbd GVU RM Or NO 2 EIR Fans Stop
- GCU GVU RM EXT Fans Stop
- BOG Temp HH/LL For CG938(GCU)
- BOG Temp HH/LL For CG938(DFDE)
- LD Comp. Stop & Master Gas VV Close(WH)
- LD Comp. Stop & Master Gas VV Close(CCC)
- LD Comp. Stop & Master Gas VV Close(ECC)
- LD Comp. Stop & Master Gas VV Close(FCS)
- Normal Source Power Fail
- UPS Source Power Fail
- UPS abnormal alarm

**SHIP SHORE LINK SYSTEM**

- Ship Shore Link System Abnormal
- Ship Shore Link System Inhibit In

**REGAS SYSTEM**

- Fusible Plug Activated For Regas Plant
- Regas Plant EMCY Stop
- NG Sendout ESD VV Closed
- NG Sendout ESD VV Sol De-Energized

**Thermo Fusible Plugs**

- ESD Fusible Plug Activated







Illustration 4.14.3a Ship-Shore Link

