



Maersk Ngujima-Yin FPSO
Down man of Non-Essential Personnel due
to loss of Emergency Power
6th July 2008

Ian Davison
Maintenance Superintendent
(Acting Operations Manager on day of Incident)
Maersk Ngujima-Yin FPSO



MAERSK NGUJIMA-YIN FPSO

- Sailed from Keppel Yard, Singapore 31st May 2008
- Arrived on Vincent Field 9th June 2008
- Hooked up to Buoy (Anchored) 1st July 2008
- Hook Up and Commissioning Activities ongoing
- No Hydrocarbons onboard
- 80 Persons on board
- Nan Hai VI carrying out drilling operations in Field.

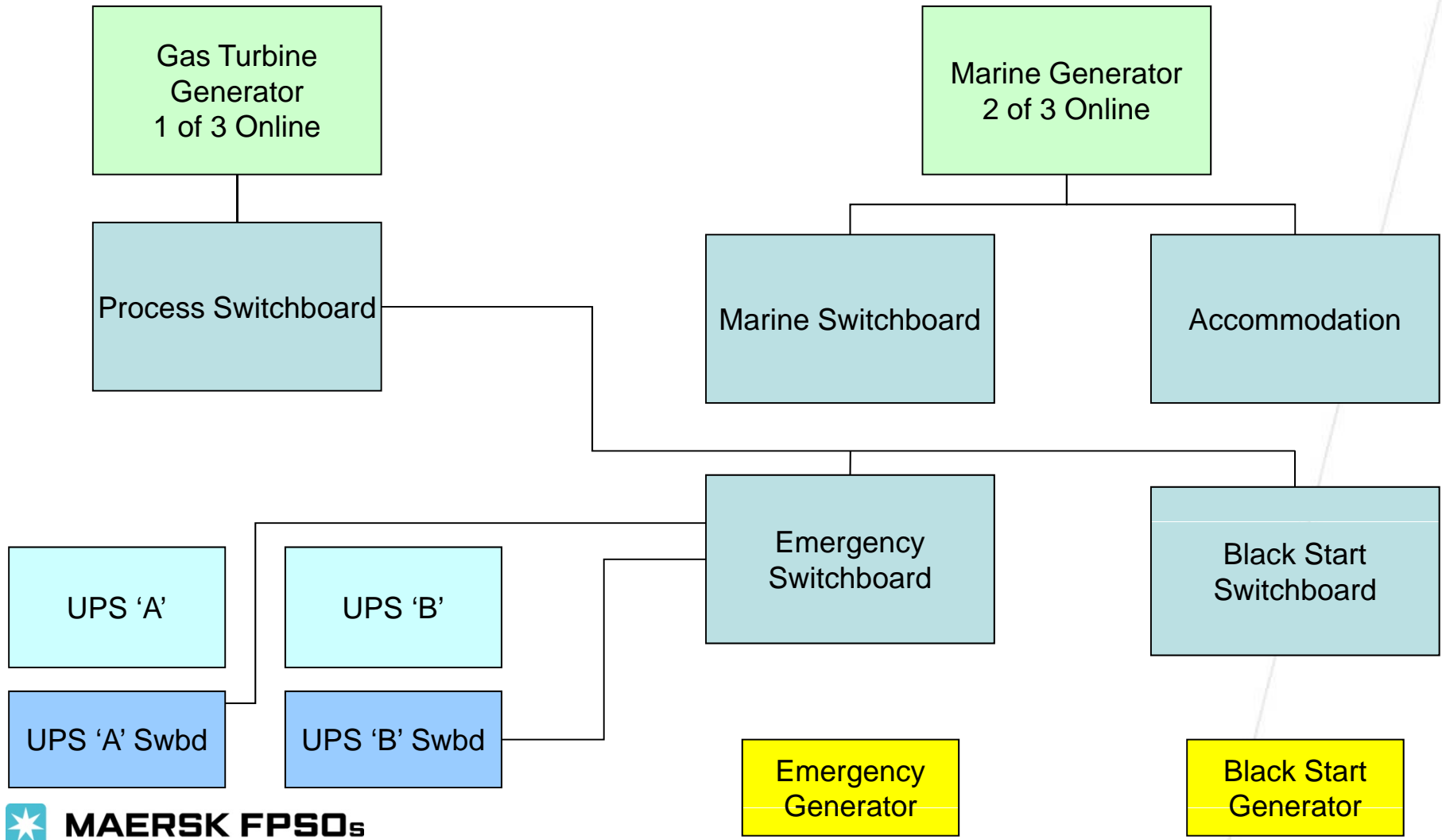


Power Generation and Distribution Status Prior to Incident

- Marine and Accommodation Services being supplied from 2 off Marine Generators in Engine Room
- Process and Emergency Power being supplied by 1 off Gas Turbine Generator Topsides

Uninterrupted Power Supply (UPS) System Status Prior to Incident

- UPS 'A' was in Maintenance By-Pass.
Several components had failed on 1st July 2008
- UPS 'B' was in Maintenance Bypass.
Unit bypassed when smell of arcing noticed 3rd July
- UPS Vendor due to mobilise with spares 7th July





Defective Safety Critical Equipment Risk Assessment for Failed UPS Systems completed offshore 4th July

Conclusion was that:

‘..having no hydrocarbons onboard, there was adequate secondary means of power to support the ongoing hook up and commissioning activities..’

Concurrence by Onshore Management Team



6th July 2008, 06.55

Call from Maersk Duty Manager to Maersk Ngujima-Yin
Operations Manager,

‘..received a call from Nan-Hai VI that
Ngujima-Yin has **‘blacked out’** and has only
1 portable VHF radio working.
Communications are on VHF via Nan-Hai VI
radio room..’



Status onboard the FPSO:

- All Personnel were at Muster Stations
- **No power to Integrated Control and Safety System (ICSS) system**
- All ICSS monitors were off.
- No emergency power
- External Communications via portable VHF radio (to Nan Hai VI) or 3G mobile phone.
- Normal power to Marine and Accommodation services was online (**this was not conveyed to Onshore Team**)

Actions Taken:

- Inlecs split into 2 groups:
 - Start emergency generator
 - Restore power to ICSS
- 2 Personnel dispatched to carry out fire check of accommodation (no F&G System)

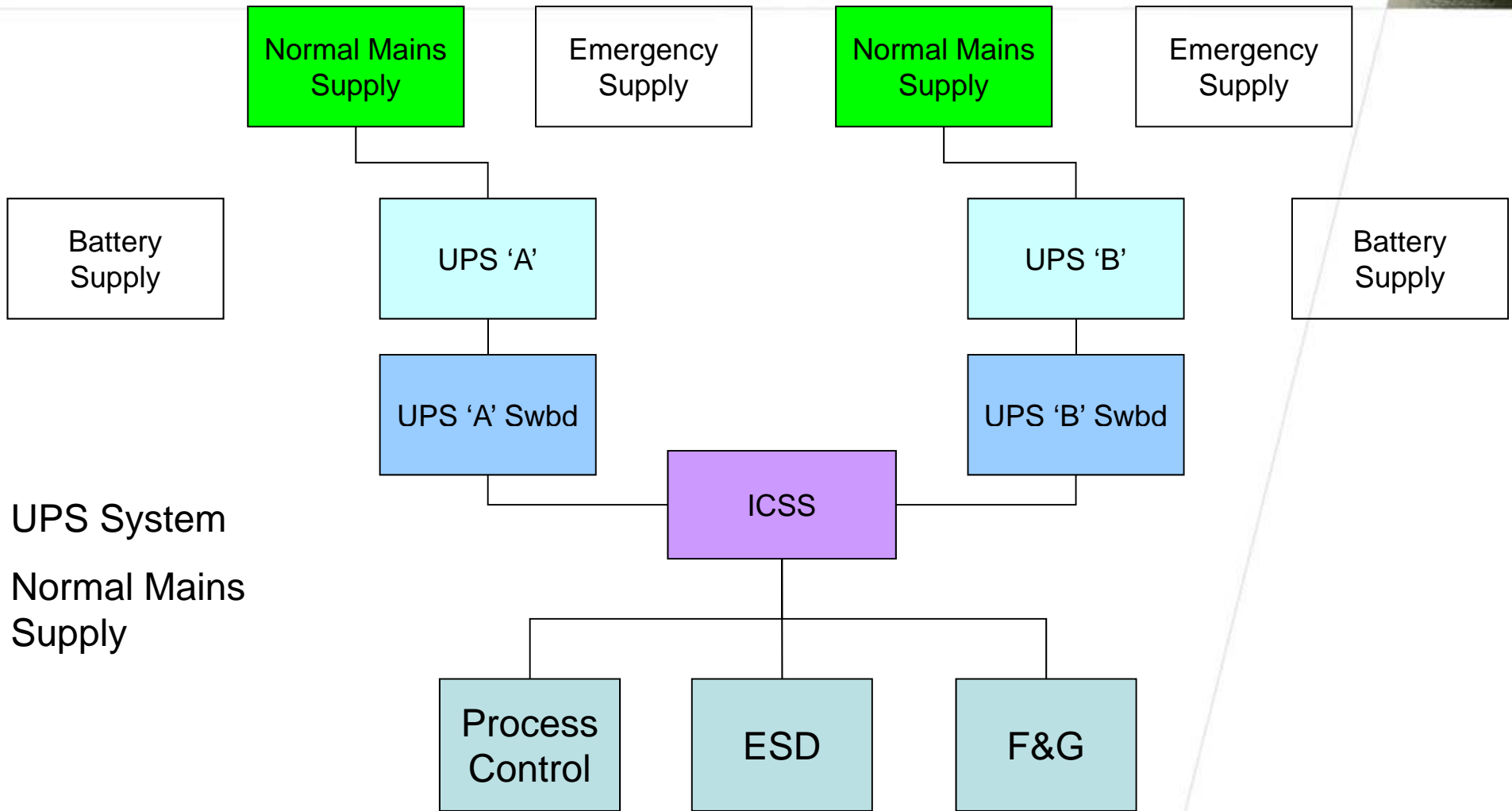


Following Mobilised to Maersk Drilling Office:

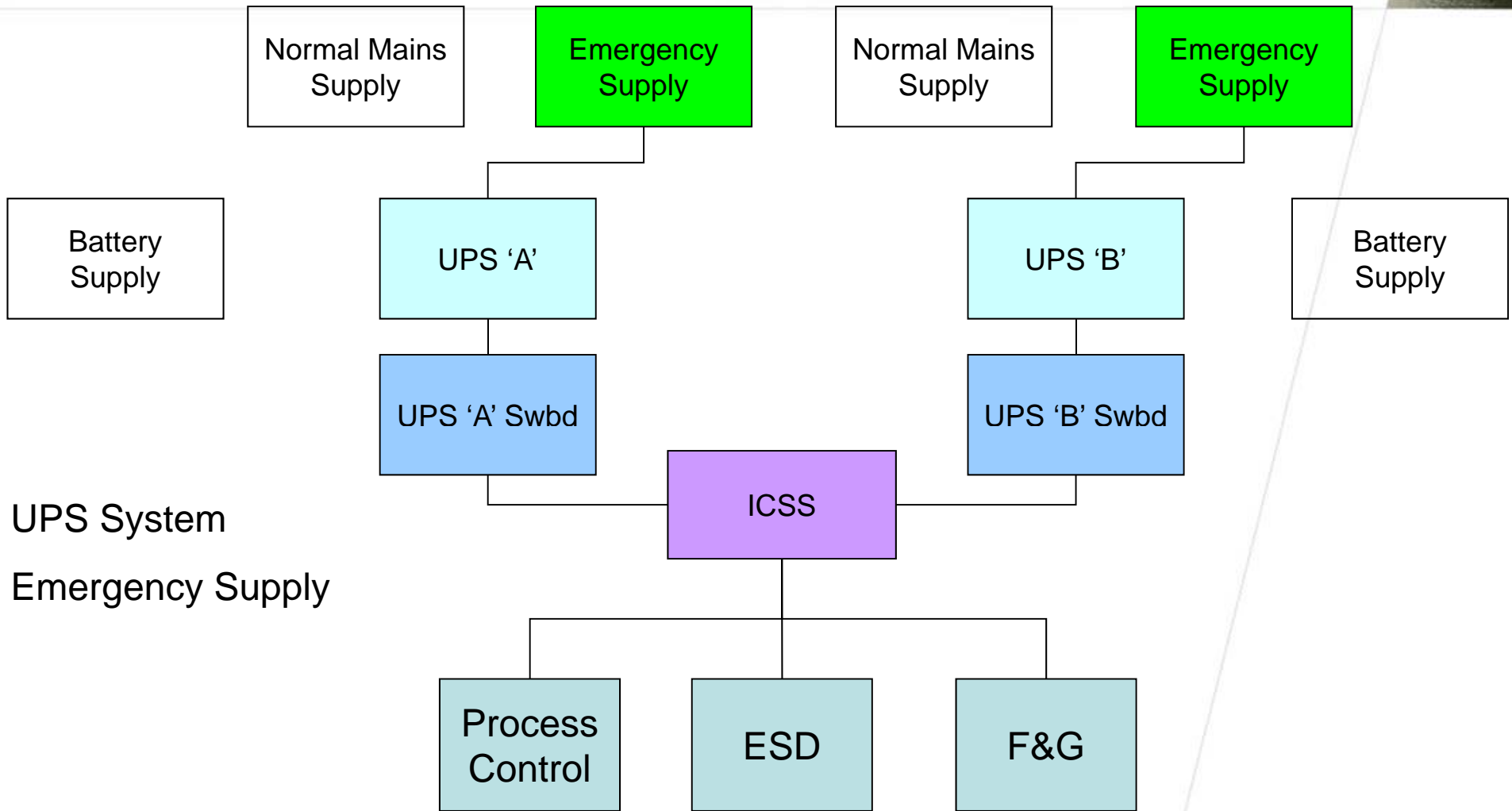
- Operations Manager Drilling and Production
- Operations Manager (Acting) Maersk Ngujima-Yin

Following Mobilised to Keppel Yard, Singapore:

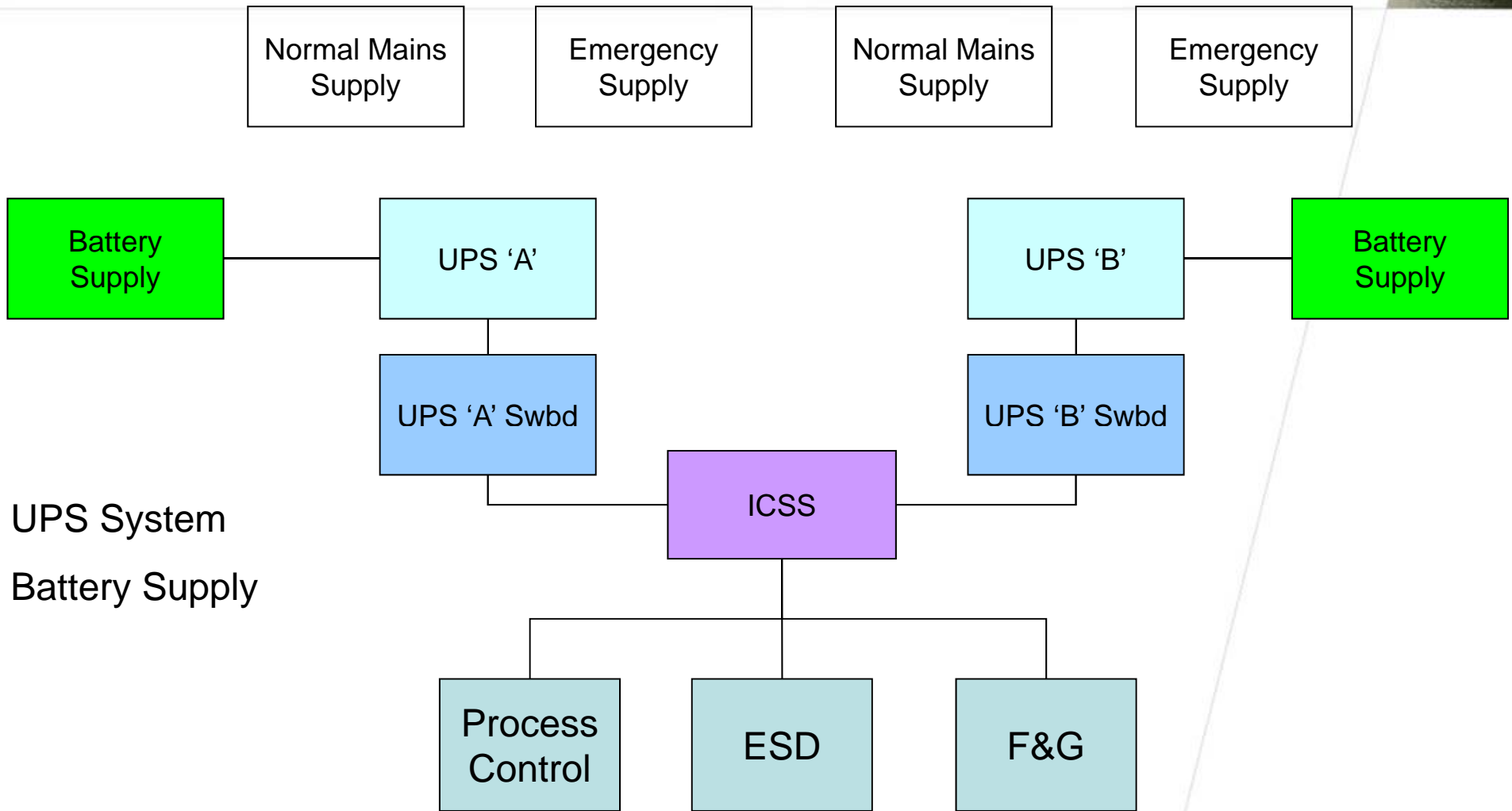
- Project Senior Electrical Engineer - Technical Support



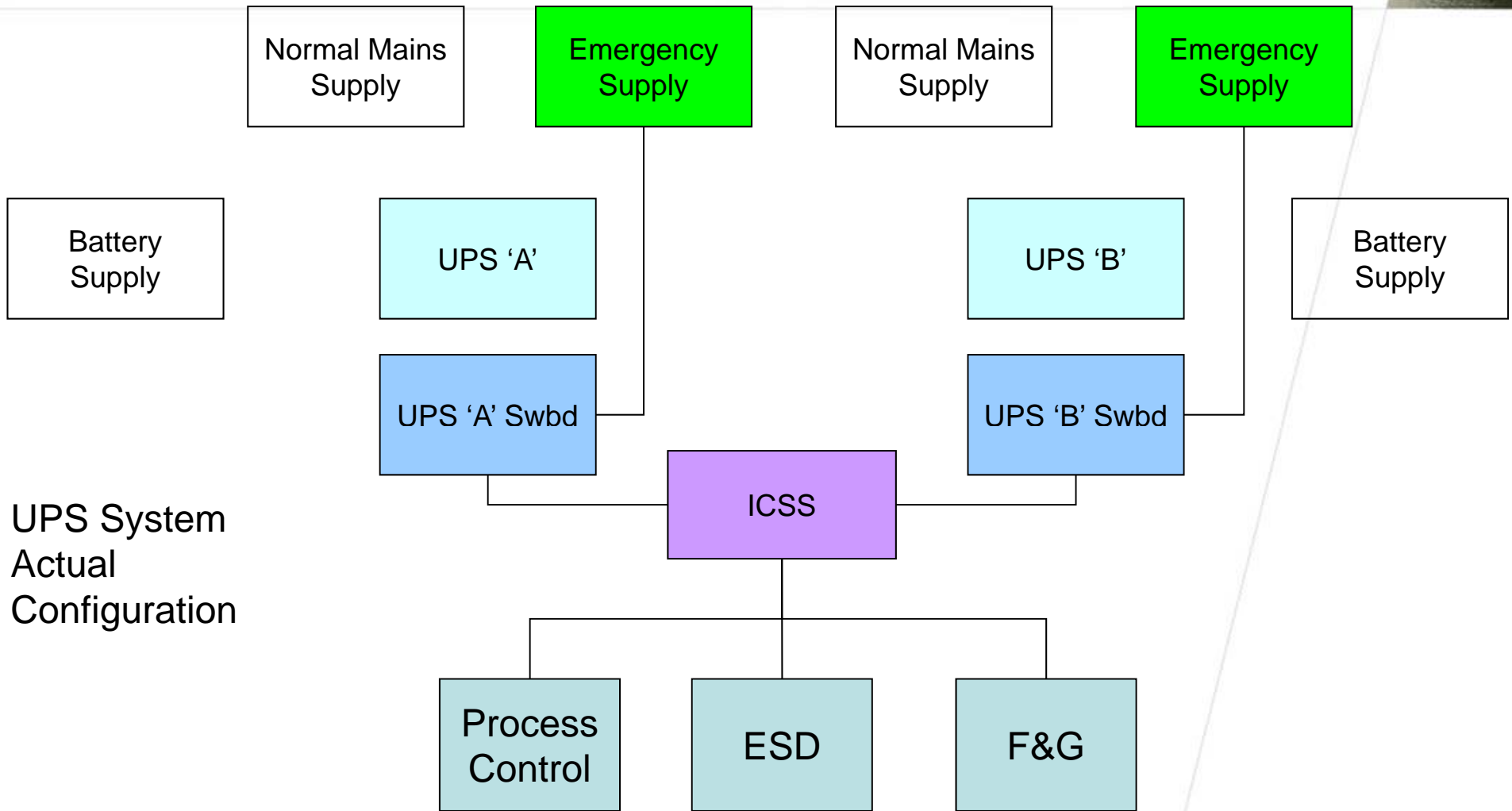
UPS System
Normal Mains
Supply



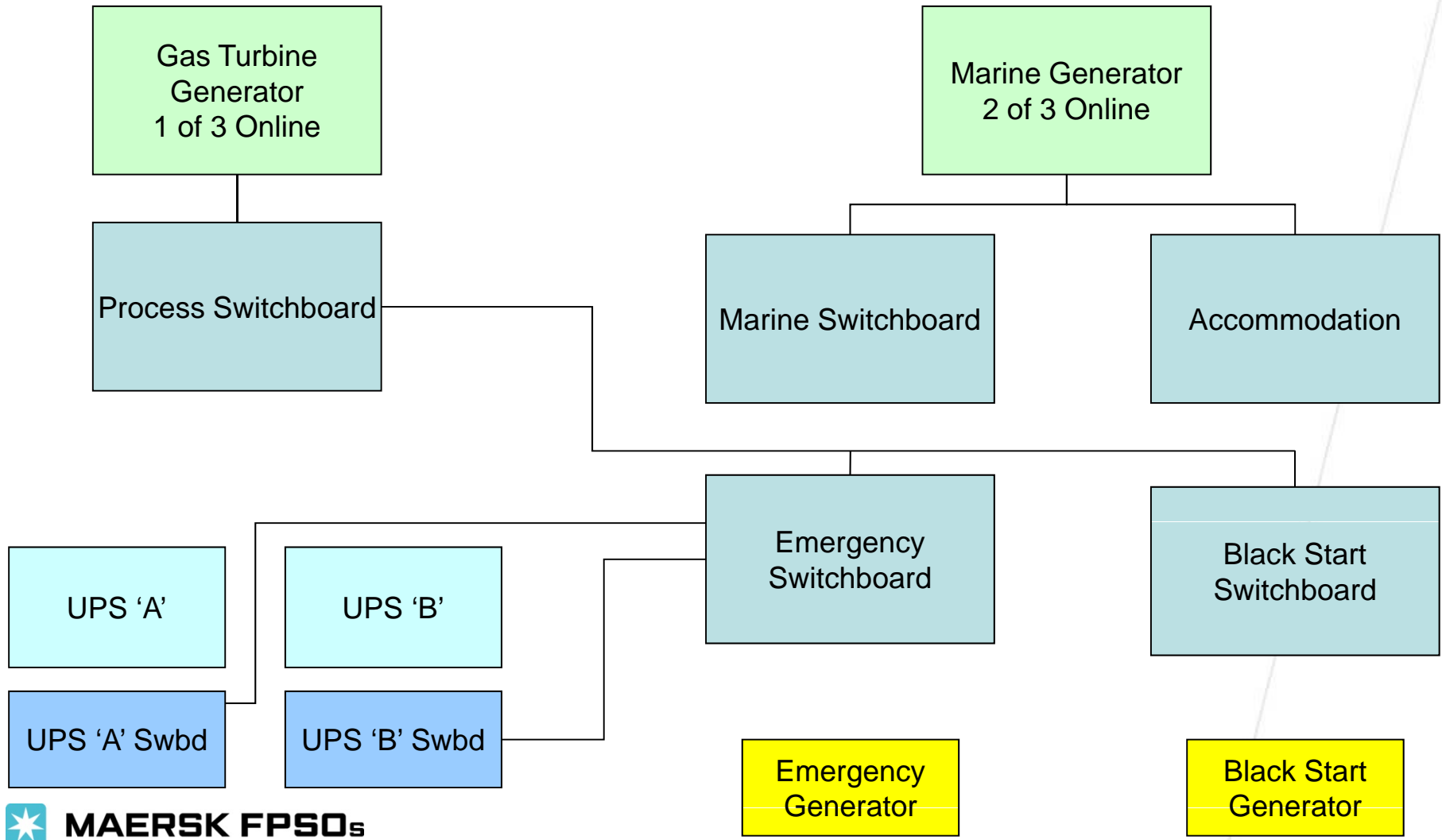
UPS System
Emergency Supply



UPS System
Battery Supply



UPS System Actual Configuration





Status Onboard FPSO

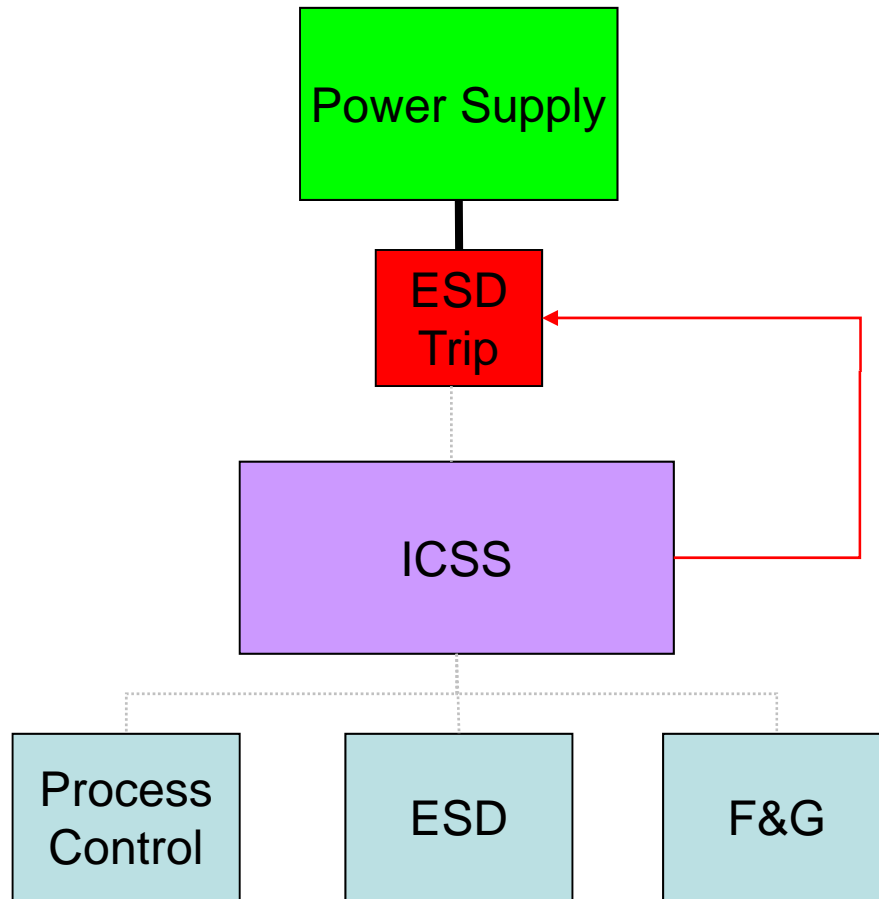
07.50 (1 hour after Incident)

- Unable to start Emergency Generator due to ESD Trip – even though using ESD override key switch
- Black Start Generator started with Hydraulic Start but unable to close breaker (Batteries were u/s – new ones were on order)
- Still unable to restore Emergency Power or ICSS
- External communications only available via VHF to Nan Hai VI or 3G mobile phone – Cause and Effect Anomaly
- Continuing with attempts to restore emergency power and ICSS.
- **FPSO Operations Superintendent Contacted Maersk Duty Manager and requested down-man of 40 non-essential personnel.**
- Normal power to Marine and Accommodation services **(this was not conveyed to / Understood by Onshore Team)**



Onshore

- Woodside Communications Centre contacted. Request made for down man of 40 Non-Essential Personnel
- Woodside Emergency Response Team Mobilised to implement the request
- 1st Helicopter to pick up Iridium Phone from Nan-Hai VI and deliver to MNY to allow external phone comms.





Status onboard FPSO

09-25 (1 hr 35 mins after incident)

- Black Start Generator running but unable to close breaker to switchboard.
- Emergency Power and ICSS still not restored
- Alternative method of supplying power to ICSS identified - Approved by Maintenance Supervisor, Operations Superintendent and Onshore Electrical Engineer



Status onboard FPSO

09-50 (2 hours after incident)

- Modification carried out and ICSS rebooted
- ICSS Available
- ESD reset
- Emergency Power Restored
- Power restored for external communications



Decision taken to continue with down man of Non-Essentials, as:

- Emergency Supplies not secure
- No UPS System
- True Status of normal power to Marine and Accommodation Services not understood by Onshore Team

Down man of non-Essentials

Helicopter on Deck:

11.05	8 Pax
12.07	8 Pax
12.55	8 Pax
13.15	8 Pax
14.26	8 Pax

Agreed Criteria for up man:

At least one UPS System to be fully operational



Incident Investigation

9th July Maersk HSEQ Manager and Woodside Senior Electrical Engineer mobilised to FPSO to Investigate Cause of Incident

Findings:

- UPS Safety Critical Equipment Risk Assessment inadequate
- Loss of ICSS caused ESD trips to critical emergency equipment
- Incorrectly wired 'Black Start Mode' key switch for Emergency Generator
- Inadequate 'As-Built' Drawings
- Incorrect labelling on Black Start Generator Switchboard
- Emergency Generator Room Fire Damper Installation not complete
- Internal verbal communication was good
- External communications were restricted due to loss of supplies.
- Decision to down man was influenced by incorrect terminology. Continued use of '**Black Out**' in communications gave wrong impression to Onshore Team.



What Went Well

- Emergency Response onboard the FPSO
- Inlecs overcoming challenges to restore power
- Coordination by Woodside Emergency Response Centre
- Processing of PAX lists and passengers
- Down manning and accommodation of personnel
- Re-mobilisation back to FPSO

Up man completed on 8th July 2008



Key Learnings:

- Maersk Ngujima-Yin departed from Conversion Yard with minimal systems fully commissioned.
Inadequate Project Management/Planning
- UPS 'A' failed due debris being left within cabinet.
Inadequate Commissioning
- Loss of External Communications due to anomaly with C&Es
Inadequate Design and Operations Review
- Onshore and Offshore Management Teams did not fully appreciate the potential consequences after failure of the 2nd UPS system. **Inadequate Risk Assessment**
- Incorrect use of terminology led to confusion over the status of power during the incident – decision to down man influenced by inaccurate terminology.
Inadequate Communications