



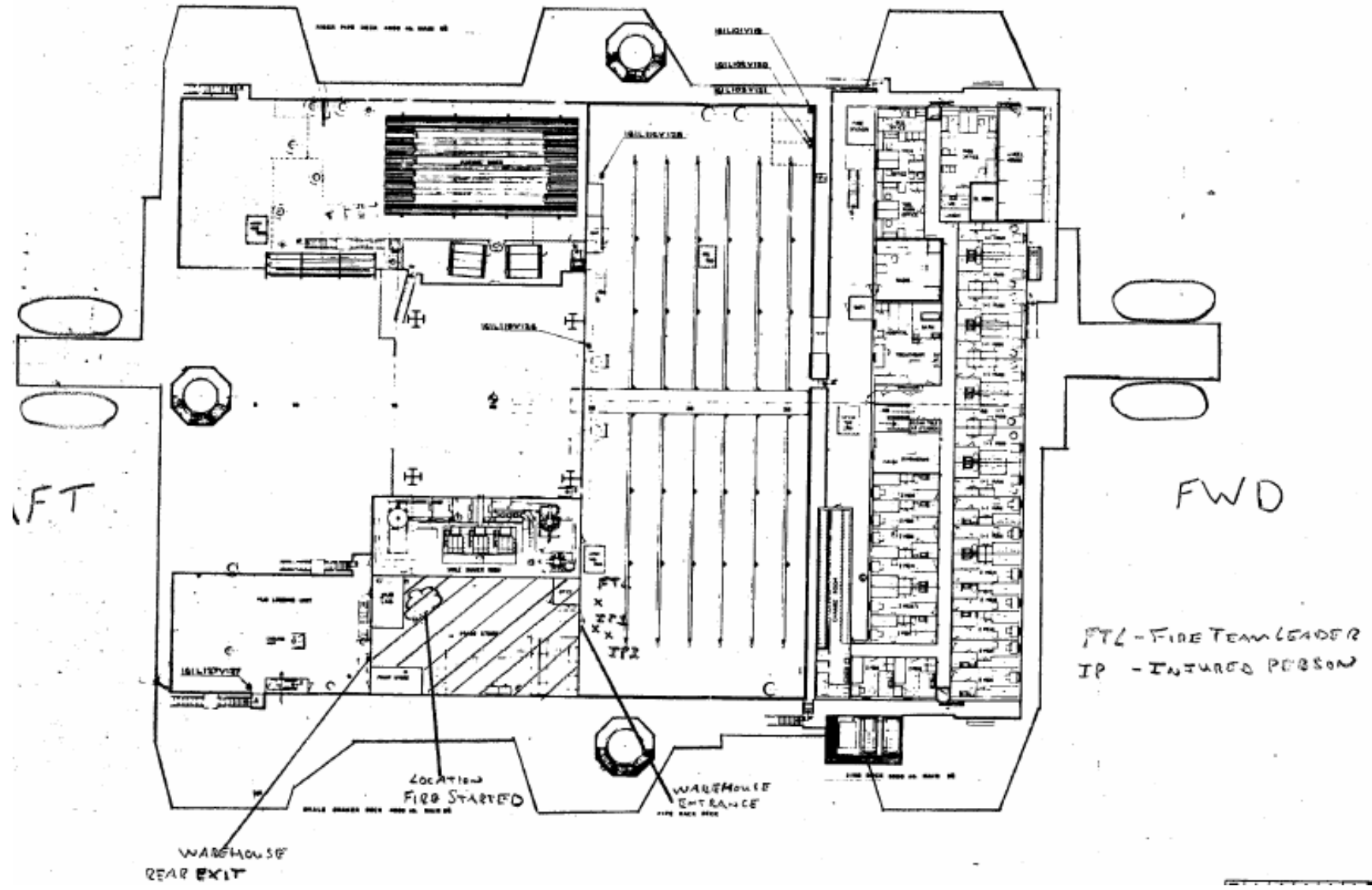
# Nan Hai VI Fire 23 July 2006

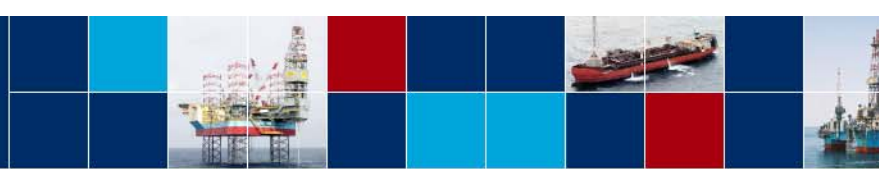
- 0130 – Fire in main store
- 0200 – Woodside and Maersk Perth ERC's mobilised
- 0206 – Two men injured in subsequent flashover explosion
  - Burns to both hands
  - Burns to head, face, chest, hands and smoke inhalation
- 0303 – Down manned 36 Non essential personnel to SBV
- 0528 – 2 injured off in helicopter
- 0610 – Fire under control
- 0630 – ERC's stood down
- 0718 – All POB back on rig

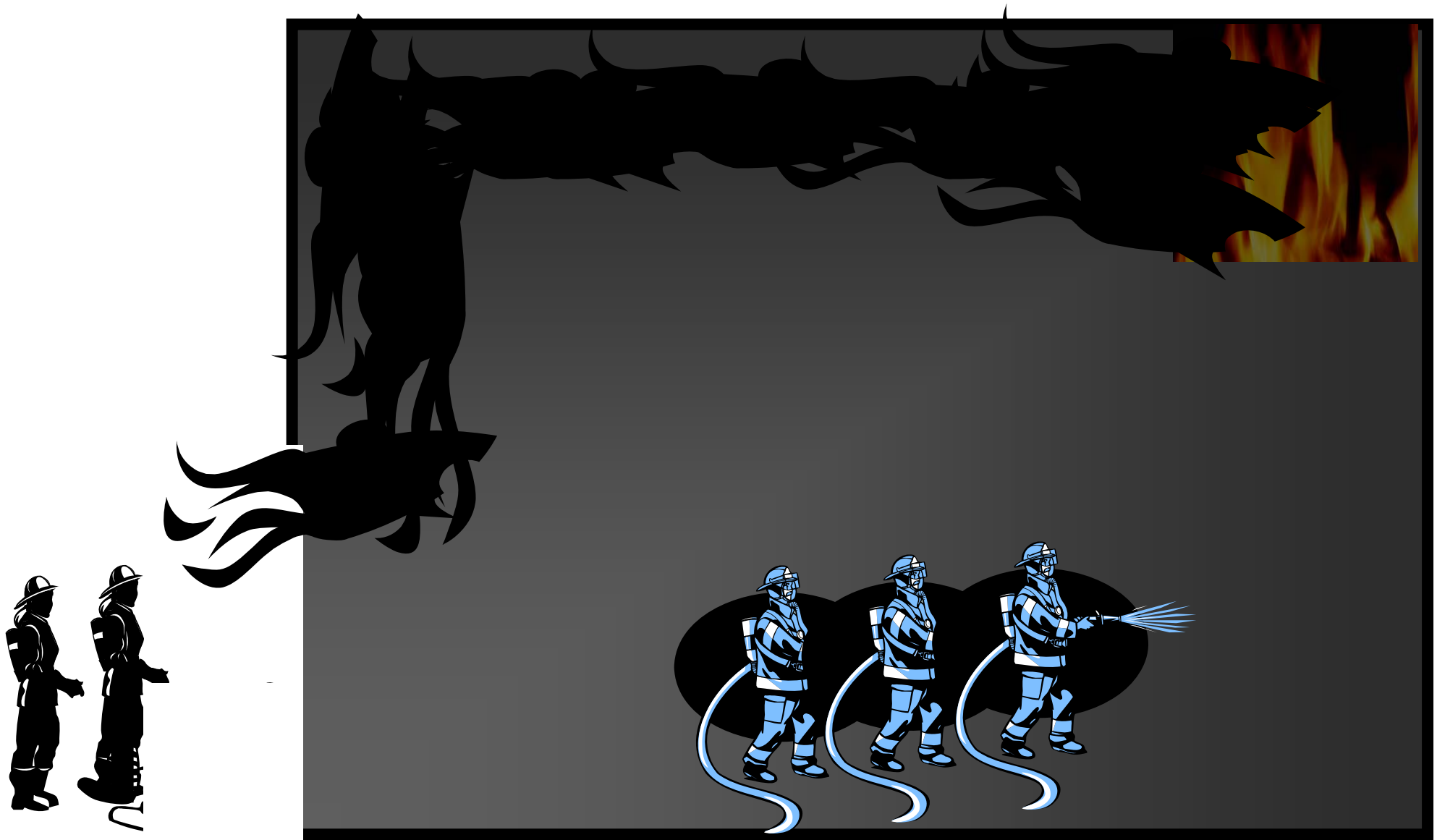
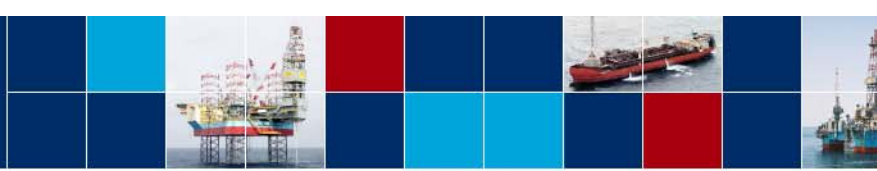


# Investigation

- Investigation team to the rig from 25<sup>th</sup> to 29<sup>th</sup> July
- Findings: Direct Causes
  - Heat transfer from oxy/acetylene cutting on deck on top of main store
  - Combustible material inside store caught fire
  - No fire watch inside store
  - Explosion due to flashover/backdraft caused by rupture to air line in the area of the fire.
  - Two people injured standing in doorway with inadequate FFPPE.









# Root Cause Findings

## Permit to Work Procedure

- Procedure not followed – pre start site inspection by Area Responsible not done
- SJA requirement for fire watch on opposite side of bulkheads not done
- Agency welder not trained in PTW procedure
- Requirement in procedure to “verify” all controls in place prior to job start by Area Responsible open to interpretation.
- Permit audits by OIM not carried out
- Permit audits by WSM not carried out



# Remedial Actions

## Permit to Work Procedure

- All personnel re-trained in operation of the PTW system
- Checklist for fire watch duties and requirements developed and implemented
- Checklist for other safety critical activities identified and improved
- Ambiguity in PTW procedure removed
- Requirements for permit audits in both Maersk and Woodside systems emphasised and implemented



# Root Cause Findings

## Management System Implementation

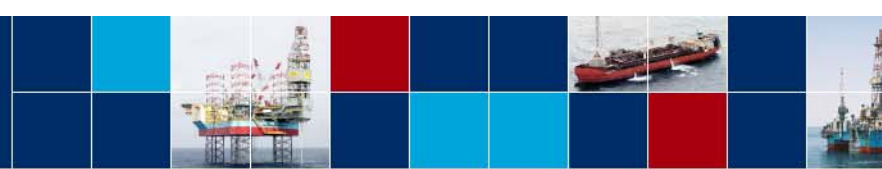
- Failure to apply procedures
  - PTW / SJA / TBT
- Lack of training, knowledge and application of the management system
- Failure to carry out adequate emergency drills
- Failure to carry out adequate area and equipment inspections
- Lack of knowledge of flammable inventory or utilities running through the store
- Short cuts tolerated on board
- Rapid rig start up process with managed rig



# Remedial Actions

## Management System Implementation

- Training for all MC, WEL and TPC in MC key management system procedures
- RSA provided / PTP Removed
- Improve induction process
- Improve existing training matrix
- Improve job competency training
- Bring forward competence training in safety leadership for rig supervisors
- Structured programme for management visits and inspections
- Emergency Response Area Plan developed and implemented
- MC internal review of rig start up process



# Root Cause Findings and Remedial Actions

## Equipment

- 6 Fire hoses failed due to poor fittings at branches
  - Not picked up at FFE inspections or drills
- Ill fitting gloves and tunics
  - Not picked up at FFE inspections or drills
- 2 Third party audits also failed to identify inadequacies
- Improved FFE
- Realistic drills scenarios and plan developed and implemented
- Improved area and equipment inspections
- Review effectiveness of 3<sup>rd</sup> party audits
- Audited FFE using recognised expert. Rectify deficiencies.



# What Went Well

- ERC actions on the rig
- ERC call out and support from WEL and MC
- Helicopter available in the field
- Medevac of injured persons
- Medical treatment of injured both on the rig and in hospital