

Jizan General Hospital Fire Tragedy

an Engineering Perspective

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2016

Thursday Dec 24,2015

MoH Lost 21 Patients and 4 Escorts in Jizan Hospital Fire

Jizan ..



Inaugurated..



20/5/2012

Fire Starting Point ..

- **Civil Defense:** Nursery Incubators wash Room, 1st fl
- **ARAMCO:** Nursery Supervisor Room, 1st fl
- **Date:** Thursday 13 Rabi I, Dec 24
- **Time:** Just Before 2 am
- **Cause:** Electrical Short Circuit

Floor Plan ..



Who Was There ?

- 91 Patient
- ~ 60 Escort
- 89 Staff (MOH & Contracted)
- ER Walk In-

Sequence of Events..

- 1:30** Female Security Start Smell Burning odor
- 1:45** She calls out Duty Manager and Maintenance
- 1:54** They Discovered Fire in the incubator wash room
- 1:55** Civil Defense (CD) called
- 1:58** Fire reaches slab Styrofoam embedding
- 2:01** Civil Defense (CD) arrive
- 2:04** Heavy Black smoke engulfed the whole building
- 2:06** Normal Power goes off, then Emergency Power
- 2:10** Evacuation Failed

Why the High Fatality

- Building Design
- Building Construction
- Maintenance
- Evacuation

Building Design ..

- No Fire Zoning
- Styrofoam
- No Sprinklers in the wards
- No interlock between F.A. and HVAC (nor Dampers)

Notice ..

- Design by Jeddah based Consulting Eng Office
- Design was approved by Civil defense
- Design was supervised by Region not MOH HQ

Building Design ..

- No Fire Zoning



Building Design ..

- Styrofoam



Building Design ..

- No Sprinklers



Building Design ..

- No interlock between F.A. and HVAC (nor Dampers)



Building Construction

- Poor Material (i.e. O₂ Pipes)
- Poor Workmanship (i.e. Electric wiring)
- No Proper testing and commissioning
- As Built drawing do not match existing

Notice ..

- Four Floors
- Building Cost SR 39m
- Public Tender
- No Supervising Consulting Engineering Office

Building Construction

- Poor Material (i.e. O₂ Pipes)



- Bad Electrical Wiring



Maintenance

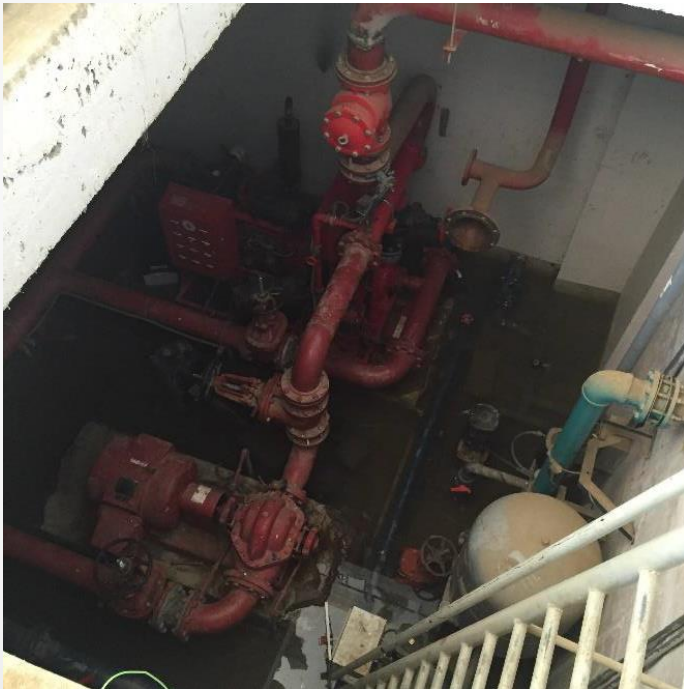
- Fire Pumps defective (No water in Fire hoses)
- Fire Alarm System partially working (90 faulty SD)
- Out of Order Public Address system (No Evac Code)

Notice ..

- Maintenance Contract started 7 months ago
- Maintenance Contract Reduced from SR26m to SR16m
- Handover between contractors all systems OK
- 8 MOH maintenance Engineers on 21 Hospitals

Maintenance

- Fire Pumps defective (No water in Fire hoses)



Egress



Egress



Evacuation ..

- No Code Announced
- Medical Staff abandon Patients (Most fatality bedridden).
- Fire near central stairs
- No Training
- 4 CD units in Jazen
- 1st CD unit arrived crew of 7, only 3 Firefighters.
- NO CD command on scene.
- Ladders from Sabia (35km).
- Out of SCBA
- Public crowed (good or bad)

Nursery Camera ..

- [Video 1](#)

Four Floors Cameras ..

- [Video 2](#)

MOH Plan to Ensure Facilities Safety

MOH Plan to Ensure Facilities Safety

- Set Facilities Safety as Priority
- Restructuring
- Developed 6 phases plan
- Empowering General Directorate of Safety and Security **GDSS**

First Phase : Quick Fixes

- By GDSS
- Immediate
- Such as Locked Emergency doors, Storage,...
- Systems Verifications

Timeframe:
Three Months

completed:
Jazan – Qurayyat – Al-Jouf – Hail -Northern Borders.

On Progress
Hafar Al Batin- Al Ahsa

Second Phase : Professional Safety Assessment

- Professional Safety Assessment
- International Safety Consultants Firms
- According Life Safety Code (NFPA 101)

Timeframe:

Six months after plan Approval

Safety Consultants Firms:



AON




JENSEN HUGHES

Third Phase : Safety Management System

- Two Programs: - Training
 - Plans, Policies and Procedures
- In Collaboration with CBAHI
- Basic and Advanced

Time Frame:
One year after plan approval

Fourth Phase : Total Facilities Review

- Review alterations over the years
- Implement Phase 2 reports recommendations
- All engineering

Time frame:
3 years

Fifth Phase : New Facilities Design Review

- GDSS Unit
- New projects
- Design Review
- Verification and Validation
- Third Party

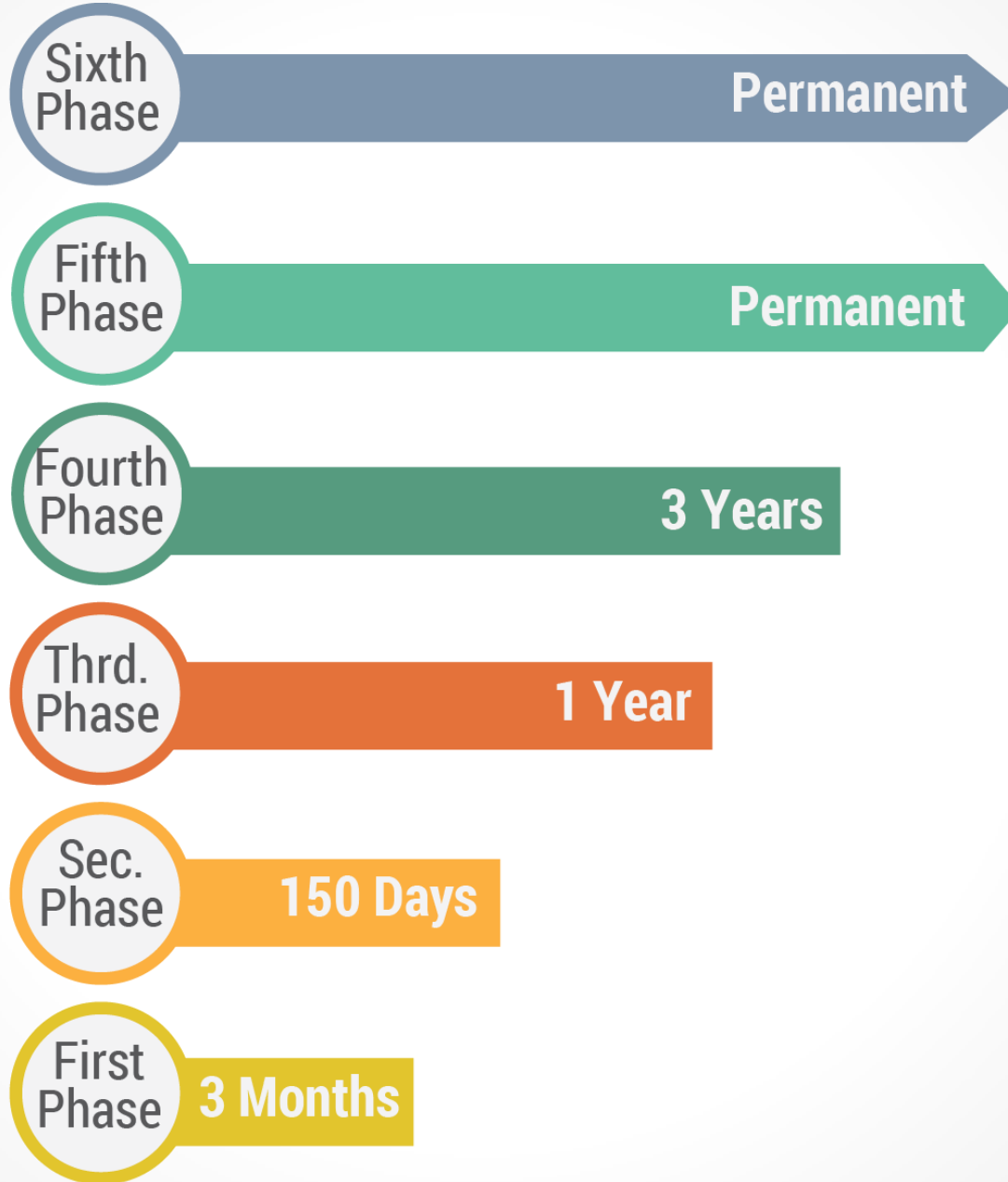
Time frame:
Permanent

Sixth Phase : Testing and Commissioning

- GDSS Unit
- Completed Projects
- All safety systems testing and commissioning
- No New Facilities use without GDSS approval

Time frame:
Permanent

The time frame for implement the Phases

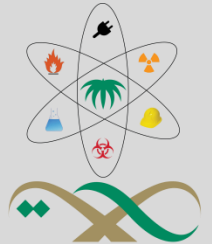


Thank You

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وزارة الصحة
Ministry of Health



الادارة العامة للأمن والسلامة
Safety & Security Department