



Amsterdam Mutual
Aid System



Klaas Winters

General Manager

Aircraft Fuel Supply B.V.

One of the founders of AMAS

Location of AFS terminal



AFS Board

AFS

ExxonMobil



Capacity AFS

- 30 km pipeline and hydrant line on airport;
- 182 hydrant pits on 87 aircraft stands;
- Throughput in 2007: 4,222,498 cbm;
- 5 fully automatic loading gantries of 4,000 ltrs/ minute each in main area.





AFS is responsible for the coordination of supply, storage and distribution of Jet A-1 on Amsterdam Airport Schiphol.





IntoPlane service is
performed by 3
independent pools



AFS Facts & Figures


- Storage capacity of 103,000 cbm on the airport
- Supply by 2 pipelines
- Capable to deliver to customers 60,000 ltrs / minute
- 76% hydrant delivery, 24% refueller
- 24 hrs /day, 365 days/year available

AMAS History

- Discussions on Seveso II Guidelines between Oil-Industry and Government
- Scenario changes from tank fire to bund fire
- Start first negotiations between Terminals



How it started...

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- A red fire-fighting vehicle, likely a foam tender, is parked on an airport tarmac. It has several large orange hoses coiled on its side and a large white foam nozzle. In the background, there are large white storage tanks and a STATOIL fuel truck. The scene is an airport terminal area.
- AFS terminal on the airport relied on Airport Fire Brigade for total assistance;
 - Implementation of Seveso II pointed out additional subsurface equipment was necessary for each separate tank;
 - Scenario change implicated no sub surface equipment to be used.

How it continued...



- *To extinguish Bundfires...*
Mobile equipment was an option to be considered.
- *Buncefield happened...*
Fixed extinguishing equipment was completely destroyed on site.
- *Going for mobile equipment...*
Was real & proven to be right.



Orienting on the market

A visit to Williams Fire Hazard Management Inc. Foam school in Beaumont Texas (US), made things more real...



A local engineering contractor advised

Engineering plan was offered and consisted of:

- Analyses
- Budget Proposal
- Concept Engineering
- Final Report



Analysis was made

Inventory of requirements of the fire extinguishing system based on:

- Report Risk Control [local contractor]
- Demands Airport Fire Brigade
- Means of Fire Water

Water supply - possibilities

- Location outside 3 kW/m²
- Water level ca. 2 mtr below surface level
- Capacity open water to be investigated by Water Quality Board of Rijnland: Approval received!





Report Risk Control

Leading scenario's:

- 1) Bund fire Rijk Depot
- 2) Bund fire
van Tienen Depot

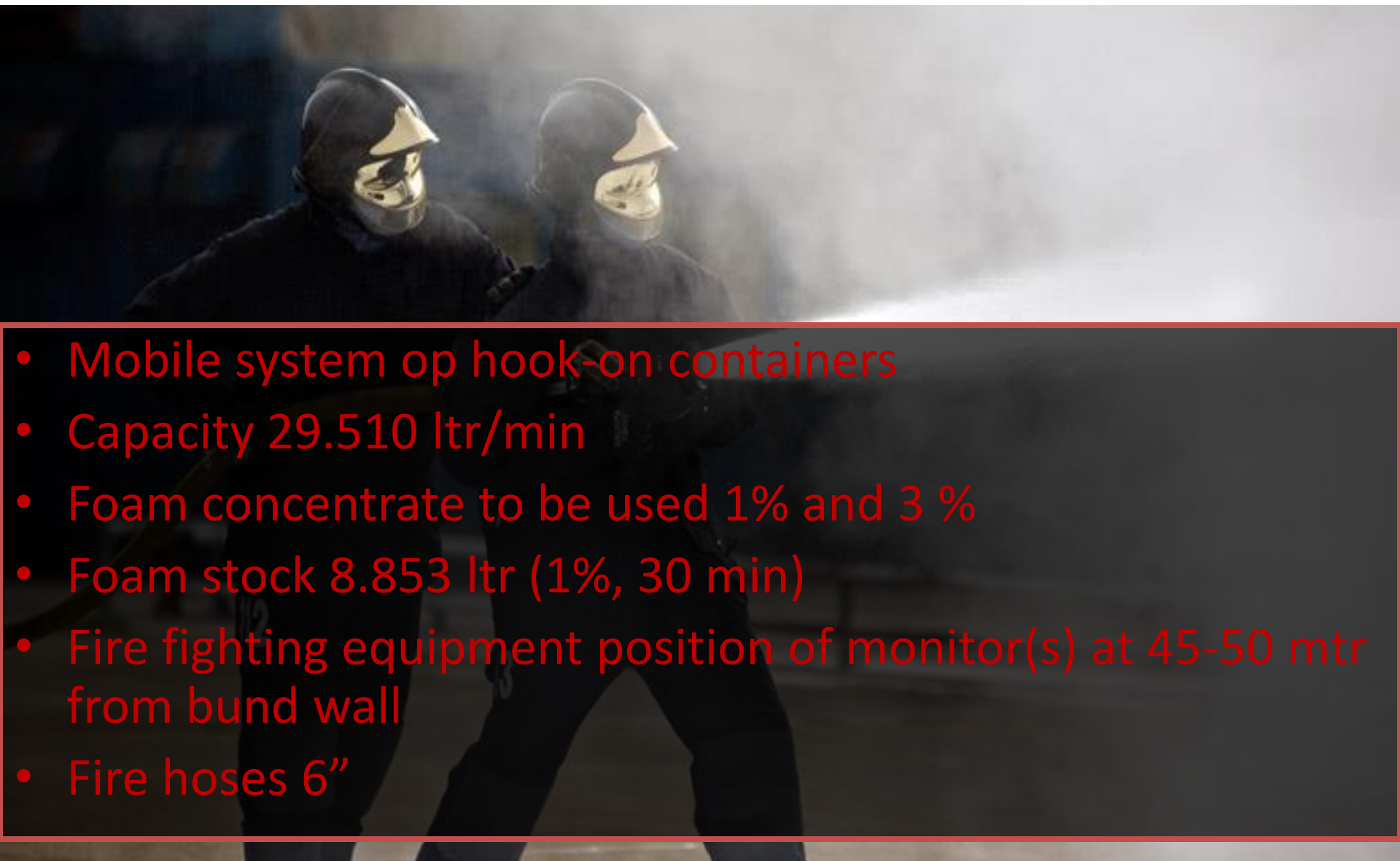
Demands Fire Brigade

Fire fighting equipment,
positioned at 3 kW/m²,
150 mtr;

Closer to incident is possible



Basic assumption extinguishing system

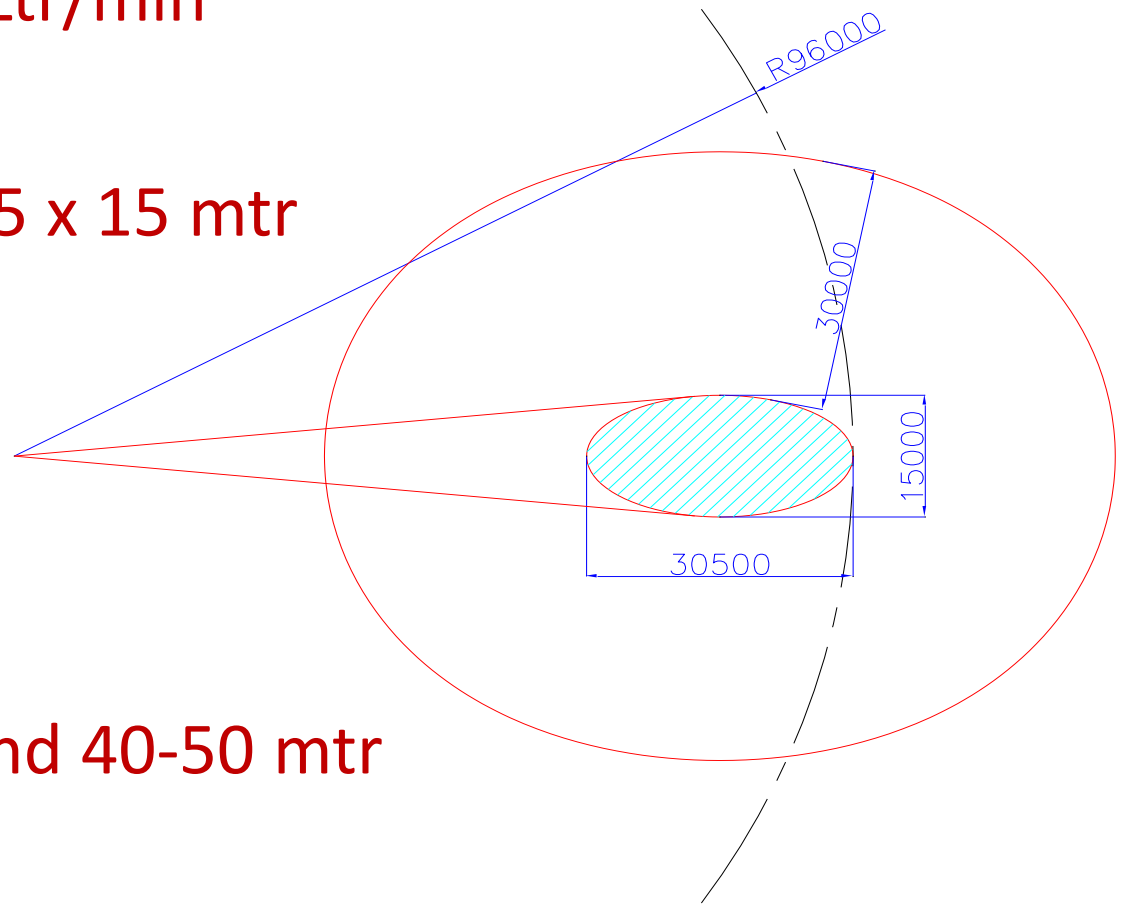


- Mobile system op hook-on containers
- Capacity 29.510 ltr/min
- Foam concentrate to be used 1% and 3 %
- Foam stock 8.853 ltr (1%, 30 min)
- Fire fighting equipment position of monitor(s) at 45-50 mtr from bund wall
- Fire hoses 6"

Firefighting Equipment

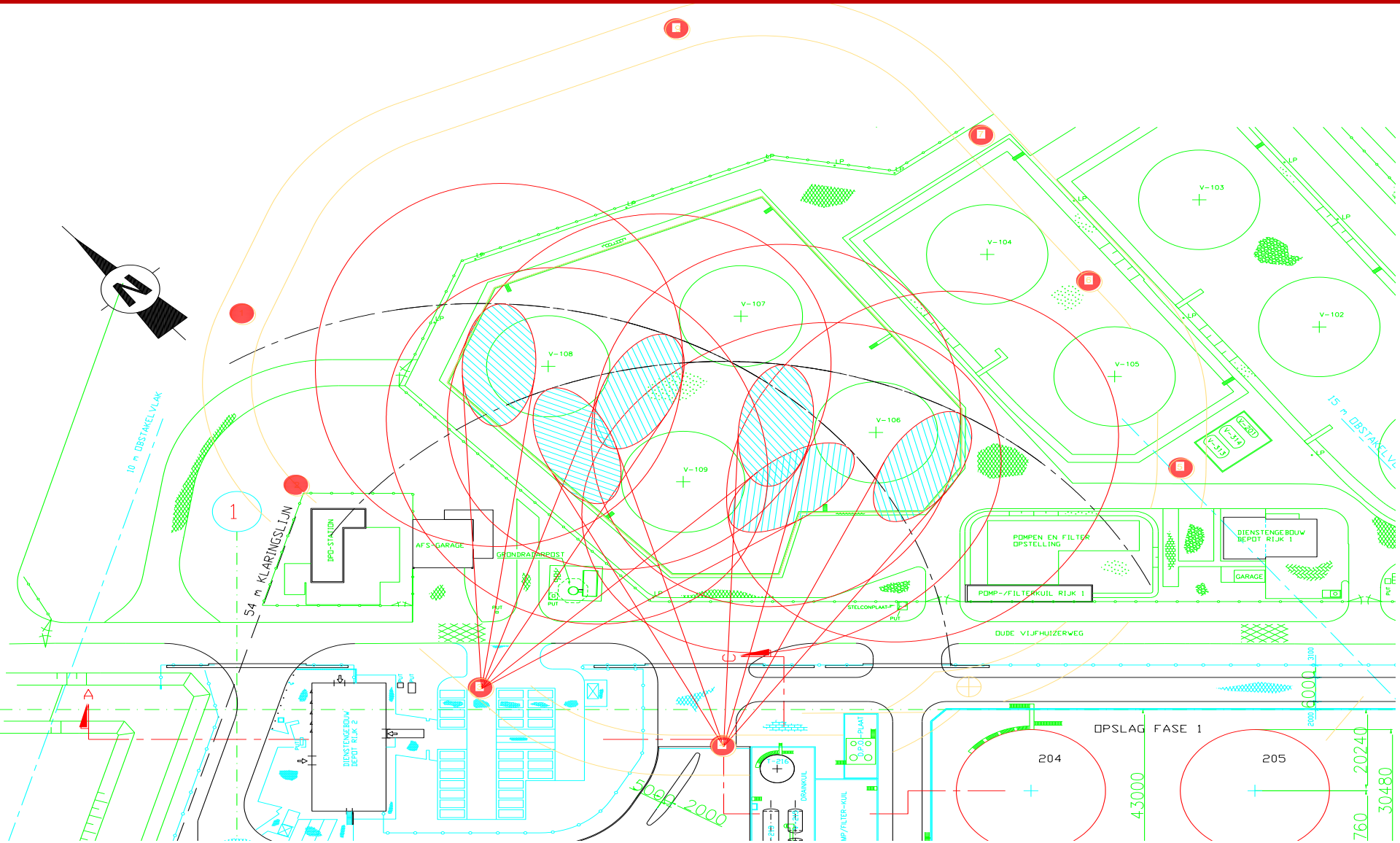
Position Rijk 1B Depot

- Capacity 2x 15.000 Ltr/min
- Throw 96 mtr
- Foot Print TM ca. 30,5 x 15 mtr



- Foam run 30 mtr
- Distance to Tank bund 40-50 mtr

Firefighting equipment position: Rijk 1b Depot



Extinguishing System

Pump set Container (2x)

- Diesel engine ca. 525 kW
 - Fuel tank for at least 4 hrs
- Waterfire fighting pump 20.000 l/min at 12 bar
- Foam concentrate Blender Firedos FD 20000/1-PP-S
 - Foam Blending percentages 1% and 3%
- Connections
 - Pressure Water/foam 7x NW150
 - Pressure Water 1x NW150
 - Suction open water 8x NW 150
 - Foam Concentrate Suction 2x NW 80



Extinguishing System

Monitor Trailer (2x)

- Williams Ambassador
- 1,000-6,000 GPM (3,800 – 22,500 l/min)
- Elevation -15° to 75°
- Rotation 360°
- Connections
- 6x NW 150

Fire Hoses

- NW 150 – length 50 mtr
- Storz connections
- Total length 6.000 mtr
- Working pressure min. 12 bar



Extinguishing System

Hose Container (2x)

- Capacity 6.000 mtr
- 6x 500 mtr NW 150

Hose reel container

- Capacity 6x 300 mtr
- Propulsion hydraulically

Storage Container:

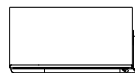
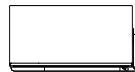
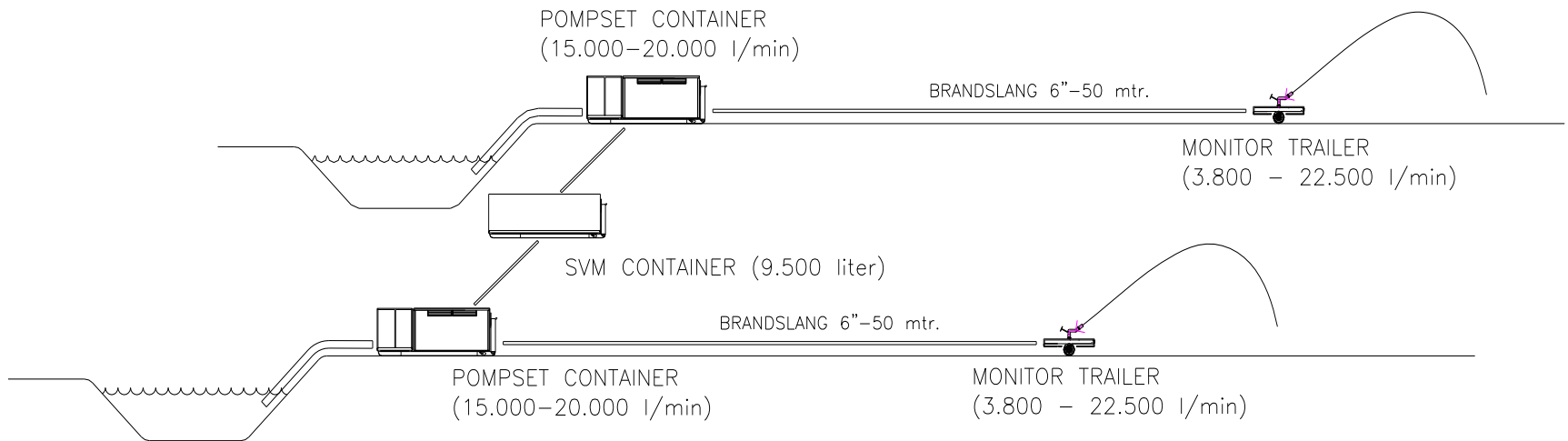
Simple steel storage fitted with shelves.

Foam concentrate container

- Made of GRE [Glass Reinforced Epoxy]
- Necessary fill and suction connections
- Necessary manholes
- Capacity 10 cbm



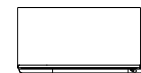
Extinguishing System



SLANGEN CONTAINER (2X)



SLANGHASPEL CONTAINER



MAGAZIJN CONTAINER

AMAS History: 2005

- An incident at a terminal in the Port of Amsterdam happened;
- After the evaluation it was clear that the terminal needed extra equipment;
- AFS and the terminal in the Port of Amsterdam worked together on a solution that would help both sites

2006: Terminals discussed

- Mutual Aid was necessary and feasible
- AMAS was born
- Amsterdam Mutual Aid System
- AMAS (Latin) = [take care of one]



Launch of a new collaboration

6 Terminals decided to work together, and asked Authorities to participate



 **ETA**
EUROTANK TERMINAL AMSTERDAM

Oiltanking



Fire Brigade Amsterdam Amstelland

Fire Brigade Kennermerland

Amsterdam Airport Schiphol

Airport Fire Brigade : Amsterdam Airport Schiphol

Amsterdam Port Authority



Professional help was needed...

A contract was signed between the Mutual Aid Organisation and a UK based specialist firm:

Resource Protection International [RPI]
[well known of LASTFIRE project]



RPI assisted in 2 phases

Phase 1:

- Investigation of all participating terminals
- Check requirements
- Investigate available equipment on site
- Cost Benefit Analysis of Mutual Aid System
- Phase 3 to be implemented soon



Results of phase 1:

- The site reviews have established the practicability of providing a large incident mobile response unit;
- The coarse cost benefit analysis has shown that there is a statistical cost benefit in providing the package;
- All locations have sufficient open water supplies on or adjacent to their sites.



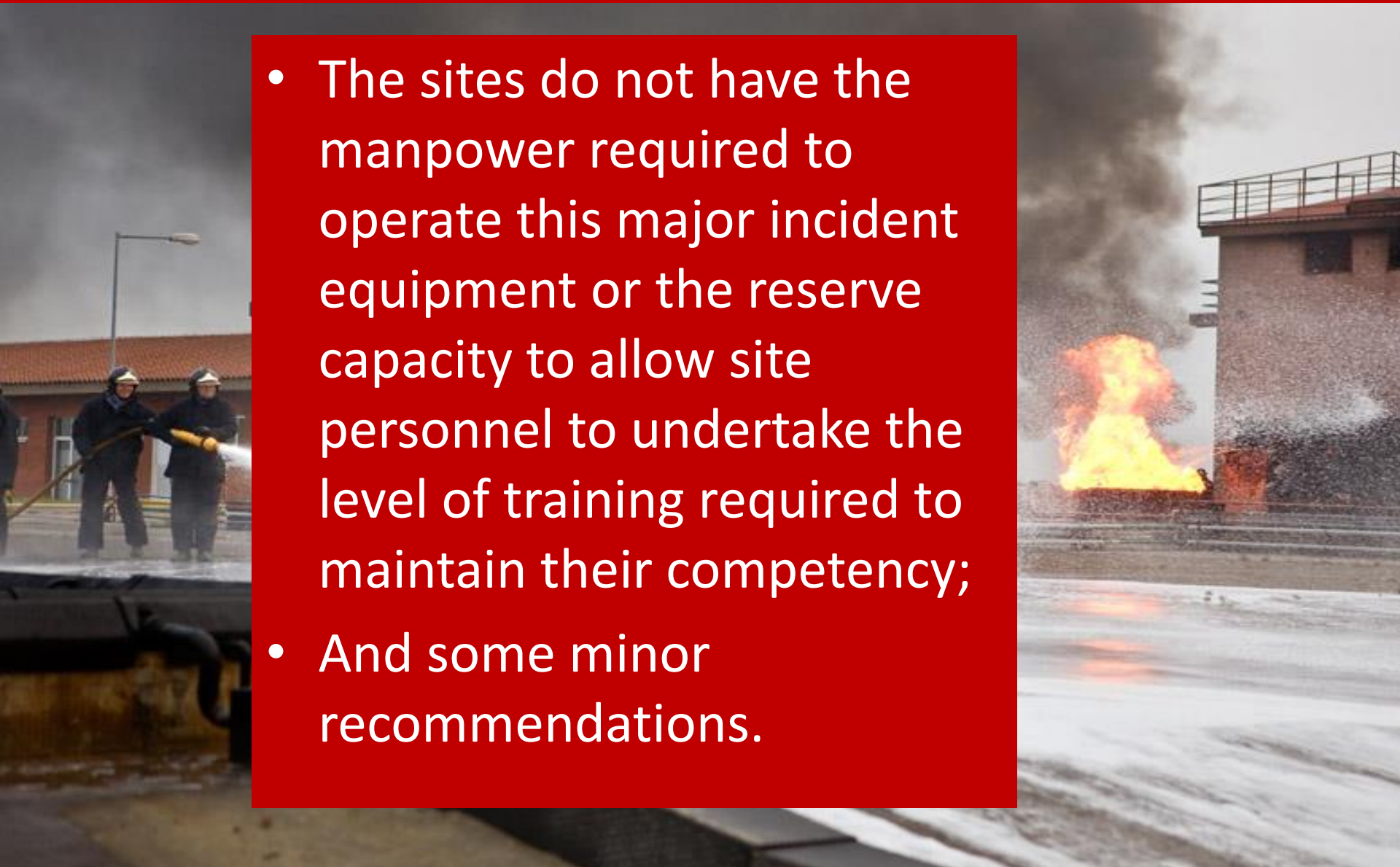
Results of phase 1:

- Using the application rates specified in the EN 13565 Standard for foam application, the high capacity pumps at BP and AFS will be sufficient to provide firewater for all the worst credible events identified (incl. fire boats at OTA & BP);
- Using the application rates specified in the EN 13565 Standard, the foam fire fighting equipment at present available to BP and AFS is sufficient for all the worst credible events identified (one BP tank needs extra foam!).



Results of phase 1:

- The sites do not have the manpower required to operate this major incident equipment or the reserve capacity to allow site personnel to undertake the level of training required to maintain their competency;
- And some minor recommendations.



Phase 2 is on the way now

- Finalise resource requirements
- Detailed specifications
 - Hardware
 - Personnel
 - Procedures
 - Assurance
- Factory Acceptance Tests
- Management structure and strategies
- ERPs



Phase 2 is on the way now

- The Dutch management consultant firm Berenschot was asked to assist AMAS in Public Private Partnership;
- Process is feasible and well performed.



Phase 2 is on the way now

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- Aim is to finish and have most official items settled in September 2009.
 - Development of Emergency Response Plans
 - Phase 3 to be implemented.



Amsterdam Mutual
Aid System



End