

Sources:  
Internet / google  
Database KK  
Contacts Joiff

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advies  
**kappetijn  
briks**

Philip Stohr / Kees Kappetijn

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PPP-organizations in port and  
industrial areas (NL + world)

# Kees Kappetijn

[www.keeskappetijn.nl](http://www.keeskappetijn.nl)

1992-1998: Municipal & Regional Fire Brigade Rotterdam

1998-2007: Consultancy Van Dijke / AVD Group

2007-2012: Falck Risc

Aug 2012: Independent consultant industrial safety



A common thread in the past 22 years: BRZO & art. 31 trajectories:

- Helping governments assess and test company fire reportings
- Helping companies make reports and make them suitable
- Considering fire fighting alternatives together (flexible vs fixed facilities)
- Developing emergency services with joint tasks, possibly in a PPP-context
- Evaluating regulations and advising ministries about adjustments
- Project leader for joint government and industry project team for Dutch national Guideline on Corporate Fire Brigades 2010
- Conducting lawsuits if there really is no other way...

Outline of the mentioned PPP's  
X-slides per existing construction

**!! If possible based on available and  
obtainable information**

# Basic informatie of every PPP

1. Name, place, state/country + **maps**, size in square km/mi/hct, information about industrial risks, infrastructure (road, water, railway), possible residential areas
2. Partners connected with each other in the organization (industry/ companies & public/authorities), try to name them, year of establishment (**logos**)
3. Goal of the organization, what do they do, overview of materials/vehicles/buildings, how many operational people/service providers involved (**photos**)
4. Governance, structure board/management/direction, budget yearly exploitation, staffing/fulltime-employees (**tables/organograms**), can we speak of outsourcing/special services or not?
5. Deployment over the past years (statistics), special (large) incidents (**photos**)
6. Other activities/services that the organization provides?

Work out 6 slides for each of the PPP-organizations

# Contents

5.1 Existing PPP-organizations (Netherlands)

5.2 Existing PPP-organizations (World)

## Part 5.1.

# Existing PPP-organizations (Netherlands)

Slides:

# PPP-organizations (Netherlands-1)

1. Joint Fire Brigade Rotterdam (since 1998)
2. Fire Brigade Chemelot/DSM (covenant since 1999)
3. Fire Brigade Schiphol, Kennemerland & AFS (since 1999)
4. Training Ground Zuid-Holland south (since 2005)
5. AMAS/AYMA Amsterdam (since 2008)
6. Fire Brigade NRG/Petten (renewed since 2012)
7. Fire Brigade railway yard Kijfhoek (since 2011)
8. Port Fire Brigade Moerdijk (since 2013)
9. Platform Industrial Incident Control/PII (since 2013)

# PPP-organizations (Netherlands-2)

Possible developments as port- and industry fire brigade:

1. Port area Amsterdam
2. Chemical park Delfzijl (possible combination with Eemsmond/Eemshaven) (statement of intent June 2015)
3. Port area Vlissingen/Borsele (Sloehaven)
4. Port-/industrial area DOW/Terneuzen



# Rotterdam, Joint Fire Brigade (1a)



- Surface area: 270 km<sup>2</sup>
- Cluster of chemical industry and transshipment companies
- Rotterdam agglomeration: 1.2 million inhabitants
- 2 main waterways + various harbors
- Highways A15 + A4
- Various (industrial) train tracks
- 35.000 sea ships
- 4 refineries



# Rotterdam, Joint Fire Brigade (1b)



# Rotterdam, Joint Fire Brigade (2)

- ❖ Cooperation between Rotterdam & Rozenburg and ca. 60 companies (united in the CIBUA) (Cooperative Industrial Fire Care UA)
- ❖ Cooperation with municipalities founded in 1998 (Rozenburg has since become part of Rotterdam)
- ❖ Among these companies are:





# Rotterdam-JFB, materials (3a)



Basic vehicles volunteers Hoogvliet & Rozenburg



Basic vehicles on the industrial fire houses Maxima, Colorado, Mersey, Berghuijs and Botlek



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# Rotterdam-JFB materials Industrial Firefighting Pool (IBP) (3b)

## ❖ Materials IBP:

- 3 Hose retrievers
- 1 Manifold-unit
- 2 FiFi-units
- 1 Hose-unit
- 6 trailer with foam concentrate 20 m<sup>3</sup>
- 4 (5) fast-foam-concentrate-containers 10 m<sup>3</sup>



# Rotterdam, Joint Fire Brigade (4)

- ❖ PPP between the Rotterdam municipality + CIBUA/companies in the Rotterdam industrial area
- ❖ Basic fire care/technical support + industrial fire care + tank-fire control (IBP) + extra tasks like altitude rescue and ship-fires
- ❖ Implementing Public fire care (Wvr 25) + corporate fire care (Wvr 31)
- ❖ +/- 300 employees (250 operational + 50 supporting)

**Board: joint**

3 members Rotterdam, 3 members CIBUA

**Finances: relative**

Ca. 1/3 Rotterdam – 2/3 CIBUA

- ❖ Legal manifestation: public body based on the Wet Gemeenschappelijke regelingen (Wgr/Community Regulations Act)
- ❖ Approval in 1997 by councils, united assembly companies through CIBUA, province, majesty through Royal Decree
- ❖ Board as controlling task + public accountability

# Rotterdam, Joint Fire Brigade (5)

- Deployments 2005-2009

	2005	2006	2007	2008	2009
<b>brand</b>					
loos alarm	40	27	27	39	35
OMS & Drukknop	182	274	250	296	301
CIN	7	3	8	8	2
kleine brand	259	316	299	270	262
middelbrand	18	11	24	17	14
(zeer) grote brand	4	8	13	15	5
<b>totaal</b>	<b>510</b>	<b>639</b>	<b>621</b>	<b>645</b>	<b>619</b>
<b>hulpverlening</b>					
CIN meldingen	78	57	40	53	11
kleine hulpverlening	332	352	346	290	225
middel hulpverlening	9	8	7	9	5
(zeer) grote hulpverlening	1	-	2	4	1
<b>totaal</b>	<b>420</b>	<b>417</b>	<b>395</b>	<b>356</b>	<b>242</b>

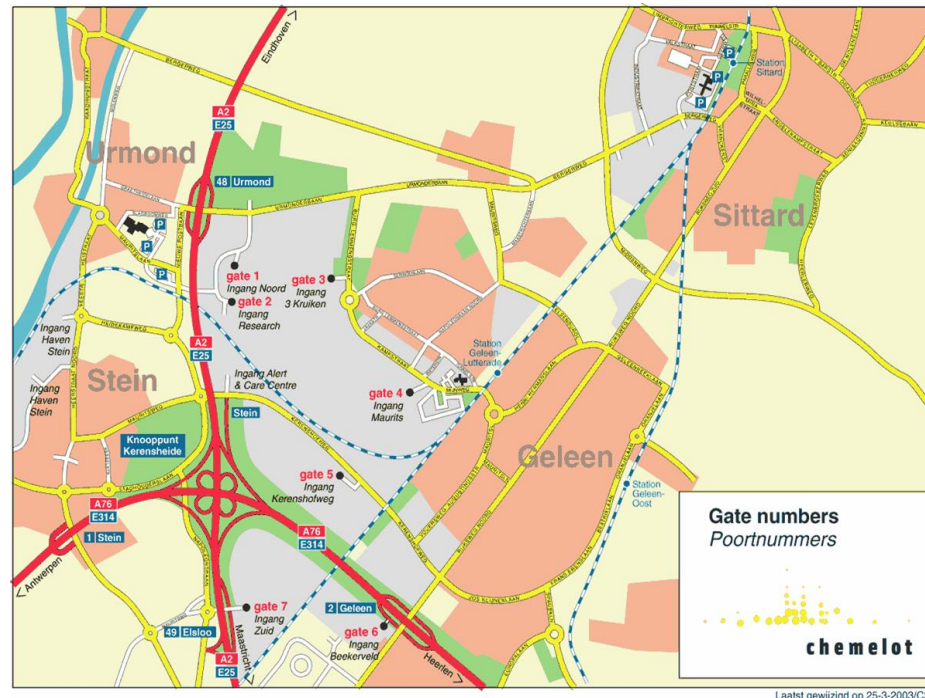
# Rotterdam, Joint Fire Brigade (6)

- ❖ Facility services to personal organization:
  - secretary
  - buildings (maintenance, construction and conversion of fire houses)
  - vehicle management (purchase, development, and control)
  - catering
  - hardware control IBP
  - the stock of foaming agent
- ❖ Secondary product to customers in the catchment area:
  - detaching
  - training
  - rental of instruction spaces
  - rental or personal protective equipment
  - sale of foaming agent
  - total care
- ❖ Team work places and detachment:
  - service pool
  - work place personal protective equipment
  - hose work place

**Goal of secondary product was:**  
supplementary earnings through  
deployment of “free” capacity  
was changed to supplementary earnings  
through deployment of specially appointed  
personnel



# Sittard-Geleen, Chemelot (1)



## Industrial Park

- 800 Hectares
- 240 km road
- 60 km railway
- >80 enterprises
- 47 BRZO-companies
- Daily >10.000 employees

## Research location

- >1.000 scientists

# Sittard-Geleen, Chemelot (2)

## ❖ Covenant (1999) about fire care at Chemelot between DSM and the Geleen municipality:

- The material and personal strength of the Chemelot fire brigade
- The educational demands
- Extinguishing water facilities, Stationary facilities
- Operational lead, up to 4 extinguishing units with Chemelot
- Report and alarm
- Supervision



## ❖ Assignment procedure corporate fire brigade starts in 2002:

- Total duration of assignment procedure: 3 years
- Initially little knowledge, experience and trust (with company and government)
- Learning points: Get to know each other, respect each others interest and stay together!
- Assignment 2005, actualized in 2014



# Sittard-Geleen, Chemelot (3)



Few aspects of material- and vehicle park



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# Sittard-Geleen, Chemelot (4)

- ❖ Apart from assignment, parties also work together based on a covenant
- ❖ At specific request of the South-Limburg Safety Region, Chemelot can supply materials and people:
  - Large-scale industrial extinguishing vehicle (6000 ltr/min with 4000 ltr/min roof monitor, throw length ca. 50 meters), or similar;
  - Large-scale pump with 6 x 6" connections;
  - Large scale monitor (18.000 ltr/min, throw length ca. 100 meters);
  - 1500 kg dry powder container, to be used as dry extinguisher and to be combined with water (hydrochem);
  - Container with aggregates, pumps, hoses and appendages;
  - Gas-suit team existing of 4 people, 2 people with a back-up of 2 people;
  - Assistance technical services (solely sharing knowledge)

# Sittard-Geleen, Chemelot (5)

Organisatie	Wm/BRZO-incidenten	Wvo-incidenten	Klachten
Totaal	14	1	310
Plants & Sitech Services	5	1	18
SABIC	9	0	287
VOS	0	0	5
DSM Nederland	0	0	0

*Unusual happenings 2015 (since 27-07-2015) Source: Chemelot.nl*

❖ Deployment July 16, 2015: extinguish fire in PPF Sabic park.

# Sittard-Geleen, Chemelot (6)

Corporate fire brigade + PPP-services with South-Limburgs Safety Region are supplied by Sitech Services as service to all companies on the Chemelot terrain

Licenses and fire brigade assignment goes via CSP BV: Chemelot Site Permit. Board exists of all site-users

Sitech provides range of services to site-users, among which:

- Control and maintenance technical installations
- Control and maintenance park and infrastructure
- Security & corporate emergency organization with crisis center
- Wastewater treatment
- Engineering bureau



# Amsterdam, Schiphol Airport (1)



- 54.987.500 passengers (2014)
- 438.300 flight movements
- 6 runways
- 200 shops
- 3 highways

# Amsterdam, Schiphol Airport (2)



Covenant fire care Schiphol between the Haarlemmermeer municipality, Kennemerland Safety Region and Schiphol Airport (2005)

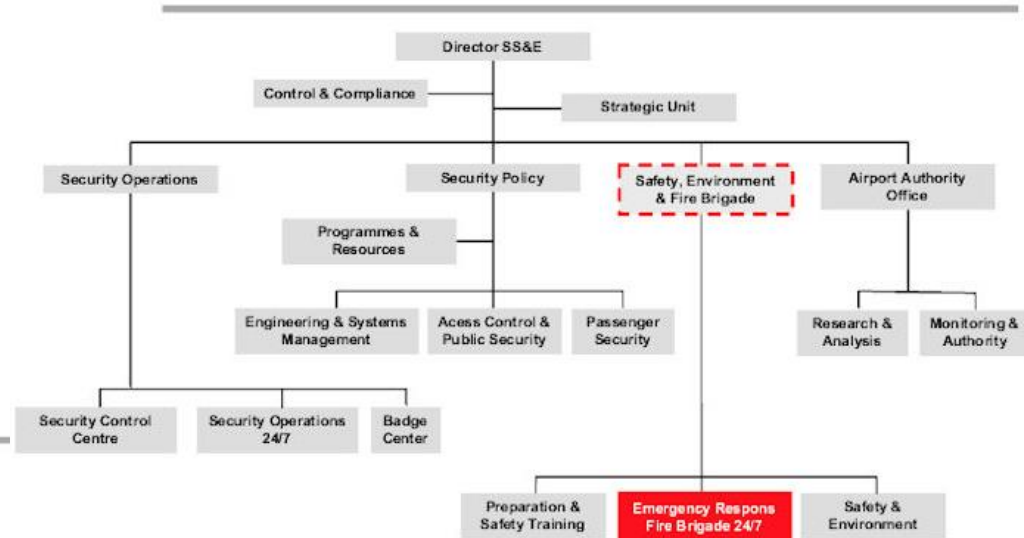
Threefold set of tasks:

Airport fire brigade + corporate fire brigade AFS + fire care public domain surrounding Schiphol

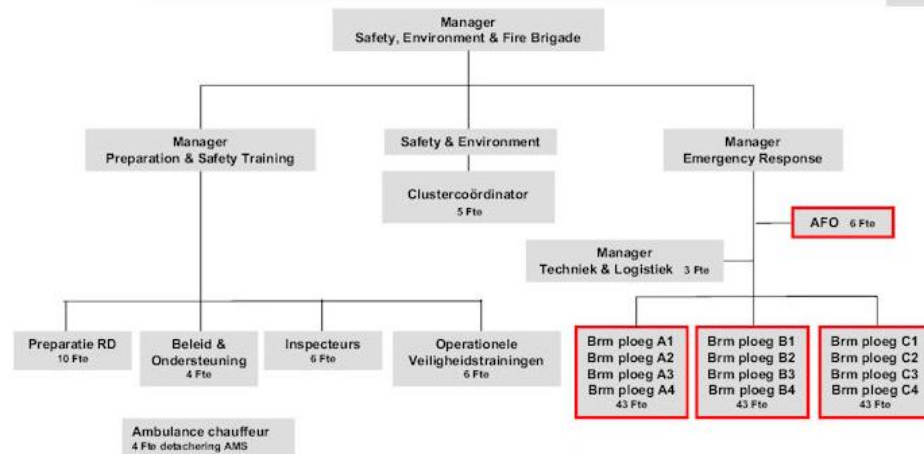


# Amsterdam, Schiphol Airport (4)

## Organisatie SSE (Safety, Security & Environment)



## Organisatie Brandweer (Safety, Environment & Fire Brigade)



### Operationeel:

- 3 secties (A - B - C) in 24 / 7 diensten
- 4 ploegen per sectie rouleren over de posten
- AFO's rouleren over de secties

# Amsterdam, Schiphol Airport (5)

## ❖ Large fires:

- Kitchen fire hamburger restaurant 2001
- Cell fire Schiphol 2005 (11 dead)



# Amsterdam, AMAS/AYMA (1)



Location AFS (Schiphol)

- 30 km pipeline
- 182 cranes for 87 parking spots
- Flow 4.222.498 (2007) cubic meters
- 103,000 cubic meters storage capacity at the airport
- Supply by two pipelines

# Amsterdam, AYMA (2)

After an incident in Port of Amsterdam in 2005, a cooperation between companies and authorities arises (in 2006).



**EUROTANK TERMINAL AMSTERDAM**

**Airport Fire Brigade : Amsterdam Airport Schiphol**

**Amsterdam Port Authority**



**Fire Brigade Amsterdam Amstelland**

**Fire Brigade Kennermerland**



**Amsterdam Airport Schiphol**



# Amsterdam, AYMA (3)

- ❖ Pump installation container 2x (20.000 l/min (12 bar))
- ❖ Monitor trailer 2x (3.800 – 22.500 l/min)
- ❖ 6.000 meters firehose
- ❖ Hose-container 2x (6.000 meters)
- ❖ Hose reel-container (6x 300 meters)
- ❖ Storage container
- ❖ Foam concentrate container (10 cubic meters)



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[www.kappetijnbriks.nl](http://www.kappetijnbriks.nl)

# Amsterdam, AYMA (4)

- ❖ AMAS maintains, together with the safety regions (Kennemerland + Amsterdam-Amstelland) AYMA. Covenant concluded in 2009.
- ❖ Advice by RPI-UK
- ❖ Goal: controlling tank fires with members of AMAS.
- ❖ AMAS (companies) invest and supply materials and expertise
- ❖ The safety regions supply occupancy through fire brigade personnel
- ❖ Operational leadership during deployment lies with the safety regions



# Amsterdam, AYMA (5)

## ❖ Deployment with Oiltanking

- Floating roof of a tank sinks, after which the tank has to be emptied
- AYMA is stand-by for a possible fire
- Total deployment +/- 24 hours



# Petten, NRG Fire Brigade (1)



- ❖ Circa 45 hectares
- ❖ Research Location Petten (OLP/Onderzoeks Locatie Petten): 4 companies
- ❖ Employees: ECN: ca. 600, NRG: ca. 400, Mallinckrodt Medical: 250 and JRC/IET: 250 = total: 1500
- ❖ Nuclear research reactor on-site.





# Petten, NRG Fire Brigade (2)

- ❖ NRG was assigned in 2012 as article 31-required
- ❖ Performance: Standard manning of 6, 24/7, turnout time 6 minutes
- ❖ Apart from assignment also a cooperative agreement (2013)



GEMEENTE  
Schagen

Veiligheidsregio

Noord-Holland Noord



- ❖ Supplying basic fire care at the OLP-site in name of the authorities

# Petten, NRG Fire Brigade (3)



# Petten, Brandweer NRG (4)

## ❖ Fire department NRG

- 24-hour occupation of 6 people
- 3 shifts and commander, total 25 professionals
- +/-10 volunteers, employed at either ECN or NRG

## ❖ Basic fire care + company specific fire care

## ❖ Prevention, safety, repression and First Aid

## ❖ Practicing with company specific risks

## ❖ Additional education

- All commanders are radiation experts, like the Hazardous Substance Consultants of the Safety Region Noord/Holland North!

# Petten, Brandweer NRG (5)

- ❖ 100 -120 alarms each year at the OLP
- ❖ Little to no deployment for “real” incidents
- ❖ Reactor in 2002 and 2013/2014 2x temporarily shut down because of radiation leak and the safety culture.

# Zwijndrecht, railyard Kijfhoek (1)

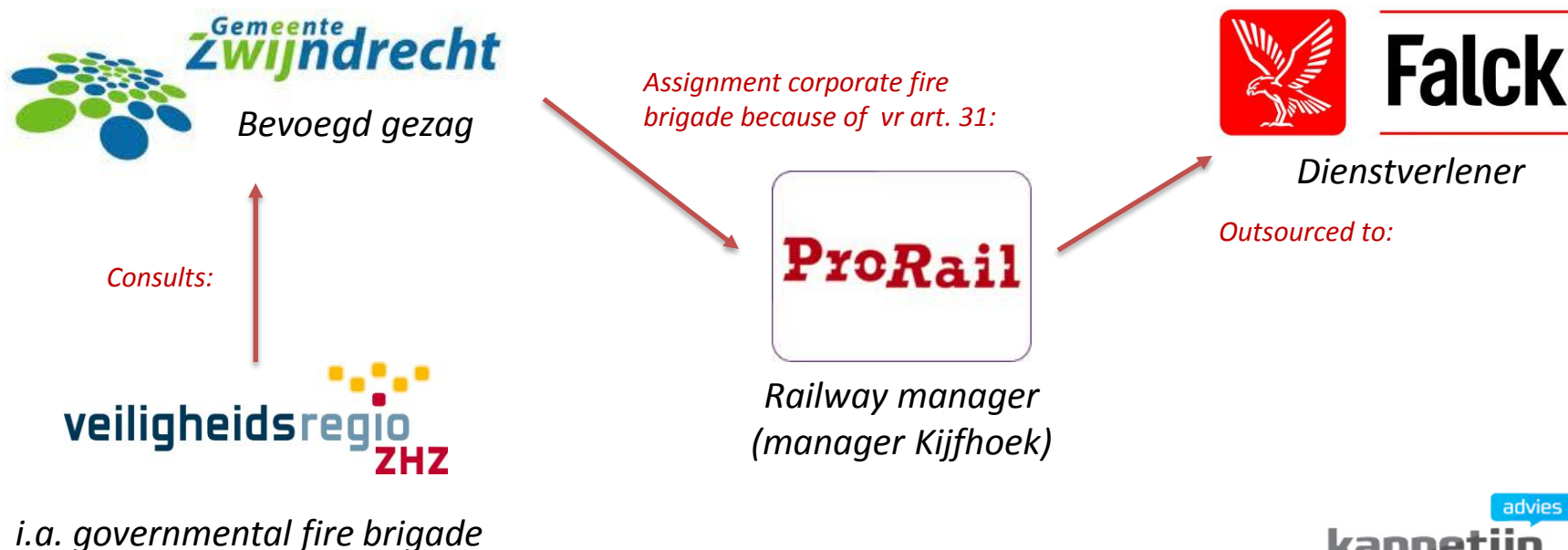


- ❖ Railyard for composing freight trains
- ❖ Largest in the Netherlands, big player in Europe
- ❖ Strategic location between the Port of Rotterdam and the European hinterland
- ❖ 5 km long, 50 tracks (400m.) wide & > 100 employees/externals
- ❖ Along the A16 highway
- ❖ In a rural area with 43.000 inhabitants (Zwijndrecht – H.I.Ambacht)

# Zwijndrecht, railyard Kijfhoek (2)

Involved parties (2011):

Zwijndrecht Municipality, SR Zuid-Holland South, Pro Rail, Falck





# Zwijndrecht, railyard Kijfhoek (3)



# Zwijndrecht, railyard Kijfhoek (4)

## Assignment situation:

Performance: Standard manning of 7, turnout time 6 min, 24/7 secured

Assignment: to Prorail

Execution: by Falck via Prorail

## Organizational method:

- ❖ 28 people (incl. team leaders) in 4 shifts
- ❖ extinguishing vehicle + mobile pumps
- ❖ One fire house (owned by ProRail)
- ❖ Extinguishing water (stationary by ProRail) + foam



# Zwijndrecht, railyard Kijfhoek (5)

Ethanol-incident January 14, 2011 (doubted normative scenario from the fire brigade report)



# Moerdijk, port fire brigade (1)

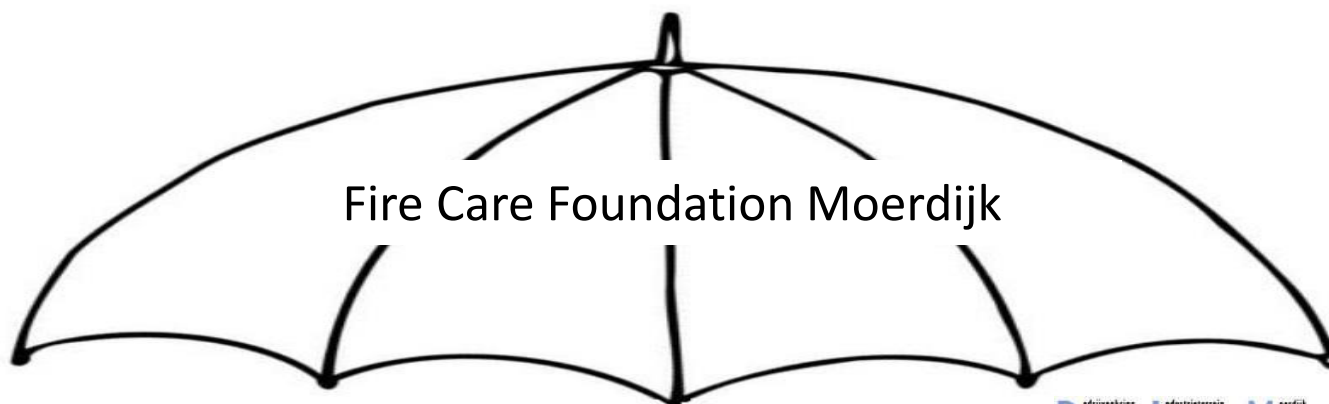


- 2.500 hectares, 400 companies, 14.000 employed people, 3,5 hours boating from the Noordzee
- Surrounded by inhabited areas, between Rotterdam and Antwerp
- 13 BRZO companies + assignments ex 31Wvr
- Modes of transport with chemicals
- Waterway Hollands Diep + highways A16 & A17

# Moerdijk, port fire brigade (2)

## Public-Private-Partnership:

- Modelled after the Joint Fire Brigade in Rotterdam
- Operational execution: Safety region MWB exploits fire brigade units
- ?? Joint Management
- ?? Joint Payment



Companies industrial area  
Moerdijk





# Moerdijk, port fire brigade (3)

- ❖ Fire engine
- ❖ Foam vehicle
- ❖ Aerial platform
- ❖ 1 turnout post



# Moerdijk, port fire brigade (4)

- ❖ Fire house manned 24/7
- ❖ 4 professionals and 2 on-site volunteers
- ❖ 1,7 million euros on a yearly basis
  - Moerdijk municipality €350.000
  - Midden-West- Brabant Safety Region €600.000
  - Fire Care Foundation Moerdijk €820.000



# Moerdijk, Havenbrandweer (5)

- ❖ June 3, 2014: Fire at Shell Moerdijk
- ❖ August 4, 2014: Fire conveyor belts sand factory Oort.
- ❖ September 23, 2014: Fire in oven of recycling company Remondis
- ❖ February 10, 2015: Fire in underground bunker of Attero

# Platform Industrial Incident Control (1)

- ❖ National deployment of industrial firefighting material
- ❖ Only at special request of the local Head Officer on Duty
- ❖ LIOGS: National knowledge center for chemical substances (by DCMR)
- ❖ Insurers union has agreed to the risks of deployment of materials outside of site

# Platform Industrial Incident Control (2)



**Cooperating  
PPP-partners**



# Part 5.2

## Existing PPP-organizations (World)

# PPP-organizations (World-1)

1. CIMA (Chanel Industries Mutual Aid), Houston, Texas
2. Grangemouth (Scotland)
3. Refinery Terminal Fire Company / RTFC (Corpus Christi)
4. Chemical Valley Emergency Coordinating Organization (Sarnia, Ontario, Canada)
5. Industrial Emergency Services (Baton Rouge)
6. Swedish Petroleum and Biofuel Institute (SMC)
7. Tarragona, Spanje (two industrial areas, North and South (see presentation Lainsa)

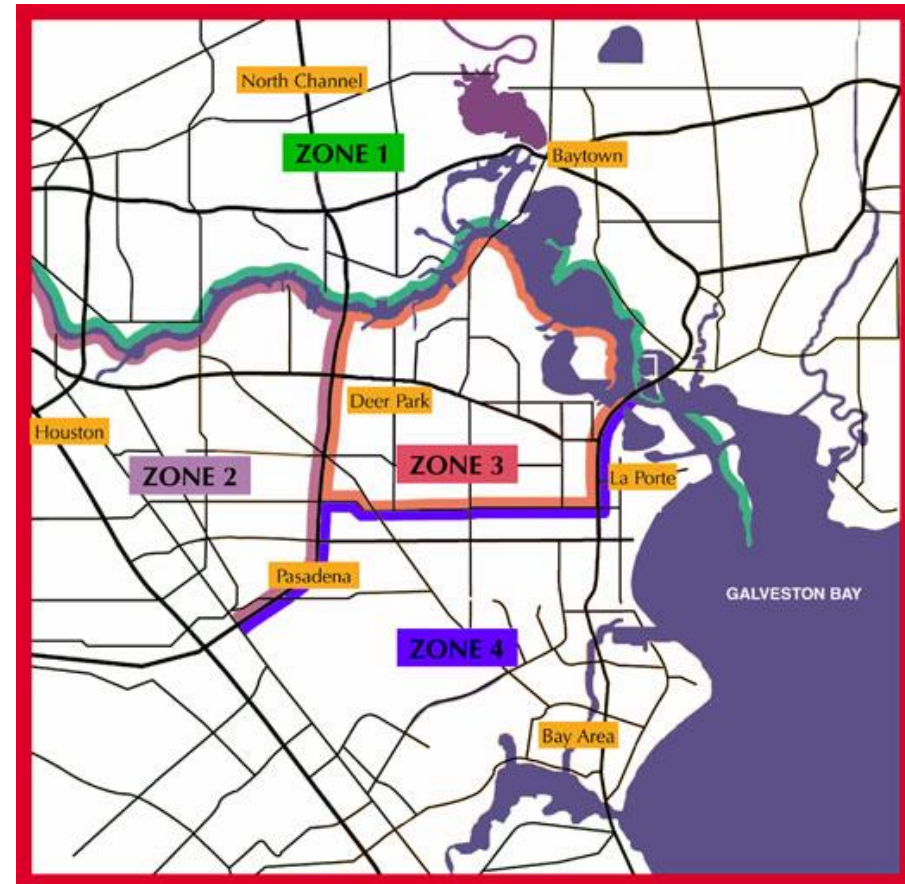


# PPP-organizations (World-2)

1. GMAG, mutual aid organization located in Brisbane Australia for Brisbane river corridor.
2. PIMMAG, mutual aid organization for the industrial sector in Johor Baru Malaysia
3. NOMAD, Northwest Ohio and Michigan Mutual Aid Organization
4. In Indonesia there is a partnership organization between the state oil company and Joint Ventures (JV's) who combine for training and professional development
5. SECCO, Shanghai China which is a combination of Government and multiple JV's who formed a consortium for response in that area (a very large petrochemical industrial complex).
6. CEFS, which is a consortium created emergency response (Fire Department) which was formed as an agreement between multiple Pet Chem industries in east coast Malaysia (Kerthe area)

# USA (Houston, TX), CIMA (1)

- ❖ Channel Industries Mutual Aid (CIMA)
- ❖ Catchment area: Houston (Harris, Chambers, and Brazoria Counties) also partially the Louisiana area(+/- 500 mile<sup>2</sup>)
- ❖ Large neighboring urban areas



# USA (Houston, TX), CIMA (2)

- ❖ 1955: "Houston Ship Channel Industries Disaster Aid Organization"
- ❖ 1960: "Channel Industries Mutual Aid" (CIMA)
- ❖ Original catchment area: Houston Channel.
- ❖ Present: various industrial areas in Texas and Louisiana
- ❖ +/- 100 partners:
  - Industry, (local) authorities, law enforcement agencies (Police & Fire brigade)

# USA (Houston, TX), CIMA (3)

❖ *“CIMA is there to provide world-class, rapid response assistance whenever emergencies occur.” (cimatexas.org)*

❖ 200 pcs specialized materials, i.a.:

- Rescue vehicles
- Industrial foam vehicles
- Ambulances



# USA (Houston, TX), CIMA (4)

## ❖ Board (August 2015)

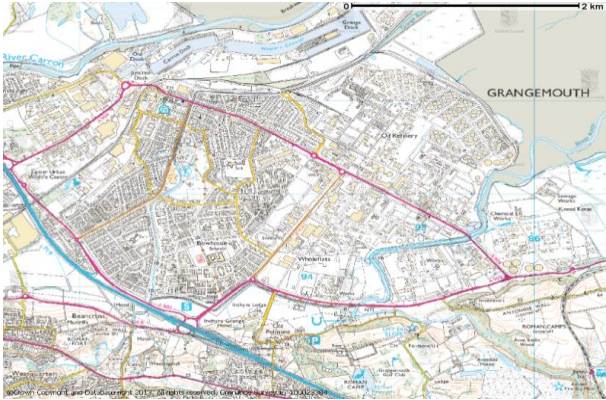
Wade, David	Chairman	Harris County Office of Homeland Security & Emergency Management
Turvey, Mark	First Vice Chairman	Lubrizol - Bayport
Howard, McCarrick	Second Vice Chairman	Lyondell Chemical Channelview

## ❖ Headquarters (Deer Park, Texas)





# UK (Grangemouth, Schotland) MICC(1)



- 700 hectares
- Port industry area with petrochemical activities
- Neighboring residential area +/- 20.000 people

# UK (Grangemouth, Schotland) MICC (2)

- ❖ Ineos Grangemouth has the pioneers role because of their available materials
- ❖ Since 1968: Major Incident Control Committee

## **Industriële leden**

BOC  
BP FPS  
BP Gas  
Calachem UK Ltd  
Calor Gas Ltd.  
Dow Chemicals Ltd.  
Forth Ports Authority plc  
Fujifilm Imaging Colorants Ltd  
HW Coates Ltd  
INEOS Manufacturing Scotland Ltd  
Nustar Grangemouth Ltd.  
Polimeri Europa UK Ltd  
Syngenta Ltd

## **Emergency Response Partners**

Central Scotland Fire and Rescue Service  
Central Scotland Police  
Falkirk Council  
NHS Forth Valley  
Health and Safety Executive  
Scotland Gas Networks  
Scottish Ambulance Service  
Scottish Environmental Protection Agency  
Scottish Power  
Scottish Water

# UK (Grangemouth, Schotland) MICC (3)

- ❖ Goal: a multi-agency approach to the handling during and the treatment of an incident, because this is not reasonable nor correctly doable for a single company.
- ❖ Ineos firemen are trained for: ambulance, altitude rescue, fire and closed spaces.
- ❖ Ineos has 5 shifts of 8 firefighters
- ❖ Standard Scania foam vehicles complemented with support vehicles
- ❖ The other companies have the minimally required stationary extinguishing means and foam stocks

# UK (Grangemouth, Schotland) MICC (5)

- ❖ Contribution to the MICC based on strength/power
  - ❖ 500 to 700 calls each year (mainly fire alarms)
  - ❖ Incidents in the Grangemouth refinery
    - Hydrocracker fire
    - Flare-line fire
    - Sphere fire (during maintenance)
    - Steam release under high pressure
- MICC rose to action with all these incidents

# USA (Corpus Christie TX), RTFC (1)



- ❖ Mainly petrochemical risks
- ❖ Catchment area is limited to the member companies.



# USA (Corpus Christie TX), RTFC (2)

- ❖ Founded after the Texas City-disaster in 1948 as fire brigade for the port and accompanying refineries.
- ❖ Non-profit status (from the IRS) in 1995.  
From then on participation of private parties.



# USA (Corpus Christie TX), RTFC (3)

## ❖ Goal:

*Providing advanced services based on the passions and needs regarding the safety of the client, and exceeding their expectations in the process.*

## ❖ Capacity:

- Lyondellbasell: 1 fire house, total 21 people, working in 24-hour shifts of 7 people (1 commander, 1 Senior firefighter and 5 firefighters)
- Koch Petroleum Group: 2 fire houses. West Fire station, occupancy: 6 people (1 commander, 1 Senior firefighter and 4 firefighters) and East Fire station, occupancy: 5 people (1 commander, 1 Senior firefighter and 3 firefighters)
- CITGO: 1 fire house, total 15 people divided over 3 shifts (1 Captain, 1 Senior firefighter and 3 firefighters)
- Flint Hill Resources: 1 fire house, total 19 people divided over 3 shifts (1 commander and 5 firefighters)
- Mississippi Power Company: 1 fire house, total 16 people divided over 3 shifts (1 commander and 4 firefighters)

# USA (Corpus Christie TX), RTFC (4)

- Management
  - *Emergency & In-Plant Services* (5 people)
- Support
  - *Training services* (1 person)
  - *Accounting* (1 person)
  - *Human resources* (1 person)
  - *Division chefs* (3 people)
- Other activities
  - *Providing training*

# Canada (Sarnia, Ontario), CVECO (1)



## Chemical Valley Emergency Coordinating Organization (CVECO)

- Size: 25 km<sup>2</sup>
- 60 refineries and several rubber factories
- Residential area Aanjiwnaang (Native Ground) (850 inhabitants) central area.

# Canada (Sarnia, Ontario), CVECO (2)

- Large fire in 1951

Consequently: Representatives of Sarnia Police Service, Dow Chemical, Imperial Oil and Polymer come together to form the “Chemical Valley Emergency Traffic Control Committee”

- 1957: foundation Chemical Valley Mutual Fire Aid Association
- 1971: merger into the CVECO
- Goal:  
*Controlling dangers and protecting society*

# Canada (Sarnia, Ontario), CVECO (5)

Deployment based on a code-system:

- Code 5: Incident outside the catchment area with a possible need for assistance
- Code 6: Traffic control in a designated area necessary
- Code 7: Bomb threat
- Code 8: Notice from a CVECO member of an unusual occurrence (no direct action)
- Code 9: Request for turnout by the municipal fire brigade



# USA (Baton Rouge e.o., Louisiana), Industrial Emergency Service LLC (1)

- ❖ Industrial fire brigade and safety service provider
- ❖ In almost all of Louisiana
- ❖ Formerly part of RTFC in Corpus Christie, TX

# USA (Baton Rouge e.o., Louisiana), Industrial Emergency Service LLC (2)



**Industrial Emergency Services, LLC**

- ❖ Founded in 1999
- ❖ Hired based on the needs of the industry

# USA (Baton Rouge e.o., Louisiana), Industrial Emergency Service LCC (3)

- Goal:  
*“Prevent. Protect. Respond. Bringing cost effective emergency response and safety services to the oil, chemical, critical infrastructure, and other high-value industries.”* (quote <http://iesllc.com/> )
- Activities aside from fire and rescue:
  - Training
  - Inspection of firefighting systems

# Sweden, SMC (1)

- ❖ Släck Medels Centralen (SMC)
- ❖ 4 units aimed at tank fire control
- ❖ Stockholm, Gothenburg, Malmö and Sundsvall



# Sweden, SMC (2)

- ❖ The Swedish Petroleum and Biofuels Institute researched in the period: 1992-1995
- ❖ Founded in 1994
- ❖ Various (bio) oil companies with the local authorities

Q-Star, Din-x, St1, OKQ8, Preem, St1 (formerly Shell), Statoil, Nynas & Lantmannen

Fire & Rescue services of Sundsvall, Stockholm, Gotenburg & Malmö

# Sweden, SMC (3)

- ❖ Materials per module (8 modules total)
  - 1 pump (diesel fueled) cap.: 10.000 liter per minute.
  - 2x 800 meters hose (150 mm/6")
  - 16 tons (alcohol resistant) foaming agent
  - Materials for 3 and 6% foam mixture
  - Foam monitor with a capacity of 8000 liters per minute

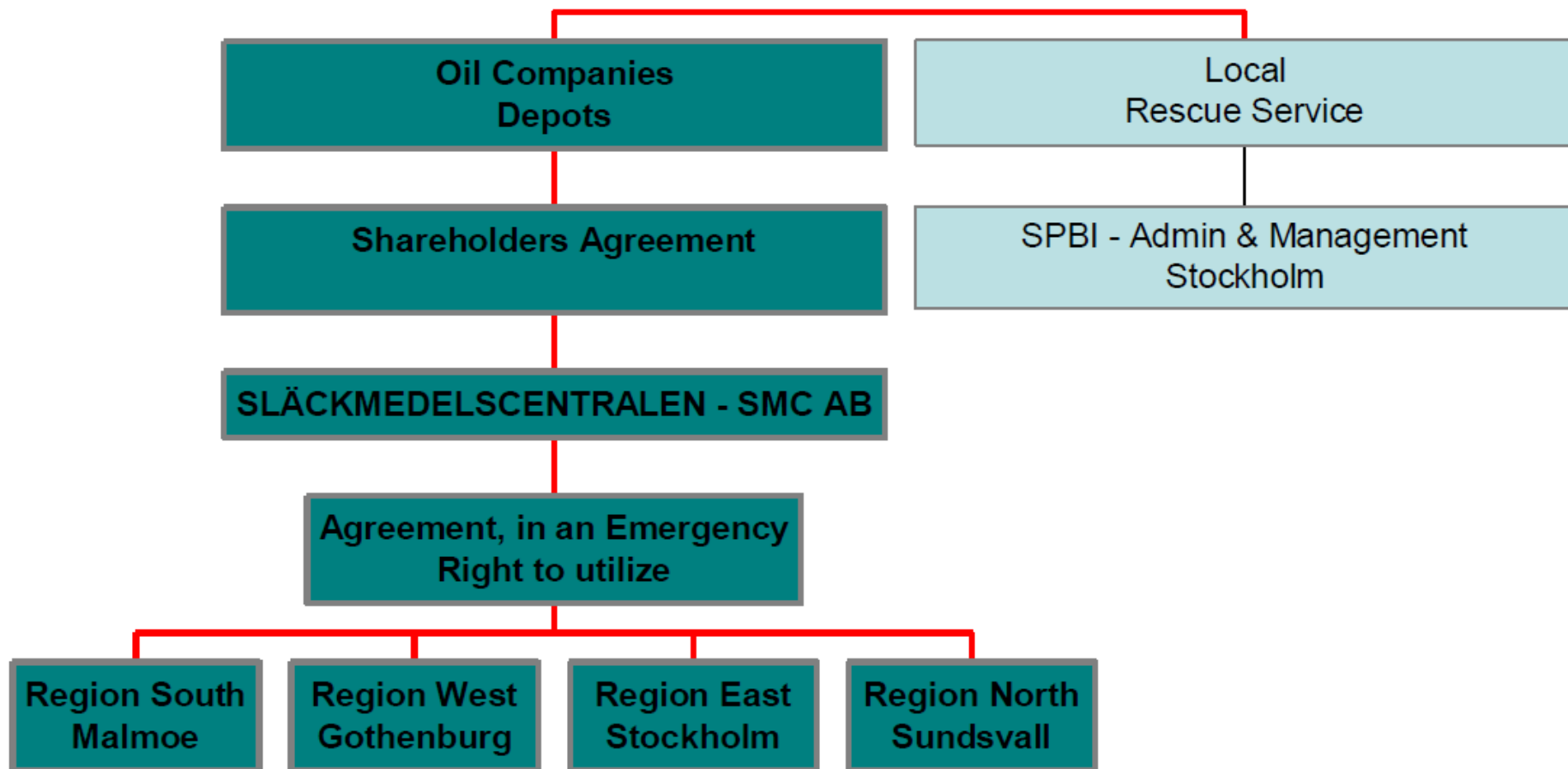


advies

**kappetijn  
briks**



# Sweden, SMC (4)



# Zweden, SMC (5)

## Turnouts:

- Kälarne –June-97
- Tyresta–July-99
- Venezuela –Feb/May-00
- Bergs Oil depot -April-00
- Borlänge –April-00
- Ånge –July-00
- Piteå –Nov -00
- Malmö -Sept-01
- Perstorp –July-01
- Landskrona –July-01
- Dals Långed –Oct-02
- Ballingslöv–Dec-03
- Värnamo –July-04
- Härnösand -Sept-04
- Helsingborg –Feb -05
- Karlstad –Oct.-06
- Västerås –Mar.-07
- Karlstad –Oct.-08
- Mönsterås –Aug.-11
- Nynas Refinery -Oct.-11
- Halmstad -Sept.-12
- Malmö Oildepot -June-13
- Västmanland forest fire:-Aug.-14

## Australia (Queensland (county), Brisbane), GMAG (1)



## Gateway Mutual Aid Group

# Australia (Queensland (county), Brisbane), GMAG (2)

## Cooperation between:



**Incitec Pivot Limited**



## Australia (Queensland (county), Brisbane), GMAG (3)

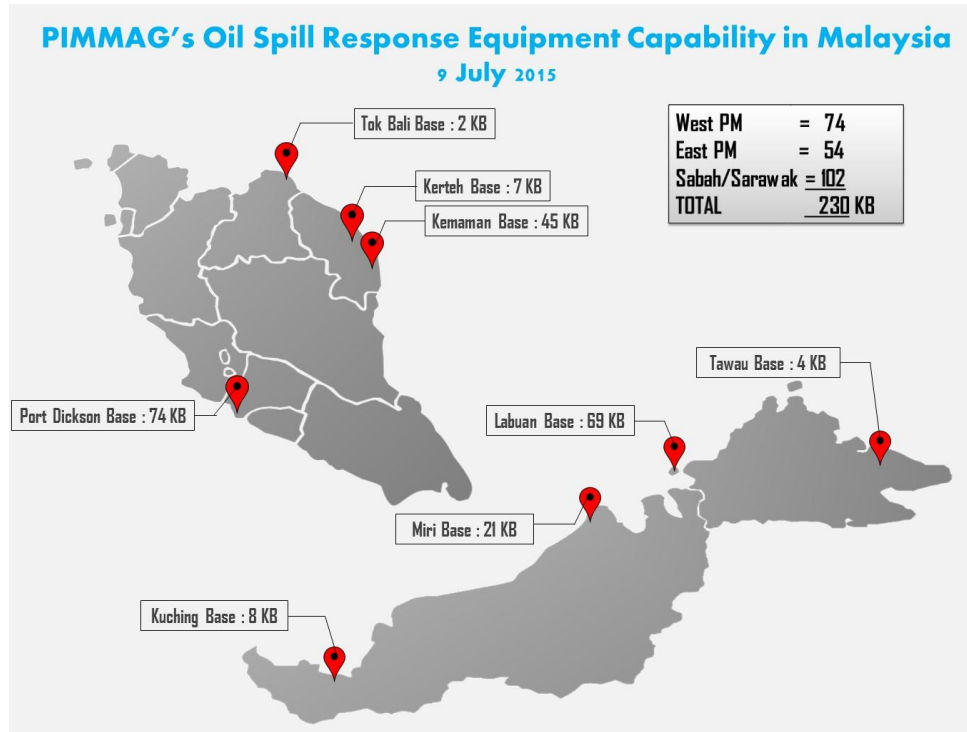
### ❖ Goal:

*“Establish a formal organization to support the implementation of a best security, safety and incident management practices that will ultimately protect life, property and the environment with a consideration for business continuity in the Pinkenba Precinct.” (quote GMAG)*

### ❖ Components:

- A pool of materials and people to support the emergency services
- An internal communications network
- An information forum
- Information exchange between the different companies

# Malaysia, PIMMAG (1)



Petroleum Industry of Malaysia Mutual Aid Group

Non Profit facility specialized in cleaning up oil spills



# Malaysia, PIMMAG (2)



# Maleisië, PIMMAG (3a)

## ❖ Goal:

*PIMMAG's principal role is to enhance the protection of the environment through the provision of pooled resources in order to respond to oil spill contingencies arising in Malaysia and Malaysian waters including the economic exclusive zone.*

❖ Response-time of 12-24 hours from every base

❖ 35 employees total

# Malaysia, PIMMAG (3b)

## Materials:

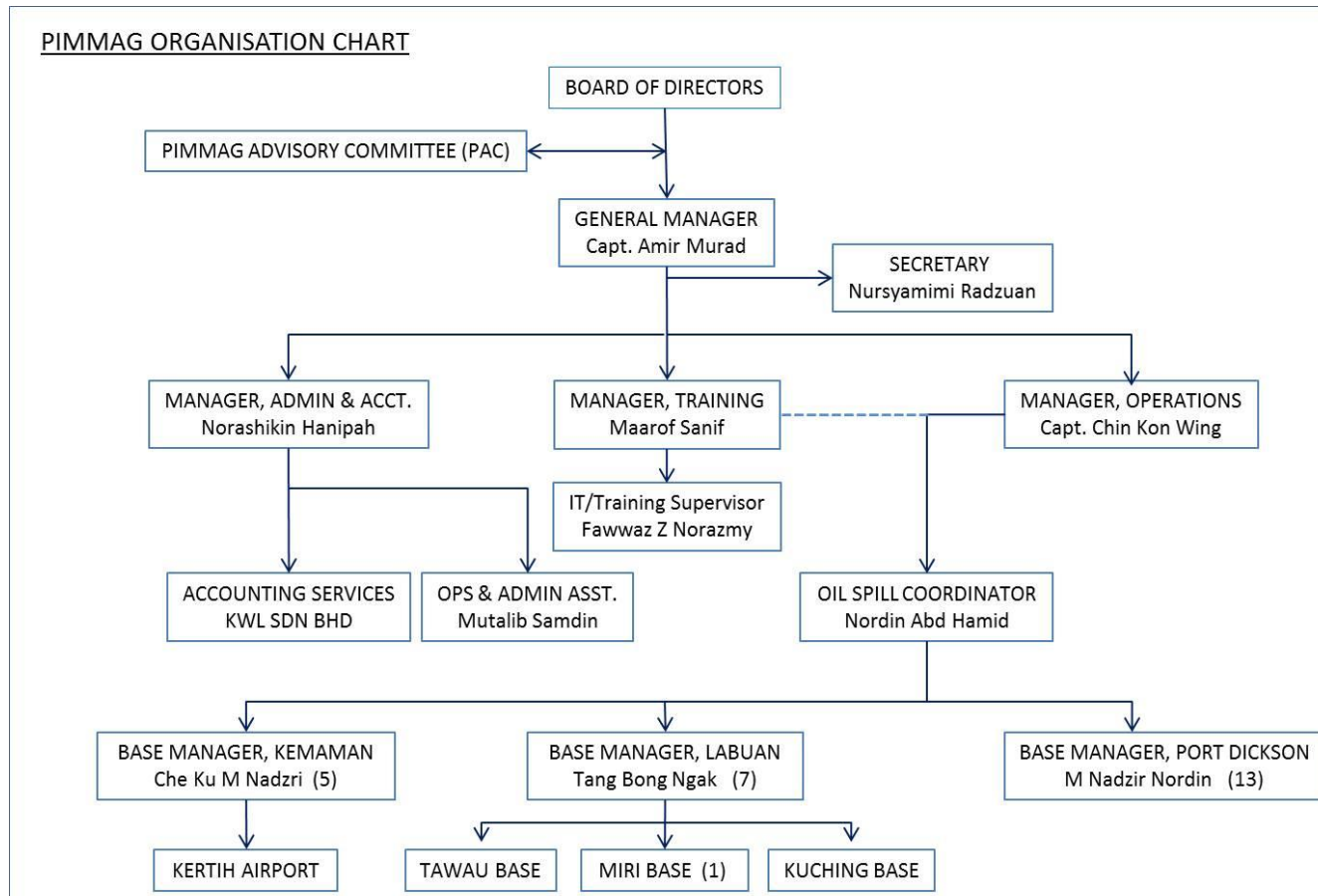
PIMMAGE EQUIPMENT STOCKPILE RECOVERY RATE  
(JANUARY 1999)

EQUIPMENT	UNIT	RECOVERY RATE (Ton/hr)	EFFICIENCY %	TOTAL	
				(Tonnes)	(Barrels)
<u>PORT DICKSON</u>					
Marflex Arm	1	450	20	2,520	17,640
T -12 Skimmer	1	12	90	302.4	2,116.8
Delta Head	4	8	50	448	3,136
Powervac	3	12.54	50	526.7	3,687
C-24 Skimmer	2	24	90	1,209.6	8,467.2
Dispersant (Drums)	259	Ratio 20 : 1	Sub T otal	5,006.7	35,047
				1,082.6	7,578.3
			T OT AL	6,089.3	42,625.3
<u>KEMAMAN SUPPLY BASE</u>					
Marflex Arm	1	450	20	2,520	17,640
T -18 Skimmer	1	18	90	453.6	3,175.2
Manta Ray	2	8	50	224	1,568
Powervac	2	12.54	50	351	2,457
Foilex TDS 200	1	65	37	673.4	4,713.8
Dispersant (Drums)	474	Ratio 20 : 1	Sub T otal	4,220.0	29,554.0
				1,980	13,869
			T OT AL	6,203.0	43,423.0
<u>LABUAN SUPPLY BASE</u>					
Foilex TDS 200	3	65	37	2,020.2	14,141.4
T -12 Skimmer	2	12	90	604.8	4,233.6
Vikoskim	1	100	37	1,036	7,252
Vacuum Pump	3	2	50	84	588
Dispersant (Drums)	490	Ratio 20 : 1	Sub T otal	3,745.0	26,215.0
				2,065	13,455
			T OT AL	5,810.0	39,670.0

EQUIPMENT	UNIT	RECOVERY RATE (T on/hr)	EFFICIENCY %	T O T A L	
				(Tonnes)	(Barrels)
<u>MIRI SUPPLY BASE</u>					
Foilex TDS 200	1	65	37	673.4	4,713.8
T-18	1	18	90	453.6	3,175.2
Dispersant (Drums)	20	Ratio 20 : 1	T O T A L	83.6	585.2
				1,210.6	8,474.2
<u>KUCHING SUPPLY BASE</u>					
Foilex TDS 200	1	65	37	673.4	4,713.8
T-18	1	18	90	453.6	3,175.2
Dispersant (Drums)	20	Ratio 20 : 1	T O T A L	83.6	585.2
				1,210.6	8,474.2
<u>TAWAU SUPPLY BASE</u>					
Foilex TDS 200	1	65	T O T A L	673.4	4,713.8
Dispersant (Drums)	100	Ratio 20 : 1		418	2,926
				1,091.4	7,639.8

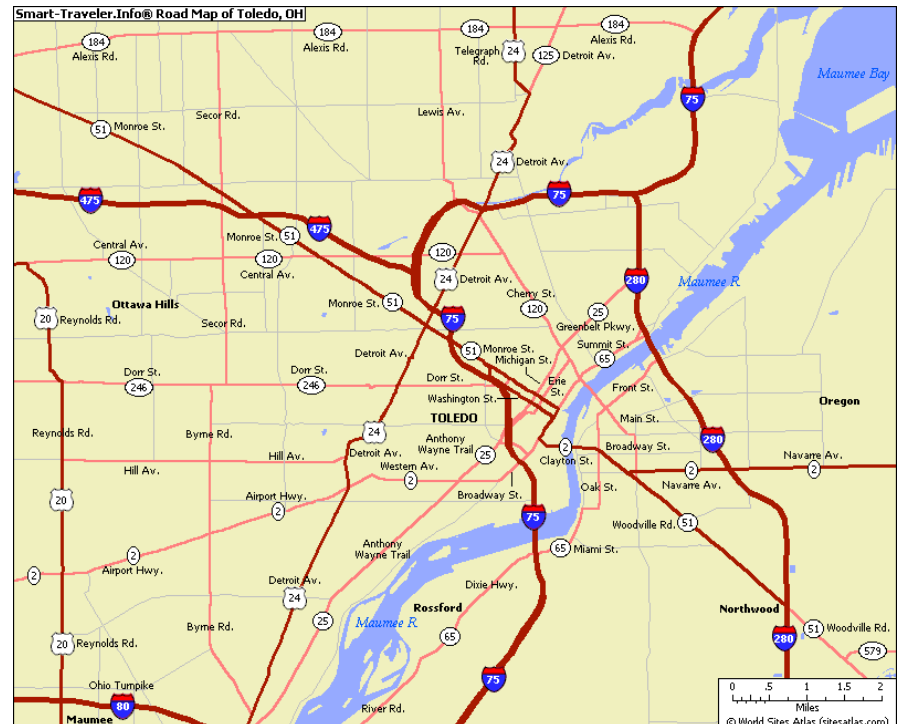
# Malaysia, PIMMAG (4a)

Board of directors compiled from different oil companies



# USA, (Toledo OH), NOMMAD (1)

- ❖ Size area: +/- 50 mile
- ❖ Toledo and surrounding areas +/- 300.000 inhabitants
- ❖ Industrial risks Incident control, among which:
  - Spills on land and in water
  - Gas leak
  - Dangerous substance control
  - Other situation that require specialized assistance



# USA, (Toledo OH), NOMMAD (2)

- ❖ Members of NOMMAD are i.a.:
  - Local refineries
  - Environmental companies
  - Contractors
  - Oil spill clean-up companies
  - Energy companies
- ❖ NOMMAD cooperates with various local authorities like:
  - EPA
  - United States Coast Guard
  - Toledo Division of Environmental Services
  - Emergency Management Agencies (EMA)
  - Local Emergency Planning Committees (LEPC)
  - Local police and fire brigade



# USA, (Toledo OH), NOMMAD (3)

## Goal:

*Provide specialized services to all local and to NOMMAD connected companies and governments (but also fire departments and industries) and doing this professionally, safely and quickly.*

# China, (Shanghai Coajing), SECCO (1)



Check firefighting PPP or a joint venture  
between 3 companies?

# Maleisië (Kerith, Terrengganu) CEFS (1)



## Centralized Emergency and Fire Services

Formerly part of Petronas Fire Services Unit

# Maleisië (Kerith, Terrengganu) CEFS (2)

- Partners of CEFS:
  - 1 refinery
  - 10 petrochemical companies
  - 2 gas processing companies
  - 1 crude oil terminal
  - 1 tank- and railway facility



# Maleisië (Kerith, Terrengganu) CEFS (3)

## Materials:

- 2 - 3000 GPM Foam Tenders
- 1 - 2000 GPM Aerial Foam Tender
- 1 - 2000 GPM Foam Tender with Articulating Boom
- 1 - Dry Chemical Tender
- 2 - 2000 GPM Foam Tenders
- 2 - Mobile Command Posts
- 4 - Rapid Support Vehicles
- 3 - Forward Command Vehicles
- 3 - Ambulances
- 1 - Hazmat Vehicle
- 4 - Trailer Mounted 3000 GPM Terminators

Trained in industrial firefighting, hazardous substances, First Aid and CPR, and Incident Management

# Maleisië (Kerith, Terrengganu) CEFS (4)

- ❖ Incident June 23, 2015
- ❖ Fire in a 130 ton ethylene tank
- ❖ The CEFS firefighters take action before escalation can occur





Questions?



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