

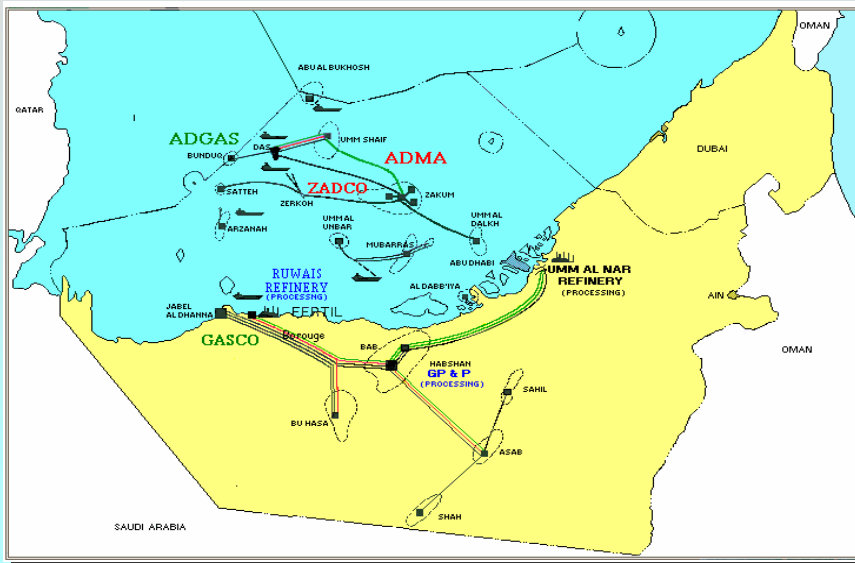


Emirate of Abu Dhabi  
Supreme Petroleum Council

## ADNOC Oil Spill Response Preparedness



## Main Oil & Gas Operations



SPC - Crisis Management



## ADNOC Dimensions

### Group Companies

ADCO  
ADGAS  
ADMA-OPCO  
ADNATCO  
ADNOC-FOD  
Borouge  
ESNAAD  
FERTIL  
GASCO (JV&ASR)  
IRSHAD  
NDC  
NGSCO  
TAKREER  
ZADCO  
ADOC  
TOTAL-ABK  
BUNDUQ

### Assets

6 Production Co.  
2 Refineries  
1 Fertilizer plant  
4 Gas liquids plants  
2 LNG plants  
1 Poly-Ethylene Plant  
Dozens barges, tugs,  
boats, cranes  
Approx. 25 Rigs  
2 shipping Co.  
4 Port facilities  
Offices/Housing/Stores  
4000+ Km pipelines

### People

25 - 30,000  
employees

40- 45,000  
contractors

### Oil & Gas Production

2.7 mmbpd Oil & Cond  
5+ bm3/d Natural Gas

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## Our Mission & Vision

- To protect the UAE environment, infrastructure and resources by providing effective crisis & emergency response services to ADNOC Group companies throughout their entire area operations.



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## **Key Success Factors for Effective Crisis and Emergency Management Preparedness**

- 1. LEADERSHIP COMMITMENT**
- 2. CLEAR ACCOUNTABILITIES**
- 3. RESOURCES**
- 4. RESPONSE CO-ORDINATION**
- 5. CONTINUOUS DEVELOPMENT PROGRAM**



### **1. LEADERSHIP COMMITMENT**

There is a clear leadership commitment to continually develop towards a world class crisis management capability across SPC and the ADNOC Group of Companies. This builds on the excellent foundations already in place, namely:-

- A Crisis Response facility within ADNOC Complex
- Tier 2 Oil Spill Response Centres at Mussaffa and Ruwais
- The introduction of the Incident Command System to ADNOC Group Companies
- The establishment of a CM Steering Committee
- The implementation of the Code of Practice on Crisis and Emergency Management (ADNOC COPV5-02)



## 2. ACCOUNTABILITIES

- The Manager, PECD within the Supreme Petroleum Council (SPC) is accountable for establishing a Group wide CM system that aligns all ADNOC Group Operating Companies (OPCO'S), Functions and appropriate external agencies.
- The Crisis Management Team Leader is responsible for ensuring that appropriate resources are in place to fulfil this requirement on a daily basis.
- The OPCO General Managers are accountable for ensuring that appropriate plans, processes and resources are in place to meet the requirements of the Code of Practice on Crisis and Emergency Management (ADNOC-COPV5-02).



## Accountabilities

### Role of SPC Crisis Management Team

- Maintain a crisis response facility and appropriate infrastructure support for all Group Operating Companies and ADNOC central functions.
- **Maintain an Oil Spill Response capability in support of all ADNOC Operating Companies.**
- Assist OPCO's in meeting the requirements of ADNOC Code of Practice on Crisis and Emergency Management (COPV5-02).
- Monitor and assess ADNOC strategic Corporate CM preparedness.
- Ensure Business Continuity plans are in place within all OPCO's and ADNOC corporate functions.



## Accountabilities

### SPC Crisis Management Function

In summary the SPC CM function is to provide:-

- (1) an **assurance** function to SPC and ADNOC senior management and
- (2) a **resource** function providing expertise, facilities and equipment to the Group of Operating Companies for both training and real incident response.



## Corporate Response Expectations

### Tiered Response Philosophy

<b>Tier I</b>	<b>Handled by On-Site Resources</b>
<b>Tier II</b>	<b>Requires Mutual Aid Assistance</b>
<b>Tier III</b>	<b>Requires National or International</b>



### 3. RESOURCES

#### Operating Company Resources

##### Operating Companies have in place:-

- On site resources ( people and equipment) to tackle Tier 1 incidents
- Pre-identified Tier 2 support (provided by mutual aid arrangements such as ADESCO for offshore operators, REFMAC for Ruwais Industrial Area operators, as well as Tier 2 and Tier 3 oil spill response support activated through SPC)



### Resources

#### SPC Oil Spill Response Capabilities

- Tier 2 Oil Spill Response Centres at Musaffah and Ruwais.





## Resources

### SPC Oil Spill Response Capabilities

- Currently 50+ full time trained oil spill/ Hazmat responders.



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## Resources

### SPC Oil Spill Response Capabilities

- Offshore and nearshore boom systems, skimming and storage systems.



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## Resources

### SPC Oil Spill Response Capabilities

- Associated logistics and ancillary equipment.



TRUCKs



POLARIS ATV



PICK-UP



FORKLIFT

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## Resources

### SPC Oil Spill Response Capabilities

- Offshore/ Nearshore Response Vessels

BASSI



KANAD



HAMAM



HPD-1



NAWRUS



POLLMAN



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## Resources

### Oil Spill Response Capabilities

- Over 50 offshore vessels equipped with dispersant spray capability
- 3 Tow Back Tugs equipped with built in oil spill recovery capability



## Resources

### Oil Spill Response Capabilities

#### Guaranteed Tier 3 Service Provider

- **SEACOR Environmental Services International (SESI)** is the international arm of the environmental group. SESI has operations in; Africa, South America, Asia-Pacific, Russia and Europe as well as an international consultancy group based in the United Kingdom. Within it's group of companies it includes:-
- **Link Associates (LINK)**, a leading Crisis Management and Business Continuity company.
- **The O'Brien's Group (TOG)** is the leading US provider of Qualified Individual (QI) and Spill Management Team (SMT) services, with retainer contracts with over 130 oil/chemical companies and shippers representing approximately 1,300 oil tankers and 2,200 dry cargo ships. O'Brien's responds to more than 200 spills annually.
- **National Response Corporation (NRC)** provides a retainer based nationwide Tier 3 spill response service to oil companies and tankers operating in the United States. With enormous resources of equipment and personnel.



## Resources

### Crisis Management Facilities:

The SPC Crisis Centre is a secured area and comprises two main rooms:

- **Emergency Support Centre**

Where information & Data is collected, analysed and processed and then streamed to

- **Corporate Crisis Centre**

Where the Corporate Crisis Team assembles.

- **Breakout rooms**

For media handling, HR support etc.



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## Resources

### SPC Crisis Management Facility

#### **Equipment & Capabilities:**

- Audio & Video conferencing.
- Digital/Analogue/Satellite phones.
- ADSL lines.
- Desktop PCs connected to ADNOC Server.
- Emergency Notification System "Fact-24".
- Laser printers, Fax machines.
- Active Board, Incident board & Magnetic white boards.
- DVD, VCR's & E-vision.
- Overhead projectors & Plasma Screens.
- AMX touch panels control all functions in the centre.
- Plotter, Scanner & photocopier.
- Overhead document camera.
- WebEOC—Crisis Information Management software.
- OilMap—Oil Spill Trajectory Modeling software.
- EmerGeo Mapping Tool.



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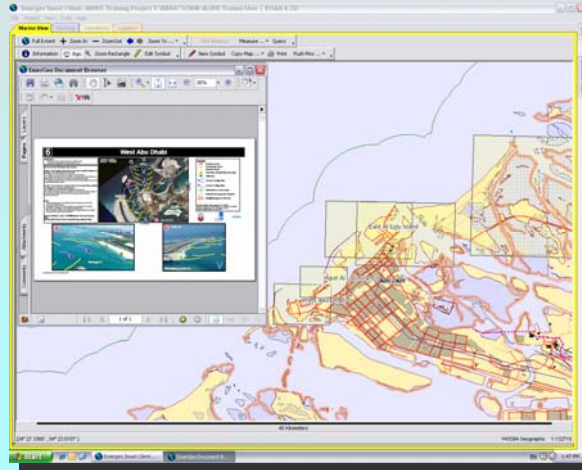


## Resources

### SPC Crisis Management Facility Software Capabilities

#### EmerGeo Mapping Tool

Developed to meet the demanding mapping needs of emergency planners and responders and any professional needing a quick and easy way to visualize, analyze and communicate critical information.



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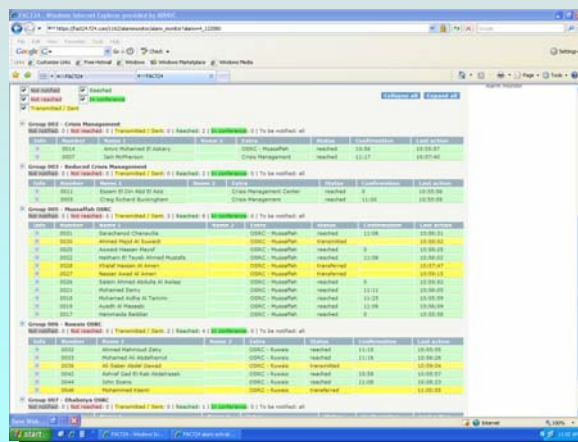


## Resources

### SPC Crisis Management Facility Software Capabilities

#### Automated Notification System

As the size and complexity of our teams grow in different physical locations the problems of notifying our staff of an incident in a timely manner also grows. Speed of response is essential in any emergency and the implementation of this system allows us to immediately notify all or parts of our teams at the click of a button.



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## Oil Map Trajectory Modeling:

## Resources

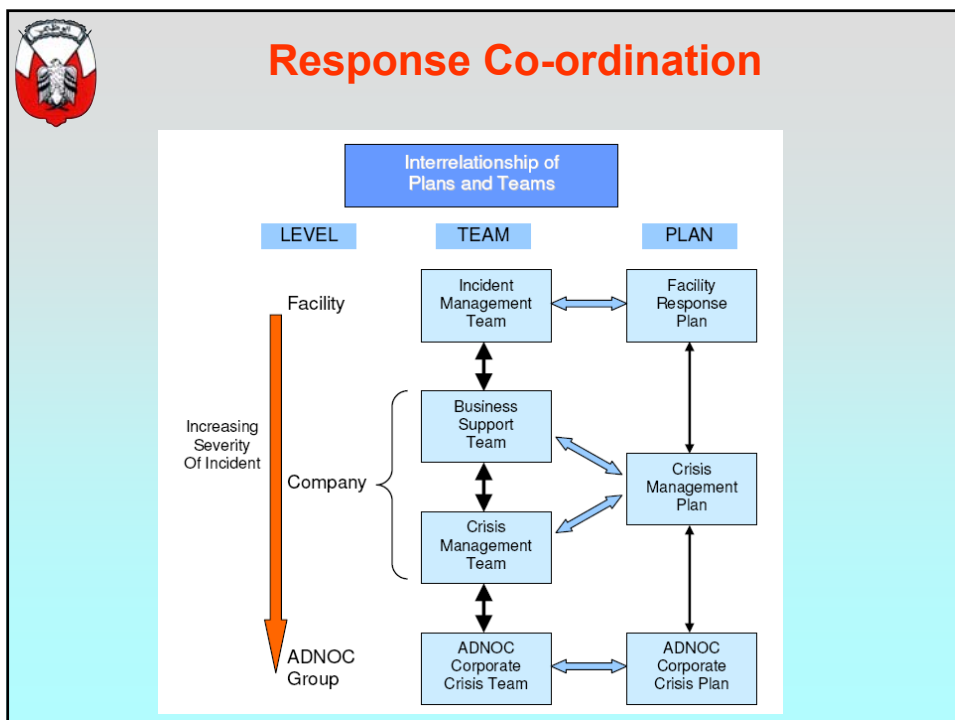
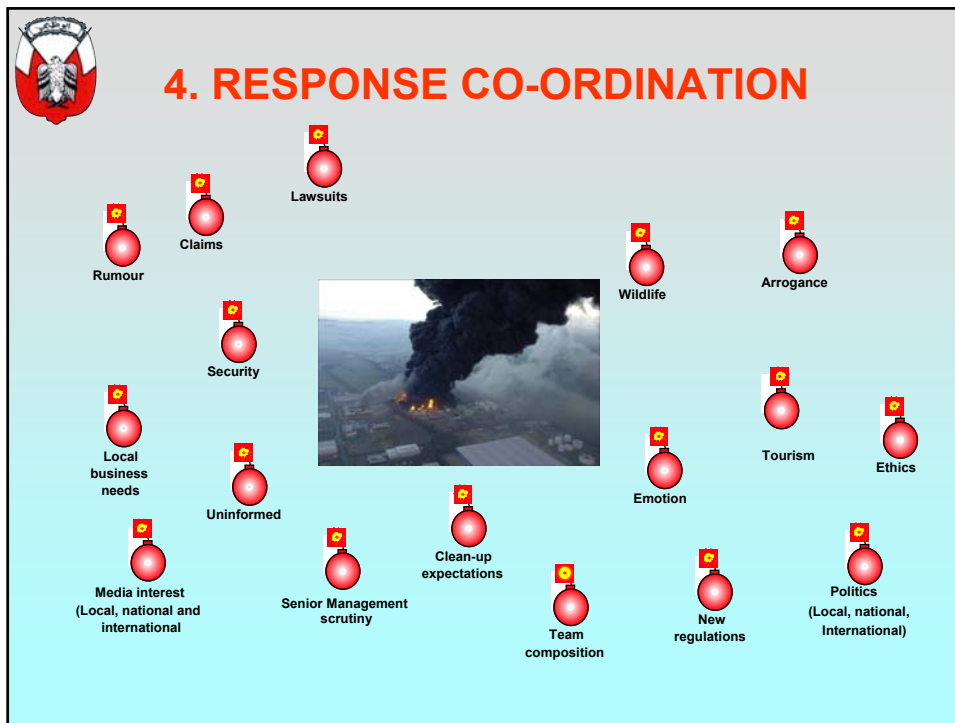
## WebEOC Crisis Information Management Software:

The screenshot shows two web browser windows. The left window, titled "WebEOC 6 - Windows Internet Expl...", displays the "WebEOC 6.2" control panel. It has a navigation bar with "Admin" and "Log Off" buttons. Below the navigation bar, there are tabs for "Essam", "Oriental Line", "Chat", "Checklist", "Contacts", and "Messages". The main content area shows a list of items with red circular icons and checkboxes, including "Position Log", "Unit Log", "1- 201 Series (Response Administrator)", "2- 201 Series (Planning)", "3- 201 Series (Operations)", "4- 201 Series (Logistics)", "5- 201 Series (Safety)", "Mission/Task Management", "News Release (Display)", "NOAA ICS - 201 (Series)", "NOAA ICS - 201 Briefing Package", "Position Log", "Requests For Assistance", "Resources", "Scroller\_board", and "Scroller\_board".

The right window, titled "http://10.63.1.113/...", displays a "Summary of Current Actions" log. It has a navigation bar with "Entry", "Sort", and "Filter" buttons. The log table has two columns: "Time" and "Action / Note". The log entries are as follows:

Time	Action / Note
12:35	Receiving Phone call from Mr. Craig informing that a tug sunken near Umm
12:38	Calling haimeida to check loading equipment
12:40	Calling Capt. Khams Al Naquby to check the situation
12:45	Receive a call from Capt. Mandouh Abu Shabiba informing that the sunken
13:00	Following up with Haimeida about loading the equipment onboard AROUSA
14:15	Receiving call from Capt. Mandouh Abu Shabiba informing the appearance
14:19	Receiving Fax from CHIA operation reporting an oil spill at Lat: 25 22.53
14:20	Receiving call from Mr. Daham Following up.
14:25	Calling Umm Al Shaif control room to check about equipment (to Es. Available
14:30	Calling NMS S11 to get more details about the oil spill, informed that it is al
14:40	Arousa ready to sail & started to move. ETA 1840.
14:45	Updating Mr. Daham with the current situation.
15:00	Receiving a call from Marc Orchard from ADMA
15:05	Capt. Zaid Zalzariya joined the crisis centre.
15:15	Discussing with Mr. Daham to move HAMOUR boat from DAS towards the i
15:25	Contacting capt. Mandouh Abu Shabiba advised him that HAMOUR have t

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## Response Co-ordination

- **Common Priorities**

- **Human Life**  
Employees, Contractors, Suppliers, Customers and Communities.
- **Environment**  
Air, Water, Land, spillages and areas of sensitivity.
- **Protection Of Facilities**  
ADNOC, Communities and 3rd party facilities and offices.
- **Business Continuity**  
Supply, production and reputation.



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## Response Co-ordination

- **Common Response Philosophy**

- **Over-Reaction** If in any doubt, always activate teams. Assume worst case scenario until situation is verified.
- **Assess** Gather information and plan appropriate response.
- **Respond** Mobilize appropriate resources respond accordingly.
- **Stand Down** A planned and agreed de-escalation of response.



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## Response Co-ordination

### Common Emergency Management System

Utilising the Incident Command System (ICS) when managing an incident has a significant positive impact on the incident management process as it ensure use of:

- Common Terminology,
- Integrated Communications,
- A structured Planning Process,
- A single Incident Action Plan and
- Comprehensive Resource Management.

Using ICS across the all ADNOC Group Companies also ensures that qualified ICS personnel can be requested from other OPCO's should a Facility face a prolonged incident that spans over several weeks.



## Response Co-ordination

### Abu Dhabi Maritime Strategy

The Maritime Strategy of the Emirate of Abu Dhabi establishes nine priority goals—end states necessary to achieve the vision of a safe, secure, and sustainable maritime domain for years to come. These goals, along with their supporting priorities and initiatives, will both harness the current efforts of implementing agencies and guide the development of new and enhanced maritime-related programs. The goals of the Strategy include:

1. Sustainable Use and Development of the Maritime Domain
2. Maritime Transportation System Safety, Security, Efficiency, and Incident Prevention
3. Securing the Maritime Domain
4. Crisis Management, Emergency Response, and Restoration
5. Environmental and Resource Conservation
6. Preservation of the Emirate's Maritime Heritage
7. Science, Technology, and Information Management
8. Governance and Coordination
9. Strategic Partnering



## 5. CONTINUOUS DEVELOPMENT PROGRAM

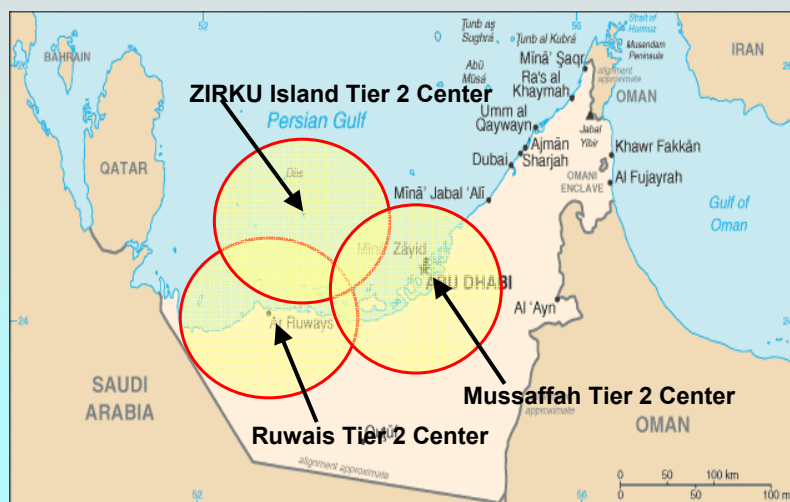
- SPC to provide Tier 1 service at key locations
- Establish another Tier 2 Centre offshore
- Build enhanced Tier 2 Centre to replace existing centre at Musaffa. Will include full training and test tank facility as well as own dock.

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## Continuous Development Program

- **ZIRKU Island Tier 2 Center**



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## Continuous Development Program

### Tactics Support Project

Recently completed a Sensitive Area Protection Plan consisting of Four components:

- High-resolution satellite imagery .
- Low-altitude aerial video imagery .
- Video viewing package.
- Oil spill response Tactics Sheets.



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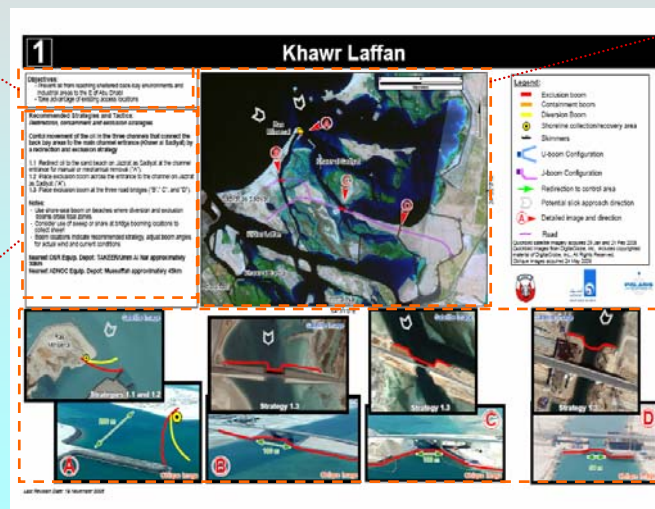


## Continuous Development Program

### Tactics Sheets Folio

A statement of the response objective(s) for the area.

A text panel that summarizes the recommended strategies and tactics.



A recent vertical satellite image, in most cases is 2007 or 2008 data, that provides an overview of the area and of the locations of recommended response actions.

Oblique and/or vertical images, generally 2008, of specific locations within the area.

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## Continuous Development Program

### ADNOC Dispersant Strategy

**Phase 1** ADNOC Oil Weathering Analysis **Completed**

**Phase 2** ADNOC Oils Dispersant Testing **Completed**

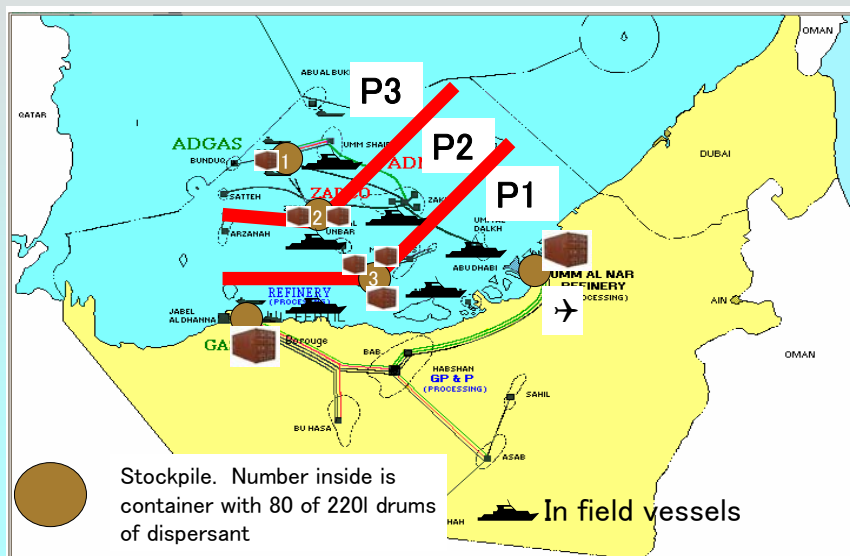
**Phase 3** ADNOC Dispersant Management Program **Ongoing**



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## Priority Zones For Dispersant Application And Mechanical Oil Spill Response



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## **Proposed Intermediate Condition**

- 6 dedicated on site vessels strategically located with oil detection systems installed. Vessels operated by OPCO's
- 6 back up systems located with SPC CMT stockpiles and changed out with in place systems to ensure appropriate maintenance undertaken.
- 500,000litres stockpiled dispersant. This figure is for 3 days of dispersant application with 12 boats and 2 days of aerial dispersing
- Trained crews for dispersant application.
- Trained coordinators for vessel organization and support
- Dedicated response option for aerial support operations



## **Final Outcome Time Frame 2-3 Years**

- 1 unified stockpile of dispersant to allow easy testing and usage monitoring. Stockpile split between offshore and onshore locations to allow rapid access and disbursement
- 3 high speed dedicated response vessels with 24hr oil spill detection and monitoring equipment
- 6 In field back up / support vessels
- Aerial response support package
- Spray units fully maintained – 12 of
- Trained teams – 2 teams per field unit minimum
- Coordinated Dispersant response plan
- Predetermined logistics support plan
- Full training program for responders and coordinators
- Communication plan in place
- Surveillance and monitoring plan in place



## Continuous Development Program

### Manpower Development

- **Increased Manpower Resources**

- Currently employing an experienced Salvage Team Leader plus 30 staff (divers, welders, mariners etc)
- Have established an Environment Team experienced in restoration and monitoring of mangroves, corals, sea grasses etc
- Recruiting additional 50 oil spill specialists

**Note:** This will give a total of approximately 150 trained staff available for oil spill response operations from SPC within next three months. In addition access to trained staff within OPCO's.

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## Continuous Development Program

### Manpower Development through training program



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## Continuous Development Program

### Manpower Development through exercises



#### PAJ exercise Japan :

Joint venture exercise  
between Petroleum  
Association Of Japan and  
Supreme Petroleum Council.



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## Continuous Development Program

### Manpower Development at non ADNOC incidents



Assisted in  
response to  
others spills  
in Lebanon,  
Egypt and  
UAE



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## Continuous Development Program

### • Increased Response Vessel Capability

- Currently planning to purchase 1 hi-speed offshore response vessel (55 knots) to be equipped with offshore oil spill response equipment
- Will build 4 more hi-speed multi- purpose vessels ( current planning 2 for oil spill operations and 2 offshore “ambulances” equipped for medivac purposes)
- 12 escort tugs currently on order to be built - all will have own oil spill response capability
- Purchasing oil containment barges/ tankers (approx 3500dwt/ 6500 dwt) for handling slops and as storage for recovered oil in case of oil spill
- Landing craft for shoreline response operations
- Crane barge

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## SUMMARY CONCEPT OF OPERATIONS

### Resources in place to:-

- Provide immediate support to an impacted OPCO from ADNOC “state of the art” Crisis Centre
- Provide salvage expertise and resources for stricken vessels
- Respond quickly to provide immediate medical attention to casualties with fast fully equipped “floating ambulances”
- Assess environmental implications/ impact and habitat recovery
- Respond quickly throughout area of operations with strategically located fast fully equipped oil spill response vessels with advanced technology high capacity recovery systems
- Store large amounts of recovered oil
- Protect areas at risk from impact using shoreline response systems
- In major event to mobilise external resources through Tier 3 service provider

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## SUMMARY

- High level leadership commitment is key.
- Clear accountabilities on preparedness and response.
- Codes of practices/ standards need to be achievable.
- Plans are only as good as the people who implement them.
- Continually monitor resource capabilities against risks.
- Good communications are vital.
- Ensure the organization is fit for purpose and able to scale up to an escalating crisis.
- “ No surprises” .....if in doubt respond until proper assessment of incident is made
- **...and finally a recognition there is always more to do!!...**





***THANK YOU***

**QUESTIONS??**