

# **Petroleum Association of Japan Oil Spill Symposium 2006**

**Petroleum Association of Japan  
Major Oil Spill Response Program,  
Its activities and development since foundation in 1990.**

**Presented  
by  
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In this presentation I will explain about the Petroleum Association of Japan, Major Oil Spill Response Programme, the history behind its set up, past milestones and performance, present situation and a view to the future.

## **Background and About Petroleum Association of Japan**

The Petroleum Association of Japan (PAJ) is a trade association comprised of 17 Oil companies engaged in the refining and/or marketing of oil in Japan. While PAJ deals with all matters concerning the refining and marketing of oil, the main functions performed by PAJ are as follows:

1. To promote better communication and understanding among member companies.
2. To represent the industry's opinions or proposals to the Government, industrial associations, the media and the general public.
3. To study and coordinate activities relating to important petroleum issues and to provide information on such issues, including the following:-
  - Energy and petroleum policies at home and abroad
  - Long-term forecasts of the supply and demand of oil
  - Distribution, transportation and stockpiles
  - Standardisation and other technological problems
  - Tax systems and financing problems
  - To publish information on important issues facing the petroleum industry
  - Environmental protection and safety

On March 24, 1989, shortly after midnight, the oil tanker Exxon Valdez struck Bligh Reef in Prince William Sound, Alaska, spilling more than 11 million gallons of crude oil. The spill was the largest in U.S. history and tested the abilities of local, national, international and industrial organizations to prepare for, and respond to, a disaster of such magnitude. Many factors complicated the cleanup efforts following the spill. The size of the spill and its remote location, accessible only by helicopter

and boat, made government and industry efforts difficult and tested existing plans for dealing with such an event.

This single event brought about a global change in the way the public, oil industry and governments regarded oil spills and laid the foundations for a huge change in legislation and company practice effecting the way that oil is produced, transported, refined and stored. These changes are still on going today and we can assume will continue to be implemented far into the future to protect our environment and our respective organisations from the effects of pollution caused by major oil spills.

Almost as a direct result of Exxon Valdez, things had to change. Public opinion fuelled by the daily images of the incident beamed across the world by the media fuelled the legislators in action and shortly after the cleanup operations were scaled down in August of 1990 the Oil Pollution Act 1990 was signed into law in the United States of America. Shortly after that in November the OPRC Convention was adopted which came into force in May 1995. Post Exxon Valdez forced each company and country took a long hard look at its contingency plans and regulations and in most cases many changes were made in line with the new regulations and with revised company practices.

In Japan the then Ministry of International Trade and Industry MITI now Ministry of Economy, Trade and Industry METI arranged for a government subsidy in 1990 and in 1991 Petroleum Association of Japan began the implementation of this Major Oil Spill Response Programme MOSRP.

### **The issues facing Petroleum Association of Japan in the beginning were:**

How to make this system work and be most effective.

Where to put the stockpile bases so they would be safe and close to the risks.

What equipment to Stockpile and how to arrange it.

Who would maintain and use the equipment in the event of a Major incident.

### **How.**

Petroleum Association of Japan is not an oil spill response organisation and did not want to get into this business but they did want to help in the most constructive way. When there is a major oil spill incident, one of the biggest problems is with having enough equipment on site to be effective. So Petroleum Association of Japan decided that the programme should have stockpiles of equipment ant geographically convenient places along the oil route. Since Petroleum Association of Japan did not want to be the primary source of equipment it was stated that the equipment be used as a secondary resource and only available to the borrower when the primary equipment had been mobilised. So the borrower has to apply to Petroleum Association of Japan and sign a contract and then the equipment is made available to the borrower. Once the contract is signed the responsibility of the equipment then passes to the borrower and they have to take care of it transport, operate it and look after it until it is ready to be returned to Petroleum Association of Japan. The equipment would be loaned to the borrower at no cost but the borrower would need to repair and clean the equipment after use and return it to the base within 3 months of the date of borrowing so as it can be available again should there be another incident.

## **Where**

Where to put the bases was a good question, oil is imported into Japan from the middle east and the oil route from the middle east passes a number of countries. Research showed that the most dangerous area for the oil tankers carrying oil to Japan was firstly in the countries where they originate, Saudi Arabia and United Arab Emirates, the area around the Malacca straits involving Singapore, Malaysia and Indonesia and the final destination points in Japan. It was therefore decided that these are the places where the bases should be and so 11 bases in total should be established. Six would be on mainland Japan and five in overseas locations. Looking at the risks the following locations in Japan were decided.

Number 1 Base in Tokyo Bay at Kyokuto Petroleum Industries Refinery at Ichihara

Number 2 Base in Seto Inland Sea at Japan Energy Corp. at Mizushima

Number 3 Base in Ise Bay at the Cosmo Oil Refinery in Yokkaichi

Number 4 Base in the Sea of Japan at the Showa Shell facilities in Niigata

Number 5 Base in Hokkaido at the Nippon Oil Refinery in Muroran

Number 6 Base in Okinawa at the Idemitsu Kosan facilities in Henza

Each of these companies in Japan made a space within their facilities for the Petroleum Association of Japan equipment to be placed and these were called bases and were near to the road so the equipment could easily be collected or delivered by truck.

With regards to the overseas bases it was decided that near Japanese facilities or Japanese owned logistics companies would be the best place to put these facilities so the following sites were chosen

Number 7 Base in Singapore at Singapore Oil Spill Response base in Jurong

Number 8 Base in Saudi Arabia at Arabian Oil Company facilities (now KJO) in Ras Al Khafji

Number 9 Base in Malaysia at Nippon Express warehouse in Port Klang

Number 10 Base on UAE at ADOC facilities in Mussaffa, Abu Dhabi

Number 11 Base in Indonesia at Nippon Express warehouse in Jakarta

## **What**

The selection of equipment to put in these bases was very important, also how to arrange it there so that it would be ready to go. It was decided after a review of worldwide response bases and oil spill response operations that a selection of well proven equipment from various suppliers located both overseas and from Japan would be most appropriate. Initially each base would have 1000 meters of offshore boom and 4 skimmer systems. This is the basic necessity to any major oil spill and would form the basis of the programme. The equipment would be supplemented each year with other equipment which was useful and formed part of the system for any large scale oil spill incident. Each complete system such as skimmer or boom system was to have its own container with power pack and spare parts etc so not only could the equipment be kept together, it could be loaned out as separate packages when necessary. The containers would also help to protect the equipment and it would also mean that the equipment was ready for transportation at a moments notice. It was decided to keep the equipment almost identical at each base so this would make the maintenance and training easier and add some uniformity to each base.

## **Who**

Since Petroleum Association of Japan does not have maintenance staff to look after the equipment a maintenance contractor was appointed for each base to make monthly maintenance on the equipment and make sure it is ready to go at a moments notice. The equipment in bases in Japan where the equipment is stored is an outside area so the maintenance is a key issue here. The manufacturer was asked to provide an initial commissioning and training course to the oil company and maintenance staff and then they would in turn train the other people who were to be involved in the equipment.

## **Base Opening.**

So by in 1991 the programme was in full swing and in November 1991 the Number 1 Base in Tokyo Bay at Kyokuto Petroleum Industries Refinery at Ichihara was opened and the Major Oil Spill Response Program came to life. This was followed by:

Number 2 Base in Seto Inlan Sea at Japan Energy Corp at Mizushima in September 1992 Number 3 Base in Ise Bay at the Cosmo Oil Refinery in Yokkaichi in March 1993 along with Number 7 Base in Singapore at Singapore Oil Spill Response base in Jurong then in September of 1993 Number 4 Base in the Sea of Japan at the Showa Shell facilities in Niigata followed by Number 8 Base in Saudi Arabia at Arabian Oil Company facilities (now KJO) in Ras Al Khafji and Number 9 Base in Malaysia at Nippon Express warehouse in Port Klang both in March of 1994, then Number 5 Base in Hokkaido at the Nippon Oil Refinery in Muroran in October of the same year with Number 6 Base in Okinawa at the Idemitsu Kosan facilities in Henza and Number 10 Base on UAE at ADOC facilities in Mussaffa, Abu Dhabi opening in March of 1995 and finally Number 11 Base in Indonesia at Nippon Express warehouse in Jakarta in March of 1996. This period 1991 to 1996 was a very busy time for Petroleum Association of Japan because not only were they building the bases and relationships they were also adding to the stockpile already established.

Each opening ceremony was different and was a great occasion with the stockpile being blessed by a Shinto ceremony in Japan in the traditional way. At the overseas bases the occasion was also high profile with Ambassadors and dignitaries from the neighbouring countries being represented along with the senior staff of Petroleum Association of Japan and METI also being present.

## **Lending of Equipment**

As soon as the bases were open they were ready to lend out the equipment and it was not very long before the equipment was being borrowed for major oil spill incidents.

### **1995 Sea Prince - Korea**

The first incident where the equipment was loaned was to the Sea Prince incident in Korea. This vessel had gone aground in Yosu in Korea and Petroleum Association of Japan equipment was shipped from Number 2 Base in Seto Inland Sea at Japan Energy Corp at Mizushima to Korea to help with the clean up. In this case the borrower was the UK P&I Club.

### **1996 Dong Yu – Japan**

This cargo ship had run aground off the coasts of Okushiri Island in Hokkaido and equipment from Number 5 Base in Hokkaido at the Nippon Oil Refinery in Muroran was sent to the scene.

### **1997 Nakhodka – Japan**

On January 2<sup>nd</sup> this vessel broke in two and led to the biggest oil spill related incident in Japan's history. The heavy oil from this ship polluted hundreds of kilometres of Japan's coastline and caused disruption to countless industries, wildlife and environment. Most of Petroleum Association of Japan equipment from all of the bases was made available to the P&I Club, Local prefectures of Ishikawa, Kyoto, Toyama and Niigata and also the electric power companies and national oil storage companies. The effects of this spill were felt in all corners of Japan and the fact that the Petroleum Association of Japan equipment was available and being used was a great comfort to the all concerned in this incident. This was Japan's "Exxon Valdez" and I will come back to the changes this incident prompted later in my presentation.

### **1997 Evoikos – Singapore Straits**

A collision in the Singapore straits led to 30,000 tonnes of heavy fuel oil being released into the sea and Petroleum Association of Japan equipment from all 3 of the South East Asian bases was mobilised and 2 of them were used in the clean up. The UK P&I Club arranged the borrowing of the equipment which was used extensively

### **1998 Pontoon 300 – United Arab Emirates**

This 4,000 ton barge of intermediate fuel oil foundered in the emirate of Ajman in the United Arab Emirates and spilled almost its entire cargo. Petroleum Association of Japan loaned the equipment from its number 10 Base on UAE at ADOC facilities in Mussaffa, Abu Dhabi.

### **2000 Natuna Sea – Singapore Straits**

Another grounding in the Singapore Straits caused a significant spill of 7,000 tons of Nile Blend crude oil and equipment from the base in Singapore was loaned to the ship owner and the London Steam Ship P&I Club who were the vessels insurer.

### **2000 Al Jazya – United Arab Emirates**

400 tons of heavy fuel oil was discharged from this vessel when it sank in UAE and Petroleum Association of Japan equipment was loaned to ADMA-OPCO for the clean up.

### **2001 Zaynab – United Arab Emirates**

Again in 2001, 600 tons of heavy fuel oil was spilled when the vessel Zaynab sank 26 miles west of Dubai. Petroleum Association of Japan loaned the equipment to ADNOC for this clean up.

Since the start of the Major Oil Spill Response Programme the equipment has been loaned some 21 times involving 6 different countries. The last lending of the equipment was in fact concluded in late 2005 and was again in the United Arab Emirates. All of the organisations that have loaned the equipment have been thankful to Petroleum Association of Japan and METI for maintaining this facility and on most occasions Petroleum Association of Japan has received an official letter of gratitude for making these resources available.

## **Issues arising from Nakhodka**

The Nakhodka incident raised many issues for many people but Petroleum Association of Japan looked at its own organisation and considered how it could improve with the valuable lessons it had learned from the spill. This spill was the first time many of the Petroleum Association of Japan members had ever been involved in an oil spill and certainly the first time to be involved in an incident on the scale of Nakhodka. One thing that was confirmed was that the provision of the equipment was indeed a very good idea and that the equipment that had been provided did work but there was not enough of it and the weather conditions at the time were such that larger offshore systems needed to be available in Japan to be able to recover the oil at sea before it reached the

shoreline. The biggest lesson learned however was in the area of training and since 1997 Petroleum Association of Japan has invested a lot of time and effort in training its members in all areas of oil spill operations.

## **Petroleum Association of Japan Training Programme**

### **Domestic Training**

Firstly a training programme was established to train all the member staff in 3 levels, beginner, intermediate and expert. The operation of the equipment had to be fully understood so a series of videos of the equipment were commissioned detailing the setting up and running of the equipment. These videos are an invaluable aid to a beginner who can see from the content of the videos how the equipment works and what it looks like once assembled and deployed. Courses were developed which include both theory and practical elements in the classroom and hands on. Practical exercises were run at all the base locations at regular intervals. In addition to this major offshore and beach exercise were held 2 or 3 times a year to get all the members familiar with the larger pieces of equipment. This training is given to both technicians and managers and pretty soon the results were being seen. A growing list of trained personnel is being maintained who could be called upon in the event of another major incident. Joint exercises with Japan Coast Guard are also held several times per year to simulate the co-operation needed when the real event happens and build relationships and understanding between all the interested parties

### **Training Overseas**

Petroleum Association of Japan sends its members staff on overseas training courses for IMO level 2 and 3 courses in Singapore to East Asia Response Limited and to Singapore Oil Spill Response Centre where they can participate international standard training courses. Participation in these courses is encouraged to bring in different ideas and methodology to the industry in Japan. These courses are very popular and the students all return to Japan with a wealth of new knowledge which they hope they will never have to call upon.

### **Overseas Exercises**

Since 1997 Petroleum Association of Japan has been committed to participation in overseas exercises with industry partners in the countries where the equipment is located. These exercises give Petroleum Association of Japan members staff, the opportunity to operate the vessels and equipment in realistic scenarios and work together with the staff of other organisations and other cultures. This programme has been very successful and the major exercise that they have participated in are:

<b>1997</b>	Exercise in Sharjah with ADNOC and AOC
<b>1999</b>	Exercise Ghazal in Abu Dhabi with ADNOC, ADOC OSRL, Shell, BP Mobil etc
<b>1999</b>	Exercise at Ras Tanura, Saudi Arabia with Saudi Aramco, AOC
<b>2000</b>	Exercise at Port Dickson, Malaysia with PIMMAG
<b>2002</b>	Exercise at Labuan Malaysia with PIMMAG
<b>2002</b>	Exercise at Abu Dhabi with ADNOC
<b>2006</b>	Exercise at Labuan Malaysia with PIMMAG

## **Petroleum Association of Japan Major Oil Spill Response Programme Today**

Petroleum Association of Japan's Major Oil Spill Response Programme has come a long way from 1990 to 2006. It has established itself as a major resource in the prevention of damage from major

oil spills and has been a reliable partner to many organisations in their hour of need. The organisation has trained many hundreds of operators and managers in all aspects of oil spill response and maintains a list of experienced personnel that can be called upon when needed. The stockpiles of equipment have grown over the years and now have some of the most sophisticated and effective equipment available in the world today with operators who know how to use it. Old equipment is periodically replaced with new state of the art devices which are becoming ever more efficient and easier to operate. International cooperation is tested with every exercise and training conducted overseas and wholly successful. I have not mentioned all of the other activities that Petroleum Association of Japan are involved in such as the hosting of the annual Oil Spill Symposium which is in its eleventh year or the research and development plan which is involved in the development of soft ware to help with identifying the changes in properties of spilt oil. Also Petroleum Association of Japan has released a new version of diffusion/drift simulation program which has been developed to improve forecasting for spills in the Japan, Sakhalin areas **and extending the area of coverage now to Malacca & Singapore Straits and to Persian Gulf.**

In conclusion I would say that when a major incident happens and nobody can tell where it will be or be fully prepared to cope with it but Petroleum Association of Japan has taken steps in the last decade and a half which have helped a great deal to alleviate the impacts of these spills not only in Japan but in many overseas locations too. **International co operation between Governments, Industry and Responders has been the key to its success and Petroleum Association of Japan thanks all of you here today for your support. Since its foundation, the Major Oil Spill Response Programme has monitored the development and risks of the threats posed globally and reacted to these changes by revising and updating the way of working. Petroleum Association of Japan will continue this work in the future by adopting and updating appropriate strategies and systems to respond to the changing world situation. Thank you.**

A.M. Crawford