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Masayasu Sakaba, Director
Maritime Disaster Prevention Division
Guard and Rescue Department
Japanese Maritime Safety Agency

# Summary of the 55. Nakhodka Maritime Incident and Oil Spill and Related Issues

(1) Summary of the Incident

[1] Date of Occurrence: January 2, 1997

[2] Place: Approx. 106 km NNE of Okinoshima Island, Shimane Prefecture

[3] Description of Vessel

a. Name of Vessel: SS. Nakhodka

b. Gross Tonnage: 13,157 tons

c. Cargo: Approx. 19,000 kl of heavy fuel oil(C-Fuel Oil / No.6 Fuel Oil)

d. Crew: 32

[4] Description of the Incident

a. The vessel was sailing from Shanghai to Petropavlovsk when the incident occurred. The bow section was broken off and the stern sank. Thereafter, the wrecked bow part continued to drift.

b. Of the 32 crew members, 31 were rescued. The body of the captain was washed ashore on January 26 in Fukui Prefecture.

c. Approximately 6,240 kl (estimated) of heavy fuel oil escaped from the damaged tanks of the vessel and began to drift. On January 8, portions of the oil began to reach the coastline. Thereafter, stranded oil was observed on the beaches of nine prefectures.

d. The bow section, containing approximately 2,800 kl (estimated) of heavy fuel oil, continued to drift until it ran aground off the coast of Mikuni-cho, Fukui Prefecture on January 7.

(2) Response

a. The Japanese Maritime Safety Agency undertook rescue operations immediately after receiving the notification of the shipwreck. Beginning on January 3, it issued warnings to local governments of areas which were in danger of being affected by the oil spill and continued to keep information to responsible personnels and organizations through the Ministerial Coordinating Meeting which was first convened on January 6. A Crisis Management Headquarters was established within the 8th and 9th Regional Maritime Safety Headquarters and the head offices of the Maritime Safety Agency, and the Agency undertook various operations for responding to the oil spill.

b. On January 10, the government established a Disaster Management Headquarters with the Minister of Transportation as its chairman and worked to maintain close communication and cooperation among the responsible government offices to develop an integrated government response for coping with the oil spill.

c. On January 20, the Chief Cabinet Secretary convened a meeting of the responsible ministers. It was confirmed at this meeting that appropriate responses to the following problems would be developed through close coordination among the responsible ministries: investigating the extent of damage, addressing the question of compensation and other disaster-relief measures, investigating the cause of the incident and formulating measures for the prevention of a recurrence.

(3) Responding to the Oil Spill

[1] Recovery of Spilt Oil

The principle aim of the operation was to minimize the impact of the oil spill on coastal areas. Floating oil was recovered by the Maritime Safety Agency with the cooperation of the Center (Japan Maritime Disaster Prevention Center ,MDPC), the Ports and Harbors Construction Bureau, the Self- Defense Forces and other responsible agencies and organizations.

Local governments played a central role in the recovery of stranded oil with the cooperation of Self-Defense Forces, the Center (Japan Maritime Disaster Prevention Center, MDPC), the Ports and Harbors Construction Bureau and civilian volunteers. As of today (June 29), a total of 56,586 kl of oil have been recovered.

The cost of coping with the oil spill are to be defrayed from the emergency reserve funds of the fiscal 1996 national budget. Grants amounting to approximately 12 billion will be given to affected local governments, while approximately 19 billion will be provided to the Center in the form of a relief loan.

[2] Coping with the Bow Section (including the construction of a temporary access-way)

After the bow section ran aground off the coast of Mikuni-cho, Fukui Prefecture, the Center undertook to remove the oil remaining in the bow section on the orders of the Director-General of the Maritime Safety Agency.

To facilitate the removal of the remaining oil, a temporary access-way was constructed and was used for this purpose. After pull out of the remaining oil the bow section was removed by the shipowner on April 20 and was transported to Hiroshima for dismantling. At the present time, the cause of the incident is being investigated by the Investigative Committee for the Nakhodka Incident under the Ministry of Transport with the cooperation of the Russian side.

As for the removal of the access way , followed by the study made by the Center , the actual work has been commenced from June 7 , with suitable arrangement for the parties concerned.

[3] Coping with the Stern Section

Regarding the stern section, the Committee for Countermeasures for Oil Remaining in the Stern submitted its report on March 26. At the present time, the Maritime Safety Agency is continuing its aerial and seaborne surveillance of oil escaping from the sunken stern section.

(4) Lessons from the Nakhodka Incident and Oil Spill and the Establishment of an Oil-Spill Response arrangement.

[1] Working Groups in the Project Team of the Ministerial Meeting for Countermeasures for the Nakhodka Incident and Oil-Spill Disaster

Comprehensive measures for the Nakhodka incident and oil-spill disaster, including disaster-relief and measures for the prevention of recurrence, are being studied by the No. 3 Project Team of the Project Team for Crisis Response to Major Oil Spills which is functioning under the aegis of the Ministerial Meeting for Countermeasures for the Nakhodka Incident and Oil-Spill Disaster. With the cooperation of the related government ministries and agencies, the No. 3 Project Team is scheduled to shortly submit a paper on the establishment and improvement of the crisis response systems of the various responsible organizations and agencies.

Prior to the completion of this paper, on June 3, a review was undertaken of the Basic Plan for Disaster Control which defines the nation's basic policies regarding accidental disasters. In the course of this review, a general framework was established for crisis response systems which includes such measures as the establishment of a "Keikai Honbu" , transitional headquarters for handling surveillance , examination of preparedness and notification of alert for the particular incident or probable disaster and a government Response headquarters in the event of a major oil spill.

[2] Committee for Comprehensive Study

The Committee for Comprehensive Study of Oil Spill Response Systems which functions under the aegis of the Plenary Section of the Council for Transport Technology is currently studying various responses to oil spills, including the development of oil skimming vessels and related equipment, and the establishment of a system for international cooperation for the prevention of marine pollution. The Committee completed its interim report on June 20 and is scheduled to submit its final report before the end of December.

Steps will be taken toward to establishment of oil-spill response systems based on these reports and papers.

Layout of the Cargo Tanks of the SS. Nakhodka

1. Port side tanks

2. Center tanks

3. Starboard tanks

4. Location of break

The broken stern section (based on video images taken by "Dolphin 3K")

Basic Response Policies

Japan:

Mechanical recovery is the general approach. When mechanical recovery is difficult, oil dispersants are used taking weather , sea conditions and sensitivity map into account.

United States:

Mechanical recovery is the general approach and the use of oil dispersants is subject to restrictions.
In case of rough weather conditions preventing the use of mechanical methods, oil dispersants are used only if the oil spill is causing serious damage to marine organisms and if it is determined that the dispersants will not have a major impact on the environment.

United Kingdom;

Response is based on all of the following four methods: minimizing the volume of the spill, mechanical recovery, use of oil dispersants, natural dispersion.
A feature of the British response is that efforts are made to contain the pollution at its source and give priority to the use of oil dispersants. This approach requires very prompt action to get to the oil spill before weather and sea conditions turn the oil into mousse. The effectiveness of mechanical recovery is limited by the very long British coastline (1,000 nautical miles for the main island alone).

Netherlands:

Mechanical recovery is the general approach. Such other methods as mechanical dispersion, natural dispersion and the recovery of stranded oil reached to the shore are used. Application of oil dispersants are prohibited since their environmental impact has not been properly clearized.

Norway:

Mechanical recovery is the general approach. When mechanical recovery proves ineffective, the use of oil dispersants is permitted only after an assessment of their projected effectiveness.

Australia:

Mechanical recovery and oil dispersants are jointly used.

Singapore:

Mechanical recovery and oil dispersants are jointly used.

Germany:

Mechanical recovery is the general approach. Oil dispersants are used after considering the their environmental impact on the affected area. However, the use of dispersants is subject to restrictions on the grounds that their effectiveness and toxicity have not been properly clearized.

Belgium:

Mechanical recovery and oil dispersants are used under mutually exclusive conditions. Mechanical recovery is used in shallow waters and on the coastline, while dispersants are used in the open sea.

China:

Mechanical recovery is used as much as possible. Oil dispersants are not used.

Brazil:

Mechanical recovery is the general approach. Oil dispersants are not used.

Effectiveness of Equipment and Materials Used in the SS. Nakhodka Oil Spill Incident

A. Site of Recovery

Al. Seaborne recovery

(5,665 kl)

B. Method of Recovery

B1. Dredging and skimming vessel (Seiryu Maru)

B2. Medium-scale oil skimming vessels (3 vessels)

B3. Small-scale oil skimming vessels

B4. Patrol vessels and patrol boats

B5. Fishery surveillance vessels

B6. Fishing vessels

B7. Gut vessels

B8. Oceangoing tugs outfitted with skimmers

C. Total Number of Missions

42

57

3,425

242

920

Unknown

21

Unknown

D. Volume Recovered (kl)

Approx. 940

Approx. 75

0

Approx. 4,650

E. Recovering Capacity (kl/h)

Approx. 500

Approx. 68-93

Approx. 20-75

F. Evaluation and Remarks

F1.

- Operable in significant wave heights of under 2.5 m.
- The Seiryu Maru recovered roughly 80% of its achievment of recovery in its first week of operation (Jan. 9-17).

F2.

Recovered all oil sighted within operable area. One of these vessels was unable to use its skimming equipment because of the high viscosity of the oil.

F3.

These vessels were not used because they were inoperable in the open sea and could not cope with viscous oil. Skimming equipment must be improved to system which can handle viscous oil.

F4.

Primarily, manual recovery from the deck.

F5.

Can cope effectively with viscous oil even when mixed with flotsam. Due to unmatured skill of crew efficiency of recovery was low (Recovered approx. 825 kl.)

F6.

Efficiency of recovery was low because softball-sized and smaller mousse slipped through the boom.

Effectiveness of Equipment and Materials Used in the SS. Nakhodka Oil Spill Incident

A. Recovery of Stranded Oil (6,620 kl)
B. Manual recovery
C. Concrete-pumping trucks 16 units
D. Vacuum suction trucks 562 units
E. Beach cleaners 224 units
F. Skimmers 1 10 units
G. Absorbents 57,526 kg
H. Absorbent mats 8,292 pcs.

I. Others
J. Oil boom
K. Oil dispersants
L. Total oil recovered

M. Approx. 6,620
N. Functioned effectively in recovery of stranded oil

0. Was partly effective in recovery of stranded oil at the start of the operations, but recovery became difficult followed by increasing viscosity of oil.
P. Functioned effectively before oil turned into mousse. U.S.-made oil snares functioned effectively in capturing the oil.
Q. Functioned effectively before oil turned into mousse.
R. Booms were already in place in the early stages of the oil reaching the coastline. Functioned effectively for only a brief period of time in preventing the oil from spreading. Thereafter, all booms were destroyed because of rough sea conditions and could not stop the spread.
S. Oil dispersants for viscous oil were effective before the oil turned into mousse.

Notes:

1. Recovery volumes shown in the table consist of the total volumes recovered by the agencies of the national government and the Japan Maritime Disaster Prevention Center(MDPC), but do not include the oil recovered by local governments and related organizations (with the exception of the National Oil storage companies). Oil recovered by volunteers and others is also not included in the figures of the table.

2. Seaborne recovery volume is equivalent to all oil recovered by vessels. Stranded oil recovery volume is equivalent to all oil recovered by methods other than vessels did.

3. The total number of equipment and materials used was derived by simply tallying for all organizations and agencies and may include some double-counting and omissions.

4. It is believed that manual recovery accounted for most of the recovery of stranded oil. (Volume of recovery is unknown.)

5. Recovery volumes shown in the table include sea water.

6. Volume recovered by local governments, volunteers and others was approx. 44,000 kl. It is believed that manual recovery accounts for almost all of this volume.

**Creating a Stronger Oil-Spill Response System**

Plenary Section of the Council For Transportation Technology
Interim Report of the Committee for
Comprehensive Study of Oil Spill Response Systems

1. Preventive Measures

(1) Upgrading the safety of vessels

- Proper implementation of inspection of vessels by country of registry.
- Stringent international standards for supervision of foreign vessels by country of the port of call (PSC).

(2) Revising the categories of cargo oils as applicable to structural regulations for tankers

- Regarding structural regulations for tankers, heavy oil (currently categorized as a refined petroleum product) should be re-categorized to come under the stricter restrictions applied to crude oil.

2. Measures for Responding to Oil Spills

The basic approach should be to strengthen the response system for incidents in the open seas. (For the immediate future, priority should be given to developing a response system in the Sea of Japan.)

(1) Strengthening the crisis response system

- Following the formulation of the accident management version of the Basic Plan for Disaster management (establishment of preliminary disaster response headquarters and emergency disaster-response headquarters), the responsible organizations and agencies should take concrete steps toward revamping their response systems, including the review of the National Contingency Plan for Oil Pollution Preparedness and Response, the Oil Spill Response Program and Regional Disaster-management Plans.

(2) Strengthening the response system

- The development of large-scale skimming equipment for installation on Maritime Safety Agency patrol boats and private salvage vessels. (To be developed, maintained and controlled by the Maritime Disaster Prevention Center based on contributions from concerned parties.)
- Development and improvement of equipment and materials, such as aerial delivery systems for oil dispersants, oil dispersants which function effectively on viscous oil and collection and recovery nets.
- Continue to examine the possibility of equipping the large-scale dredgers of the Ports and Harbors Construction Bureau to be built in the future with oil skimming systems.

• Strengthening the operational capacities of the Maritime Safety Agency. (Expanding and upgrading the Mobile Response Team of oil-spill experts.)

• Strengthening the financial foundations and operational capacities of the Maritime Disaster Prevention Center. (Strengthening operational capacities in the Sea of Japan.)

(3) Technology Development

• Development of equipment and materials for use in the open seas, under rough weather conditions and for coping with viscous oil.

• Upgrading the data base of experts on related equipment and materials.

• Upgrading the information on environmental protection of coastal waters.

• Developing better oil-drift prediction models.

3. International Cooperative Arrangements

(1) Establishing an international cooperative system for the countries of the Sea of Japan basin.

• Realization of the Northwest Pacific Region Action Plan (NOWPAP)

(2) Development of integrated system for oil-spill information

• Effective utilization of the information-gathering and information-dispensing functions of international maritime organizations.

(3) Development of a system for cooperative investigation of the cause of incident

• Investigation of cause by the country of registry and countries affected by the incident.