RESPONSE

TO

CHEMICAL SPILL INCIDENT

in KOREA , DEC. 2004

Jan. 25th, 2006

Capt. Y.T.Shim

General manager

KOREA MARINE POLLUTION RESPONSE CORP.

INCIDENTS

- **Spill incident reported**

  Dec. 24TH, 2005 06:00

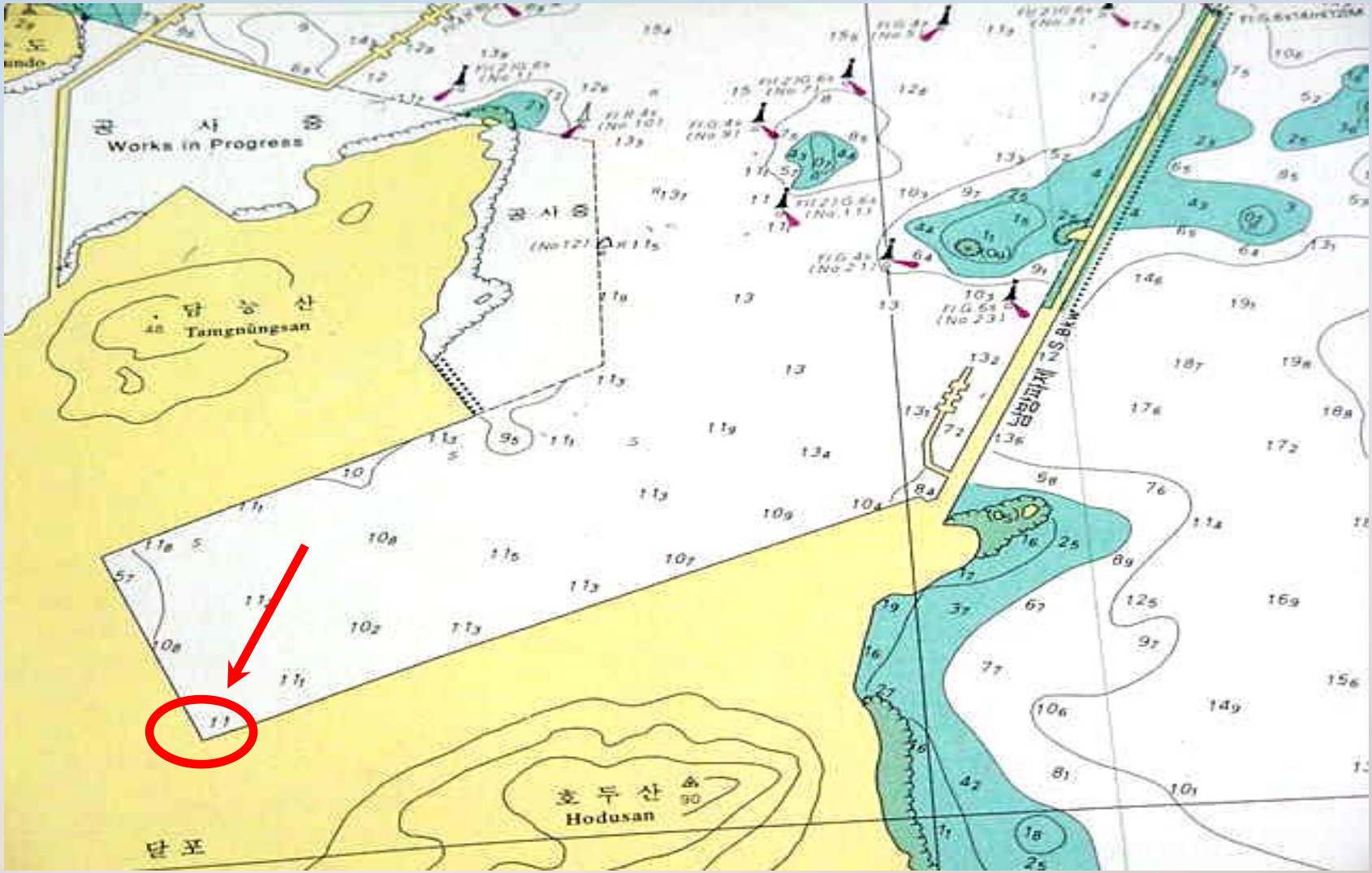
- **Location**

  Small boat Pier, Onsan Port, Ulsan

- **Spilled Substances**

  Unknown, Black & rainbow color, Strong odor

Location of Spill



Site of Spill

Cause of Spill

- Leakage of transfer pipeline under ground for Ship's Cargo(Xylene) discharge
- Spilled Xylene melted down asphalt that coated at the surface of the pipe
- Melting asphalt & Xylene were incoming to sea through the sewer pipe

Leak Point of Transfer Pipe

Inlet of Sewer pipe

OPERATION

- Monitoring
- Emergency treatment
- Response work

Monitoring

- Set up “HOT ZONE”
  Controled by Korea Coast Guard

- Spilled substances analysis
  Analized by Institute of S-oil Co. & identified Xylene(mixed with tar)

- Stand by & wait for permission of approaching the site

Emergency treatment

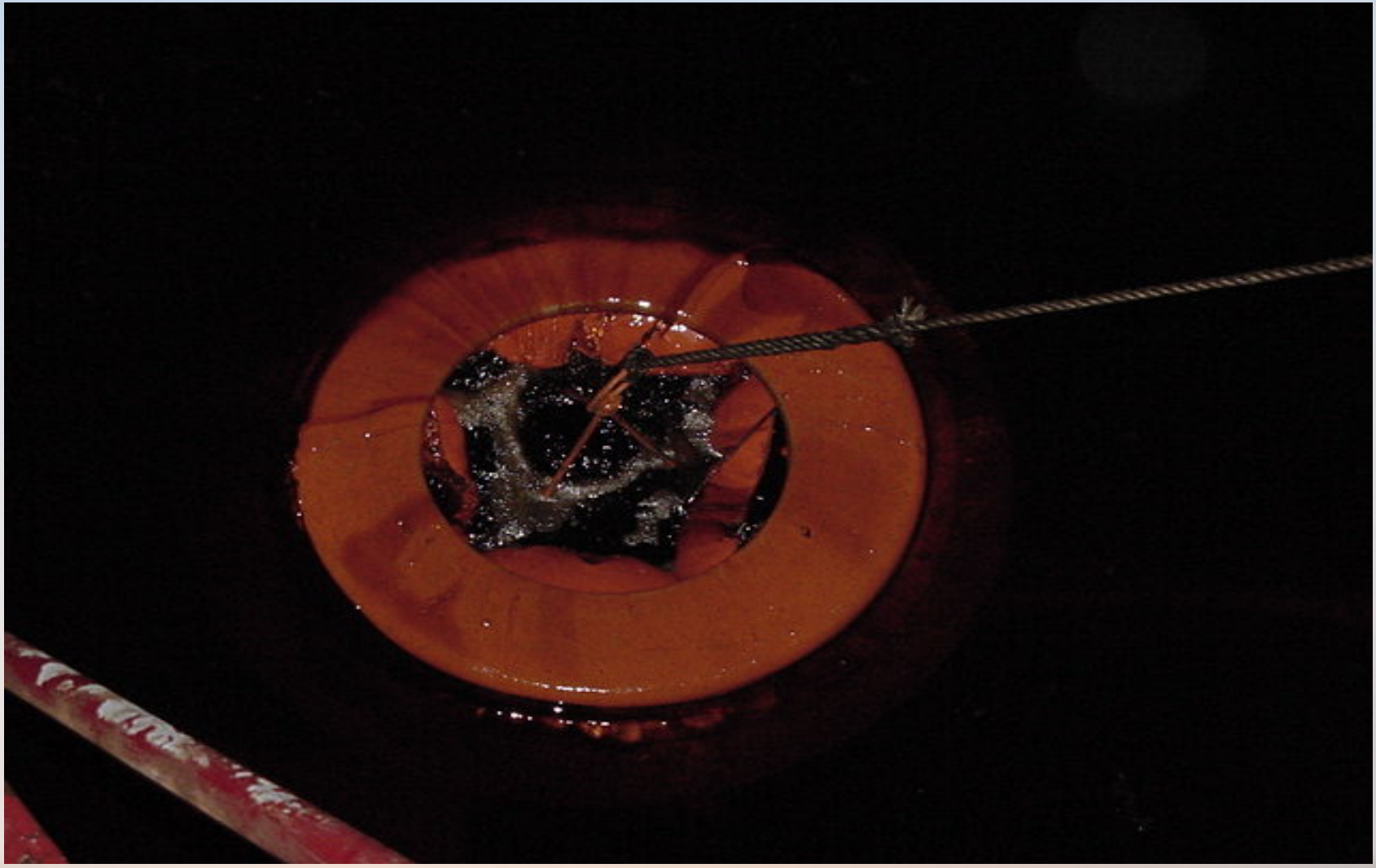
- Deploy Boom
  between ship's hull and pier

Response operation

- 25th 09:00 ~ 26th 18:00

- ✓ BOOM
  Reinforce & control for max. efficiency
- ✓ SKIMMER
  Recovered chemical contaminations
- ✓ ABSORBENTS & GEL PAD
  Absorption
- ✓ WATER CANNON & SHIP'S PROPELLER
  Dispersion

Skimming work(WDS-50)



Recovered chemical contaminations

Gel Pad

Collecting work of absorbents

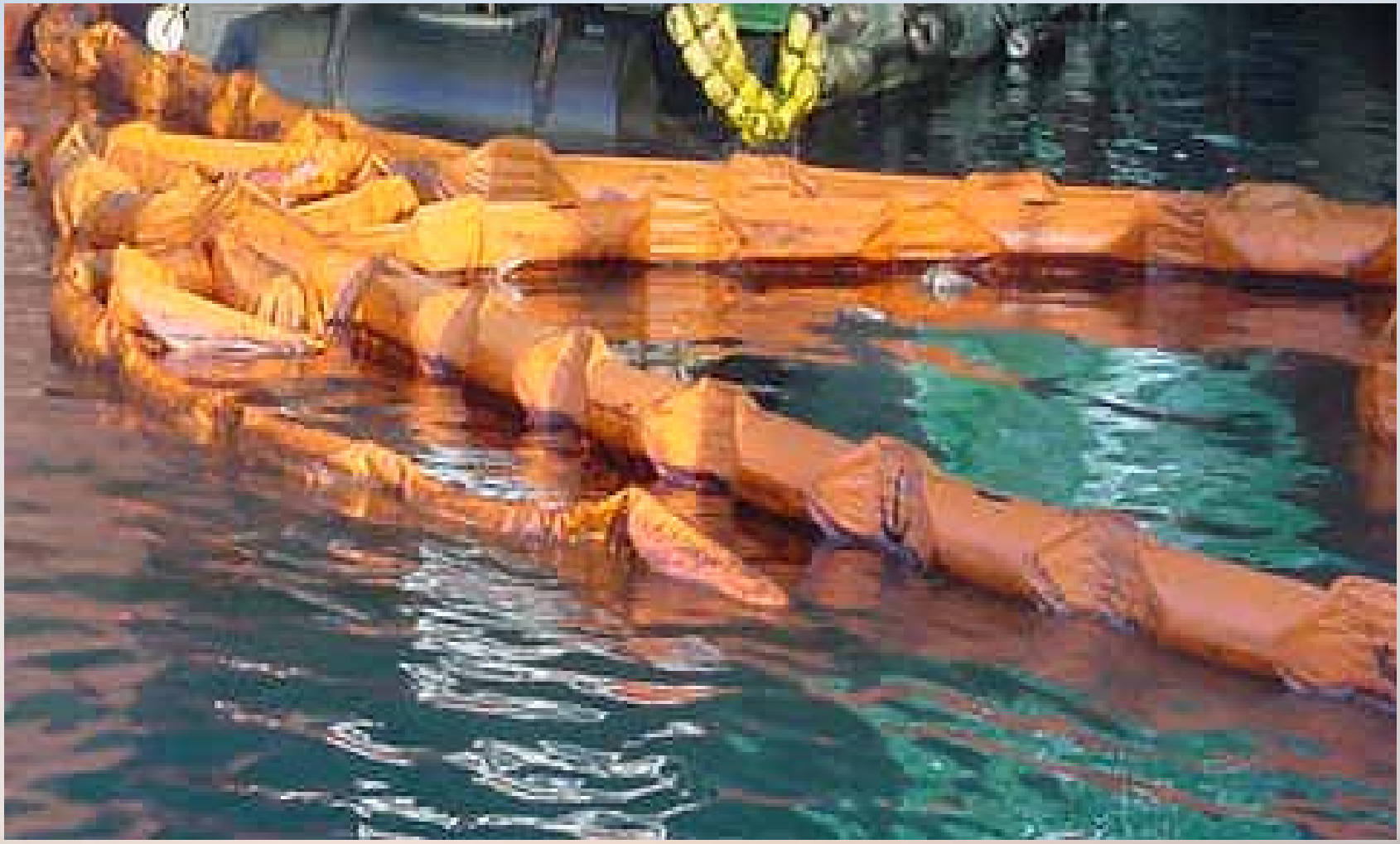
Water cannon operation(Bangje No.3)

Dispersion by ship's propeller

INTERFERENCE

- Inexperience of HNS response & Unsuitable equipment
- Not enough safe PPE
- Residual toxicity of HNS

Sink down due to melting



Damaged weir (Mini-max 10)

Damaged weir (WDS-50)

Damaged pump gear unit

Damaged portable storage tank

Not enough safe PPE

RESULT OF OPERATION

- Mobilized resources
- Efficiency of each response method
- Result of operation

Mobilized resources

- Response vessel : 3
- Vehicle : 3
- Oil Boom : 300mtr
- Oil Skimmer : 3
- Portable Storage Bag : 6
- Absorvent & Gel Pack : many
- Electric Generator : 3
- Human Resources : Total 34men

Efficiency of each response method

	Efficiency	Remarks
Oil Boom	L	Melt down
Tank Lorry	L	Low content
Oil Skimmer	H	Weir type
Dispersant	L	No efficiency
Absorvent	L	No efficiency
Gel Pack	M	1.5kg>17.5kg
H : High, M : Medium, L : Low		

Result of operation

- Working Time : 33hrs
- Recovered Q'ty : 155 kl (incl. water)
- Damaged Equipment
  - ✓ Oil Boom : 300mtr
  - ✓ Skimmer Weir : 2
    Pump unit : 2
  - ✓ Potable Storage bag : 2

RECOMMENDATIONS

- Co-operation

  between concerned parties

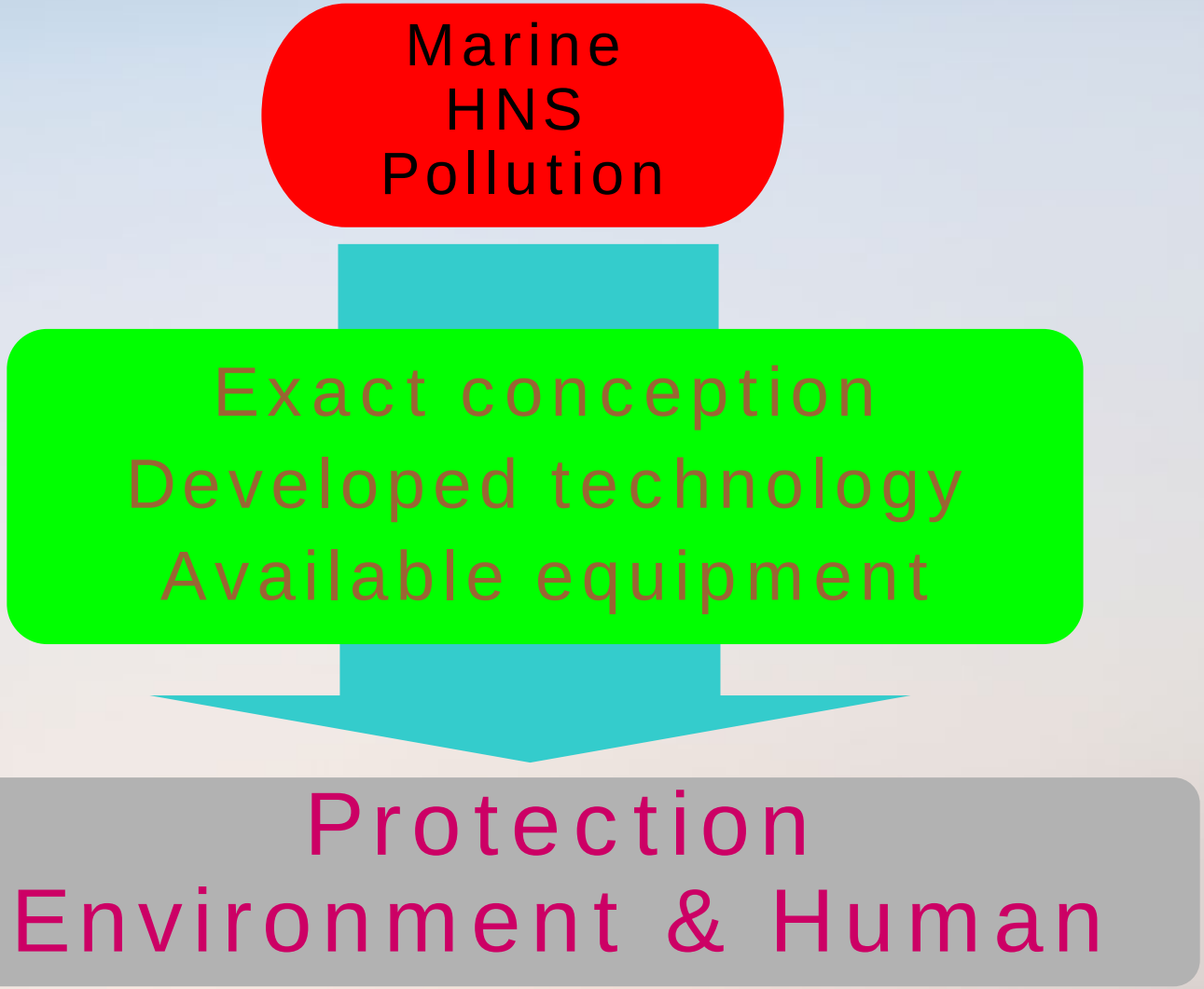
- Effective Equipment

  useful for HNS

- Personal Protecting Equip.

  fully safe & enough quantity

CONCLUSION


Marine
HNS
Pollution
Exact conception
Developed technology
Available equipment
Protection
Environment & Human