

APPENDIX B

RESOURCES

B1. FIRE-FIGHTING RESOURCES

The PPT Firefighting organization is headed by Dy. Commandant CISF (Fire) & by 2 Inspectors and team comprising of 110 personnel and follows an 8-hour shift. The location of the Main Fire station is near Gate No. 4. Supplementary Fire Station is located near Gate No. 3 which is nearer to the North Oil Jetty.

The details of the fire system and equipment are as follows

1. Fire extinguishers

Portable fire extinguishers are positioned at different locations inside and outside of the port area. The break-up of different fire extinguishers is as follows

Sr. no.	Type	Quantity (nos)
1.	Water (9 lit)	151
2.	Mechanical foam	160
3.	DCP	668
4.	CO2	389
	Total	1358

2. Water storage facility

- One static tank with a capacity of 380000 litres for admin building;
- Two static tanks of 30000 lit and 50000 lit near pump house (near main fire station);
- 3 open reservoirs with capacity of 90000, 70000 and 50000 liters for MCHP and IOHP area.

3. Pump House facility

One pump house is available in premises of the main fire station. The details of the pumps are as follows

- Electrical motor driven (2HP) – 01 no
- Electrical motor driven (3HP) – 01 no

4. SFS (Sub-Fire Station)

The SFS is exclusively meant for North Oil Jetty fire-fighting purpose. The Fire Station has the following equipment:-

Sr. no.	Equipment	Quantity
1.	Fire Tender	02 nos.
2.	Foam Tender	01 nos.
3.	Foam Compound	18200 lit
4.	Delivery hose	52 nos.
5.	Ground Monitor	02 nos.
6.	HVLR trolley	02 nos

7.	Foam branch	05 nos.
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5. Fire-fighting equipment

Sr. no.	Nomenclature	Make	Quantity (no)
1.	Foam Tender OR-21-4610	Brijbasi	01
2.	Foam Tender OR-21A-3299	Anand	01
3.	Foam Tender OR-21A-7150	Hi-tech	01
4.	Fire tender OR-21A-0210	Brijbasi	01
5.	Fire tender OR-21A-1540	Brijbasi	01
6.	Fire tender OR-21A-3300	Anand	01
7.	DCP tender QR-21C-9693	Brijbasi	01
8.	Large Trailer pump	Brijbasi	01
9.	Trailer Pump	Vijay	01
10.	HVLR trolley mounted Foam/water monitor	Vimal	02/02

6. Fire defense organization (strength wise)

Sr. no.	Rank	Strength
1.	DC/Fire	01
2.	Insp/F	03
3.	SI/F	05
4.	ASI/F	15
5.	ASI/MM	01
6.	HC/Clk	---
7.	HC/Fire	22
8.	HC/DCPO	05
9.	CT/Fire	48
10.	CT/DCPO	07
11.	CT/TM *	03
Total		110

7. The fire detection and fire protection system at North Oil Jetty (NOJ) consist of the following systems

NOJ		
Fixed Installation	Quantity (nos)	Discharge Capacity
Water Reservoir		
Water reservoir	02	2950000 (each)
Pump House		
Jockey Pump	02	416 lpm

Electric Pump	02	12000 lpm
Diesel Pump	02	12000 lpm Diesel Tank capacity -1000 ltrs (each)
Sub Fire Station (SFS)		
Foam Tender	01	
DCP Tender	01	
Tower Control Room (TCR) – Located at NOJ area		
Remote Control Panel (RCP)	01	
Hydra Power Pack	01	
Foam House – Located at NOJ area		
Foam Tank Capacity	21600 ltrs	
Pump (Electric motor)	02	Foam injection Pump, capacity 360lpm each pump
NOJ area		
Tower monitor	02	6000 lpm
Jumbo Jet nozzle	14	300 lpm
Water curtain	04	2000 lpm
Base monitor	02	3000 lpm
Hydrants	27	
Portable Fire Extinguishers		
Portable fire extinguishers	62	

8. The fire detection and fire protection system at South Oil Jetty (SOJ) consist of the following systems

SOJ		
Fixed Installation	Quantity (nos)	Discharge Capacity
Fire system utilizes sea water.		
Pump House – Located at SOJ area		
Jockey Pump	04	Discharge capacity of 100 m ³ /hr each
Diesel Pump	03+03	3 nos for hydrant line (discharge capacity of 1000 m ³ /hr) and 3 nos for monitor line (discharge capacity of 1100 m ³ /hr)
Foam House – Located at SOJ area		
Foam Tank	02	Capacity 35000 lit each
Pump (Electric motor)	02	Discharge capacity – 70m ³ /hr

SOJ area		
Tower monitor	04	2000 gallonspm
Water curtain	04	6000 lpm
Base monitor	04	750 gallonspm
Hydrants	21	
Portable Fire Extinguishers		
Portable Fire extinguishers	114	As per OISD requirements in the fire pump house and jetty.

Other equipment at SOJ are as follows

1. 2 nos. of Electrical motor driven fire water jockey pumps for tower monitor network,
2. 2 nos. of Electrical motor driven fire hydrant and curtain nozzle network,
3. Clean Agent system (Inergen 200 bar)
4. PA & GA system
5. PLC, FAS & Instrumentation system
6. UPS system
7. Electro Chlorinator system
8. Lighting Protection System

The Fire protection system is utilizing sea water as fire water, it comprises of the following networks:

- a) Network -1: this network with dedicated pumping and piping system shall be feeding the tower mounted Remote Operated High-Volume Long-Range Monitors (HVLRM) located on the jetty top.
- b) Network -2: this network with its separate pumping and piping system shall be feeding hydrants, water cum foam monitors, curtain nozzles at loading platform, international shore connection and connection for tug boat. 16" dia hook-up connections for fire water network of jetty backup area, 1 no. of 8" tapping for spray on CTMS prover, hydrants and monitors.

The fixed foam system for supplying foam to the water cum foam monitors has been installed in both network-1 and network-2. Fixed foam system shall include foam storage, pumping, distribution, proportionating etc.

9. The fire detection and fire protection system at Fertilizer Berth – I (FB-I) consist of the following systems: -

PPL jetty area – FB-I		
Sr. no.	Equipment	Quantity (nos)
1.	SCBA set	02
2.	Ammonia canister	03 (5000 ppm)
3.	Ammonia canister	03 (10000 ppm)
4.	SO2 canister	02
5.	NH3 detector (Portable)	01

6.	Foam Extinguisher	05
7.	CO2	02
8.	DCP type	01
9.	CO2	02 (BMH)
10.	CO2	01 (BC-12A H/E)
11.	CO2	04 (substation)
12.	PVC suit	5 (set)
13.	Safety Shower	01
14.	Wind sock	01
15.	Fluorescent jackets	22
16.	Safety belts	02
17.	Life tubes	02
18.	Fire hose	07
19.	Water sprinkler	01
20.	Fire hydrants	19

10. The fire detection and fire protection system at Fertilizer Berth –II (FB-II) consist of the following systems: -

IFFCO jetty Area – FB-II		
Sr. no.	Equipment	Quantity (nos)
1.	Fire hydrant point	07
2.	Hose box	04
3.	Firefighting hose	10
4.	Fire tender	01
5.	Fire extinguisher	20
6.	Fire extinguisher boxes	06
7.	Fire bucket stand	02
8.	Firefighting branches	05
9.	Fire alarm detector	10
10.	Breathing apparatus	02 (set)
11.	ELSA	05 (set)
12.	Safety shower	02 (set)
13.	PVC hand gloves	02 pair
14.	PVC chemical suits	02 (set)
15.	Leathers hand gloves	10 pair
16.	Cotton hand gloves	10 pair
17.	Full body harness safety belt	03 (set)
18.	Safety sign board	03
19.	Water sprinkler system for conveyor	R1 & R2
20.	Ear muff	02

21.	Ear plug	20
22.	Nose mask	20
23.	Safety cub board	01
24.	Fire blanket	02
25.	Wind socks	02
26.	MSDS board	03
27.	Portable water monitor	01

11. The fire-fighting system at PICTPL consist of the following systems: -

PICTPL							
Sr. no.	Description	Make	Location	Capacity	Head (mtr.)	P/KW	RPM
1.	Jockey Pump	Kirlosker	Fire plant room	180 LPM	180	14.75/11	2925
2.	Main fire electric pump	Kirlosker		2280 LPM	180	148/110	1485
3.	Fire Diesel engine	Kirlosker		2280 LPM	180	148/110	1800

Sr. no.	Hydrants	Quantity (nos)
1.	Single headed underground hydrant	56
2.	Single headed aboveground hydrant	51
3.	Double headed underground hydrant	15

Sr. no.	Fire Extinguishers	Quantity (nos)
1.	Water type 06 Litter capacity	02
2.	Water type 09 Litter capacity	32
3.	ABC store pressure type 02 Kg	02
4.	ABC store pressure type 03 Kg	03
5.	ABC store pressure type 09 Kg	03
6.	DCP 06 kg	02
7.	DCP 09 kg	04
8.	Mechanical foam 06 kg	02
9.	Mechanical foam 09 kg	04
10.	Mechanical foam trolley mounted 50 kg	01
11.	CO2 02 kg	02
12.	CO2 03 kg	03
13.	CO2 4.5 kg	28
14.	Trolley mounted CO2 22.5 kg	01

12. The fire-fighting system at IOHP consist of the following systems: -

IOHP area		
Sr. no.	Equipment	Quantity (nos)
1.	Portable fire extinguishers	
2.	Fire Hydrants	67
3.	Static tanks	02 (50000 and 30000 lit)

13. The fire detection and fire protection system at MCHP consist of the following systems: -

MCHP area		
Sr. no.	Equipment	Quantity (nos)
1.	Heat Detectors	223
2.	Smoke Detectors	86
3.	Portable fire extinguishers	
4.	Fire Hydrants	34
5.	Hose reel	
6.	Monitors	
7.	Open reservoirs	02
8.	Plant Monitoring room equipped with <ul style="list-style-type: none"> • Portable fire extinguishers • Automatic Fire detection alarm system • Manual Call points 	

14. The fire detection and fire protection system at 132kVA Electrical Substation consist of the following systems: -

132 kVA Electrical Substation		
Sr. no.	Equipment	Quantity (nos)
1.	Smoke Detectors	30
2.	Heat Detectors	19
3.	Beam Detectors	04
4.	High Velocity water spray system	

Types of Extinguisher	Capacity	Quantity (nos)	Total
Mechanical foam	09 liters	12	16
	50 liters	04	
Dry Chemical Powder	05/06 kg	21	58
	09/10 kg	28	
	25 kg	04	
	50 kg	02	
	70 kg	03	

CO2	3 kg	04	34
	4.5 kg	11	
	6.5 kg	19	

15. Dry Dock area

- Portable fire extinguishers

16. Signal Station (Port Control Room)

- Portable fire extinguishers

17. The fire detection and fire protection system at Administrative building consist of the following systems: -

Administrative Building			
A pump house facility with 02 pumps is available.			
Types of Extinguisher	Capacity	Quantity (nos)	Total
Water type	09 liters	48	48
Mechanical foam	09 liters	05	05
Dry Chemical Powder	01 kg	89	118
	04/05 and 06 kg	19	
	09/10 kg	08	
	25 kg	01	
	70 kg	01	
CO2	02/03 kg	42	53
	4.5 kg	06	
	6.5 kg		

18. The fire detection and fire protection system at Hospital consist of the following systems: -

Types of Extinguisher	Capacity	Quantity (nos)	Total
Water type	09 liters	14	14
Mechanical foam	09 liters	07	07
Dry Chemical Powder	01 kg	04	16
	06/09/10 kg	12	
CO2	01/02/03 kg	08	19
	4.5 kg	08	
	6.5 kg	03	

B2. Pollution Response equipment

Item	Quantity	Specification
Dispersants	8000 litres	
Rigid oil containment boom on a hydraulically operated reel on “KALI”	Rigid – 500m	Freeboard 400mm, Draft 600 mm, Fabric: U.V. Resistant PVC coated Polyester, Fabric Thickness:3mm
Inflatable boom fitted on PR craft tug Ocean Elegance	Inflatable -1200m	6*200 mtrs. Neoprene/ rubber inflatable containment boom desmi 1300, on hydraulically operated reel drums. Freeboard 450mm, draft 630 mm. Fabric dupont hypalon & Neoprene rubber, weight per mtrs. Including chain 9 kg, ballast GI of 10 mm size, connectors –quirk connect ASTM.
Rigid oil containment boom for use at south oil jetty	750 mtrs	Freeboard 200mm, Draft 400 mm, Fabric: U. V. Resistant PVC coated Polyester, Fabric Thickness: 3mm
Portable Skimmer	02 nos	10TPH/ hour (weir type)
Skimmer	04 nos	Disc Type skimmer /30 TPH -01 no. Brush type skimmer /20 TPH -02 nos Weir type skimmer /20TPH -02 nos
Oil spill dispersant chemical	8000 ltrs	Coastgaurd approved ROCHEM India Pvt. Ltd.
Oil Dispersant spraying system	06 sets	
Portable spraying machine for OSD	06 sets	
Sorbent pads	2000 sheets	
Sorbent booms	500 mtrs	
Oil reception and storage capacity	440 m ³	
Fast tanks 3000 ltrs. Capacity -03 nos Fast tanks 4000 ltrs.	05 nos	

Capacity -02 nos		
Mini Vacuum pump trolley mounted (Capacity: 20 to 30 m ³ /hour)	05 nos	

B3. Pollution Response vessels

POLLUTION RESPONSE VESSEL		
Sr. no.	Particulars	Details
1.	Dedicated Pollution Response craft “KALI”	i. 500 m of rigid boom with hydraulic unit ii. Disc Skimmer -01 no. & weir type – 01 no. with pump (hydraulic) iii. Provision for spraying of chemical dispersant through side arms on both sides. iv. Tank for holdings 60 m ³ of recovered oil v. Oil spill dispersant 300 ltrs
2.	Ocean Elegance	vi. Inflatable oil containment boom – 1200 mtrs vii. Brush type skimmer 20 m ³ /hour – 02 nos viii. Weir type skimmer – 01 no ix. Portable skimmer (weir) 10 m ³ /hour – 01 no x. Oil Spill dispersant – 1000 ltrs xi. Portable spraying machine for OSD – 02 nos xii. Sorbent pads – 140 bales * 100 sheets xiii. Sorbent booms – 08 nos. xiv. Oil reception and storage capacity – 40 m ³

B4. Auxiliary/ Support vessel

South Oil Jetty	750 mtrs. Rigid boom
Oil reception barge	Capacity – 300 m ³ Oil spill dispersant – 400 ltrs Sorbent pads – 140 bales * 100 pads
Other vessel / crafts available for pollution response operation	i. One pilot launch and two mooring launches to spray dispersant by portable pump and to clean harbour water by absorbing pads ii. ML Ratnagiri for towing containment boom and reception barge iii. One multi-purpose vessel (Puspagiri) for receiving oily water up to 40 m ³
Pollution control store at Marine Site Office	i. 1 no. portable skimmer ii. Oil spill dispersant – 8000 ltrs iii. Disc Type Skimmer 20 m ³ / hour capacity - 01 no iv. Fast tanks 3000 ltrs Capacity – 03 nos v. Fast tanks 4000 ltrs Capacity – 02 nos vi. Sorbent pads – 1000 sheets

vii. Sorbent booms – 500 mtrs.

B5. IMO Level Trained Personnel

Sr. no.	IMO Level - I	IMO Level - II
1.	Sri R. C. Das, Tug Master Class-III	Capt. Sanjam Dash Pilot
2.	Sri M.R. Das, Serang	Capt. S.K. Bag, Pilot
3.	Sri Mitran Tarai, Serang	Capt. C.s. Nayak, Pilot
4.	Sri R.K. Naik, Serang	Er. M. K. ahata, Marine Engineer
5.	Sri Kartik Apap, Tug Master Class-II	Er. Bablu Sikdar, Sr. Marine Engineer
6.	Sri Biswajit Mohaptra, Seacunny	Sri Debsish Palei, Chief Officer (F)
7.	Sri Babaji Ch. Patra, Serang	Capt. Amit Kumar, Pilot
8.	Sri Subash Ku. Mohapatra, Serang	Sri Sanatan Sahoo, Engineer
9.	Sri Pradeep Kumar Mallick, Lascar Gr. II	
10.	Sri Jiten Kumar Raut, Seaman	
11.	Sri Abanikanta Pratihari, Seaman	

B6. Paradip Port -Floating Crafts

Sr. No.	Type of Craft	Owned by Port		Hired by Port		Remarks
		No.	Rated Capacity (BHP)	No.	Rated Capacity (BHP)	
1.	Dredgers (Grab)	01	700	--	--	
2.	Tugs	03	3500-4300	04	4500-5000	
3.	Launches					
	i) General purpose launches	--	--	--	--	
	ii) Survey Launches	01	470	01	800	
	iii) Mooring Launches	04	159-216	--	--	
	iv) Pilot Launches	05	650-1604	--	--	
4.	Barges					
5.	Pontoons	02	--	--	--	
6.	Oil Reception Facilities	01	300 tonne	--	--	

7.	Floating Cranes	--	--	--	--	
8.	Others					
	i) Pollution Control Vessel	01	216	--	--	
	ii) Patrol Launches	--	--	02	450-560	
	iii) SPM Security Pollution Response Vessel	--	--	01	2646 kW	
	iv) Caisson Gate	02	--	--	--	For Dry Dock of L=75m, B=15m & D=6m

B7. Paradip port maintains following schedule for the contingency mock drills

Sr. no.	Drill	Frequency
1.	Emergency Preparedness Drill for Fire Contingency	Monthly
2.	Mega Mock Drill for leakage of gas, Evacuation & Fire Contingency	Half yearly at different locations
3.	Security Drill	Monthly as per the Port Security Plan
4.	Coastal Security Exercise along with Coast guard, Navy and other stakeholders	Half yearly
5.	Pollution Contingency Drill	Monthly
6.	Pollution Contingency Drill along with Coast Guard	Yearly
7.	Pollution & Security drills during Audits by Coast Guard & DG Shipping respectively	Yearly

B8. Emergency Control Room equipment

Equipment	Quantity (nos)	Remarks
BSNL satellite phone	1	With battery backup
VHF sets	2	With battery backup
Telephones	2	Power supply not required
Walkie-talkie sets & mobile	8	
Charts	24	
Emergency lights and torches	6	
Portable PA/loud hailer set	2	

With emergency generator-dry food & water for 72 hours		
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B9. Other equipment including rescue items:-

Sr. no.	Nomenclature	Quantity
1.	Air Lifting Bag (72 Ton)	04
2.	Battery operated Spreader and Cutter	02
3.	Hydraulic Rams	02
4.	B.A. Set	17
5.	Fire Entry Suit	01
6.	Aluminum Proximity Suit	06
7.	Chain Saw	02
8.	Hydraulic pump	02
9.	Circular Saw	02
10.	Bolt Cutter	06
11.	Tripod	01
12.	Dragon Search Light	07
13.	Life Buoy	30
14.	Life jacket	30
15.	Karabiner	10
16.	Inflatable Light Tower	02

B10. Required resources for the identified Emergencies

The following table shows the risks identified in this plan and the key resources that may be required during emergencies arising from each risk.