ON-SITE EMERGENCY PLAN
AND
DISASTER CONTROL MEASURES

OF

SAGARDIGHI THERMAL POWER PLANT

THE WEST BENGAL POWER DEVELOPMENT CORPORATION LTD.
(A Govt. of West Bengal Enterprise)
P.O. – MONIGRAM, P.S. – SAGARDIGHI
DIST – MURSHIDABAD, WEST BENGAL,
PIN – 742237

2012

ON-SITE EMERGENCY PLAN & DISASTER CONTROL MEASURES
Sagardighi Thermal Power Plant

THIS ON-SITE EMERGENCY PLAN AND DISASTER CONTROL MEASURES IS DRAWN IN ACCORDANCE WITH THE PROVISIONS

OF

- **THE FACTORIES ACT – 1948**
- **THE WEST BENGAL FACTORIES RULES' 1958**
- **THE MANUFACTURES, STORAGE AND IMPORT OF HAZARDOUS CHEMICALS RULES' 1989**

ON-SITE EMERGENCY PLAN & DISASTER CONTROL MEASURES
Sagardighi Thermal Power Plant

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The Sagardighi Thermal Power Project is situated surrounding an area of about 765 Hectors of land. It started production with two units in the year of 2008 with generation capacity 300 MW each using mainly coal as the source of energy with occasional addition of LDO.The technology of the plant is based on M/S Donfang Electric Corporation of China. The installations work on two more units of capacity 500MW each has been started by M/S BHEL.

With a view of holistic and proactive approach, an "On Site Emergency Plan "has been prepared to prevent and to reduce the risks of all kind associated with hazards and human activities."Disaster Control Measures "are also addressed in this report. The detailed responsibility and action plan are earmarked aiming to minimize socio-economic vulnerabilities and disasters in case of emergencies and calamities.

S.K.Majumder

General Manager

Sg.TPP/W.B.P.D.C.L

ON-SITE EMERGENCY PLAN & DISASTER CONTROL MEASURES
Sagardighi Thermal Power Plant

CONTENTS

Introduction

The preparation and practice of the On-site Emergency Plan (OEP), with detailed disaster control measures and keep it up-to-date is the responsibility of the occupier of the industry as per the Section 41-B (4) of the Factories Act, 1948 & Rule 63-E (k) of the West Bengal Factories Rules, 1958 and Rule 13 of the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989.

Basis of the Plan:

For developing this OEP, following statute and documents are taken into consideration.

i) Schedule XI under Rule 13(1) of the MSIHC Rules, 1989.
ii) Elements of the On-site Emergency Plan given in the NTPC Handbook
iii) The document titled "Crisis & Disaster Management Plan for Power Sector" of Ministry of Power, Govt, of India.

Purpose and Scope

The purpose of formulating an emergency plan is to develop a state of readiness, which will allow for a prompt and orderly response to an emergency and to comply with the statutory obligations as mentioned above. This plan is structured around four major objectives:

- Understanding the type and extent of a potential emergency (risk/exposures).
- Establishing a high order of preparedness (equipment, personnel) and commensurate with the risk.
- Ensuring an orderly and timely decision-making and response process (notification, standard operating procedures), and
- Providing an incident management organization with clear missions and lines of authority (Incident Command System, field supervision, unified command).

This Plan is targeted to -

- Contain the incident.
- Minimizes casualties and prevent further injuries.
- Quick and streamlined relief and rescue operation without unnecessary delay.
- Speed up restoration of normalcy.
- Ensure that each member of the emergency operation including response team and employees are aware of his/her precise role in emergency.

DOCUMENTATION-About plant

- **LOCATION :-**
  Sagardighi Thermal Power Project
  Vill-Monigram, Dist . – Murshidabad, West Bengal
  Longitude $88^0$06'25" E & Latitude $24^0$22'06"N

- **ACCESSIBILITY:-**
  Beside Monigram railway Stn. Under Eastern Railway, Malda Divission on Bandel Ajimgunj-Farakka Loop Line.& On the SMGR Road.

- **IMMEDIATE SURROUNDING:-**
  North : A cement factory, nearly half km away.
  South : A thinly populated village named "Monigram."
  East : A thinly populated rehabilitation colony/ "Chandpara"
  West : Agricultural land.

- **TECHNICAL PURPOSE OF THE INDUSTRIAL ACTIVITIES.:-**
  Generation of Electricity

- **CAPACITY OF THERMAL POWER PLANT :-**
  2x300 MW

- **Activity :-**
  The principal activities carried out inside the plant are the following processes :

i) Coal receiving
ii) Coal crushing and pulverizing
iii) Production of super-heated steam
iv) Generation of Electricity
v) Water treatment for (a) Boiler water (b) Condenser water & (c) Drinking water.

- **DEMOGRAPHY.**

The area comprises mainly of plain land for cultivation of agricultural products. The average population density within a radius of 5 km is about 2000 per sq. km. This is including the population of SgTPP township. Two villages Bagpapara and Balarambati are about 2 km away in the north and south directions of the plant.

- **WEATHER**

General climate of the area is tropical sub-Himalayan. Average maximum and minimum temperatures are about 42^0 and 10^0 centigrade respectively. Average annual rainfall in the area is about 150 cm. with 90% of the precipitation being in the month of June to September.

During summer, the wind generally blows from south to north. There are, however, occasional evening thunder storm with strong dusty winds. During winter, the wind generally blows from north the south

- **EMERGENCY POWER SUPPLY SYSTEM. :- DG Set & Battery**

- **WATER CONSUMPTION :-**

The entire quantity of water requirement is obtained from Bhagirathi river.

For drinking water (township) water is taken from DM plant then chlorinated. For condenser water chlorination is done for preventing the growth of algae which hampers heat transfer.

The entire consumption of water is categorised in the following way.

- Plant consumption - 4,00,000 KL/month(CT Makeup-380000+DM Water 20000)
- Service consumption – 1,65000 KL/month
- Township consumption – 60000 KL/month.

- **SOURCES OF WATER :-**
  Bhagirathi River

FUNDAMANTALS OF ON-SITE EMERGENCY PLAN

AIM OF EMERGENCY PLAN

The emergency planning is aimed to ensure safety of life, protection of environment, protection of installation and restoration of production salvage operation (in decreasing order of priority). For effectively implementing the emergency plan, this is to be widely circulated and personnel trained through drill.

DEFINITION OF MAJOR EMERGENCY

A major emergency is one that effect several departments within the plant or may cause serious injuries, loss of life, extensive damage to property or serious disruption of works which require the involvement of several resources to handle it effectively.

IDENTIFICATION OF MAJOR HAZARD POTENTIAL

Major Plant Section

The Thermal power Plant the following can be sub-divided into major plant sections such as:-

a. **Coal handling plant.**
b. **Main plant (Boiler, Turbo Generator)**
c. **Hydrogen Plant/Storage.**
d. **Switchyard including sub-station.**
e. **Fuel oil Handling Plant and storage.**
f. **Store.**
g. **Various outside Power House pump houses.**
h. **Water treatment plants.**

- **Major Hazard Potential Assessment**

The major disaster or emergency usually progress from one or any combination of the following:-

a. **Slow isolation.**
b. **Fast spreading fire.**
c. **Explosions.**
d. **Bursting of superheated steam/pressurized water/oil pipe line/ vessels.**
e. **Uncontrolled release of toxic/corrosive/flammable liquids.**
f. **Uncontrolled release of toxic/flammable gases/dusts.**

Depending upon the nature, speed and impact on environment each of these may constitute an emergency.

The hazard potential of various plants is identified below:-

Fire Hazard

- In coal handling plant.
- Cables in galleries and on tray in all plant section.
- Fuel oil handing and oil tanks in main plant.
- Transformer oil.
- Store godowns

Explosion Hazard

- Hydrogen generation/Hydrogen Storage.
- Turbo generators where hydrogen is used for the cooling of TG
- Boiler (pulverized coal, oil fire)
- Coal dust in mill and Pulverized fuel pipes

Bursting of Pipe line and Vessels

- Steam pipe due to high pressure and temperature.
- Water pipe due to high pressure.

Release of Gases / Dust

- Chlorine in water treatment plant.
- Hydrogen in turbo generation area of main plant.
- Pulverized coal dust with hot air from mills and associated piping.
- Fly ash from chimneys and ash pond, ESP hopper system.
- Coal dust at wagon unloading zone ,Crusher Zone, Transfer Points, Coal Bunker in CHP

Release of Liquid

- Chemical Tank in water treatment plant.
- Fuel oil tank in fuel oil handling section.
- Ash dyke.
- Control fluid in turbine system.

Others----

- Breach of ash dykes of ash pond.
- Accumulation of water in the vicinity.
- High tide, heavy discharge from barrage of upstream and torrential rain.

- Drainage pumps conditions.

Type of Disaster----

Disaster is an even which cause severe disruption to life of number of people of the project activity resulting in suffering and lose of life and property.

Disaster can be—

- **Plant oriented**—Due to design, operation defect, Chemical change, failure of equipment, human error etc.
- **Natural**- Flood, Cyclone, Fire, Earthquakes etc.
- **Manmade**—War, riot, sabotage.

Degree of disaster---

Disaster can be classified in 3 types depending on its effects.

1. **LO**- Can cause injury, illness and equipments damage but not very serious and quickly manageable.
2. **MID** - Critical situation, can cause serious injuries to personnel, serious illness property and equipment damage.
3. **HIGH** - Catastrophic situation, major danger, can cause deaths, major widespread illness, injuries, loss of major property and equipments. Immediately uncontrollable.

The above contingencies will be declared by the **Chief Incident Controller**. The following will be the mode of action during different degrees of disaster.

a. **HIGH DISASTER**- Catastrophic condition. All employees to be evacuated. Local administration to be properly informed and interacted.
b. **MID DISASTER**- All project activities to be stopped. All employees to be in safe place. To be ready for High disaster situation. Inform local administration.
c. **LO DISASTER**- Activities in the affected area stopped. To be ready for MID disaster condition.

Stages of Disaster

The duration of disaster's effect can be divided into following stages:

• Warning, Impact, Rescue, Relief, Rehabilitation

1) **Warning**:
   The natural calamities which may lead to disasters e.g. flood, cyclone can often be predicted. There are possibilities of disasters during local trouble, riot and war etc. also. All facilities to encounter the disaster should be kept ready and employees in full alert.
2) **Impact**: This is the time when the disaster actually strikes and very little can be done to counter the situation. The impact period may be of few seconds (like explosion or earthquake) or for days (like flood, fire etc.).
3) **Rescue**: This is the most important stage which starts before the predicted disaster of just after the impact. All available resources need to be immediately engaged in operation.
4) **Relief**: This is a longer stage of work depending on the degree of disaster. Work during this stage will need external help for medical, food, clothing and shelter
5) **Rehabilitation**: This is an important stage in terms of future planning. It includes rebuilding of damaged properties, restart of project work, compensation etc.

EMERGENCY PLAN

However to tackle the remote possibility of large scale release of gas ,disastrous fire or release of poisonous and toxic liquid ,Floods, earthquake, cyclone, the emergency plan is prepared.

- **Objectives of the plan**

The plant is developed to make best possible use of resources at its command and /or outside agencies for the following purposes

a. **Rescue of victim and treating them suitably to effect speedy recovery at Hospital/Medical centre.**
b. **Safe guard other personnel by evacuation them to safe place.**
c. **Identify the personnel affected/dead.**
d. **Inform relatives of those deceased /affected.**
e. **Providing relevant record/data needed as evidence for subsequent enquiry.**
f. **Rehabilitation of the affected personnel.**

- **PLANT SECTION TO DEAL EMERGENCIES**

a. **Coal Handling Plant.**
b. **Main plant.**
c. **Water treatment.**
d. **Hydrogen generation plant /storage.**

Each section will report to "**Work Incident Controller**" reporting to the "Chief Incident Controller "and DGM (Operation)

CONTROL STRUCTURE

Depending on the response organization structure, the personnel in-charge of each of the above functions respond to the **Chief Incident Controller** (CIC), who is overall in-charge of the Plant. Each function is staffed with a team, the size and composition of which would depend on the task required to be carried out during the emergency and the size of facility. These teams then operate according to the instructions provided by the CIC and within the purview of prewritten guidelines to accomplish their task. Some of these teams mainly operate in the Emergency Control Centre (ECC) and others would operate in the field or in other part of the Plant.

Designated persons in-charge and its alternate in Emergency and Duty Location

Sl no	Designated persons	Designation	Alternate	Duty location
1	Chief incident controller	GM	DGM(O)	ECC
2	Work incident controller	Shift charge	Immediate in charge	At incident site
3	Advisory team	Key personnel		ECC
4	Communication team	HOD(P&A)		ECC
5	Fire & rescue team	HOD(F&S)		At incident site
6	Environmental team	Environmental officer		At incident site
7	Medical team	Medical suptd		At incident site
8	Security team	Security officer		At incident site & security office

CHIEF INCIDENT CONTROLLER (CIC)

The **General Manager** shall be the Chief Incident Controller.
The **DGM (operation)** shall assume responsibility of Chief Incident Controller in absence of GM.

FUNCTIONS

Immediately after knowledge of the emergency the Chief Incident Controller is required to do the following job.

1. **Relieve the work incident controller from the responsibility of overall main control.**
2. **Declare major emergency, if considered necessary and ensure outside emergency service are called in and nearby firms are informed.**
3. **Ensure key personnel are called in to exercise direct operation control.**
4. **Directing shutting down and evacuation of plant in consultation with work incident controller and key personnel.**
5. **Ensure casualties are received, that they are given adequate attention and rendered needed help.**
6. **Establish liaison with chief officers of Fire, Safety, Medical, Security and Police Deptt.**
7. **Where emergency is prolonged, arrange for relief of personnel and catering facilities.**
8. Ensure information /report to the corporate office and other statutory bodies as per requirements and provisions of statute.

WORK INCIDENT CONTROLLER (WIC)

The primary task of work incident controller is to rush to the emergency spot, make necessary assessment of the situation and decide whether a major emergency exists or is likely. He is responsible for implementing the emergency plan to control and/or to contain the hazard.

The shift charge shall be the Work Incident Controller.

THE WORK INCIDENT CONTROLLER SHALL IDENTIFY:-

1. **All probable causes of the emergency situation and take proper precautionary measures to prevent /control such situations.**
2. **Ensure that all emergency team under him are informed about their function before and during emergency.**
3. **Direct all operation within the affected area with the following priorities**
   - **a)** Secure the safety of personnel.
   - **b)** Minimize damage to plant and environment.
   - **c)** Minimize loss of material.
4.
   - **a)** Provide advice and information to all concerned as required.
   - **b)** Direct and guide rescue and fire fighting operations and personnel.
5. **Ensure that all non –essential workers in the affected area evacuate to the appropriate assembly point.**
6. **Set up communication contact through telephone/messenger etc. with emergency control centre (ECC).**
7. **Report significant development to the chief incident controller**.
8. **Assume duties of Chief incident Controller pending his arrival and in particular.**

   a) Direct the shut down and evacuation of plant and effected areas likely to be covered by emergency.

   b) Ensure key personnel are informed and they are called in.

   c) Preserve evidence that would facilitate subsequent inquiry into the causes of the emergency.

Emergency Control Centre

The Emergency Control Centre (ECC) is a place from where Chief Incident Controller (CIC) would provide direction/guidance and co-ordinate various agencies/activities to effectively handle the emergency situation.
Depending on the location of the emergency site and the prevailing wind direction, the CIC will decide and use one of the two Emergency Control Centres for handling and controlling the emergency. He will then proceed to that ECC and take overall control of the emergency. All the key personnel would assemble in ECC after knowing that the on-site emergency has been notified / declared.

- **Locations:--**

The ECC are to be located adjacent to the room of Shift Charge Engineer (E1) and alternate ECC at GM Office (E2).

- **Equipment/Facilities in ECC :-**

<u>Following Plans would be displayed in the ECC</u>

- Details of inventories of hazardous material e.g. Location Maximum quantity, type of storages, etc.
- Works Layout indicating therein location of ECCs, Location wise/ Type wise Canteen, /Capacity wise portable fire extinguishers, Assembly Points, Lunch Room, Casualty Treatment Centre, First-Aid Centre, Siren Activating Points.
- Roads prominently marked on the layout indicating exist.
- Area Map showing surrounding areas especially sensitive population such as schools, public, places, hospitals etc.
- Emergency controller jacket with special helmet.
- Copy of Emergency plan and MSDS.
- List if First Aid and Fire fighter.
- First Aid equipment including stretchers.
- Important phone Nos.

i. Contact No. of CIC (Intercom & P&T)
ii. Contact No. of WIC (Intercom & P&T)
iii. List of contact No. of Government officials
iv. List of contact No. of Mutual Aid persons
v. Internal Intercom directory.
vi. List of contact No of the Disaster Management Team.

Assembly Point— In an emergency, it would certainly be necessary to evacuate personnel from affected areas. On evacuation, employees shall assemble at assembly points. Assembly points are place containing internal Telephone No and paging system where people can wait in a group during emergency to receive instruction from the Emergency Controller.

KEY PERSONNEL

Apart from work incident controller and chief incident controller, other works personnel will have key role to play in providing advice and in implementing the decision made by Chief Incident Controller.

The key personnel should consist of the following:

1. **Head of Departments of the following areas:-**
   - **a)** Mechanical operation.
   - **b)** Electrical operation.
   - **c)** Electrical maintenance.
   - **d)** Mechanical maintenance.
   - **e)** C & I.
   - **f)** Chemical.
   - **g)** CHP/Utility.
   - **h)** Civil.
2. **DGM(HR&A)/ Sr. Mgr (HR & A)**
3. **Head of Department (F & S)**
4. **Chief Medical Officer**
5. **Security Officer**

All lists of key personnel and their phone numbers shall be informed to all concerned suitably.

As necessary this team will decide the action needed to shut down plant, evacuate personnel, carryout emergency, engineering work, arrange of supplies of equipment, etc carryout atmosphere test ,provide catering facility, liaison police, inform relative of victims etc.

ESSENTIAL DATA

- In plant immediately affected or likely to be affected as decided by the Chief Incident Controller, efforts will be needed to make shut down and make affected areas safe.

- This work will be carried out by plant supervisors and essentials operators provided they can do it without exposing themselves to undue risk. Some worker or supervisors will also be required to help the above work for example-attendants, Messengers, Driver, First Aider etc. They will be **ESSENTIAL STAFF** and it is the responsibility of the **Work Incident Controller to identify the essential staff** from a task force report at different plant control centers.

Notification Procedures and Communication Systems

Alarm System: ----

Raising the alarm is the first step in the implementation of On-Site Emergency Plan (OEP).

Locations of Sirens and their Operations

The location of the siren will be in such a place so that the sound is audible at every location of the Plant including inside the buildings.

This siren is connected to a battery set so that whenever there is a power failure linkage it can work on battery. The switching to battery in case of power failure is automatic.

Type of the Siren

The following alarm system may be considered for easy identification of the leakage/ fire at plant.

Fire/ Explosion Alert: -

The siren blow would be a wailing sound, short and intermittent siren (25 second on, 5 second off, 3 times).

All Clear Siren: -

When the emergency situation has been brought under control and the area is safe an **"ALL-CLEAR"** siren would be activated by the **CIC** from the **ECC** in consultation with the **WIC.** It would be a continuous sound of the same pitch for **1 minute.**

Sl.No.	T Y P E	D U R A T I O N
01.	Normal Factory Siren	Continuous 1 minute.
02.	In Case of Fire	25 Seconds On 5 Seconds Off 3 Times
04	All clear signal	Continuous siren for 1 minutes only once

Declaration of Emergency

Actuation of Emergency Siren

After hearing an alarm or information from any employee about an incident in the unit/ plant, WIC would rush to incident immediately. WIC, if found beyond his control, informs the CIC. In-between, CIC would contact the attendant of ECC. In turn, attendant in the ECC would inform the identified members of ECC. CIC would then rush to ECC. After assuming the position of CIC in ECC, he shall contact with other senior members in the plant. CIC will make communication set up with WIC about the situation. After communication with WIC, if it is beyond the control then CIC would declare an Emergency by actuating a siren.

Items of Production/storage & License Number/Registered Capacity:-

Sl No.	Items	Capacity	Number	License No.
1	Generation of electricity	300MW	2	16675 Reg. No.-3/MR/x/08 Classification No-40102
2	Storage of Oil	2000KL	4	P/HQ/WB/15/2520(P192603)
3	Storage of H_2 , Cl_2 & NH_3	H_2	300 Cylinders	Under Process
		Cl_2 – 900 Kg/Tonner	20x2=40 Tonners	G/EC/WB/06/754(G23433)& G/EC/WB/06/741(G22948)
		NH_3	Avg. storage 2500 Litr.	N/A

Identification of Potential Hazards, type of Emergency & Process information:-

Sl No	Hazardous Equipment	Hazardous Materials	Qty	Nature of hazard	Apparatus available for Handling emergency.
1	Crusher	Coal	**3**	Fire, Dust Hazards	Portable Fire Extinguisher & Fixed Hydrant post
2	Pulverizer	Coal	**6x2=12**	Fire, Dust Hazards	Portable Fire Extinguisher , Fixed Hydrant post & MVWS system
3	Drinking Water	Chlorine	**6.5Kg/Month**	Toxic	SCBA, Portable canister type musk
4	Water Softening/Treatment	NaOH/HCL/ H_2SO_4	NaOH-6 to 8 Ton/Month HCl-50 Ton/Month H_2SO_4-60 Ton/Month	Corrosive nature	Safety Shower
5	Hydrogen generation/storage	Hydrogen	300	Fire	Portable Fire Extinguisher & Fixed Hydrant post
6	Generator Cooling	Hydrogen		Fire	Portable Fire Extinguisher & Fixed Hydrant post
7	Fuel & Lubricating Oil	Oil	8000 Lit.	Fire	Portable Fire Extinguisher & Fixed Hydrant post, Fixed foam system
8	Pre-Treatment chlorine	Chlorine	20	Toxic	Chlorine leak detector, Safety Shower
9	CW Chlorination	Chlorine	20	Toxic	Chlorine leak detector, Safety Shower
10	LPG (Canteen)	LPG	19litr.x20 Cylinder	Fire	Portable Fire Extinguisher & Fixed Hydrant post,

FIRE EXTINGUISHERS AT DIFFERENT SITES

NAME	TYPE OF EXTINGUISHERS
Generator area	CO2 type, Foam Type, Dry Chemical Type
Cable Galleries	CO2 type, Dry Chemical Type
High Voltage Panel	CO2 type, Dry Chemical Type
Control Room	CO2 type, Foam Type, Dry Chemical Type
MCC Room	CO2 type, Dry Chemical Type
Pump House	CO2 type, Foam Type, Dry Chemical Type
Fuel Tank Area	CO2 type, Foam Type, Dry Chemical Type
Guest House and Office	CO2 type, Foam Type, Dry Chemical Type
Crusher House	CO2 type, Foam Type, Dry Chemical Type

Plan Updates

It is necessary that the on-site emergency plan be tested periodically. The testing of the plan would be through Functional Exercise and Full-Scale Drill.

Review of the Plan

This plan is a dynamic document and would be reviewed / updated in following situations: -

i) The plan would be tested from time to time.
Short comings/ lacunae that would be surfaced during testing of the plan, would be recorded/ documented, discussed during debriefing session following the test, decisions are taken to include them in the plan.

ii) If there were a change in process (s), which may add scenario(s) of possible emergencies, the plan would be modified taking into account these additional scenario(s).

iii) Change in contact details such as addresses, telephone.

iv) At least once in six months.

Responsibility

Updating the Plans would be the **responsibility of the Safety Officer**. This would also include updating of contact information such as address, telephone numbers etc.

Procedure

The Plan would be **updated after being authorised by the CIC in writing**. The Safety Officer would submit the proposal as mentioned duly supported by justifications to the CIC. After its approval, the Safety Officer would accordingly update the plan and circulate it to the concerned persons.

Responsibility of the Regular, Contractor and Visitor in the time of emergency: ------

Regular employees:--

Who have not been specified a duty in case of emergency should proceed to/contact the Emergency Assembly Point in their area.

Contractor's Employees:--

Contractor's employees will be instructed in the Emergency Procedures before commencing work on this site. They will report to the emergency assembly point on this site. Personnel Manager will guide them in case a major decision like evacuation from the factory is taken.

Visitors:---

Infrequent visitors are registered on each visit. They will be given a Visitors pass which includes an emergency action statement. The responsibility for visitors in emergency situation rests with the person being visited.

ABBREVIATIONS USED

CIC	Chief incidental controller
WIC	Work incidental controller
ECC	Emergency call centre
MSDS	Material safety data sheet
MSIH	Manufacture storage and import of hazardous
OEP	On site emergency plan
PA System	Public Address system
PPE	Personal protective system
WBPCB	West Bengal pollution control board
MSDS	Material safety Data Sheet

ANNEXURE-01
Structure of the Disaster Management Team:

Name	Status	Mobile number	Office number	Residential number
The General Manager (S.K.Majumder)	**Chairman**	9432021085	03483-237003	03483-237067
DGM(O)	**Member Secretary**	9432021021		
All DGMs Dy. General Manager(M),	**Member**	9432021016		
Dy. General Manager(U),		9432021044		
Dy. General Manager (Const.),		9432021017		
HOD(P&A)	**Member**	9432021004		
All HODs	**Member**			
Sr. Manager (Oprn) SgTPP.		9432021114		
Sr. Manager (GM-T-cell), SgTPP		9432021086		
Sr. Manager Elec. Maint-IPH		9432015342		
Sr. Manager Elec.Maint-OPH		9432021090		
Sr. Manager , Utility	**Member**	9432015341		
Sr. Manager ,C&I		9432021058		
Sr. Manager, Boiler Maint.		9432021070		
Sr. Manager , Turbine & Auxiliary		9432021055		
Sr. Manager , Ash Handling Plant		9432021161		
Sr. Manager , Construction		9432021005		

Sr. Manager , Civil-IPH		9432021123		
Sr. Manager , Civil-OPH		9432021135		
Sr. Manager , Store & Purches		9432021008		
Sr. Manager , R&I		9432021092		
Sr. Manager CC&OE/MP Cell		9432021115		
Manager (Chemical Lab.)		9432013530		
Medical Superintendents	**Member**	9933900157		
Adviser Security	**Member**	------		
Environmental Officer	**Member**	9474447689		
Safety Officer	**Member**	9434528816		
HOD (F&S)	**Member**	9432021086		

Disaster Management team: - (outside) - All emergency phone numbers

1. **District Disaster Management Cell —**
2. **District Fire Brigade Office — Berhampur- 03482-253101/601**
3. **Sub-Divisional Fire Brigade Office — N/A**
4. **Area Fire Brigade Office — Dhulian -03485266200**

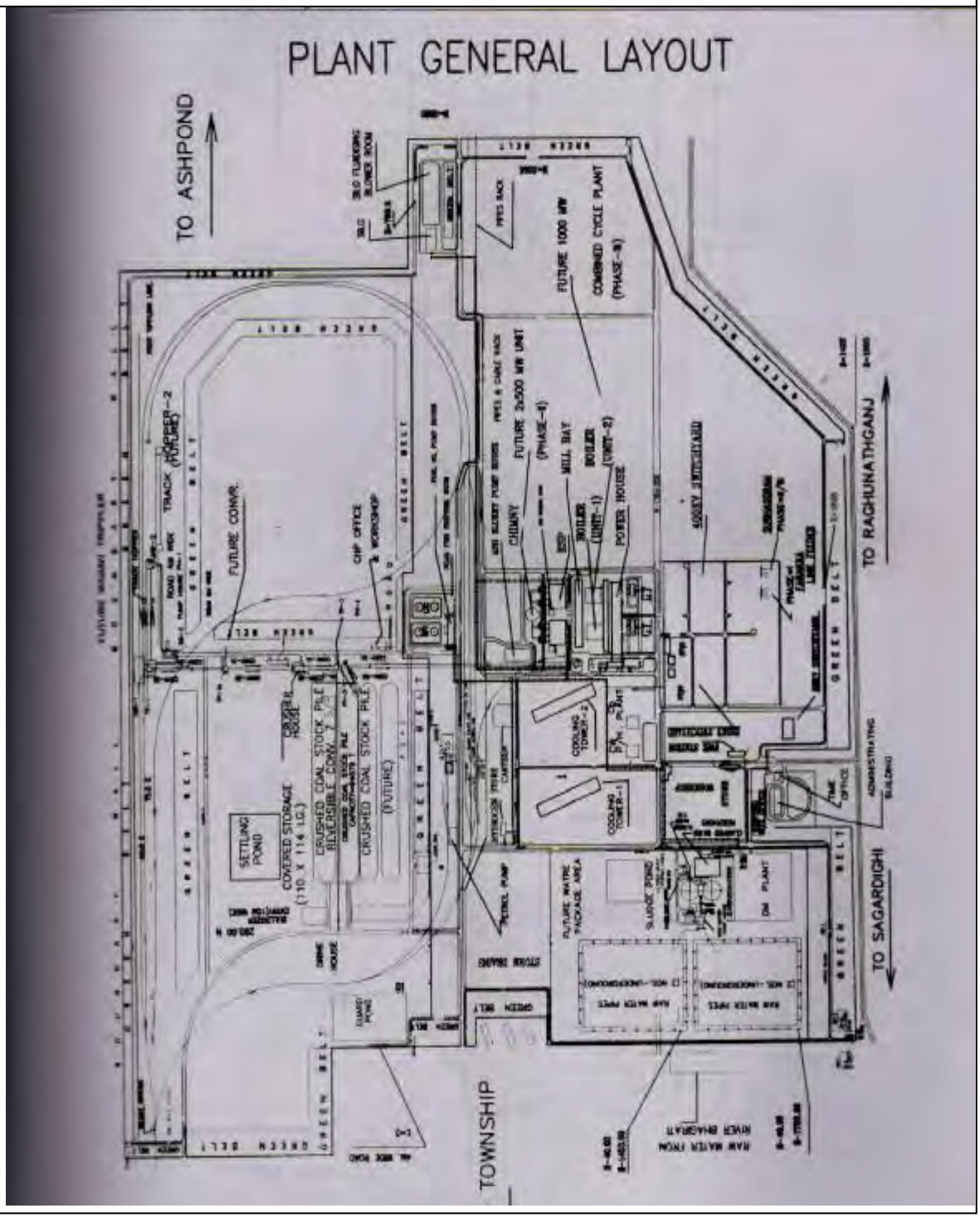
ANNEXURE-02

1. Full Name and Address of the Factory—Sagardighi Thermal Power Project, Monigram, Murshidabad, 742237
2. License No-16673 dated 24/03/2009
3. Regd Number –3-MR/X/08 dated 01/09/2008
4. Phones No and Fax Number –03483-237003, fax-03483-237002
5. Full name and address of occupier with contact number office and residence including mobile number. Sri Ashis Kumar Ghoshal, Director(Project) Bidyut Unnyan Bhavan, 3/c LA Block, Sec-III, Salt Lake, Kol-700098, Ph.-033-23393204/23350581,Mobile-(0)9432021146
6. Full name and address of **Chief Incident Controller** with contact number office and residence including mobile number.-**General Manager, SgTPP Plant**
7. Full name and address of **Work Incident Controller** with contact number office and residence including mobile number.-**Shift Charge, SgTPP Plant**
8. Shift wise number of personnel available at the time in the plant.

Category of employee	General shift	Morning shift	Evening shift	Night shift.
Regular employee in plant	211	70	65	60
Regular employee in office	42			
Contractor employee in Plant	648			
Contractor employee in Office	08			

ANNEXURE-03

LAYOUT OF THE PLANT



ANNEXURE-04

IN HOUSE FACILITIES

Sl No	Item	Type	Capacity	Number	Location
1	Breathing apparatus	SCBA	6 lit. 300Bar	8	Fire Tender, Cl_2 Plant, CCR
2	Cl_2 sensor point			4	Cl_2 Dozing Plant
3	Alarm (Hooter/Siren)		Range-100 Mtr.(approx..)		CHP Conveyor
4	Wind direction indicator			N/A	
5	First aid box			One set under all HOD	Under all HOD
6	Stretcher			2	Hospital, Ambulance
7	Occupational Health Centre.			1	In plant
8	Ambulance Van	AC		1	In plant
9	Chlorine leakage Kit			6	At chlorination plant
10	Neutralization Pit		$300M^3$	2	
11	Oil Tank Protection System.	Foam Floating System	5500Litter each	2	LDO Pump House

12	**Transformer Protection System**	**HVWS System**	**……**	**At all power transformers**	
13	**Safety Shower**	**normal**		**4+4**	At Acid, Alkali and Cl_2 dozing area
14	**Firefighting Equipment**	**Portable fire Extinguisher**		**802**	
15	**Fire Tender**	**Ashok Leyland make**		**2**	**Fire Station**
16	**Fire Water Pump**	**Hydrant(Elec.), Hydrant (Diesel.), Spray(Elec.), Spray (Diesel.), Jockey Pump**		**7**	**Fire water Pump House**
17	**Safety Net & Safety Belt**			**Safety Net-4 Safety Belt-8 Under F&S Dept.Store**	**2** safety belts to each Department has been distributed
18	**Foam**	**AFFFS**	**5500ltrs./Tank**	**2**	**LDO Pump House**
19	**Miscl.**				

- **Type of Extinguisher location wishes details.**

Fire Fighting Arrangement				
Fire Extinguishers	Type	Capacity	No	Location
	i) Water Carbon-di-oxide		40	At the area of stack of paper, plastic, wood etc.
	ii) Dry Chemical Powder	2 Kg 5 Kg 10 Kg	59 365 33	At different electrical & electronic appliances
	iii) Mechanical Foam	9 lit 50 lit	104 18	At LDO & HFO Stock areas
	iv) Carbon-di-oxide	3 kg 4.5 kg 6.5 kg 9.5 kg 22.5 kg	7 10 78 37 21	At different fire prone areas
	v) Halotron	2 kg 5 kg	20 10	CCR, GCR control panel room etc.
Fire Tender	4,500 lit water 500 lit foam		1 1	At the power house

- **Fire Tender details (for controlling all type of fire)**

Fire Tender
Registration No: - WB-25/B – 6408
Description
Manufacture: - ASHOK LEYLAND
WATER TANK CAPACITY-4500 ltr.
Chassis No – PPE 604714
Engine No – 430615

Registration No: - WB-25/B – 6407
Description
Manufacture: - ASHOK LEYLAND
WATER TANK CAPACITY-4500 ltr.
Chassis No – PPE 604714
Engine No – 430615

- **Details of Fire Pumps (DG and Electrical pumps)**

FIRE WATER PUMP SPECIFICATION:
Motor Driven Water Pump for Water Spray System -1 No
Drawing No. FF-DG-406-M-S0520-07

PUMP: MOTOR:

Sl.No	Parameter	Value		Sl.No	Parameter	Value
1	Type	250HS360-23*6		1	Type	YKSL355-4/220
2	Flow	410M^3/H		2	Voltage	6600V
3	Head	110m		3	Power	220KW
4	Rotation Speed	1450r/min		4	Rotation Speed	1450r/min
5	Weight	3780 Kg				
6	Stage	6				
7	P/P Stopping Level	Water level-1.4 M From Bottom of Pond				

Sl.No	Name	Specification	Material	Quantity
1	Foundation Bolt	M30x500	Q235B	4
2	Bolt Rail	Ø30L=60	Q235B	4
3	Screw Cap	M30	Q235B	4
4	Gasket	M30	Q235B	4

Diesel Driven Water Pump for Water Spray System – 1No
Drawing No. FF-DG-406-M-S0520-05

PUMP: MOTOR:

Sl.No	Parameter	Value		Sl.No	Parameter	Value
1	Type	250HS360-23*6		1	Type	NTA855-P300
2	Flow	410M^3/H		2	Voltage	
3	Head	110m		3	Power	220KW
4	Rotation Speed	1450r/min		4	Rotation Speed	1450r/min
5	Weight	4200 Kg				
6	Stage	6				
7	P/P Stopping Level	Water level-1.4 M From Bottom of Pond				

Sl.No	Name	Specification	Material	Quantity
1	Foundation Bolt	M30x500	Q235B	4
2	Bolt Rail	Ø30L=60	Q235B	4
3	Screw Cap	M30	Q235B	4
4	Washer	M30	Q235B	4
5	Foundation Bolt	M24x500	Q235B	6
6	Bolt Rail	Ø24L=60	Q235B	6
7	Screw Cap	M24	Q235B	6
8	Washer	M24	Q235B	6

Motor Driven Water Pump for Water Hydrant System – 2Nos.
Drawing No. FF-DG-406-M-S0520-07

PUMP: MOTOR:

Sl.No	Parameter	Value		Sl.No	Parameter	Value
1	Type	250HS360-23*4		1	Type	YKST355-4/220
2	Flow	273M^3/H		2	Voltage	6600V
3	Head	110m		3	Power	160KW
4	Rotation Speed	1450r/min		4	Rotation Speed	1450r/min
5	Weight	3780 Kg				
6	Stage	4				
7	P/P Stopping Level	Water level1.4 M From Bottom of Pond				

Sl.No	Name	Specification	Material	Quantity
1	Foundation Bolt	M30x500	Q235B	4
2	Bolt Rail	Ø30L=60	Q235B	4
3	Screw Cap	M30	Q235B	4
4	Gasket	M30	Q235B	4

Diesel Driven Water Pump for Water Hydrant System- 1 No
Drawing No. FF-DG-406-M-S0520-07

PUMP: MOTOR:

Sl.No	Parameter	Value		Sl.No	Parameter	Value
1	Type	250HS360-23*4		1	Type	YKST355-4/220
2	Flow	410M^3/H		2	Voltage	6600V
3	Head	110m		3	Power	160KW
4	Rotation Speed	1450r/min		4	Rotation Speed	1450r/min
5	Weight	3780 Kg				
6	Stage	4				

Sl.No	Name	Specification	Material	Quantity
1	Foundation Bolt	M30x500	Q235B	4
2	Bolt Rail	Ø30L=60	Q235B	4
3	Screw Cap	M30	Q235B	4
4	Gasket	M30	Q235B	4

Motor Driven Jockey Water Pumps – 2Nos.
Drawing No. FF-DG-406-M-S0520-07

PUMP: MOTOR:

Sl.No	Parameter	Value		Sl.No	Parameter	Value
1	Type	100HS30-15x7A		1	Type	Y180M-4
2	Flow	30 M^3/H		2	Voltage	415V
3	Head	110m		3	Power	18.5 KW
4	Rotation Speed	1450 r/min		4	Rotation Speed	r/min
5	Weight					