

## TISCO EMERGENCY PLAN

### 1 Introduction

West Bokaro, a division of The Tata Iron and Steel Company Ltd., (Tata Steel) is located in the Ramgarh District of Jharkhand State. It is one of the two captive coal mining divisions of Tata Steel that supply coking coal to their integrated steel plant at Jamshedpur. It is located about 75 km from the nearest commercial airport at Ranchi and 200 km from Jamshedpur by road. Nearest railway stations are Chainpur and Ranchi Road. West Bokaro possesses its own private Air Strip for sole use of Tata personnel. The nearest commercial airport is located at Ranchi.

The West Bokaro complex can be seen in high resolution on Google Earth centred on 23° 47'15" North and 85° 33' 31" East. Features such as mines and dumps and the colony buildings and roads can be clearly seen, although this imagery dates from 2006.



The History of West Bokaro division is quite old. In 1948, West Bokaro was known as M/S Bokaro Ramgarh Ltd owned by Raja of Ramgarh. The mining activities started by managing agent M/S ANDERSON WRIGHT Ltd. Initially the mining activities was confined to u/g only & producing 0.50 MTPA. In 1951, 1st Coal washery in the country was set up at west bokaro with throughput capacity of 0.50 MTPA. In 1956 it was taken over by M/S West Bokaro Pvt. Ltd , a subsidiary of TATA STEEL In 1970, Phase-I expansion started & O/C mines introduced with small scale of mechanisation at West Bokro to full fill the requirements of metallurgical coal of Steel Plant. In 1976 it became the part of TATA STEEL. In 1976 Phase-II , a major expansion project having outlay of 50 crores was under taken, and mainly QA & QB came up.

At present the division operates three open cast coal mines and associated washeries to supply clean coal for its plant to Jamshedpur. Other than 3 mines West Bokaro Division have following departments to support its daily production.

- i. Two Coal Beneficiation Plants
- ii. One loading siding at Chainpur
- iii. 20 MW captive power plant
- iv. One Hospital

- v. One Workshop
- vi. One Garage
- vii. One water treatment plant
- viii. Fire Fighting Station

## 2. Source Map (Annexure 1)

## 3. Risk Analysis

Since West Bokaro Division primarily being a Mining division, its safety and emergency are governed by Rules & Regulations prescribed by Director General of Mines Safety. However, TATA STEEL has developed its Emergency preparedness plan keeping in mind following emergency situations and assessment of potential impact on people, property and business has been done

- i. Fire
- ii. Flood / Inundation
- iii. Accident of Men and Machines
- iv. Side turn of HEMMs
- v. Side turn of Diesel Tanker, LMV
- vi. Land Slide
- vii. Dump Failure
- viii. Natural Calamities
- ix. Leakage in Diesel storage tank
- x. Explosion

Vulnerability Analysis Chart					
Type of Emergency	Probability	Human Impact	Property Impact	Business Impact	Total
	High (5) – Low (1)	High (5)	----- Low (1)		
Flood	1	2	1	3	6
Fire	3	2	3	2	21
Earth Quake	1	1	3	3	6
Chemical Disaster	1	3	1	3	6
Stampede	1	4	1	2	6
Drought	1	3	1	1	3
Road/Railway Accident	4	4	3	2	36
Side Turn of HEMMs	1	1	2	2	4
Side turn of Diesel Tanker/ LMV	1	1	2	2	4
Land Slide	1	3	3	2	8
Dump Failure	1	2	1	1	2
Leakage in Diesel Storage Tank	1	1	3	3	6
Explosion	1	4	3	3	10

This is a simple chart which anyone can use to evaluate the hazard exposure for our company. It is very subjective but valuable because it forces a thought and provides a simple measurement system.

### Floods

We're on high ground with Bokaro River flowing in NS direction along the western part of the leasehold area. Other than Bokaro river there is one nullah called Karma nullah which exist in the leasehold area. No other major water sources in the area. There has never been flood in this area. Our exposure to these two natural elements is low with total score of 6.

### **Fire**

Probability is rated as 3/5 because of fuel in vehicles and generator sets. The human impact of a vehicle or fuel fire could be serious (3/5), the impact on property very serious due to loss of equipment (3/5) and the loss of production and business is low (2/5). We have on-site fire-fighting capability with inbuilt fire extinguisher and automatic fire suppression system and everybody is trained to fight fires (5/5) and we're probably a 5-10 minute drive from the fire department as well. With a total score of 24, fire is our moderate risk.

### **Accident of Men & Machine (Vehicle Accident)**

We have had two serious accidents in the past and with customer trucks mixing with our vehicles and loaders all over the stockpile area the probability of having an accident is high (4). In an accident involving heavy equipment it's likely the operator(s) are going to be seriously injured (4). The equipment and business will suffer moderate losses (3) and (2). While we are well prepared to respond in case of a vehicle accident of this nature but most of the times we'd have to rely on external resources like police, which could take up to half an hour to get here (3). With a total score of 36, the potential for a vehicle accident is much ahead of Fire and it is the highly risk area for our business.

### **Earth Quake, Chemical Disaster, Stampede and Drought:**

Probability of happening for all these cases are very rare and are rated as 1/5 because of no past experience as well as nature of operation is mining. The human impact of above mentioned emergency varies from 1 to 5/5 and, the impact on property and Business are also of varying degree from 1 to 4/5 in case it does happen. Since, probability of happening of the above mentioned emergencies are very much rare, these are considered to be low risk areas.

### **Dump Failure, Land slide:**

No incidence of Dump failure/land slide happened in West Bokaro in the past. However, it is considered as a hazard for any mining operation done by opencast method. Probabilities of happening for all these cases are very rare and are rated as 1/5 because of no past experience. The human impact of above mentioned emergency varies from 1 to 3/5. For our operation these are considered to be low risk areas.

### **Side turn of HEMMs, diesel tanker, leakage in diesel storage etc.:**

Probability of happening for all these cases are very rare and are rated as 1/5 because of no past experience as well as nature of operation is mining. The human impact of above mentioned emergency varies from 1 to 3/5 and, the impact on property and Business are also of varying degree from 1 to 3/5 in case it does happen. Since, probability of happening of the above mentioned emergencies are very much rare, these are considered to be low risk areas.

#### **4. Duties and Responsibilities**

Since, Emergency situation can arise anytime, and hence, there has to be a plan with responsibility defined in the event of an emergency. Tata Steel has developed an EPRP where duty of every person is clearly defined

- Duty of any person

Any person, realizing that anything serious has happened anywhere in the mine Q-SE, shall immediately inform the nearest Mining officials –Foreman, or Asst Manager.

- Duty of an Official

Any official, on being informed that a disaster has occurred, shall immediately-  
Verify the veracity of information.

Withdraw all work persons under his charge to the previously designated “safe place”.

Send intimation to the other officials by telephone,

Try to withdraw all work persons and HEMMs safely from the mine to a safe place

- Duty of GPS operator

On getting information of an emergency, or noticing anything himself, he shall immediately inform the Mine Manager, Agent, Safety officer, Colliery Engineer and all concerned persons.

He shall not leave his Room without handing over the charge of communication to any responsible person.

- Duty of Attendance clerk, etc

On receiving information of an emergency in opencast mine, he shall immediately-

(i) Sound a hooter or a siren declaring a state of emergency, send information by messenger to member of the Consultative committee available at the time mine; and then keep all key personnel at the mine;

(ii) Prepare a statement, showing number and names of persons in different parts of the mine; send a copy to the Operations control room. Now onwards he shall keep the list up-to-date, and keep the operations control room Informed; and

(iii) Not allow anybody to proceed for mine without authorization of ‘control room’ (for the purpose he will Site himself at the mine entry and await further instructions).

- Duty of Storekeeper

On hearing the emergency siren, he shall immediately-

(i) Proceed to the stores.

(ii) Check the materials according to the emergency list,

(iii) Send a list to the operations control room,

(iv) Arrange for procuring additional materials from central stores/other mines, in

consultation with the control room, and

(v) In consultation with the surface control, arrange for the transport of materials to mine.

• Duty of Members of the consultative Committee.

On hearing of the Emergency, all members shall immediately rush to 'operation control room' authorize a line of action, and authorize different officers:

- i) For surface and Mine control, and
- ii) As officer in charge of control room, and

Send information to any managers of the adjoining mines, likely to be endangered.

• Duty of Managers of Adjoining Mines

The manager of adjoining mines, if members of consultative committee, shall immediately:

- i. alert key personnel likely to be required , and
- ii. Proceed to the operations control room.

In case of an apprehended danger to their own mine, however, they shall activate their own emergency organization.

• Duty of Officer in charge of surface control

He shall:

- i. Ensure that all personnel are on duty , according to a pre-arranged plan, on the surfaces;
- ii. Organize an authorization system in consultation with the control room.
- iii. Check materials available in store;
- iv. Arrange from their transport to mine;
- v. Organize a system of relief;
- vi. Arrange for rescue teams in consultation with the rescue station superintendent.

• Duty of Transport Officer

He shall report to the operator control room and:

1. Check the telephone message which have been sent out, and assist in getting any outstanding messages through.
2. Check on calling out the Rescue teams and First-aid men, send a transport to fetch them, if necessary.
3. Check on the working arrangement of Authorization cards with GPS operator, and attendance clerk.
4. Organization the telephone exchange for more telephone lines to be made available, If necessary.

5. Cooperate with the Rescue Station Superintendent to record the arrival of the Rescue teams, and their departure to mine.

6. Obtain list of men in the pit from the attendance clerk, and give copies to the officer In charge of the control room.

• Duty of Engineer

The engineer shall:

- i. Contact to the store keeper and report to control room.
- ii. Send messenger from the mine to call such workmen and mechanics as are required.
- iii. Report to the control room.
- iv. Establish transport system from the stores and stockyard to the Mine spot.
- v. Have loaded quickly the available stores, water pipes, hydrant valves, fire hose, extinguisher Refills and such other materials as may be required.
- vi. Issue authorization cards to the surface emergency workmen.

• Duty of Surveyor

He shall:

Arrange for extra rescue plans to be made available.

- a. Arrange for staff to go to the mine as soon as possible and put numbering labels on bodies before removed.
- b. Record data on plans regarding position of bodies and other evidence.

• Duty of Doctor

He shall:

- i. report to the control room
- ii. Proceed to the mine forthwith, taking such instruments and drugs (Particularly morphine) as are likely to be useful.
- iii. Should a doctor be requested to proceed underground, he must be accompanied by responsible person, delegated from the control room, to guide him in by.

He will report to the control room and assist in the preparation of the following accommodation:

- i. Stretcher casualty station
- ii. Walking casualty station
- iii. Mortuary accommodation

He will:

- (iv) supervise the preparation of the following accommodation:

- i. Room for rescue team to assemble in and receive instruction
- ii. Sleeping accommodation, if the rescue operation are going to be prolonged
- iii. Get a copy of the list of men in the pit from the head clerk and check, from time to time, with the list and make a note of the men who have come out of the mine,
- iv. Co-operate with the police for identification of bodies.
- v. Deal with enquires from relatives, but will not issue statements
- vi. Co-operate with canteen in charge regarding food supplies,
- vii. Prepare a list of volunteer workers, (these men are to be organized to work on all necessary shift).

• Duty of canteen In charge.

(i) He shall report to the control Room and take necessary steps to additional canteen shaft and additional supplied of food , if necessary.

(ii) Consideration should be given to a system of tickets for all meals in the canteen to be operated without delays. Arrangements should be made to control the issue of tickets only to authorized person.

(iii) Arrangements should be organized to send responsible person underground with sandwiches and hot drinks at fixed time to the rescue teams and other parties, also to arrange the service of hot drinks to the injured in the stretcher casualty and walking casualty station.

• Duty of Security staff

They are to control the roads and keep them for ambulance and other motor vehicles, and

- i. Arrange for the identification of bodies.
- ii. Supervise mortuary arrangements

## 5. Action Plan

### Fire Protection and Fire Fighting Plan

All employees will follow the procedure:

- i) In the event of a fire in equipment which has a built-in fire suppression system, (loaders, gen set) activate the system.
- ii) In the event of a fire at or near fuel tanks, notify the office and evacuate.
- iii) If you discover a fire in its early stage, notify the office by radio then make the decision whether to fight it with a fire extinguisher – all employees should be familiar with extinguisher locations and how to use them – when in doubt evacuate.

- iv) For any fire which cannot be fought with hand-held extinguishers, fire department will be called – if required, one rescue trained person will be designated to lead the fire department to the scene of the fire using a company truck.

#### **Resources**

##### **FIRE STATIONS:**

- a) At the Pit Office -- CMC.  
b) Workshop -- CMC.  
c) Central Fire Station -- West Bokaro

##### **FIRE FIGHTING EQUIPMENT:**

- At all fire station
- Fire extinguishers fitted in all HEMM
- Automatic Fire suppression System in HEMM
- Fire Hydrant system in CMC and Diesel Filling Area (DMC)

##### **WATER SUPPLY:**

- Constant water supply system from water supply department to all Officers all sites Offices & Canteens
- Four Water Sprinklers for dust suppression & use in emergency.
- Two fire tenders available all the times with water at Central fire stations.

##### **SELECTION & TRAINING OF PERSONNELS:**

Adequate No. of persons have been trained in the use of fire extinguishers fire fighting. All such persons shall be made familiar with the positions of all fire fighting equipment provided in the mine.

##### **FIRE FIGHTING PLAN**

An up to date fire fighting plan showing the water filling points, tapes, fire stations pumping stations along with working plan of quarries shall be kept maintained in the Manager Office & Operation Control Room.

##### **PERIODICAL TESTS**

- A competent person has been appointed to examine the all fire extinguishers once at least in every month & shall discharge and Re-fill the Fire Extinguishers as after as may necessary to ensure that these are in proper working order.
- Any deficiency found during any such examination or otherwise shall be immediately remedied.
- A report of every such examination including discharge & refilling of fire extinguishers shall be made in a bound paged book kept for the purpose & shall be signed and dated by the person



making the examination.

#### **Incident and Injury Plan**

- i) First aid kits are located at the crusher plant, gen set trailer, company vehicle.
- ii) For minor injuries (scrapes, shallow cuts, etc.) all employees are authorized to use materials in any first aid kit but must make a note of the injury and materials used in the kit's log book.
- iii) For any injury more serious than the above, call the office for assistance. List of First Aiders are displayed at every installations. They will determine whether an injury can be treated on site, treated in hospital or requires an ambulance.
- iv) It is company policy that no employee shall walk on, climb or otherwise become personally involved with stockpiled material so runs of material should not be a safety issue.

#### **Security Procedures**

- i) Only the main gate near the weigh scale will be opened for vehicle access. All other gates at entries to the property will be closed and locked at all times. Report any damage to gates or perimeter fences
- ii) Incoming customer trucks for pickup must stop at the office. Drivers are not allowed to leave the cabs of their vehicles at any time while on company property. A designated "tarp-up" area is provided for loaded trucks beyond the weigh scale.
- iii) All other visitors are required to park near the office for check-in and check-out when leaving. All visiting vehicles must be accompanied by a company vehicle when traveling on company property. Hard hats and safety glasses are available for visitors in the office.
- iv) No explosives are stored on the company property. Blasting contractors bring only enough explosives for the job at hand and are responsible for explosives security.
- v) The OPP will be notified if there is a security reason to do so.

#### **Interruption of Electrical Supply**

Electrical systems in the office, quarries, CHP, Hospital and Washeries are designed to switch over to power supplied by our generators in the event of a failure of utility-supplied power

### **6. Emergency Resources**

The support facilities available with TATA STEEL, West Bokaro Division are as under :-

- i. **Person concerned to be contacted during emergency**

The details of concerned officials who can be contacted in the event of such emergency



b. Capt M Latif	Sr Manager	7542021519
c. Dhara Singh	Manager	9263637480
d. Mr Jameel	Fire Supervisor	9931106873

**ii Medical Supports**

TATA STEEL WBD has a moderately equipped 62 bedded feeder hospital which can provide basic medical support to company staff & local population. However, cases requiring specialised & critical attendance are usually referred to Multi-Speciality hospitals located at Ranchi/Jamshedpur for better treatment & management.

Relevant details related to Tata Central Hospital is as enumerated below:

**a) Emergency Contacts**

(1) Dr C K Bannerjee	CMO	9234500206
(2) Mr Shakir Ali	Administrator	923450018

**b) Emergency**      9204792662      1230 hrs – 1400 hrs  
1800 hrs – 0800 hrs

<b>c) No of Wards</b>	07
<b>No of Beds</b>	62
<b>d) Ambulance</b>	03

ii. The above mentioned information are forwarded for inclusion in the District Disaster Management Plan under 'Resources' head or for utilisation as deemed fit.

**7. Training Plan (annexure 2)**

**8. Mock Rehearsal (annexure 3)**

**MOCK DRILL PLAN**

**FY-14**

Annexure 3

S L N O.	TYPE OF EMERGENCY	PERIOD																							
		Q1				Q2				Q3				Q4											
		AP R		MA Y		JUN		JU L		AU G		SEP		OC T		NO V		DEC		JA N		FEB		MARCH	
		T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T	T G T	A C T
1	Emergency due to Fire					19.6.13	24.06.13					17/9	16.08.13					17/12	18.12.13					17/3/14	18.03.14
2	Emergency due to Accident					20.6.13	20.06.13					18/9	25.09.13					19/12	23.12.13					19/3/14	21.03.14
3	Emergency due to side turn of HEMM																								
4	Emergency due to leakage from Bulk Storage tank of Lubricant																								
5	Emergency due to side turn of Diesel tanker																								
6	Dump Slide					3,4,5 Will be discussed during the mock drill of sl.no.1,2, emergencies together				3,4,5 Will be discussed during the mock drill of sl.no.1,2, emergencies together				3,4,5 Will be discussed during the mock drill of sl.no.1,2, emergencies together				3,4,5 Will be discussed during the mock drill of sl.no.1,2, emergencies together							

Topo sheet and West Bokarolease location plan

Annexure 1



## Sample Training sheet

## Annexure 2

Course	PNO	NAME	DESIG	DEPT	FROM	TO	Expr1008	Attndence	MDEPT
EMS, EPRP	269088	P K YADAV	Sr Mining Associate	Quarry-SE	09-Apr-13	09-Apr-13	JRD TTC	1	QUARRY-SE
EMS, EPRP	268748	PREM	Sr Dumper Optr, Cat A	Quarry-A&B (Opns.)	09-Apr-13	09-Apr-13	JRD TTC	1	QUARRY-AB
EMS, EPRP	268718	SURAJDEO THAKUR	FCO, Tech C	Washery-II	09-Apr-13	09-Apr-13	JRD TTC	1	CB
EMS, EPRP	268138	ASHIM KUMAR DAS	Office Assistant, SPL GR.	Secondary Products	09-Apr-13	09-Apr-13	JRD TTC	1	GENERAL SERVICES
EMS, EPRP	267818	BALESHWAR MAHTO	Sr Mining Associate	Quarry-SE	09-Apr-13	09-Apr-13	JRD TTC	1	QUARRY-SE
EMS, EPRP	266715	AKHAURI ANIL KUMAR	Clerk Gr I	Secondary Products	09-Apr-13	09-Apr-13	JRD TTC	1	GENERAL SERVICES
EMS, EPRP	265411	AMBIKA PRASAD	Foreman Incharge	Quarry-A&B (Maint.)	09-Apr-13	09-Apr-13	JRD TTC	1	QUARRY-AB
EMS, EPRP	269635	SHAMIM AKHTAR	Loading Inspector	Secondary Products	09-Apr-13	09-Apr-13	JRD TTC	1	GENERAL SERVICES
EMS, EPRP	266421	KISHORE KUMAR GUPTA	Sr Spl Gr Clerk (DE)	Quarry-E (Maint.)	09-Apr-13	09-Apr-13	JRD TTC	1	QUARRY-E
EMS, EPRP	269129	SUNIL JHA	Fitter Helper, Cat II	Washery-III	09-Apr-13	09-Apr-13	JRD TTC	1	CB
EMS, EPRP	269254	RABINDRA KUMAR SINGH	Sr Mining Associate	Quarry-SE	09-Apr-13	09-Apr-13	JRD TTC	1	QUARRY-SE
EMS, EPRP	269894	SHARWAN KUMAR	Chemist	Geological Services	09-Apr-13	09-Apr-13	JRD TTC	1	GENERAL SERVICES
EMS, EPRP	265413	RAJESHWAR SINGH	Foreman Incharge	Quarry-E (Maint.)	07-May-13	07-May-13	JRD TTC	1	QUARRY-E
EMS, EPRP	269888	MD. MUZAFFAR ANSARI	Service Hand, GR.I	Washery-III	07-May-13	07-May-13	JRD TTC	1	CB
EMS, EPRP	269750	RAJENDRA PRASAD	Loading Inspector	Secondary Products	07-May-13	07-May-13	JRD TTC	1	GENERAL SERVICES
EMS, EPRP	269511	SUNNY KUMAR	Mining Sirdar, Tech C	Quarry-A&B (Opns.)	07-May-13	07-May-13	JRD TTC	1	QUARRY-AB
EMS, EPRP	269303	BAIJOO KUMAR	FCO, Tech C	Washery-III	07-May-13	07-May-13	JRD TTC	1	CB
EMS, EPRP	269017	RAJ NARAYAN YADAV	Sr Mining Associate	Quarry-SE	07-May-13	07-May-13	JRD TTC	1	QUARRY-SE
EMS, EPRP	267961	PRADEEP AGARIA	Sr Mining Associate	Quarry-SE	07-May-13	07-May-13	JRD TTC	1	QUARRY-SE
EMS, EPRP	267477	SITA RAM	FCO, Tech C	Washery-II	07-May-13	07-May-13	JRD TTC	1	CB
EMS, EPRP	266493	MD MOBIN AHMAD	Sr Spl Gr Clerk (DE)	Secondary Products	07-May-13	07-May-13	JRD TTC	1	GENERAL SERVICES
EMS, EPRP	265404	MD E A KHAN	Foreman Incharge	Quarry-A&B (Maint.)	07-May-13	07-May-13	JRD TTC	1	QUARRY-AB
EMS, EPRP	265393	DUDH NATH SINGH	Foreman Incharge	Quarry-A&B (Maint.)	07-May-13	07-May-13	JRD TTC	1	QUARRY-AB

