SHARING OF GOOD SAFETY PRACTICES ON
“Elimination of hazard by reducing man-machine interface”
Elimination of Heat Exposure (Radiation, Physical) hazards by providing Movable Winch system.

CSI Division, Dept.- Coke Plant, Jamshedpur, India

BEFORE: For port cleaning from oven top the practice was very unsafe - Direct Exposure to radiation heat, & hot equipment.

AFTER: Movable Trolley with lifting tool & winch system provided to eliminate direct exposure.
Elimination of human interference in scrap unloading

FP Division, LD2 & SC, Jamshedpur, India

**BEFORE:** Manual intervention in unloading process of scraps at MHS area of LD#2&SC. Hazard related to reversing of vehicles and material falling.

**AFTER:** Hazard has been eliminated by using a special vehicle ‘Dumper placer’. No man required to open the truck body cover.
SAFE JOB INSPECTIONS/OBSERVATIONS AND CROSS OVERS

Division: TGS Adityapur Complex, Jamshedpur, India

BEFORE: M/c operators stand / cross over abreast to operation and many times step up on m/c parts for inspection etc.

AFTER: M/c operators stand / cross on light molded platforms with side rail guards for job inspection etc.
SAFE SECURITY INSPECTION PLATFORMS

Division: TGS, Adityapur Complex, Jamshedpur, India

BEFORE: Security men climbing unsafely every time inside cabs and on vehicles for visual checking.

AFTER: Security men on safe designated platform for visual checking from above the to and fro moving vehicles.
Before: For any maintenance activity, crew had to open the side door of floop & go inside floop where space was too narrow to stand safely. Crew had to stand on roller of the floop where chances of falling/trapping was there.

After: A suitable staircase with landing platform & side railings has been fixed by the side of floop to ensure that person engaged in maintenance activities attend it from outside of floop itself.
Elimination of man machine interface in 100Kg Furnace area.

LP division, Dept : Bearings, Kharagpur, India

BEFORE : Materials from the 100Kg heat Treatment Exit zone are to be taken out under the furnace which is a hazardous activity as there are chances of Head Injury & hip injury

AFTER : Man machine interface has been eliminated by implementing indigenously made conveyor system to take out material from 100Kg furnace exit area eliminating hazards during unloading of Heat treated materials.
Elimination of Manual Handling of trailing cable

**R. M. Division, Jharia, India**

**BEFORE:** In SDL m/c, cable handling was being done manually by 3/4 SDL crews, they were travelling behind SDL, which was a hazard associated with SDL movement. (Electrocution, fall of person, hit by object)

**AFTER:** Now there is no need of cable handling by LDH crews, automatic cable reeling system performs this job which is incorporated with LHD. There is no hazard during movement of LHD.
Eliminating Manual Lifting of Sieve bend frame

R. M. Division, Jharia, India

BEFORE: Earlier Heavy Tyndals used to lift sieve bend frame by using hands for taking out sieve for cleaning.

AFTER: Now Heavy Tyndals use Chain blocks to lift the sieve bend frame at JCPP.
Reducing Manual Handling of Material at JCPP

R. M. Division, Jharia, India

BEFORE: Employees used to handle material manually which was hazardous.

AFTER: Employees handle material by using custom made trolley.
Elimination of human Exposure during Changing of Belly Plate of Dozers, at West Bokaro, India

Before: Long wire rope sling was used and put around the belly guard. The eye portion of the wire rope sling was positioned over the engine hood. The eyes of the slings were mounted in the crane hook manually. The belly guard (124-167 Kg) was brought down by using the crane and sling after removing the belly guard mounting bolts. There was fatal potential hazards.

After: The special tool eliminated the human exposure & also the unsafe practice of lifting the belly guard and It is 100% safe. The tool can be used for removal of Transmission and Torque Divider also.
Mobile Shelters near Loading points to eliminate Man Machine interface, FAMD division, Tata Steel, India

Before: Uncontrolled movement of contractors employees near the loading point during reversal and movement of trucks leading to hazard of collision & run over.

After: Mobile shelters provided near loading points for manual loaders to positively isolate & eliminate man-machine interface during truck movement inside stock yard.
Installation of fall arresting guard at high mast to eliminate hazard of Snapping of tower sling & fall of light assembly on ground below.

Division: CSI  Dept: HMC , Haldia, India

BEFORE : Snapping of sling had fatality potential to personnel operating below the High mast tower

AFTER : Canopy of sufficient diameter held by angles as fall arrestor minimizes hazard.
**Butt Welding Noise Enclosure**
Cut and Bend (CAB) Department

NatSteel Holdings Pvt. Ltd, Singapore

**BEFORE :** Worker are exposed to high noise hazards during the butt welding process of couplers to rebar.

**AFTER :** After installing the noise enclosure to contain the butt welding process, noise exposure was effectively reduced by at least 4dB to 6dB.
BEFORE: Worker operating on the Bore Pile Machine are exposed risk of fingers getting caught in between the roller guides.

AFTER: After installing of metal cover machine guarding, workers hands and fingers are protected against all pinch hazards.
**Cobble Enclosure with Interlock**

**Merchant Bar Mill (MBM) Department**

NatSteel Holdings Pvt. Ltd, Singapore

**BEFORE:** Worker are at risk of getting hit by flying cobble during cutting of hot rebar travelling at high speed.

**AFTER:** Steel enclosure with limit switch at warning beacon at the door was installed to contain any flying cobble and cut off power to equipment when the enclosure is opened.
Use of Telescopic Cranes in Steel Handling
KPO, Tata Steel, India

Before: The steel loading and unloading was carried out manually.

After: Reduction of Man Machine Interface by Use of Telescopic Cranes in mat handling.
Before:
- Manual filling of High Speed Diesel in DG sets

Fig-1: Manual procedure of Jar filling.
Fig-2: Way of lifting the jar to the fuel tank.
Fig-3: Way of Diesel filling in fuel tank.
Fig-4: Way of Diesel filling in fuel tank of Diesel engine set.
Fig-5: Diagram showing manual filling of diesel in diesel engine set.

Challenges during filling of High speed Diesel in DG sets:
1. Lifting of high speed diesel jar is one of the safety concerns, which is objectionable.
2. Unergonomical filling of tanks.
4. Fuel tank is 3 meter height.
5. Chances to spillage of oil.
6. Present capacity of the tanks lead to limited running of plant at the time of emergency situation.
AFTER:- Hands free filling of High Speed Diesel in DG sets.

1) A centralize high speed diesel tank of 900 liter capacity has been installed at the height of 5.5 meter to supply the diesel to the local tanks of DG sets by gravity.

2) Layout the line from centralize diesel tank to the local tanks of diesel fire hydrant and DG set to fill the tanks by gravity.
BEFORE: There was no Inbuilt lighting system in the Fire Tender, in case of any power failure at the location of fire incident, we had to depend on local people for help.

AFTER: Inbuilt lighting system (Folded type) provided in the new Fire Tender and there is no dependency on others during Emergency.
Safe water & Foam Level checking at Fire Tenders by LED indicator at Tata Steel, India

BEFORE: For checking the level of Water & Foam in the Fire tender people had to go on to the roof of the Fire Tender.

AFTER: LED level indicator system is provided to identify the level of Water & Foam in the Fire Tender.
Thank You