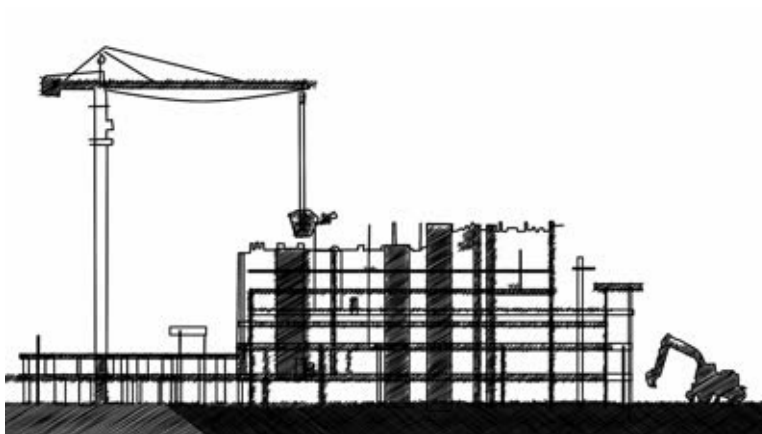


HSE PROCEDURE

FOR



REGISTER OF OHS HAZARDS AND RISKS



HSE PROCEDURE
FOR
REGISTER OF OHS HAZARDS and RISKS
(HSEP: 01)



DOC NO. : HSEP: 01	REVISION NO. : 00	DATE :10-01-2018
ORIGINAL ISSUE DATE : 10-01-2018	DATE OF ISSUE OF THIS COPY :	
COPY NO. :	ISSUED BY : R K OJHA	
ISSUED TO :	SIGN : DESGN. / DEPT. : HSE	

BHARAT HEAVY ELECTRICALS LIMITED
INDUSTRIAL SYSTEMS
GROUP

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1.0 OBJECTIVE#

To identify the Occupational Health and Safety (OHS) hazards and the associated risk on on-going basis to assess OHS risks and identify associated significant OHS risks. This is to facilitate setting of OHS objectives and targets and also to control the risk and to keep this information up- to- date.

2.0 SCOPE#

Applicable to all activities, products and services of BHEL, ISG.

3.0 PROCEDURE DESCRIPTION#

3.1 The task force along with trained OHS auditors/experts shall carry out survey, consultation with a cross section of employees, contractors and collect data on OHS hazards and risks related to all activities, product handling and services. The task force shall identify the areas of obvious physical improvement to strengthen occupational health and safety management system.

3.2 While identifying OHS hazards and risks during initial OHS review the following criteria should be considered:

- a) Routine and non-routine activities
- b) Activities of all persons having access to the workplace (including contractors and visitors)
- c) Human behavior, capabilities and other human factors
- d) Identified hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organization within the workplace
- e) Hazards created in the vicinity of the workplace by work-related activities under the control of the organization
- f) Infrastructure, equipment and materials at the workplace, whether provided by the organization or others
- g) Changes or proposed changes in the organization, its activities, or materials
- h) Modifications to the OHS management system, including temporary changes, and their impacts on operations, processes, and activities
- i) Any applicable legal obligations relating to risk assessment and implementation of necessary controls
- j) The design of work areas, processes, installations, machinery/equipment, operating procedures and work organization, including their adaptation to human capabilities

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- 3.3 Consider the following other conditions while identifying occupational Health and safety (OHS) hazards and associated risks as per Annexure -1:
- o **DIRECT:** Activities, which can be controlled by BHEL, PS.
 - o **INDIRECT:** Activities where BHEL, PS can have influence on its control.
 - o **NORMAL CONDITION:** OHS Risks converted to acceptable condition & does not warrant any special preventive/protective provisions or measures.
 - o **ABNORMAL CONDITION:** OHS Risks associated with identified Hazards is beyond acceptable limit and does warrant specific use of preventive/protective provisions or measures.
 - o **EMERGENCY CONDITION:** OHS Risks, which are contained or mitigated by invoking emergency procedures related with potential foreseeable emergency situations.
- 3.4 Prepare a consolidated list of occupational health and safety (OHS) hazards and associated risks in the format no. HSEP: 01-F01.
- 3.5 Conduct site visits to verify the identification of OHS hazards & associated risks & also the completeness in Format.
- 3.6 Based on the above prepare a list of activities of occupational health and safety (OHS) hazards and associated risks in the above format no. HSEP: 01-F01.
- 3.7 Criteria for risk assessment is developed through brain storming and discussion by task force with Co-opted members (if any) as per annexure 1 and as given below:
- a. **Domino Concern (DC):** Operations and processes which can trigger / multiply the risks that is of increasing magnitude and creates potential emergency conditions.
 - b. **Legislative Concern (LC):** Any OHS hazards / risks covered in the identification of OHS hazards and risks by existing and applicable OHS legislation and other notifications issued from time to time
 - c. **Any Other :** like Chronic Effect (CE) - Any OHS hazards / risks leading to medium and long term adverse OHS effects; Business Concern, etc.
 - d. **Sc-Se criteria**
 - o **Sc (Scale):** Area of spread risk
 - o **Se (Severity) :** Combination of Likelihood (L) and Level of Consequence (C)

Where,

L (Likelihood): risk likelihood, probability of occurrence and

C (level of consequence): magnitude of harm/ damage of hazardous event



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This methodology of risk assessment provides the classification of risks (refer Annexure 1). The above **ScSe** criteria shall be applied as per the rating in Annexure 1 with this procedure.

Total = Sc + Se, where Se = L x C (Likelihood X Consequence)

- 3.8 Evaluate OHS risks as per above in the format and identify non-acceptable OHS risks.
- 3.9 While identifying non-acceptable OHS risks consideration shall be given to followings:
- o Mechanical hazards
 - o Electrical hazards
 - o Chemical hazards
 - o Physical hazards
 - o Biological hazards
 - o Ergonomic hazards
 - o Accidental hazards including natural calamity.
 - o Monotonous work
 - o Work at predetermined rate
 - o Influence of shift work
 - o Overtime loading & fatigue, heat exposure etc
 - o Unsafe acts/practices
 - o Applicable legislation / Regulations
- 3.10 Any of the OHS risks falling under DC, LC and 'Any other' shall be given special consideration while determining control measures. Any OHS risks falling into any category other than **trivial** and **moderate** shall be treated as non-acceptable risks. **ScSe** score may be used to prioritise amongst the non-acceptable risks.
- 3.11 Any new / modified or changed OHS hazards & risks at the existing projects/ regional office, introduction of new activity within the company, changes in the applicable legislation/ regulations shall be identified & informed by concerned site/Region to Head-Q, S& MM. The register of OHS hazards and risks for risk assessment shall be reviewed and revised as per the procedure as and when required.
- 3.12 The latest information regarding applicable amendments in the existing regulations or introduction of new regulations shall be accessed through web



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3.13 While determining controls, or considering changes to existing controls, consideration shall be given to reducing the risks according to the following hierarchy:

- o Elimination
- o Substitution
- o Engineering control
- o Signage/warning and/or administrative controls
- o Personal Protective Equipment(PPE)

3.14 The register of OHS Hazards and Risks is given in Annexure-II.

3.15 The List of non tolerable OHS Hazards is given in Annexure-III.

3.16 The feasibility analysis of non-tolerable OHS Hazards and Risks to be done as per format no. HSEP: 01-F02 and is given in Annexure-IV

4.0 DOCUMENT CONTROL

This document shall be issued and controlled as detailed in HSE Procedure HSEP: 01

5.0 FORMATS USED

HSEP: 01- F01 - Identification of OHS Hazards and Risk/Risk assessment/Risk Management measures

HSEP: 01 – F02 - Feasibility Analysis of non-tolerable OHS Hazards and Risks

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Annexure-I#

CRITERIA FOR HAZARD AND RISK IDENTIFICATION AND ASSESSMENT

RISK IDENTIFICATION									RISK ASSESSMENT						
Activity	Hazard	Condition			Risk		Adequacy of Measure		Scale (Sc)	Severity (Se) Se = L x C		Total c+ Se	Risk Classification	Overriding Factor (LC/DC/Any other)	Risk Control Measure
		D/I	R / N R	N/AN/E	Likelihood	Consequence	Existing	Gaps, if any		Likelihood (L)	Level of Consequence (C)				
									Spot (1)	Highly Unlikely HUL (1)	Slightly Harmful SH (1)		Trivial (3)		
									Within Dept (2)	Unlikely UL (2)	Harmful H (2)		Moderate (4-6)		
									Within Site (3)	Likely L (3)	Very Harmful VH (3)		Substantial (7-12)		
									Outside Site (4)	Very Likely VL (4)	xtremely Harmful EH (4)		Intolerable (13-20)		

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Legend:**Condition****Likelihood****Level of Consequence**

D	=	Direct	HUL	=	Highly Unlikely	SH	=	Slightly Harmful
I	=	Indirect	UL	=	Unlikely	H	=	Harmful
R	=	Routine	L	=	Likely	VH	=	Very Harmful
NR	=	Non-routine	VL	=	Very Likely	EH	=	Extremely Harmful
N	=	Normal						
AN	=	Abnormal						
E	=	Emergency						

DETERMINING RISK-CONSEQUENCE LEVEL - GUIDANCE CRITERIA#

Level of Harm	Human	Property	Exposure level
Slightly Harmful	Momentary Discomfort	No Action Required	Below / Equal to Prescribed Threshold Limit Value (TLV) (8 Hrs)
Harmful	Minor Injuries (Non reportable) requires First Aid	Minor Damages	Above the Prescribed Threshold Limit Value (TLV) ; (8 Hrs) however < 20%
Very Harmful	Major Injuries, absence from the work $\geq$ 48 hours / temporary disability	Severe damages	Above the Prescribed Threshold Limit Value (TLV) ; (8 Hrs) however within 20% - 40 %
Extremely Harmful	Fatal / Permanent Disability, Major incidents involving large number of people	Annihilation (Complete destruction)	Above the Prescribed Threshold Limit Value (TLV) ; (8 Hrs) AND > 40 %

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RISK LIKELIHOOD

Weightage	Probability	Risk Likelihood
1	> Month	Highly Unlikely (HUL)
2	≤ Month > Week	Unlikely (UL)
3	≤ Week > Day	Likely (L)
4	≤ Day	Very Likely (VL)

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ANNEXURE II#

CHECKLIST (DEPARTMENT/SITE SPECIFIC) ON OHS HAZARDS AND RISK

RISK IDENTIFICATION										RISK ASSESSMENT					Over riding factors (LC / DC/ Any Other)	Risk Control Measures
AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)				
01.	Material Handling by Crane/ Winch	a) Falling object impact	D/I	R	AN	Fitness testing of cranes and slings by competent authority. OSD in place	Nil	HUL	Property Damage, Physical injury	1	2	3	7	Substantial	LC As per Factory Act 1948.	Area Cordoning to be ensured. OCP No. 09.
		b) Moving/ object impact	D/I	R	AN	Escorted with rigger & tied with guy rope. Hand gloves are in use	100% use to be ensured	UL	Property Damage, Physical injury	1	2	1	3	Trivial		Strict supervision needed Existing practice to continue and use OCP No.09.

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02	Material handling (Manual)	a) Cut due to handling of sharp objects	I	R	AN	Hand gloves in use	IS quality gloves to be used.	UL	Physical injury	1	2	1	3	Trivial	As per Factory Act 1948.	IS quality gloves to be provided and use OCP no. 18.
		b) Repetitive activity	I	R	N	Rest / Pause system exist	Nil	HUL	Physical stress	1	1	2	3	Trivial		Strict supervision needed Tool box talk to be ensured and use OCP No. 18.
02.	Material handling (Manual)	c) Pricking by nails	I	R	AN	Hand gloves & safety shoe in use	IS quality shoes & gloves to be used.	UL	Physical injury	1	2	1	3	Trivial		
03.	Storage/ Handling of inflammable gas cylinders	a) Minor fire due to gas leakage	I	R	E	Work done under supervision Fire extinguisher is provided OSD in place No smoking area	Ensure cylinder caps Fire fighting training is required Hand trolley to be used Ensure Statutory Body clearance if any	UL	Property Damage	1	2	1	3	Trivial	LC The Gas Cylinders Rules, 1981 Rules 5, 14,17,18,20, 23,34	Ensure cylinder caps Fire fighting training to be imparted Fire control adequacy to be maintained.

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RISK IDENTIFICATION										RISK ASSESSMENT					Over riding factors (LC / DC/ Any Other)	Risk Control Measures
AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
03.	Storage / Handling of inflammable gas cylinders	b) Major fire/explosion	I	R	E	Work done under supervision Emergency Tel no. displayed OSD in place No smoking area	Valve checking to be carried out Hand trolley to be used Fire drill required	HUL	Property Damage, Physical injury, Fatality	2	1	4	6	Moderate		Sup. of contractor to check the valve Fire drill to be conducted Existing practice to continue OCP No. 5 & 10 & EPRP
04.	Storage of lubricant oil	a) Minor fire in leaked oil	D/I	NR	E	Fire extinguisher is provided No smoking area	Fire fighting training & drill required Bund and oil trap to be provided in storage area	HUL	Property Damage	1	1	1	2	Trivial	LC Rule 117, 137 of The Petroleum Act, 1934 & 1976	Fire fighting training to be conducted OCP No. 05
		b) Slippage due to leaked oil	D/I	NR	AN	Safety shoe is used	Mopping up of oil to be ensured	UL	Physical injury	1	2	1	3	Trivial		Supervisor to ensure Mopping up OCP No. 01
		c) Spillage & leakage (skin contact)	I	R	AN	Hand Gloves provided	Nil	UL	Dermal Acne/ irritation	1	2	1	3	Trivial		Constant Supervision required OCP No. 01

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)				
05	Working at night	Slips/Falls due to improper illumination	D/I	R	AN	Proper illumination is provided	Use of safety shoe & other PPEs to be ensured	HUL	Physical injury	1	1	1	2	Trivial	LC Rule 41, Contract Labour Act	Use of PPEs and illumination to be ensured OCP No. 17 & 29
06	Computer Operation	a)Exposure to radiation	D	R	N	LCD monitor is provided	Nil	UL	Irritation of eye	1	2	1	3	Trivial		Use OCP No. 30
		b) Wrong body posture	D	R	AN		Awareness on proper posture & use of ergonomic furniture	UL	Neck and back ache	1	2	2	5	Moderate	Chronic	Awareness on Dos and Don'ts to be imparted OCP No. 30

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
07.	Storage in open yard	a) Fire due to dry weeds and bushes	D/I	R	E	Periodical removal of weeds and bushes done No smoking area		UL	Property Damage	1	2	2	5	Moderate		Removal of dry weeds and bushes to be ensured No smoking to be ensured OCP No. 31& 5
		b) Fire due to broken packing scraps	D/I	R	AN	Packing scraps are transferred to scrap yard No smoking area		HUL	Property Damage	1	1	2	3	Trivial		Transfer of scraps to scrap yard to be ensured No smoking to be ensured OCP No. 31 & 5

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
08.	Storage in open yard (Customer)	c) Poisonous insect / reptile bite	D/I	R	AN	Periodical removal of weeds and bushes done Proper illumination provided First Aid kit provided	Gum boot for working personnel to be provided. Weed control technique to be applied	HUL	Physical injury, Fatality	1	1	4	6	Moderate		Use of gum boots to be ensured Weed control technique to be applied Periodic removal of weeds to be ensured OCP No. 17
09.	Welding	a) Emission of fumes and Gases	I	R	AN	Generally welding is done in open area	Awareness on fumes and gases	L	Irritation of eye and throat Respiratory trouble on long term exposure	1	3	1	4	Moderate	Chronic	If required appropriate respiratory mask to be provided. Tool box talk to be conducted.OCP No.04 & 11
		b) Exposure to radiation and light	I	R	N	Face shield in use	Ensure use of appropriate glass no.	UL	Eye irritation	1	2	2	5	Moderate	Chronic	Existing practice to continue with strict supervision OCP No. 04 & 11
		c) Spatters	I	R	N	Appropriate PPE in use	100% use is required	UL	Skin burn	1	2	1	3	Trivial		100% use of PPE to be ensured

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classificati-on		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)				
09.	Welding	d) Exposure to live wire	I	R	AN	Electrical connection is done through licensed electrician Gen. and transformer kept in fixed place. Regular checking of electrical wire done	Use of ELCB to be ensured	HUL	Electric shock	1	1	2	3	Trivial		Existing practice to continue OCP No. 02, 04, 11 & 45
09.	Welding	e) Fire	I	R	E	Fire extinguisher is provided in construction site and emergency Tel no. displayed Use of galvanized sheet below welding area	Fire fighting training required. Appropriate fire extinguisher & sand bucket in sufficient no. to be provided	UL	Burns, Property damage	1	2	2	5	Moderate	DC	OCP No. 04 05 & 07
		f) Exposure to heat	I	R	AN	Appropriate PPE in use	100% use required	UL	Skin irritation	1	2	1	3	Trivial		100% use of PPE to be ensured under strict supervision OCP No. 04

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)				
10.	Gas cutting	a) Emission of gases/ fumes	I	NR	AN	Generally done in open area	Respiratory mask to be provided	UL	Irritation on eye and throat Respiratory trouble on long term exposure	1	2	2	5	Moderate	Chronic	OCP No. 04
		b) Fire/ Explosion	I	R	E	Fire extinguisher is provided in construction Competent worker is employed	Flash back arrestor & vertical hand trolleys with chain needed	UL	Physical injury, fatality property damage	2	2	4	10	Substantial	DC	Flashback arrestor and hand trolleys to be provided. Tool box talk to be conducted. OCP No. 04 & 05
		c) Spatters	I	R	AN	Appropriate PPE in use	100% use required	UL	Skin burn	1	2	1	3	Trivial		100% use of PPE to be ensured

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classificati-on			
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)					
11.	Tube Bending	a) Flying Object Impact	I	R	AN	Periodic testing of Hydraulic bending m/c	Supervision required	UL	Physical injury, property damage	1	1	2	3	Trivial		Existing practice to be continued	
		b) Spillage / leakage of hydraulic oil	I	R	AN	Periodic testing of Hydraulic bending m/c	Nil	HUL	Skin irritation	1	2	1	3	Trivial		OCP No. 03	
12.	Drilling and reaming	a)Exposure to noise	I	R	N	Ear plug provided		L	Hearing impairment	1	3	1	4	Moderate		Ensure usage of PPE OCP No. 32	
		b)Flying object impact	I	R	AN	Helmet, Gloves, Face shield provided	100% use required	UL	Physical injury	1	2	2	5	Moderate		OCP No. 32	
		c)Moving parts	I	R	N	Helmet, Gloves, Face shield , m/c guard provided	Nil	HUL	Physical injury	1	1	3	4	Moderate		Practice to continue OCP No. 32	
13.	Scraping	Slippage of scraper	I	R	AN	Hand gloves provided	Strict supervision needed	HUL	Physical injury	1	1	1	2	Trivial		Existing practice to continue OCP No. 06	

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classificati-on		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)				
14.	Grinding	a) Spatters	I	R	N	Apron, Face shield and gloves provided	100% use of PPEs required	U	Skin burn	1	2	1	3	Trivial		100% use of PPE to be ensured
		b) Exposure to live wire	I	R	AN	Electrical connection is done through licensed electrician Regular checking of electrical wiring done	ELCB	HUL	Electric shock	1	1	3	4	Moderate		Ensure use of ELCB OCP No. 02 & 32
		c) Breakage of grinding wheel	I	R	AN	Wheel guard provided Wheel is replaced on notice of crack	Strict supervision needed	HUL	Physical Injury	1	1	2	3	Trivial		Existing practice to continue OCP No. 32
		d) rotating object impact	I	R	AN	Helmet, Gloves, Face shield provided	Aprons to be provided	HUL	Physical Injury	1	1	3	4	Moderate		Ensure usage of PPE OCP No. 32

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RISK IDENTIFICATION										RISK ASSESSMENT					Over riding factors (LC / DC/ Any Other)	Risk Control Measures
AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classificati-on		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)				
15.	Grinding	e) Exposure to noise	I	R	N	Ear plug provided	Nil	VL	Irritation	1	4	1	5	Moderate		Tool box talk to be ensured OCP No. 32
		f) Exposure to moving parts	I	R	N	Machine guards in place	Periodic check required	UL	Body injury	1	2	2	5	Moderate		Existing practice to continue OCP No. 32
16.	Radiography	Exposure to ionic radiation	I	NR	AN	Remote control camera is provided in some cases, Radiation badge provided, cordoning of area done, OSD in use. Competent person in use	100% use of radiation badge with strict supervision to be ensured.	UL	Ill health Carcinogenic in long term exposure	2	2	3	8	Substantial	Chronic	100% use of radiation batch with strict supervision to be ensured. Existing practice to continue OCP No. 26 & 29

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classificati-on		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)				
17.	Dye Penetrant Test	Exposure to chemicals	I	NR	AN	PPE Used	Nil	UL	Skin irritation	1	2	1	3	Trivial		Existing practice to continue OCP No. 01
18.	Working at height	a) Falling from height	D/I	R	AN	Full body harness, Fall arrestor and helmet provided along with lifeline. Cordoning of area	100% use of Full body harness to be ensured Safety net to be provided Strict supervision ensured. Mock drill on fall from height to be conducted.	UL	Physical injury, Fatality	1	2	3	7	Substantial		100% use of PPE to be ensured. Tool box talk OCP No. 15

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
18.	Working at height	b) Falling due to improper scaffolding	D/I	R	AN	Inspection by supervisor	Temp. scaffolding to be cleared by Safety Officer of contractor after inspection IS code to be followed	UL	- DO -	1	2	3	7	Substantial		Temp. scaffolding to be cleared by Safety Officer of contractor after inspection OCP No. 13 & 15
		c) Falling/ tripping due to improper fixing of grillage/ chequered plate or collapse of structure	D/I	R	AN	Strict supervision is ensured Use of		HUL	Physical Injury	1	1	3	4	Moderate		Tool box talk OCP No. 15
19.	Lifting / Alignment of heavy materials	a) Falling object impact	D/I	R	AN	Fitness testing of T&P & CE done by competent authority OSD in place	Nil	HUL	Property Damage, Physical injury	1	1	3	4	Moderate		Existing practice to continue OCP No. 09 & 18
		b) Overturning of crane	D/I	R	AN	Skilled operator is provided	Ensure secured base	HUL	- DO -	1	1	2	3	Trivial		OCP No. 09 & 18
		c) Impact due to backward movement of crane	D/I	R	AN	Skilled operator & helper is provided. Use of back horn	Strict supervision to be ensured	HUL	- DO-	1	1	2	3	Trivial		OCP No. 09 & 18

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)			Risk Classification
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
19.	Lifting / Alignment of heavy materials	d) Collapse of Erected material	D/I	NR	AN	Proper anchoring done	Proper anchoring/ fixing of erected material to be ensured.	HUL	- DO-	1	1	3	4	Moderate		OCP No. 09 & 18
		e) Striking of moving object	D/I	R	AN	Escorted with rigger Safety helmets in use	Strict supervision to be ensured Barrication to be ensured	U	- DO -	1	2	2	5	Moderate		Tool box talk to be ensured OCP No.
20.	Working inside servicing area	a) Falling object impact	D/I	R	AN	Helmet provided	Nil	U	Physical injury	1	2	2	5	Moderate		OCP No. 23
		b) Head bumps	D/I	R	AN	Helmet provided with chin strap	Nil	U	- DO-	1	2	2	5	Moderate		OCP No. 23

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc + Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
20.	Working inside servicing area	c) Slips due to oil spill	D/I	R	AN	Safety shoe provided	Control of Oil Spillage	U	- DO-	1	2	2	5	Moderate		OCP No. 23
		d) Trips and falls due to poor housekeeping	D/I	R	AN	Helmet, Safety Shoe, Safety belt provided	Improvement in housekeeping Ensure proper illumination	U	Physical injury	1	2	2	5	Moderate		Ensure good House Keeping OCP No. 13 & 23
21.	Hydraulic Test	Impact due to flying object/high pressure jet	D/I	NR	AN	Helmet, Safety Shoe belt provided Cordonning done Use of signage	Strict supervision to be ensured	HUL	Property Damage, Physical injury	1	1	3	4	Moderate	IBR	Ensure usage of PPE & cordonning OCP No. 34
22.	Trial run of Rotary Equipment	a) Tripping of body parts in rotary parts	D/I	NR	AN	Casing and guard provided	Nil	HUL	Physical injury, Property Damage	1	1	3	4	Moderate		Tool box talk OCP No. 35
		b) Electric shock	D/I	NR	AN	Proper earthing of electrical drives ensured	ELCB to be ensured	HUL	Electrical burns, Fatality	1	1	3	4	Moderate		OCP No. 02
		c) Noise	D/I	NR	N	Ear muff/plug is provided	Nil	HUL	Loss of hearing	1	1	2	3	Trivial		OCP No. 35
23.	Milestone activity	Fatigue due to overstay/overtime work	D/I	NR	N		Shift duty to be ensured	UL	Ill health	1	2	2	5	Moderate		OCP No. 19 to 22 & 53 to 57

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
24.	Commissioning of electrical panel	a) Electric Shock	D/I	NR	AN	Licensed electrician with PPE is provided	Strict supervision to be ensured	UL	Physical injury, burns, Fatality	1	2	3	7	Substantial		Tool box talk OCP No. 02
		b) Flash & Fire	D/I	NR	AN	Fire extinguisher is provided in construction site and emergency Tel no. displayed	Fire drill to be arranged	HUL	Physical injury, Property damage	2	1	3	5	Moderate		OCP No. 02 & 05
25.	Excavation / Reinforcement / Erection of Scaffoldings	a) Exposure to dust	I	R	N	Nose Mask is provided	Nil	HUL	Respiratory problems,	1	1	2	3	Trivial		OCP No. 14

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
26.	Excavation / Reinforcement / Erection of Scaffoldings	b) Repetitive activity	I	R	N	Work gap measure in place	Nil	HUL	Physical stress	1	1	2	3	Trivial		Tool box talk Existing Practice to continue OCP No. 14
		c) Sliding of overburden	I	R	AN	Excavation is done as per drawing	Nil	HUL	Entrapment, asphyxiation, physical injury	1	1	3	4	Moderate		OCP No. 14
		d) Cuts due to Exposure to sharps	I	R	N	Gloves, Safety shoe used	Nil	L	Physical injury	1	3	1	4	Moderate		OCP No. 14
		e) Falling in to excavated Pit	D/I	R	AN	Signage provided and cordoning done	Nil	UL	Physical injury	1	1	3	4	Moderate		OCP No. 14
27.	Excavation by blasting	a) Exposure to dust / gases	D/I	NR	N	Nose mask provided	Nil	UL	Respiratory problems,	1	2	1	3	Trivial	LC The Explosion Act, 1884 Rules, 1983 Rules 145, 150, 152	Existing practice to continue
		b) Flying object impact	D/I	NR	AN	Helmet, Glass, Safety Shoe provided	Apron to be provided	UL	Physical injury	1	1	2	3	Trivial		Provision of apron OCP No. 14 & 46
		c) Exposure to Noise	D/I	NR	N	Ear plug/ muff provided	Nil	UL	Hearing impairment	1	2	1	3	Trivial		Practice to continue OCP No. 14 & 46

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification			
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)					
28.	Batching	a) Exposure to cement and aggregate dust	I	R	N	Usage of Nose mask and gloves	Nil	L	Respiratory problem	1	3	1	4	Moderate		Provision of mask OCP No. 36	
		b) Exposure to Noise	I	R	N		Ear plug to be provided	L	Hearing impairment	1	2	1	3	Trivial		Provision of ear plug OCP No. 36	
		c) Improper posture for Lifting & movement of construction material	I	R	AN	Work gap / rest measures in practice	Nil	HUL	Physical stress	1	1	2	3	Trivial		Tool box talk OCP No. 18 & 36	
29.	Glass work	Cuts due to handling of sharp objects	I	R	AN	Gloves provided	Use of gloves to be ensured	UL	Physical injury	1	2	2	5	Moderate		Provision of PPE	
30.	Dewatering	a) Fall from height	I	R	AN	Full body safety harness with fall arrestor provided	Nil	HUL	Physical injury	1	1	3	4	Moderate		Existing practice to continue, provision of PPE OCP No. 14	

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse- quence (C)				
31.	Roof slabs fixing	a) Falling objects impact	I	R	AN	Helmets provided	Area cording to be ensured	HUL	physical injury	1	1	3	4	Moderate		Existing practice to continue OCP 12
32.	Painting	a) Inhalation of Paint fumes	I	R	N	Nose mask provided	Masks to be ensured	UL	Respiratory Problems/ Breathing discomfort	1	2	2	5	Moderate		Provision of masks OCP No. 01
		b) Exposure to body	I	R	AN	Gloves & aprons to be provided	Gloves to be ensured	L	Skin irritation	1	3	1	4	Moderate		Provision of Gloves OCP No. 01
		c) Fall from height	I	R	AN	Full body harness with lifeline provided	Nil	UL	physical injury	1	2	2	5	Moderate		OCP No. 15
33.	Cable laying/ Tray work	a) Handling of sharp objects	I	R	N		Gloves to be ensured	UL	physical injury	1	2	2	5	Moderate		OCP No.37
		b) Fall from height	I	R	AN	Full body harness provided	Nil	HUL	physical injury	1	1	3	4	Moderate		OCP No. 15
		c) Exposure to live wire	I	R	AN	Signage provided	Nil	HUL	Electrical shock, burns	1	1	3	4	Moderate		OCP No. 02
34.	Transformer charging	Exposure to live wire	D	R	AN	Signage provided. Cordoning done	Earthing to be ensured	HUL	Electrical shock, burns, fatal	1	1	4	5	Moderate		OCP No. 02 & 47

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
35.	Testing (HV, ELCID, loop etc.)	Exposure to live wire	D	R	AN	Signage provided. Cordoning done	Earthing to be ensured	HUL	Electrical burns, fatal	1	1	4	5	Moderate		OCP No. 02
36.	Electrical commissioning	a) Sparks	D	R	AN	Competent persons are allowed, PPE provided.	Nil	HUL	Electrical shock, burn	1	1	2	3	Moderate		OCP No. 02
		b) Fall from height	D	R	AN	Competent persons are allowed, Full body safety harness and other PPE provided.	Nil	UL	Electrical shock, burn	1	2	4	9	Substantial		OCP No.15
		c) Exposure to live wire	D	R	AN	Competent persons are allowed, Protected place, Cordoning done	Earthing to be ensured	HUL	Electrical burns, fatal	1	1	4	5	Moderate		OCP No. 02
		d) Fire	D	R	E	Fire fighting equipment provided Emergency contact no displayed		HUL	Extensive property damage, fatality	2	1	3	5	Moderate		OCP No. 05

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
37.	Battery Systems	a) Exposure to fumes and gases	I	R	AN	Nose mask provided	Nil	UL	Respiratory Problems/ Breathing discomfort	1	2	2	5	Moderate		Tool box talk OCP No. 48
		b) Acid splash	I	NR	AN	Hand gloves & goggles provided	Nil	UL	Acid burns	1	2	2	5	Moderate		OCP No. 48
38.	Spray insulation	Exposure To Dust	I	R	AN	Mask provided at the time of operation	Nil	UL	Respiratory Problems/ Breathing discomfort	2	2	2	6	Moderate	Chronic	OCP No. 38
39.	Chemical cleaning/ handling	a) Exposure to acid / alkali fumes	D/I	R	AN	Usage of mask	Usage of mask	UL	Respiratory Problems/ Breathing discomfort	1	2	2	5	Moderate		OCP No. 20, 21, 53 & 54
		b) Spillage	I	NR	AN	Use of hand gloves & safety shoes	Treatment of spilled acid	UL	Skin irritation	1	2	2	5	Moderate		OCP No. 01
40.	Compressor operations	Exposure to noise	D/I	R	AN	Ear plugs are used	100% usage to be ensured.	UL	Hearing Impairment	1	2	2	5	Moderate		Noise level to be checked OCP No. 39
41.	DG set operation	Exposure to noise	D/I	R	AN	Silencer of DG set Use of ear plug	Enclosure to be made	UL	Hearing Impairment	2	2	2	6	Moderate		OCP No. 49

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
42.	Operation of central AC plants	a) Exposure to noise	D/I	R	N	Ear plugs are provided	Nil	UL	Hearing Impairment	2	2	2	6	Moderate		PPE to be provided. OCP No. 43
		b) Exposure to virus	D/I	NR	AN	Periodic cleaning of ducts during holidays	Nil	UL	Diseases, illness	2	2	2	6	Moderate		PPE to be provided OCP No. 43
43	Bar Bending	Flying Object Impact	I	R	AN	Trained bar benders used Use of PPE	Supervision required	HUL	Physical injury, property damage	1	1	2	3	Trivial		Existing practice to be continued
44	Lighting maintenance	Exposure to electrical shocks	I	R	AN	Licensed electrician only Use of PPE	Contractor supervisor to ensure safety Use of ELCB to be ensured	UL	Body injury	1	2	2	5	Moderate		Strict supervision to be ensured OCP No. 02 & 42
45.	Electrical maintenance (220/440 V)	Exposure to electrical shock due to live wire	I	R	N	Licensed electrician only Use of PPE	Strict supervision to be ensured	HUL	Electrical shock	1	1	3	1	Moderate	LC The Electricity Act-2003.	Tool box talk OCP No.02 &42

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse- quence (C)				
46.	Overhead tank maintenance	Exposure to confined space	I	NR	AN	Manhole kept open.	Nil	UL	Contact of skin with fungii , algea	1	1	1	2	Trivial		Thorough washing with soap after cleaning operation. OCP No.23
47.	Cleaning of floors	Slippage due to wet surface	I	R	N	Operation carried out before or after business hours	Nil	HUL	Injury, Property damage	1	1	1	2	Trivial		Existing practice to continue OCP No. 13
48.	Sanitary maintenance	Spread of microbial infections due to unhygienic condition/ improper upkeep/ cleaning schedules	I	NR	AN	Proper PPE is used	Periodic cleaning with schedule to be maintained.	UL	Microbial infection	2	2	2	6	Moderate		OCP No. 13 & 50

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
49.	Maintenance of Air conditioning system	Microbial infection due to improper cleaning of AC duct	D/I	NR	AN	Periodic cleaning of AC filters done	Periodic cleaning schedule to be maintained	HUL	Microbial infection	3	1	2	5	Moderate		Instruction to be given for periodic maintenc OCP No. 43
50.	Cooking / Canteen facility	a) Fire due to Leakage of LPG	D/I	NR	E	Ventilation ensured Fire extinguisher provided Emergency contact no displayed	Mock drill to be done	HUL	Injury, property damage, Fatality	2	1	4	6	Moderate	LC Rule 15 of the Gas Cylinders Act, 1981	Strict adherence of safety precautions. OCP No.13
51.	Cooking / Canteen facility	b) Fire due to short circuit of cooking appliances	D/I	NR	E	Proper fittings and appliances used Licensed electrician is used	Periodic checking of live wires ELCB to be used	UL	Electric shock, injury	1	2	2	5	Moderate		OCP No.05
		c) Sickness due to unhygienic food	D/I	NR	E	Proper housekeepig, Waste disposal ensured and use of potable water	Nil	UL	Sickness	3	1	2	5	Moderate		Periodic checking required. OCP No.08

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)			Risk Classification
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
52	Driving of vehicles	Road Accidents	D/I	NR	AN/ E	Procedure exists for driving authorized vehicles Driver's license validity ensured Speed limit displayed	Adherence to usage of safety belts / fire extinguishers .	HUL	Physical injury, property damage	1	1	3	4	Moderate	LC Chapter 5, The Central Motor Vehicle Act, 1989	OCP for passenger vehicle safety measure OCP No.25
53.	Brazing	a) Emission of fumes and Gases	I	R	AN	Respiratory mask provided	100% use of PPE to be ensured	UL	Irritation of eye and throat Respiratory trouble on long term exposure	1	2	2	5	Moderate	Chronic	OCP No.11

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse- quence (C)				
54.	Brazing	b) Exposure to radiation and light	I	R	N	Face shield in use	100% use of PPE to be ensured	HUL	Eye injury	1	1	3	4	Moderate		Existing practice to continue with strict supervision
		c) Spatters	I	R	N	Apron and gloves in use	100% use of aprons required	U	Skin burn	1	2	1	3	Trivial		100% use of PPE to be ensured
		d) Fire	I	R	AN	Fire extinguisher is provided in construction site and Emergency Tel no displayed	Fire fighting training required. Appropriate fire extinguisher in sufficient no.	UL	Burns, Property damage	1	2	2	5	Moderate	DC,LC Rule 15, 16 of The Gas cylinders Act, 1981	OCP-04 & 05

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Reviewed and Approved by:

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RISK IDENTIFICATION										RISK ASSESSMENT				Over riding factors (LC / DC/ Any Other)	Risk Control Measures	
AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)			Risk Classification
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence			Likelihood (L)		Level of Consequence (C)		
55.	Handling and Storage of Packaging Materials	Fire due to wooden materials	D/I	R	N	Wooden and other packaging materials shifted regularly to scrap yard	Fire extinguisher to be kept at temporary and main scrap disposal area	UL	Property damage and injury	2	2	2	6	Moderate	DC	Fire extinguishers are kept OCP No.05
56.	Handling and Storage of Packaging Materials	Cuts due to sharp corners and bare nails	D/I	R	N	Floor is cleaned and scraps are disposed of regularly	Nil	UL	Injury	1	2	1	3	Trivial		OCP-18
57.	Material Preservation	a) Fire from plastic / tarpaulin, paints, solvents, grease etc.	D/I	R	N	Restricted area signage provided. Fire extinguishers kept.	Nil	UL	Injury, Property damage	2	1	3	5	Moderate		OCP No.05 & 44
		b) Skin irritation due to paints, grease and solvents	I	R	N	Hand gloves used.	Nil	UL	Skin disease due to prolong exposure	1	1	2	3	Trivial		PPE to be provided

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
58.	General Office Work	a) improper illumination at the work place	D	R	AN	Proper illumination is used	Nil	UL	Eye strain, headache etc.	1	2	1	3	Trivial	LC The Factory Act, 1948.	OCP No.17
		b) Body ache due to unergonomical sitting arrangements	D	R	AN	Ergonomically designed furniture is in use	100% use to be ensured	UL	Body ache and strain on the backbone	1	2	2	5	Moderate		Existing practice to continue
		c) Improper Ventilation	D	R	AN	Centralized AC system is used in the office	Nil	UL	Fatigue, uncomfortable working environment	1	1	2	3	Trivial		Existing practice to continue
59	Usage of Water for drinking	Impure water	D/I	NR	AN	Water purifiers are used	Periodic water quality check to be carried out	HUL	Bad health	3	1	1	4	Moderate		Existing practice to continue

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse quence (C)				
60	Usage of Electrical Appliances (Refrigerators, AC etc.)	a) Electrical shock	D	R	AN	Electrical connection is done through licensed electrician. Proper earthing of electrical drives ensured	ELCB to be used	HUL	Electrical burns, Fatality	1	1	2	3	Trivial		OCP No. 02
		b) Flash & Fire	D	R	AN	Regular checks are carried out, Fire extinguishers are kept.	Nil	HUL	physical injury, Property damage	2	1	3	5	Moderate		OCP No.02 & 05
		c) Leakage of Refrigerants (Freon etc.)	D	R	AN	Normal AC maintenance in place	Nil	HUL	Bad odour	2	1	1	3	Trivial		OCP No.43

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse- quence (C)				
61	Handling and Storage of chemicals	a) Slippage due to oil	I	NR	AN	Floor area is kept clean	Nil	UL	Physical Injury	2	2	1	4	Moderate		Tool box talk OCP No.01
		b) Contact of chemical with the body	I	NR	AN	Gloves & Aprons are used First aid facility provided	Display of MSDS to be ensured	UL	Chemical burns, Skin irritation	1	2	2	5	Moderate	LC Rule 4 of Manu., Storage & import of Hazardous Chemicals Rules, 1989.	OCP No.01
		c) Fire/Explosion	I	NR	E	Fire extinguishers are kept near the storage area.	Training to be imparted for fighting the chemical fire	HUL	Property damage and loss of life	2	1	3	5	Moderate		OCP No.01 & 05

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc + Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
62.	HEMM/Crane Operation	a) Falling object impact	D/I	R	AN	Fitness testing of cranes and slings done by competent authority. OSD in place	Nil	HUL	Property Damage, Physical injury	1	1	3	4	Moderate		OCP No.09
		b) Impact due to moving object	D/I	R	AN	Escorted with rigger. Hand gloves are in use	100% use to be ensured	UL	Property Damage, Physical injury	1	2	1	3	Trivial		OCP No.09
		c) Exposure to dust	I	R	N	Nose masks are used	100% usage to be ensured	UL	Breathing problems	2	2	1	4	Moderate		OCP No.09
63.	Piling Rig Operation	a) Noise due to Rigging operation	D/I	R	N	Ear plugs are used	100% use to be ensured	UL	Hearing Impairment	2	2	2	6	Moderate		OCP No. 51
		b) Fall from Rig to Excavated pit	D/I	R	AN	Competent operator is used	Strict supervision to be ensured	UL	Physical injury	1	2	2	5	Moderate		OCP No. 15
64.	Lift/Cage Operation	Fall from height	I	R	AN	Proper support are provided	Regular inspection of cage to be ensured	UL	Fatal injury, impairment	1	2	2	5	Moderate		OCP No.15 & 24

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse-quence (C)				
65	Concrete / Mortar Mixing	a) Exposure to cement dust	I	R	AN	Nose mask, gloves and eye shields are provided	100% use to be ensured	UL	respiratory problems if exposed for longer duration	1	2	2	5	Moderate		Existing practice to be continued OCP No. 36
		b) Exposure to noise	D/I	R	N	Ear plug is provided if noise is more		L	Hearing impairment	1	2	1	3	Trivial		Provision of ear plug
66.	Concreting/Gro uting	Spillage of Mortar	I	R	N	Helmets are in use		UL	may cause injury	1	2	1	3	Trivial		OCP No.12
67.	Stacking and removal of overburden	a) Exposure to dust	I	R	N	Apron , nose mask and goggles	Nil	UL	Respiratory problems if exposed for longer duration	1	2	2	5	Moderate		Existing practice to be continued
		b) Exposure to noise	I	R	N		Ear plug to be provided if noise is more	L	Hearing impairment	1	2	1	3	Trivial		Provision of ear plug

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse- quence (C)				
68.	Carpentry	a) Exposure to Saw dust	I	R	N	Nose masks are used	100% usage to be insured	UL	Breathing problems	2	2	1	4	Moderate		Existing practice to be continued
		b) Cuts due to sharp edges	I	R	AN	Hand gloves are used	100% usage to be insured	UL	Physical injury	1	2	2	5	Moderate		OCP No.07
69.	Handling and Storage of Cement	a) Exposure to cement dust	I	R	N	Nose masks are used	100% usage to be insured	UL	Breathing problems	2	2	1	4	Moderate		Existing practice to be continued
		b) Impact of falling cement bags	I	R	AN	cement bags are stacked properly	Nil	HUL	Physical injury	1	1	2	3	Trivial		Existing practice to be continued
70.	Concrete Vibrator operation	a)Exposure to noise	D/I	R	N		Ear plug to be provided	L	Hearing impairment	1	3	1	4	Trivial		Provision of ear plug OCP No. 51
		b) Fatigue in body	I	R	AN		Shift duty to be ensured	UL	CTD	1	2	2	5	Moderate	Chronic	Tool box talk

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likeli-hood (L)	Level of Conse- quence (C)				
71.	Earth Filling Operations	Exposure to dust	I	R	N	Nose masks are used	100% usage to be insured	UL	Breathing problems	2	2	1	4	Moderate		Existing practice to be continued
72.	Oil Filling	Slip/Fall due to Fuel and oil spillage	I	R	AN	Floor area is kept clean	Nil	HUL	physical injury	1	1	2	3	Trivial		Existing practice to be continued OCP No.07
73.	Removal of Oil After Flushing	Slip/Fall due to Fuel/oil spillage	I	R	AN	Floor area is kept clean	Nil	HUL	physical injury	1	1	2	3	Trivial		OCP No. 20
74.	Oil Filtration	Slip/Fall due to Fuel/oil spillage	I	R	AN	Floor area is kept clean	Nil	HUL	physical injury	1	1	2	3	Trivial		Existing practice to be continued
75.	Handling and Storage of Oil	a) Slip/Fall due to Fuel/oil spillage	I	R	AN	Floor area is kept clean	Nil	HUL	physical injury	1	1	2	3	Trivial	LC Rule 4 of Manu., Storage & import of Hazardous Chemicals Rules, 1989.	OCP No.01
		b) Fire	D/I	R	AN/ E	Fire extinguishers are kept near the storage area Emergency contact no. to be displayed	Mock drill to be ensured	UL	Physical injury, Property damage	2	2	3	8	Substantial		Existing practice to be continued EPRP OCP No.05

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AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)	Risk Classification		
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				
76	Acid Cleaning	Exposure to acid fumes	D/I	R	AN	Aprons and gloves are used. Floor area is kept clean	Training to be given for proper handling of acids	HUL	Skin Burns,	1	1	3	4	Moderate	LC Rule 4 of Manu., Storage & import of Hazardous Chemicals Rules, 1989.	OCP No. 07 & 19
77.	Storage of Food Items	Old food stock	I	R	AN	Food stock is checked periodically and old stock is discarded.	NIL	HUL	Food poisoning	3	1	2	5	Moderate		OCP No. 08
78.	Shot Blasting	Exposure to dust and shots	I	R	N	Shot Blasting Apron, Gloves, nose mask and goggles	Cordoning of area	UL	Breathing problem, eye irritation	1	2	2	5	Moderate		

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ANNEXURE – III#

LIST OF NON-TOLERABLE OHS HAZARDS

Sl.No.	ACTIVITY	OHS HAZARD
1	Material Handling by Crane/ Winch	Falling object impact
2	Gas cutting	Fire/ Explosion
3	Radiography	Exposure to ionic radiation
4	Working at height	Falling from height
5	Working at height	Falling due to improper scaffolding
6	Commissioning of electrical panel	Electric Shock
7	Mineral Wool Insulation	Exposure to mineral wool dust
8	Working in confined areas (Boiler, ESP, Tanks etc.)	Exposure to deficient oxygen/ toxic fumes/gases
9	Handling and Storage of Oil	Fire



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RECORD OF REVISION

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All	00	New HSEMS for Power Sector	10-01-2018

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Format I: IDENTIFICATION OF OHS HAZARDS AND RISK / RISK ASSESSMENT / RISK MANAGEMENT MEASURE

RISK IDENTIFICATION										RISK ASSESSMENT				Over riding factors (LC / DC/ Any Other)	Risk Control Measures	
AIN	Activity	Hazard	Condition			Adequacy Measure		Risk		Scale (Sc)	Severity (Se = LXC)		Total (Sc+ Se)			Risk Classification
			D/I	R/ NR	N / AN / E	Existing	Gaps, if any	Likelihood	Consequence		Likelihood (L)	Level of Consequence (C)				

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FORMAT II: FEASIBILITY ANALYSIS OF NON-TOLERABLE OHS HAZARDS & RISKS

Sl. No	Activity / product / Service	OHS Hazard	Non-Tolerable OHS risk	Hazard Management Measures Required to				Operational Feasibility	Economic Viability	Elimination / Reduction / Control	Ref. Doc
				Eliminate or Reduce			Control				
				Technology	Physical Improvements	Feasibility Study	Technique / Training				

- | | |
|----------------------|--|
| Technology | - Whether new technology or modification in the present technology required |
| Physical improvement | - Whether new physical construction or modification in the present physical condition required |
| Feasibility study | - Whether feasibility study is required to identify the possible solution |

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Operational feasibility - Whether proposed measure shall be operationally feasible
Economic viability - Whether proposed measure shall be economical viable

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