Annex-ESMS: 3-1: Summary of EHS Regulations

A summary of the key environmental and occupational health and safety regulations have been provided in this Annexure, indicating its application to ERMPL's business focus areas. The applicability of the regulations to the projects / businesses will be assessed on a routine basis to ensure that the regulatory changes as well as new regulations are factored for the business operations of ERMPL.

Part A: Environmental Regulations

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Link
1.	EIA Notification, 2006 and subsequent amendments	**Pre-construction Phase** • Obtain Prior-Environmental Clearance (EC) as per requirements under the EIA Notification 2006 **Construction & Operation and Maintenance Phase** • Compliance to conditions of the EC • Submit six monthly compliance reports against the stipulated prior environmental clearance conditions. Compliance reports to be submitted on 1st June and 1st December of each calendar year.	• Punishable with imprisonment for a term up to 5 years or fine of INR 1 lakh or both • Additional fine of INR 5000/- for every day during which failure continues. • If failure continues beyond a year of date of conviction, then offender may be imprisoned for up to 7 years	http://environmentclearance.nic.in/View.aspx?rid=13
2.	The Environment (Protection) Act, 1986 And Amendment Rules, 2017	**Operation and Maintenance Phase** • Submit 'Environmental Statement' in Form V to the State Pollution Control Board or Pollution Control Committee prior to 30th September for previous FY.	• Imprisonment for a term of upto five years or fine of INR one lakh or both	http://moef.gov.in/en/rules-and-regulations/environment-protection/
3.	Water (Prevention and Control of Pollution) Act, 1974 and amendments thereof	**Pre-construction and Construction Phase** • Obtain Consent to Establish (CtE) before commencement of construction from State	• Imprisonment of one year and six months that may extend to six years and with fine.	https://cpcb.nic.in/water-pollution/

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Link
		Pollution Control Board (SPCB) or Pollution Control Committee (PCC) • Compliance to Consent Conditions. • Conduct monitoring of ambient air quality, stack emissions, wastewater.	• Imprisonment of three months or fine of INR 10,000/- or both (in case of accidental release)	
4.	Air (Prevention and Control of Pollution) Act, 1981 and amendments thereof	**Operation and Maintenance Phase** • Obtain Consent to Operate (CtO) before commissioning from State Pollution Control Board (SPCB) or Pollution Control Committee (PCC). • Compliance to Consent Conditions. • Conduct monitoring of ambient air quality, stack emissions, wastewater. • Where applicable, install online monitoring systems. • Renew of CtO before the period stipulated in Consent Order.	• Imprisonment of one year and six months that may extend to six years and with fine. • Imprisonment of three months or fine of INR 10,000/- or both (in case of accidental release)	https://cpcb.nic.in/air-pollution/
5.	Solid Waste Management Rules, 2016	**Pre-Construction Phase** • Design and set up the facility as per the technical guidelines issued by the Central Pollution Control Board in this regard from time to time and the manual on solid waste management prepared by the Ministry of Urban Development. **Construction & Operation and Maintenance Phase** **Duties of Waste Operating Facility** • Obtain authorization under SWM Rules, 2016 from State Pollution Control Board or Pollution	• Imprisonment for a term of upto five years or fine of INR one lakh or both u/s 15 of EPA	https://cpcb.nic.in/uploads/MSW/SWM_2016.pdf

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Link
		Control Committee to Operate the solid waste processing facility as per Form I. • Submit annual report in Form III each year by 30th April to the concerned local body. • Accident at Solid Waste processing or treatment or disposal facility shall be reported to Local Authority in Form VI. **Duties of Waste Generator** • Segregated storage and periodic disposal as per requirements under the Rules and Municipal Authorities / Local authority • No waste generator shall throw, burn or burry the solid waste generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.		
6.	Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	**Construction & Operation and Maintenance Phase** • Maintain records of hazardous waste storage as per Format in Form-3 • Submit Annual Returns to SPCB or PCC in Form 4 by 30 June for the previous financial year • Hazardous waste not to be stored for more than 90 days without written approval from SPCB. • Hazardous & other waste to be packaged in a manner suitable for safe handling, storage and transport Labelling to be carried out as per Form 8 • Occupier to provide transporter with relevant information in Form 9 regarding hazardous	• Imprisonment for a term of up to five years or fine of INR one lakh or both u/s 15 of EPA • Copy of Form 3 and corresponding date of disposal in Form 10. • Dated photograph of storage area • Copy of Form 9 • White, Yellow and Blue copy of the manifest	https://cpcb.nic.in/hazardous-waste-rules/

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Link

		nature of waste & measures to be taken in case of emergency
		• "Prepare seven copies of manifest, duly signed in Form 10 as per the colour code given in the said Rule
		  ○ White copy to be sent to SPCB or PCC by occupier
		  ○ Yellow copy to be retained by occupier
		  ○ Copies 3 to 7 to be submitted to transporter
		  ○ Occupier to receive blue copy from the operator of the facility after treatment of the hazardous waste"
		• Accident related to hazardous waste to be communicated to State Pollution Control Board or Pollution Control Committee in Form 11
		Operation and Maintenance Phase (additional to those mentioned above)
		• Obtaining authorization under Hazardous Waste Rules 2016.
		• Compliance to conditions of the authorization
		• Apply for renewal of authorization, 3 months before expiry in Form 1		

7.	Construction and Demolition Waste Management Rules, 2016	**Pre-construction Phase (for waste processing & recycling facility)** • The site for storage and processing or **recycling facilities** for construction and demolition waste shall be selected as per the criteria given in Schedule I.	• Imprisonment for a term of upto five years or fine of INR one lakh or both u/s 15 of EPA	https://cpcb.nic.in/displaypdf.php?id=d2FzdGUvQyZEX3J1bGVzXzIwMTYucGRm

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Link
		Construction Phase (for waste generator) • Dispose construction and demolition waste generated from construction and expansion activities as per directions of the Local authority • Obtain an No Objection Certificate from local body (as applicable) • Develop C&D waste disposal plan (if required) **Operation & Maintenance Phase (for waste processing & recycling facility)** • Obtain Authorization under C&D Waste Management Rules, 2016 from State Pollution Control Board or Pollution Control Committee to Operate the construction and demolition waste processing facility. • Submit 'Annual Report' in Form II to the State Pollution Control Board. • Accident during C&D Waste processing or treatment or disposal facility shall be reported to Local Authority in Form V.		
8.	E-Waste (Management) Rules 2016	**Construction & Operation and Maintenance Phase** • Disposal of E-Waste to an authorised collection center / dealer of authorized producer / dismantler or recycler or through the designated take back service provider • Consumer/Bulk consumers to maintain records of e-waste generated in Form 2 • Submit Annual Returns to SPCB or PCC in Form 3 by 30 June for the previous financial year	• Imprisonment for a term of upto five years or fine of INR one lakh or both • Copy of Form 2 & Form 3 • Records in Form 2 on date of generation and copy of receipt of sale/ disposal date of e-waste	https://cpcb.nic.in/e-waste-rules/

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Link
		• Consumer/Bulk consumer to store E-Waste for not more than 180 days.		
9.	Environmental Protection Second Amendment Rules 2002 (DG Set) & 2004	**Construction & Operation and Maintenance Phase** • Noise limit has been set for diesel generator sets (up to 1000 KVA) and emission limits for new diesel engines (up to 800 KW) for generator sets has been mentioned. • Valid certificates of type approval and certificates of conformity of production for each year. • "The minimum height of stack to be provided with each diesel generator set can be worked out using the following formula: H = h+0.2x (KVA)^0.5 H = Total height of stack (in metre) h = Height of the building (in metres) where the generator set is installed KVA = Rating of DG set in KVA • For DG Sets of following capacity, stack heights will be as follows: ○ 50 kVA : Ht. of the building + 1.5 m ○ 50-100 kVA : Ht. of the building + 2.0 m ○ 100-150 kVA : Ht. of the building + 2.5 m ○ 150-200 kVA : Ht. of the building + 3.0 m ○ 200-250 kVA : Ht. of the building + 3.5 m ○ 250-300 kVA : Ht. of the building + 3.5 m	• Imprisonment for a term of upto five years or fine of INR one lakh or both • Dated photographs of the DG set with stack	http://wgbis.ces.iisc.ernet.in/biodiversity/Environ_sys/legis/environ4.htm

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Link
10.	The Noise Pollution (Regulation and Control) Rules, 2000	**Construction & Operation and Maintenance Phase** • Monitor ambient noise levels at regular intervals to ascertain operations are within permissible limits. • Adopt measures to control and mitigate noise levels from construction equipment and activities.	• Imprisonment for a term of upto five years or fine of INR one lakh or both u/s 15 of EPA	https://cpcb.nic.in/noise-pollution/
11.	Central Ground Water Authority's Guidelines to regulate and control Ground Water Extraction in India, 2020 State Groundwater Rules	**Construction & Operation and Maintenance Phase** • Permission / No Objection Certificate (NOC) to dig and use borewell from State Ground Water Authority/ Board or Local authority • Pay Water Conservation Fee based on quantum of ground water extraction • Compliance to conditions of the Permission or NOC • Installation of digital water meters and record consumption.	• Imprisonment for a term of upto five years or fine of INR one lakh or both u/s 15 of EPA	http://cgwa-noc.gov.in/LandingPage/Guidelines.htm
12.	The Batteries (Management & Handling) Rules, 2001 as amended in 2010	**Operation and Maintenance Phase** • Deposit used batteries with the dealer, manufacturer, importer, assembler, registered recycler, re-conditioner or at the designated collection centres. • Submit half yearly return in Form VIII of the Rules	• Imprisonment for a term of upto five years or fine of INR one lakh or both u/s 15 of EPA	https://cpcb.nic.in/rules-5/

Part B: Occupational, Health & Safety Regulations

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
1.	Factories Act 1948 and State Factories Rules	**Pre-construction and Construction Phase** • Approval required for factories plan through the online Form 1 from Directorate of Industrial Safety Health for the 'proposed' layout. • The Occupier of every factory, shall at least fifteen days before commencing any manufacturing process in any factory apply an application for the registration of the factory and for grant of the licence in the prescribed Form No.2 **Operation and Maintenance Phase** • Obtain Factories license from the Chief Inspector of Factories • Obtaining Approved factory plan/layout from Directorate of Industrial Safety Health for the 'in use' layout. • Compliance to provisions of State Factories Rules. • Submit Annual Returns to the Chief Inspector of Factories by 31 January for the previous calendar year • In any factory all parts including the working gear, whether fixed or movable, of every lifting machine and every chain, rope or lifting tackle shall be o of good construction, sound material and adequate strength and free from defects o properly maintained o thoroughly examined by a competent person at least once in every period of twelve	• Punishable with imprisonment for a term of two years or with fine of INR 1 lakh or both	https://labour.gov.in/industrial-safety-health

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		months, or at such intervals as the Chief Inspector may specify in writing ○ A register shall be kept containing the prescribed particulars of every such examination. ○ No lifting machine and no chain, rope or lifting tackle shall, except for the purpose of test, be loaded beyond the safe working load which shall be plainly marked • Particulars of examination shall be entered in a register in the prescribed in Form No. 38 under Rule 55-A. • In every factory, all practicable measures shall be taken to prevent outbreak of fire and its spread, both internally and externally, and to provide and maintain ○ -safe means of escape for all persons in the event of a fire ○ -the necessary equipment and facilities for extinguishing fire ○ Effective measures shall be taken to ensure that in every factory all the workers are familiar with the means of escape in case of fire and have been adequately trained in the routine to be followed in such cases • All personal protective equipment provided to workers as required under any of the provisions of the Act/State Rules. • Factory classified as 'Dangerous Operations' if it fulfils the any one of the items listed in Rule 95.		

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		• No child who has not completed his fourteenth year shall be required or allowed to work in any factory. • Occupier of every factory shall prepare a written statement of his policy in respect of health and safety of workers at work.		
2.	State Fire Safety Regulations	**Construction Phase** • Obtain provisional fire safety certificate from the Municipal Authority/ Local Bodies or Fire No Objection Certificate (NOC) from Local Fire Department **Operation and Maintenance Phase** • Obtain final fire safety certificate from the Municipal Authority/ Local Bodies or Fire No Objection Certificate (NOC) from Local Fire Department	• State specific for instance, in Maharashtra it is punishable with imprisonment for a term less than 6 months but may extend to 3 years with a fine not less than INR 20,000 but may extend to INR 50,000.	https://dgfscdhg.gov.in/national-building-code-india-fire-and-life-safety For pdf http://www.fireandsafetyequipments.com/wp-content/uploads/2018/09/NBC2016-Part-IV.pdf
3.	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 And respective state Rules	**Construction Phase** • Registration with Labor Department within a period of sixty days from the date on which this Act becomes applicable to such establishment, (for recording maximum number of workers to be present at site during construction) • Registration of workers as beneficiaries ○ Every building worker who has completed eighteen years of age, but has not completed sixty years of age, and who has been engaged in any building or other construction work for not less than ninety days during the preceding twelve months shall be eligible for registration as a beneficiary under this Act.	• Punishable with imprisonment for a term upto three months, or with fine upto two thousand rupees, or with both.	https://clc.gov.in/clc/acts-rules/building-and-other-construction-workers

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		○ An application for registration shall be made in such form, as may be prescribed, to the officer authorised by the Board in this behalf. ○ Every application under sub-section (2) shall be accompanied by such documents together with such fee not exceeding fifty rupees as may be prescribed. ○ If the officer authorised by the Board under sub-section, he shall register the name of the building worker as a beneficiary under this Act: ○ Provided that an application for registration shall not be rejected without giving the applicant an opportunity of being heard. ○ Any person aggrieved by the decision under sub-section may, within thirty days from the date of such decision, prefer an appeal to the Secretary of the Board or any other officer specified by the Board in this behalf and the decision of tile Secretary or such other officer on such appeal shall be final. ○ The Secretary of the Board shall cause to maintain such registers as may be prescribed. • Engagement of Contractor registered with the Labour Department • Ensure that Contractor employs measures on worker health and safety during construction ○ Fix number of hours of work for normal working day ○ Wages for overtime work – any worker working overtime shall be entitled to wages		

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		at the rate of twice his ordinary rate of wages. ○ Maintenance of registers (in & out details) and records ○ Prohibition of worker who is deaf or has defective vision to be employed in building ○ Availability of wholesome drinking water for workers ○ Sufficient availability of urinals that are accessible ○ Employer to provide free of charge temporary living accommodation near the building for the workers ○ In case there are 50 female workers employed, there should be creches provided that are adequately lit and ventilated, maintained in a clean and sanitary condition. ○ First aid to be provided to workers ○ Maintain a Canteen where 200 or 50 building workers are employed.		
4.	Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010	**Construction & Operation and Maintenance Phase** • Compliance to General Safety Procedures/ Practices specified in the Regulation for electrical installations. • For every electrical installation including factory registered under the Factories Act, 1948 (63 of 1948) where more than 250 kW of electrical load is connected, the owner of the installation or the management of the factory shall designate a competent Electrical Safety Officer. • The owner of every installation of voltage exceeding 250 V shall affix permanently in a conspicuous position a danger notice in Hindi or	• As determined by Electricity Board	https://cea.nic.in/old/safety_regulations.html

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		English and the local language of the District, with a sign of skull and bones of a design as per IS - 2551. • Approval from Electrical Inspector for operation of generating unit >10KW • All earthling systems to be tested for resistance during the dry season once every year. • Periodic inspection of LT/HT installation - at least once in five years • Fire buckets filled with clean dry sand, ready for immediate use for extinguishing fires, in addition to fire extinguishers suitable for dealing with electric fires to be kept at site • The neutral point of every generator and transformer shall be earthed by connecting it to the earthing system not by less than two separate and distinct connections		
5.	National Building Code 2016	**Construction & Operation and Maintenance Phase** • Building Occupancy Certificate • Structural Stability assessments • Life and Fire safety installations	• The penalty may be in the form of collection of arrears of tax	https://archive.org/details/nationalbuilding01/in.gov.nbc.2016.vol1.digital/page/n5/mode/2up
6.	Central Motor Vehicle Rules 1989 amended up to 2016	**Construction Phase** • Construction equipment and transport vehicles (owned or hired) should possess valid driver's license; registration, permit for transportation, fitness certificate, and insurance **Construction & Operation and Maintenance Phase** • Driver to obtain a driving license authorizing him to drive the vehicle	• Punishable with imprisonment for three months, or with fine of INR 5,000, or both (driving license) • Punishable with fine of INR 1,500/- • If accident occurs imprisonment for three months, or fine of INR 5,000/- or both (valid registration)	https://morth.nic.in/central-motor-vehicles-rules-1989-1

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		• Owner to obtain Certificate of Registration for the vehicle • For valid registration, a transport vehicle should have a Certificate of Fitness • Owner to obtain insurance policy for the vehicle		
7.	Gas Cylinder Rules 2004	**Construction & Operation and Maintenance Phase** • Obtain approval for storage of gas cylinders as per thresholds provided in the Rules For e.g., **Form G** to be filled to obtain license for compressed biogas/natural gas. ○ Cylinders containing obnoxious or poisonous gases including Chlorine shall not be provided with any safety device. ○ Every cylinder containing compressed gas shall have its valve securely closed so as to prevent leakage. Valves fitted to the cylinders containing liquefied petroleum gas and highly toxic gases like Chloride shall be provided with security plug on the outlet to act as a secondary means of safeguard against leakage of gas. ○ Welded cylinders shall not be used for filling any permanent or high-pressure liquefiable gas like Chlorine. ○ No cylinder which has once been used for storage and transportation of Compressed Biogas, shall be used for filling with any other gas except mixture of these gases with inert gases	• License fee doubled if application not received in time as specified in rules.	https://peso.gov.in/web/gas-cylinder-rules-2016

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		○ Cylinder degassing and valve opening platform of size minimum 3x3 m having arrangement of water and cold flaring. The cold flaring shall be done through a vent stack of height not less than 6.0 meters. • License granted by Chief Controller • Record of cylinders • Renewal of license		
8.	Petroleum Act 1934 amended up to 2002	**Construction & Operation and Maintenance Phase** • Obtain license for storage of petroleum as per thresholds provided in the Act • Firefighting installation approved by CCoE [u/r 117 (4)(ii)]	• Punishable by imprisonment up to 1 month and fine of Rs 1000 or both.	https://peso.gov.in/web/petroleum-rules-2002
9.	Indian Boilers Act, 1923 amended upto 2007	**Operation and Maintenance Phase** • Certificate for use of Boiler from the State Boiler Inspection Certificate • Hydraulic testing of boiler tested by a competent person	• Punishable with fine of INR 500/-	https://dipp.gov.in/policies-rules-and-acts/acts
10.	Static and Mobile Pressure Vessel Rules 1981	**Operation and Maintenance Phase** • The vessel shall contain the following fittings: ○ pressure relief ○ shut-off and emergency shut-off valves ○ liquid level gauging device ○ pressure gauge • All pressure vessels such as compressor and air receiver etc. shall be hydraulically tested by a competent person at a pressure marked on the vessel in an interval of 5 years.	• As determined by Chief Controller of Explosives	https://dipp.gov.in/sites/default/files/SMPV_Notification_03May2018.pdf

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		• Vessels to be stored in accordance to distances specified under the Rule. • Electrical wires shall not pass over any storage vessel. Electrical wires installed within safety zone shall be insulated cables of approved type.		

Annex-ESMS: 3-1: Part C - Summary of Social, Worker and Labour Regulations

A summary of the labour / social welfare (EHSS) regulations has been provided in this Annexure, indicating its application to ERMPL's investment focus areas.

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
1.	The Contract Labour (Regulation and Abolition) Act, 1970 and Contract Labour (Regulation & Abolition) Central Rules, 1971	**Construction & Operation and Maintenance Phase** • Every establishment in which twenty or more workmen or every contractor who employs or who employed on any day of the preceding twelve months twenty or more workmen shall make an application to the registering officer in the prescribed manner for registration of the establishment. • Obtain certificate of registration for employing Contract Labour from the office of the Labour Commissioner or relevant State Authority. • Comply with the applicable conditions • "If any amenity required to be provided is not provided by the contractor within the time prescribed under the Act, such amenity shall be provided by the principal employer. These include - canteen, restroom, drinking water, urinals/toilets, first aid, washing facilities". • There shall be provided and maintained by the contractor so as to be readily accessible during all working hours a first-aid box equipped with the prescribed contents at every place where contract labour is employed.	• Punishable with imprisonment for a term of three months, or with fine of INR 1,000/-, or with both.	https://clc.gov.in/clc/acts-rules/contract-labour-regulation-abolition-act-1970 *In addition, please refer the website of the State's labour department for state specific Rules.*

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
2.	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) (BOCW) Act 1996 and Central Rules 1998 State BOCW Rules	**Construction Phase** • Registration of establishment and workers under the State BOCW Rules • Compliance to requirements related to worker welfare, and occupational health and safety practices	• Punishable with imprisonment for a term of three months, or with fine of INR 2,000/- or with both	https://www.indiacode.nic.in/bitstream/123456789/1989/1/A1996__27.pdf https://upload.indiacode.nic.in/showfile?actid=AC_CEN_6_6_00023_199627_1517807323878&type=rule&filename=Building_and_Other_Construction_Workers_Regulation_of_Employment_and_Conditions_of_Service_Central_Rules.pdf
3.	Child and Adolescent Labor (Prohibition and Regulation) Act, 1986 and Amendment Act 2016	**Construction & Operation and Maintenance Phase** • No child shall be employed or is permitted to work in the borrower's premises or business operations • No adolescent shall be employed or permitted to work in any of the hazardous occupations or processes set forth in the Schedule • The period of work for an adolescent shall not exceed 6 hours inclusive of interval for rest and waiting period for work. The adolescent will be provided a period of rest of one hour after three hours of work. • Every occupier will maintain a register of adolescents employed including:	• For employment of a child - punishable with imprisonment for six months to two years, or with fine of INR 20,000/- to INR 50,000/- • "Punishable with imprisonment for one month or with fine of INR 10,000/-"	https://clc.gov.in/clc/acts-rules/child-labour-prohibition-and-regulation-act-1986

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		- name and date of birth - hours and periods of work, intervals of rest - nature of work • An abstract of Sec 3 & 14 shall be displayed in a conspicuous and accessible location in local and English language		
4.	Inter-State Migrant Workmen (Regulation of Employment & Conditions of Service) Act, 1979	**Construction & Operation and Maintenance Phase** • Registration of Establishment as principal employer • Contractor's license for engaging migrant workers • Payment of wages as per Minimum Wages Act • Displacement allowance equal to fifty per cent of the monthly wages • Journey allowance (to and from hometown) payable by Contractor • Every principal employer and every contractor shall maintain registers and records giving particulars of the inter-State migrant workmen employed, the nature of work performed by such workmen, the rates of wages paid to the workmen.	• Punishable with imprisonment for a term of one year, or with fine of INR 1,000/-, or with both.	https://clc.gov.in/clc/acts-rules/inter-state-migrant-workmen
5.	Employee Compensation Act 1923 and	**Construction & Operation and Maintenance Phase** • Mechanism for payment of compensation to employee for injury sustained during work.	• Default in payment of compensation from one month of the date it was due - Employer shall be liable to pay the arrears plus simple interest	https://labour.gov.in/social-security

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
	Amendment Act 2009	• "Notice of accident or partial disablement due to the contracting of any occupational disease to the Labour Commissioner • Reports of fatal accidents and serious bodily injuries within seven days to the Commissioner explaining the circumstances of eth accident" • File returns to the State Government specifying the number of injuries in respect of which compensation has been paid by the employer during the previous year and the amount of such compensation • Registration of Agreements – Where the amount of any lump sum payable as compensation has been settled by agreement whether by way of redemption of a half-monthly payment or otherwise, or where any compensation.	@ 12% per annum or at the lending rate of scheduled banks, whichever is higher • Punishable with fine of INR 50,000/- to INR 1,00,000/- (notice of accident/partial disablement)	
6.	Minimum Wages Act, 1948 and amendments thereafter	**Construction & Operation and Maintenance Phase** • Payment of minimum rate of wages as fixed and periodically revised by the State Government	• Penalty may vary from state to state	https://labour.gov.in/wagess
7.	Payment of Wages Act, 1936 (amendments thereafter)	**Construction & Operation and Maintenance Phase** • Payment of wages to all employees (direct and indirect)	• Punishable with fine which shall not be less than two hundred rupees but which may extend to one thousand rupees	https://clc.gov.in/clc/acts-rules/payment-wages-0

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
8.	The Equal Remuneration Act, 1976	**Construction & Operation and Maintenance Phase** • Pay equal remuneration to employees of all genders performing same work or work of a similar nature. • Employer will not make any discrimination while making recruitment for the same work or work of a similar nature, except where such work is prohibited or restricted by or under any law for the time being in force	• Punishable with fine upto twenty thousand rupees or imprisonment upto one year	https://labour.gov.in/sites/default/files/equal_remuneration_act_1976_0.pdf
9.	The Payment of Gratuity Act, 1972 and amendments thereafter	**Operation and Maintenance Phase** • Payment of gratuity to employees who have completed not less than 5 years of continuous service. • The employer shall arrange to pay the amount of gratuity within thirty days from the date it becomes payable to the person to whom the gratuity is payable	• Punishable with imprisonment for three months to one year, or with fine of INR 10,000/- to INR 20,000/-	http://www.bareactslive.com/ACA/ACT837.HTM
10.	The Payment of Bonus Act, 1965 amended upto 2015	**Operation and Maintenance Phase** • Payment of bonus for an accounting year	• Punishable with imprisonment for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both.	https://labour.gov.in/wagess
11.	Employees' State Insurance Act, 1948 and	**Construction & Operation and Maintenance Phase**	• Punishable with imprisonment of six months, fine of INR 5,000/-	https://www.indiacode.nic.in/handle/123456789/1441?view_type=browse&sam_handle=123456789/1362

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
	amendments thereafter	• Deduction of employee contribution and payment of employer contribution as required under the Employee State Insurance Scheme (ESIC)	• Punishable with imprisonment of one to three years, fine of INR 10,000/-	
12.	The Employees' Provident Fund and miscellaneous Provision Act, 1952 amended up to 1996	**Construction & Operation and Maintenance Phase** • "In an establishment employing employees, EPF deduction and contribution shall be made by each employee and employer for all employees earning less than INR 15000. • The contribution paid by the employer is 12% of basic wages plus dearness allowance plus retaining allowance. An equal contribution is payable by the employee also. In the case of establishments which employ less than 20 employees the contribution rate for both employee and the employer is limited to 10 percent. • EPF for the particular employee should be calculated on the gross salary of the employee."	• Punishable with imprisonment of one to three years, fine of INR 10,000/-	http://www.bareactslive.com/ACA/ACT506.HTM
13.	Maternity Benefits Act, 1961 and Amendment Act 2017	**Construction & Operation and Maintenance Phase** • Provision of Maternity benefits as per applicable requirements of the Act. • No woman shall work in any establishment during the six weeks immediately following the day of her delivery or her miscarriage.	• Punishable with imprisonment of three months, or with fine of INR 500/-	https://labour.gov.in/social-security

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		• No pregnant woman shall, on a request being made by her in this behalf, be required by her employer to do during one month preceding the date of delivery any work which is of an arduous nature • Payment of maternity benefit – Every woman who has worked for 160 days preceding the date from which she absents herself on account of maternity shall be entitled to, and her employer shall be liable for, the payment of maternity benefit. • The maximum period for which any woman shall be entitled to maternity benefit shall be twenty-six weeks, of which not more than eight weeks up to and including the day of her delivery and six weeks immediately following that day. • Payment or maternity benefit in case of death of a woman to the person nominated by the woman in the notice given under section 6 or her legal representative in case of no nominee.		
14.	The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013	**Construction & Operation and Maintenance Phase** • Policy on Prevention of Sexual Harassment. • Constitution of Internal Complaints Committee • Submission of Annual Report to the District Officer before 31st January for previous calendar year. • Treat sexual harassment as a misconduct under the service rules and initiate action for such misconduct.	• Punishable with fine of INR 50,000/- • For repeat offence: Punishable with double the fine amount; and Cancellation of business license / registration	https://www.indiacode.nic.in/handle/123456789/2104?view_type=browse&sam_handle=123456789/1362

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
15.	Right to fair Compensation and Transparency in Land Acquisition and Rehabilitation and Resettlement Act, 2013	**Pre-construction & Construction Phase** • Provide just and fair compensation to the affected families whose land has been acquired or proposed to be acquired or are affected by such acquisition • Make adequate provisions for such affected persons for their rehabilitation and resettlement	• Punishment of six months which may extend to three years or with fine or with both.	https://legislative.gov.in/sites/default/files/A2013-30.pdf
16.	Private Security Agencies (Regulation) Act, 2005	**Construction & Operation and Maintenance Phase** • Private Security Agency to obtain a license to provide private security • "The license holder shall not violate provisions of the Acts given in the Schedule: (1) The Payment of Wages Act, 1936 (4 of 1936). (2) The Industrial Disputes Act, 1947 (14 of 1947). (3) The Minimum Wages Act, 1948 (11 of 1948). (4) The Employees' Provident Funds and Miscellaneous Provisions Act, 1952 (19 of 1952). (5) The Payment of Bonus Act, 1965 (21 of 1965). (6) The Contract Labour (Regulation and Abolition) Act, 1970 (37 of 1970). (7) The Payment of Gratuity Act, 1972 (39 of 1972). (8) The Equal Remuneration Act, 1976 (25 of 1976).	• Punishable with imprisonment for a term which may extend to one year or with fine which may extend to INR 5,000/- or with both.	https://www.mha.gov.in/sites/default/files/The%20Private%20Security%20Agencies%20%28Regulation%29%20Act%2C%202005.pdf

#	Regulations	Key Requirements (monitoring/filing/licensing) of the Regulation and Associated lifecycle stage	Key liability/penalty to non-compliance	Reference Links
		(9) The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 (30 of 1979)."		
17.	The Ancient Monuments and Archaeological Sites and Remains Act, 1958	**Construction Phase** • A permission is to be sought from ASI for undertaking construction near a protected area i.e. archaeological site and remains which is declared to be of national importance.	• Punishable with imprisonment for up to 3 months, or with fine which may extend to Rs 5,000	https://www.indiaculture.nic.in/sites/default/files/Legislations/6.pdf

Annex-ESMS: 3-1: Part D - Summary of Waste Handling and Management Policies & Notifications

A summary of the guidelines/policies/notifications related to various waste handling and management has been provided in this Annexure, indicating its application to ERMPL's investment focus areas.

#	Acts/Notifications	Key Requirements of the Act/Notification	Reference Links
1.	Environmental Guidelines for Compressed Biogas Plant (CBG)/Bio-CNG Plants, March 2022	• Guidelines to be followed by CBG Plants • Categorization of CBG/Bio-CNG Plants • Biogas (Bio-methane) Composition	https://kspcb.karnataka.gov.in/sites/default/files/inline-files/Environmental%20Guideline%20For%20CBG%20.pdf
2.	Guidelines on the Provision of Buffer Zone around Solid Waste Processing and Disposal Facilities, 2019	• Provide & Maintain buffer zone as stipulated in guidelines • Development of greenbelt and maintenance in the buffer zone	https://cpcb.nic.in/uploads/MSW/bufferzone_guidelines.pdf
3.	Guidelines on Environmental Management of Construction & Demolition (C & D) Wastes, March 2017.	• Guidelines on Environmental Management of C & D Wastes – Other Issues • Importance of processing C & D Wastes - Centralized Vs Decentralized. • Options in C & D waste management - Centralized Vs De-centralized processing / recycling facilities. • Guidelines on Setback distances (or buffer zone distance)	https://cpcb.nic.in/openpdffile.php?id=UmVwb3J0RmlsZXMvNTUyXzE1MTEyNjQwMTVfbWVkaWFwaG90bzQ2OTAucGRm

Annex-ESMS: 3-2: Institutional Investor Safeguards

Department of International Development (DFID) Toolkit on ESG for Fund Managers (2010)[1]

This toolkit[2] is primarily designed for private equity fund managers investing in emerging markets of developing countries with an aim to integrate ESG analysis into investment decisions and management. The toolkit provides practical guidance to implement CDC's Investment Code on ESG that is consistent with international standards and best practices.

The toolkit (https://toolkit.bii.co.uk/) covers ESG matters for specific industries, regions, and different kind of funds. It also includes climate change and gender considerations. Each tool covers a specific area with an objective to increase awareness of ESG opportunities and risks, that may need to be addressed and monitored. The tool also helps to flag complex areas where specialist external support may be required.

ESM Policy Framework of National Investment and Infrastructure Fund comprising of E&S Policy, E&S Exclusion List and E&S Management Principles (2018)[3]

National Investment & Infrastructure Fund Limited (NIIF) developed an Environmental and Social Management Framework (ESMF) in 2018 that comprises of the Environmental and Social (E&S) Management Policy, E&S Management Principles, E&S Management Procedures and Guidelines (2018). E&S Management Principles include Environmental & Social Risk Assessment and Management Systems, Environmental Risks and Management, Human Resources Management and Social Risks and Management.

In order to ensure effective operation and implementation of NIIF's E&S Policy & Principles, NIIF provides training, support documents (E&S review procedures, internal guidelines for Fund of Funds (FoF) Managers and external guidelines for investment proponents) to concerned stakeholders.

Green Climate Fund's (GCF) environmental and social framework including E&S Policy (2018)[4]*, Indigenous Peoples Policy (2018)*[5]*, Gender Policy, Information Disclosure Policy (2016)*[6] *and Interim E&S Safeguards ("ESS") (2014)*[7]

GCF in order to fulfil its mandate of promoting low-emission and climate resilient development pathway has facilitated a set of management systems to identify, analyse, avoid, minimise and mitigate any potential adverse environmental and social impacts. GCF's environmental and social framework includes an Environmental & Social policy (2018), an Indigenous Peoples Policy (2018), Gender Policy, Information Disclosure Policy (2016) and Interim E&S Safeguards (2014). GCF

[1] https://www.eversourcecapital.com/app/uploads/2020/11/201105-ESG-Policy-ESGMS_GGEF_FINAL.pdf

[2] DFID Toolkit can be accessed here.

[3] The E&S Policy of NIIF can be accessed through - https://www.niifindia.in/uploads/about/NIIFL_ES-Policy.pdf

[4] The E&S Policy of GCF can be accessed through - https://www.greenclimate.fund/document/revised-environmental-and-social-policy

[5] The Indigenous people policy of GCF can be accessed through - https://www.greenclimate.fund/document/indigenous-peoples-policy

[6] The Information disclosure policy of GCF can be accessed through https://www.greenclimate.fund/document/information-disclosure-policy

[7] https://www.greenclimate.fund/sites/default/files/document/interim-ess.pdf

incorporates environmental and social considerations into its decision-making and operations and identifies opportunities to improve environmental and social outcomes.

FMO Sustainability Policy (2016)[8]

FMO's sustainability policy is part of the FMO Sustainability Policy Universe launched in 2016. The Policy specifies requirements related to investment criteria, exclusion list, tracking of E&S risks, accountability, stakeholder engagement, integrated reporting, and sustainability management system etc. The Sustainability Policy shapes and guides FMO's efforts towards supporting global sustainable development in an integrated manner. The Policy highlights environmental issues such as climate change and natural resource use, social issues such as poverty alleviation, inclusion and gender, human rights, and land rights, and environmental, social and governance risk management.

United Nations Guiding Principles on Business and Human Rights (2011)[9]

The United Nations Guiding Principles on Business and Human Rights (UNGPs) were developed for implementation of the United Nations 'Protect, Respect and Remedy' Framework" with an objective to clarify the human rights responsibilities of transnational corporations and other business enterprises. It consists of 31 principles implementing UN's 'Protect, Respect and Remedy' framework on the issue of human rights and business enterprises.

The Guiding Principles are founded on three pillars:

a) **States' existing obligations** to respect, protect, and fulfil human rights and fundamental freedoms
b) The **responsibility of business enterprises** to respect human rights and to avoid infringing on the rights of others, address adverse impacts with which they are involved and maintain compliance to the applicable laws of the State.
c) States' duty to **provide access to remedy** through judicial, administrative, legislative, or other appropriate means as part of their duty to protect against business-related human rights abuse and duty of business enterprises to establish or participate in effective operational-level grievance mechanisms for individuals and communities who may be adversely impacted.

Each of the three guiding principles are further elaborated through Foundational and Operational principles.

From the perspective of ERMPL's investments, the principles related to 'Corporate responsibility to respect Human Rights' will be applicable.

The foundational principle under these principles requires businesses to:

- Adhere to internationally recognized laws and requirements on human rights (e.g., International Bill of Human Rights and International Labour Organization's Declaration on Fundamental Principles and Rights at Work)
- Avoid causing or contributing to adverse human rights impacts through their own activities and address such impacts when they occur.

[8] https://www.fmo-im.nl/en/sustainability

[9] The publication on UNGPs can be accessed here

- Seek to prevent or mitigate adverse human rights impacts that are directly linked to their operations, products, or services by their business relationships, even if they have not contributed to those impacts.
- Conduct a human rights due diligence process to identify, prevent, mitigate, and account for how they address their impacts on human rights.

The operational principles further outline the need to establish policies, procedures to conduct human right due diligences and establish mechanisms to operationalize the foundational principles considering the complexities with respect to the size of the business enterprise, the risk of severe human rights impacts, and the nature and context of its operations.

The United Nations Sustainable Development Goals[10]

The Sustainable Development Goals (SDGs) were adopted by United Nations in 2015 and succeed the Millennium Development Goals (MDGs). SDGs also known as Global Goals are designed for global action of all countries - developing and developed in a global cooperation to strive for peace and prosperity for people and the planet. The 17 SDGs are the 2030 agenda that recognize the interdependence of poverty and other deprivations with strategies that improve health, education and economic growth while tackling climate change and working to preserve natural resources. SDGs are integrated and balance social, economic, and environmental sustainability.

The following SDGs will be applicable for ERMPL operations:

Core SDG's	Allied SDG's
SDG 7 – Affordable & Clean Energy	**SDG 3 –** Good Health and Well-Being
SDG 12 - Responsible Consumption and Production	**SDG 8 -** Decent Work and Economic Growth
	SDG 9 - Industry, Innovation, and Infrastructure
	SDG 11 - Sustainable Cities and Communities
	SDG 13 - Climate Action

BII Fossil Fuel Policy[11]

The Policy specifies requirements related to investment criteria and exclusion list. The Policy highlights environmental issues such as climate change and natural resource use. The objectives underpin our Climate Change Strategy, which sets out three building blocks that align the activities with the Paris Climate Change Agreement (i) Net Zero by 2050 (ii) Just Transition and (iii) Adaptation and resilience.

The policy lists the investment exclusions to any new commitments (equity and debt) directly or through new commitments to funds and co-investments, as well as new directed lending through financial institutions in the following sub-sectors – based on the these definitions: upstream activities (exploration and production of fossil fuels); midstream (transportation and storage of raw fossil fuels); downstream (refining and distribution of refined fossil fuels); and power generation (defined as grid-connected rather than in captive capacity).

[10] The UN SDGs can be accessed here

[11] The BII's Fossil Fuel Policy can be accessed here

Annex-ESMS: 4-3: ERMPL's E&S Exclusion List

ERMPL will not invest in any of the following activities[1]:

- Production of or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements subject to international phase outs or bans, such as:
    - polychlorinated biphenyls (i), pharmaceuticals (ii), pesticides, herbicides, and wastes[2];
    - ozone depleting substances[3];
    - wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora[4];
    - unsustainable fishing methods[5];
    - transboundary trade in waste or waste products[6];
- Production of or trade in arms (i.e., weapons, ammunitions, or nuclear products, primarily designated for military purposes, including paramilitary material) *;
- Commercial logging operations or the purchase of logging equipment for use in primary tropical moist forest or old-growth forests;
- Production or trade in wood or other forestry products other than from sustainably managed forests;
- Destruction[7] of High Conservation Value areas[8]

[1] IFC's project exclusion list (http://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/ifc+projects+database/projects/aips+added+ value/ifc_project_exclusion_list).

[2] As specified in the 2004 Stockholm Convention on Persistent Organic Pollutants ("POPs"), see www.pops.int; the 2004 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and list of pesticides and herbicides subject to phaseouts or bans, see www.pic.int; and the 1992 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, see www.basel.int; as may be amended from time to time

[3] A list of the chemical compounds that react with and deplete stratospheric ozone resulting in the widely publicized ozone holes is specified in the 1999 Montreal Protocol on Substances that Deplete the Ozone Layer, together with target reduction and phaseout dates see www.unep.org/ozone/montreal.shtml., as may be amended from time to time

[4] As specified in the 1975 Convention on International Trade in Endangered Species or Wild Flora and Fauna ("CITES"), see www.cites.org, as may be amended from time to time

[5] These will include such as large-scale pelagic drift net fishing and fine mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats, and blast fishing.

[6] As defined by the Basel Convention; see http://www.basel.int

[7] Destruction means the (1) elimination or severe diminution of the integrity of an area caused by a major, long-term change in land or water use or (2) modification of a habitat in such a way that the area's ability to maintain its role is lost

[8] High Conservation Value (HCV) areas are defined as natural habitats where these values are considered to be of outstanding significance or critical importance (See http://www.hcvnetwork.org).

- Production or activities involving harmful or exploitative forms of forced labour[9] and child labour[10];
- Production of, use of, or trade in, unbounded asbestos fibres[11];
- Production of or trade in alcoholic beverages (excluding beer and wine) *;
- Production of or trade in radioactive materials[12];
- Racist and/or anti-democratic media
- Any businesses if any of the following activities represents a substantial portion of such business[13]:
    - Gambling, gaming casinos and equivalent enterprises*;
    - Production of or trade in Tobacco or tobacco related products *[14]; or
    - Pornography;
- Fossil fuel sub-sectors[15] comprising of upstream activities (exploration and production of fossil fuels); midstream (transportation and storage of raw fossil fuels); downstream (refining and distribution of refined fossil fuels); and power generation (defined as grid-connected rather than in captive capacity).

Note: *(*) Implies that this does not apply to project sponsors who are not substantially involved in these activities. "Not substantially involved" means that the activity concerned is ancillary to a project sponsor's primary operations.*

[9] Forced labour means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty

[10] Child labor means the employment of children whose age is below the host country's statutory minimum age of employment or employment of children in contravention of International Labor Organization Convention No. 138 "Minimum Age Convention" (www.ilo.org).

[11] This does not apply to purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%

[12] This does not apply to the purchase of medical equipment, quality control (measurement) equipment and any equipment in which the radioactive source could reasonably be considered to be trivial or adequately shielded

[13] For companies, "substantial" means more than 10 % of their consolidated balance sheets or earnings. For financial institutions, "substantial" means more than 10% of their underlying portfolio volumes.

[14] Except, in the case of tobacco production only, with an appropriate timeframe for phase out

(i) A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitators, and switchgear dating from 1950 to 1985.

(ii) A list of pharmaceutical products subject to phaseouts or bans is available at htto://www.who.int.

[15] This does not include Stand-alone diesel generators, where demonstrated that the option of a renewable generator is technically or commercially not feasible. Also, use of LPG for cooking and heating are an accepted practice.

Annex-ESMS 4-4: Terms of Reference for Conducting ESDD

This Annex through its various sub-sections provides the Terms of Reference (ToR) for conduct of the ESDD as well as reporting structure. It is expected that the external consultants engaged will adhere to the ToR and reporting structure for conduct of the ESDD, however, they will refer to their internal tools for conducting the study and associated gap assessments.

***Note**:*

This Annex has been developed aligned to the GGEF's ESGMS - Appendix D: Terms of Reference for An External Consultant with suitable modification in the context of the business of ERMPL. For Category C projects, if the decision to conduct the ESDD is by the internal team of ERMPL, the rationale for the same will be documented along with approval of the MD & CEO *for the same.*

*The ToR will be suitably modified and issued by the HSSE Head giving due consideration to the Preliminary E&S Risk Assessment and the preliminary E&S category assigned based on the information obtained and assessed through the **Tool XX** on **Detailed Information for E&S Risk Assessment** and **Tool XX** on **E&S Categorization Checklist**.*

If the project under consideration is through the merger & acquisition route, and the project comprises of subsidiaries / multiple project assets, ERMPL will consider all subsidiaries / project assets.

1. Description of the Project

[While issuing the ToR, brief details about the target project to be assessed will be provided. The assets to be covered under the ESDD scope will be described.]

2. Purpose of Study

The ESDD is to be conducted to identify the environmental and social (E&S) aspects to support ERMPL's E&S risk mitigation process and follow-up approach and strategies by reviewing and verifying the project against the reference framework (refer below) to identify compliance gaps, necessary mitigation and follow-up actions, and outlining a managing / monitoring regime.

This ESDD must specifically address anticipated risks, mitigation measures and should give an overall opinion on the ability of the project to meet the reference framework. The review will reassess the **project categorization** and document the same.

3. Reference Framework

The applicable reference framework will be:

- Applicable local, national and international environmental and social (including occupational health and safety) legislations;
- IFC Performance Standards, 2012;
- IFC/World Bank EHS General and relevant Sector Specific Guidelines as applicable;
- Any other reference framework to be inserted depending on the investor requirements

4. Consultant Qualifications

The consultant will demonstrate experience in undertaking similar assignments through the following:

- Experience in the waste management sector, ideally on businesses similar to those under consideration;
- Prior experience working with IFC Performance Standards, IFC EHS Guidelines and regulatory framework of India. Additional experiences on ESG Frameworks of DFID and ESM Policy Framework of National Investment and Infrastructure Fund (NIIF) will be valued; and
- Subject-matter expertise including environmental, social, biodiversity, gender, hydrology, etc. as required.

5. Scope of Work

The scope of work will entail an independent verification of all relevant E&S aspects of the project and/or target company within the above reference framework. The scope of work will include, but not be limited to, the following aspects:

- Gap analysis indicating project compliance against applicable E&S local and national requirements (related to environment, occupational safety, health, labour, social and land acquisition legislations) as well as national guidelines and other statutory requirements which could arise or be perceived as potential risk in the context of the project;
- Identification of material and business critical E&S risks and impacts resulting both from the development stage and operation stage activities with consideration to the reference framework;
- Review of corporate E&S management systems of the target company (where applicable) and/or project to determine adequacy in managing past, existing and potential risks and impacts that might arise from the business operations;
- Develop an Environmental and Social Action Plan (ESAP) that summarizes all action items and assigns roles, responsibilities and measurable outcomes for the action items to close out the identified gaps and manage potential risks identified.

6. Proposed Methodology

The ESDD review will comprise the following steps:

- **Information Review**: This should include a review of all relevant environmental, health, safety, social, labour, land and ecology documentation and information as determined relevant to the target operations. A detailed E&S regulatory compliance review of the target should be undertaken as part of the due diligence process.
- **Site Reconnaissance:** A site investigation of the project site or portfolio sample sites should be undertaken through visual observation of relevant areas, discussions with key internal and external stakeholders, review of site-level documentation and investigation of relevant E&S issues in and around the target operations.
- **Report Preparation:** Two reports will be required of any due diligence transactions including (i) a back to office report summarizing red flag or high-risk issues and providing a preliminary categorization of the transaction and (ii) detailed due diligence report covering all aspects of the scope of work.

7. Schedule

- The site-visits are to be concluded within 1 week after the preparatory information/ documentation has been made available to the consultant. (Typically, would mean 2 days site visit but could be more if the project/portfolio is large).
- The consultant should submit the back to office report within 3 working days of completing the site visit identifying any red flag and high-risk issues and suggesting a preliminary project categorization for the transaction
- The draft due diligence report should be submitted within 7 working days of submitting the back to office report. The final report will be submitted within 7 working days of receiving comments from ERMPL on the draft report.
- All reports should be written and prepared in English and delivered in electronic format. The back to office and draft report should be submitted in an editable document (MS PowerPoint, MS Excel or MS Word preferably) and the final document should be a signed PDF document.

Note: The timeframe of the ESDD can vary depending upon the complexity of the project. The timeline will be agreed based on discussion with the ERMPL and external consultant.

8. Proposal

The proposal for the ESDD should at least contain the sections listed below:

- Limitations (if any)
- Tasks proposed
- Project team and qualifications
- Detailed timelines
- Estimated costs

9. Sample Structure of ESDD Report

A typical ESDD report will need to cover the following at minimum.

1. **Introduction:** This section shall primarily detail:
   - Background to the due diligence
   - Primary objective and scope of the study
   - Reference framework
   - Methodology adopted for the study, and
   - Limitations to the study

2. **Project Overview:** This section primarily entails the complete project, its various components, as well as the status of the project/ company, operational/ manufacturing process, organizational structure, number of employees, status of key applicable permits/licenses.

3. Summary of national, local, and any other applicable environmental and social laws, regulations, and standards.

4. Audit and site investigation procedures

5. **E&S Risk Categorization**: Based on the review of a project's expected social and environmental impacts, social and environmental categorization will be assigned to the project with reference to

the project categorization matrix (refer annexure 1). The categorization will be accompanied with the reasoning for the selection of the category.

6. **E&S Legal Requirements and Compliance Status:** This section incorporates the key findings and gaps that were observed and assessed based on the applicable E&S local and national requirements.

S. No.	E&S legal requirements	Compliance status	Key Findings & Gaps

7. **Status of Conformance to IFC Performance Standards & other reference frameworks:** This section incorporates the key findings and gaps that were observed and assessed from the documentation review and site assessment. The findings are based on the assessment of the project as per the applicable reference framework and guidelines pertaining to the same. A sample structure of a key findings table is provided below for reference.

S. No.	Requirements as per the Applicable Reference Framework	Compliance status	Key Findings & Gaps

8. **Environmental Social and Governance Action Plan**: This section outlines the key mitigation measures and corrective actions as prescribed to the assessed gaps highlighted in the findings table. The ESAP will primarily incorporate:
   - Key Issues and Concerns Identified
   - Mitigation or Corrective Actions including costs
   - Responsibility of Investee
   - Deadline for completion and implementation of the corrective actions

   A sample template is provided below for referencing.

#	Nature of Non-Compliance / Non-Conformance	ESG Risk Classification	Recommended Corrective Action	Responsibility	Timeline	Budget	Monitoring Indicator
1.							
2.							

Annexure 1: E&S Categorization

The projects will be categorized under any one of the categories tabulated below:

Category	Definition of Category
A	• An investment is categorized as **Category A** if it is likely to have significant adverse environmental and social impacts that are irreversible, cumulative, diverse and/or unprecedented. These impacts may affect an area larger than the target site or facility subjected to physical works and may be temporary or permanent in nature.
B	• An investment is categorized as **Category B** if it has limited number of potential adverse environmental and social impacts that are not unprecedented, few in nature, no irreversible or cumulative impacts and limited to the target site or facility. Category B investments can be readily mitigated through operational procedures and management processes.
C	• An investment is categorized as **Category C** if it is likely to have minimal or no adverse E&S impacts.

Annex-ESMS 4-5: Terms of Reference for Conducting ESIA

This Annex through its various sub-sections provides the Terms of Reference (ToR) for conduct of the ESIA as well as reporting structure. It is expected that the external consultants engaged will adhere to the ToR and reporting structure for conduct of the ESDD, however, they will refer to their internal tools for conducting the study.

***Note**:*

This Annex has been developed aligned to the GGEF's ESGMS - Appendix D: Terms of Reference for An External Consultant with suitable modification in the context of the business of ERMPL.

*The ToR will be suitably modified and issued by the HSSE Head giving due consideration to the Preliminary E&S Risk Assessment based on the information obtained and assessed through the **Tool XX** on **Detailed Information for E&S Risk Assessment**.*

If the project under consideration is through the merger & acquisition route, and the project comprises of subsidiaries / multiple project assets, ERMPL will consider all subsidiaries / project assets.

1. Description of the Project

[While issuing the ToR, brief details about the target project to be assessed will be provided. The facilities to be covered under the ESIA scope will be specified here]

2. Purpose of Study

The ESIA is undertaken to outline the existing and potential risks and impacts associated with one or more project sites from planning to the decommissioning phase. The ESIA includes the development of an environmental, social and ecological baseline, identifying interactions between the environmental, social and ecological receptors/resources with the project site(s) activities and quantifying the resultant impact significance of the interaction.

An outcome of the ESIA includes the development of an Environmental and Social Management Plan (ESMP) and any relevant Technical Management Plans (TMPs) for management of risks and impacts that may arise from the project activities.

3. Reference Framework

The applicable reference framework will be:

- Applicable local, national and international environmental and social (including occupational health and safety) legislations;
- IFC Performance Standards, 2012;
- IFC/World Bank EHS General and relevant Sector Specific Guidelines as applicable;
- Any other reference framework to be inserted depending on the investor requirements

4. Consultant Qualifications

The consultant will demonstrate experience in undertaking similar assignments through the following:

- Experience in the waste management sector, ideally on businesses similar to those under consideration;
- Prior experience working with IFC Performance Standards, IFC EHS Guidelines and regulatory framework of India. Additional experiences on ESG Frameworks of DFID and ESM Policy Framework of National Investment and Infrastructure Fund (NIIF) will be valued; and
- Subject-matter expertise including environmental, social, biodiversity, gender and hydrology as required.

5. Objective and Scope of Work

The objective and scope of work of a typical ESIA has been presented in the table below.

Objective	**Scope of Work**
Define the environmental, social and ecological baseline of a defined study area[1]	• Undertake primary environmental monitoring including but not limited to groundwater quality, surface water quality, soil quality, ambient air quality, ambient noise levels and local meteorology. If primary data collection is determined to be not required for a project site then information should be obtained from reputed secondary sources • Undertake socio-economic surveys in the defined study area that includes demographic profile, occupational profile and land holdings in the affected communities • The socio-economic surveys should also evaluate gender-disaggregated information on the above topics to be able to develop site-specific gender intervention strategies • Determine baseline conditions for indigenous peoples and their customary rights and any cultural heritage sites in the defined study area • Develop a baseline for ecological values i.e. flora (trees, herbs, grasses and aquatic plants) and fauna (amphibians, reptiles, birds and mammals). The baseline should clearly indicate migratory status, threatened status, protected status and cultural significance where applicable
Develop a legal and administrative framework	• Discuss all relevant national, state and local regulations applicable to the project and the key activities the project needs to undertake to be in compliance to these regulations • Identify specific international conventions (where India is a signatory party) that would be applicable to the project operations • Define the conformance of the project to the reference framework (mentioned above)
Review the land procurement process and determine conformance to international standards	• Discuss the land identification and lease/purchase process • Determine land negotiation practices and confirm use of fair practices • Identify any legacy land risks associated with a brownfield acquisition and/or industrial estate development • Evaluate gender integration into the stakeholder engagement process and determine whether women land-

[1] To be determined based on the anticipated scale and magnitude of the impacts from a project as identified in a screening and/or scoping process.

	owners were adequately consulted during the land procurement process • Assess any post-sale obligations placed on the project (e.g. employment) and determine status of the above.
Analyse any reasonable alternatives to the project design and location	• Undertake an analysis of alternatives for the project location, design, technology and evaluate a no project scenario • Clearly define the advantages and disadvantages in the current planned project from an E&S perspective
Assess any significant environmental and social impacts (positive or negative) and suggest appropriate mitigation measures	• Evaluate any significant environmental, social and ecological impacts that may occur due to the project • Clearly define the rationale behind any scoped-out impacts that have not been taken forward during the impact assessment process • Define appropriate mitigation measures focused on avoidance, minimization and rehabilitation with a suggestion for offsets as a last choice mechanism • Summarize the residual impacts that will occur after implementation of the mitigation measures
Develop an ESMP for the project	• Develop an ESMP for the project that clearly summarizes the mitigation actions suggested for the project along with time-bound roles and responsibilities, supervisory mechanisms and resources required to implement • The ESMP should be clearly divided in accordance to the phase of the project – planning, construction, operation and decommissioning. • Suggest any follow-up or long-term studies that may be required to further evaluate and manage any E&S risks identified during the ESIA. A draft Terms of Reference (ToR) should be provided for any identified studies.

6. Proposed Methodology

The ESIA review will comprise the following steps:

- **Information Review**: This should include a review of all relevant environmental, health, safety, social, labour, land, ecology and governance documentation and information as determined relevant to the target operations. A detailed ESG regulatory compliance review of the target and identification of forward-looking requirements should be undertaken as part of the impact assessment process
- **Screening**: Project screening to be conducted via information review prior to the site visit. The focus of the screening process is to gain broad understanding of the project site and to determine applicable E&S impact assessment requirements.
- **Site Surveys:** A site investigation of the project site or portfolio sample sites should be undertaken through visual observation and relevant primary investigations of relevant areas, discussion with key stakeholders, review of site-level documentation and primary monitoring of baseline values
- **Report Preparation:** Two reports will be required of impact assessment studies including (i) a back to office report summarizing red flag or high-risk issues and providing a preliminary categorization of the project site(s) and (ii) detailed impact assessment report covering all aspects of the scope of work and appropriate technical management plans.

7. Schedule

- The site-visits are to be concluded within 2 weeks after the preparatory information/ documentation has been made available to the consultant. Seasonality of information (e.g. capturing migratory season data for ecology baseline) should be communicated to the ERMPL team as part of the kick-off meetings to suggest an appropriate site visit schedule.
- The consultant should submit a back to office report within 7 working days of completing the site visit identifying any red flag and high-risk issues and suggest a preliminary project categorization. If there is a necessity to undertake any further studies (e.g., biodiversity management plan, livelihood enhancement plan, cultural heritage management plan, etc.) should be discussed with appropriate justification and schedule for completion.
- The draft impact assessment report should be submitted within 4 weeks of submitting the back to office report. The final report will be submitted within 10 working days of receiving comments from ERMPL on the draft report.

All reports should be written and prepared in English and delivered in electronic format. The back to office and draft report should be submitted in an editable document (MS PowerPoint, MS Excel or MS Word preferably) and the final document should be a signed PDF document.

Note: The timeframe of the ESIA can vary depending upon the complexity of the project, seasonality of information to be collected and requirement for any specific technical studies. The timeline will be agreed based on discussion with the investee and external consultant as part of the proposal development and kick-off meetings.

8. Proposal

The proposal for the ESIA should at least contain the sections listed below:

- Limitations (if any)
- Tasks proposed
- Project team and qualifications
- Detailed timelines
- Estimated costs

9. Sample Structure of ESIA Report

- **Non-Technical Summary**: A non-technical summary should be provided including a project brief, status of key regulatory compliances, summary of the baseline conditions, comparative analysis of impact significance and residual impact significance and the Environmental and Social Management Plan.

- **Introduction and Project Description**: Description on the purpose, objective, scope of work, methodology and limitations of the study. The project description should include key salient features of the project that would interact with the baseline to create impacts on applicable resources and receptors in the study area.

- **Legal and Administrative Framework:** Identify an appropriate regulatory compliance framework for the project site(s) and key international conventions that need to be confirmed by the project staff. The review should include a relevant of key requirements from the international standards on the project construction and operation.

- **Analysis of Alternatives:** An identification of the alternatives including alternative technology, alternative location and appropriate design for the project site(s)

- **Screening and Scoping Process:** Description of the screening and scoping process that was followed to determine relevant impact types for the project site(s)

- **Project Baseline:** A description of the environmental, social and ecological baseline conditions. The baseline should identify specific gender intervention areas that can be used by the project site(s) to meet the requirements of EverSource Capital's Gender Policy.

- **Stakeholder Engagement Plan**: Identification of key internal and external stakeholders, their engagement mechanism and key outcomes of the consultations undertaken during the ESIA study.

- **Impact Assessment and Mitigation Measures**: Description of each of the impact types relevant for the planning, construction, operation and decommissioning phases of the project site(s). The impact assessment should include a quantitative impact significance value, appropriate mitigation measures and a residual impact significance value after application of the mitigation measures

- **Environmental and Social Management Plan**: A summary of all the mitigation measures based on the project phase (planning, construction, operation and decommissioning) and the reporting/monitoring mechanisms to be used by ERMPL to ensure completion.

Project Phase(s)	Project Activity	Impact	Mitigation Measure(s)	Monitoring indicator	Roles & Responsibilities	Timeline

- **Technical Management Plans**: Technical Management Plans (TMPs) as agreed between the consultant and ERMPL for the specific project site(s) including stakeholder engagement plans, grievance redressal mechanisms, gender action plans, biodiversity management plans, livelihood enhancement plans, etc.

Annex-ESMS 5-1-1: Environmental Risk Evaluation Procedure

1. Purpose

This procedure covers identification of Environmental Aspects and Hazard identification and Risk & opportunities assessment and Impact requirements and assessing and updating of EAIR and HIROAR.

2. Scope

This procedure is applicable to all activities, services and products of IEISL. This procedure starts with identification of Environmental aspects and Impacts hazard identification and risk & opportunities assessment and continued till the maintaining of the concerned registers.

3. Definitions and Abbreviations

a) EAIR: Environmental Aspect and Impact Register
b) HIROAR: Hazard Identification and Risk & Opportunities Assessment Register

4. Clause References

ISO	Clauses
9001	
14001	6.1.2
45001	6.1.2
SA 8000	NA

5. Responsibility

Designation	Department	Role	Location
Management Representative/ Designated persons	Operations	To design the procedures for maintaining the documents and records To implement the procedures and review them	Head office and Facility

6. Procedure

6.1 Identification of Environmental Aspects and Hazards

- Whenever a new equipment or activity is initiated, the plant manager in consultation with the plant assistant / EHS executive, shall carry out an Initial Environmental and OHS status review. This review shall be carried out using the Initial Environmental and OHS status review check list (Refer Appendix A).
- The review shall cover activities during normal and abnormal operations and also during emergencies. It shall cover the activities of all personnel having access to the work place

including employees, contract workmen, visitors etc. Where applicable issues having offsite impact shall also be covered.

- Hazards originating outside the workplace, which could adversely affect the health and safety of persons at the site shall also be considered.
- Based on the findings of the review, the Environmental Aspects & Impacts Register (Refer Appendix B) and the Hazard Identification & Risk & opportunities Assessment Register (Refer Appendix C) shall be prepared for the site.

6.2 Impact and Risk & opportunities Assessment:

- All environmental impacts shall be evaluated as per environmental impact rating criteria (Refer Appendix D).
- The assessment of the impact and risk & opportunities shall be carried by the cross functional team. Based on the assessment, significant aspects / hazards shall be identified for appropriate remedial action.
- The criteria for defining significant and non-significant aspects and hazards shall be laid down by the Plant Manager in consultation with EHS person & MR. Initially the environmental aspects with total score >9 & legal and hazards with total score >100, emergency & Legal are given priority and considered as significant initially. Other aspects/hazards will be taken up in a phased manner. All hazards and environmental aspects which are covered under legislative requirements shall be considered significant.
- Those required to meet regulatory compliance requirements are to be compulsorily complied with. Apart from the aspects and hazards identified as significant based on the score as per the assessment, Top Management may identify other aspects and hazards as significant based on requirements of various stake holders.
- All environmental aspects which are required to be complied as per the terms of the environmental clearance given for the project either by the central level environment impact assessment authority or state level environment impact assessment authority or other appropriate bodies shall be complied with.
- A hierarchical approach for addressing significant aspects and hazards shall be adopted in the following order:
  a) Elimination
  b) Substitution
  c) Engineering Controls
  d) Signage/Warnings and/or administrative controls
  e) Personal Protective Equipment

7. Review and Update of the Environmental Aspects Impacts Register

Whenever a new equipment or process is introduced, the associated environment aspects and hazards shall be identified by the concerned plant assistant and intimated to the plant Manager. The plant Manager shall have the associated environmental aspects and hazards evaluated and updated in the EAIR by the plant EHS person / IMS executive.

- Whenever any major incident or accidents including emergencies, takes place, the EAIR shall be reviewed and updated, if required. The EAIR shall also be reviewed and updated after implementation of any corrective and/or preventive actions.
- Once in six months, the Plant Manager in consultation with the EHS person & IMS Executive, shall review the EAIR for each plant and update the same.

8. Records

S. N.	Name of Record	Doc. Code	Responsibility	Type	Retention Period
1	Initial Quality, Environmental & OHS status checklist	IEISL/IMS/QSHE-Checklist	EHS Person, Plant Manager	Hard Copy	3 years
2	EAIR	IEISL/IMS/EAIR	EHS Person, Plant Manager	Hard/ Soft Copy	3 years
3	HIROAR	IEISL/IMS/HIROAR	EHS Person, Plant Manager	Hard/ Soft Copy	3 years

Appendix A: Initial Environmental & OHS Status Review Checklist

Project Title:

Site:

Type of Project:

Project Start Date:

Due Date for Completion:

Name of Project Head:

Name of S&E Representative:

No. of Employees:

No. of Contract Employees:

S. No.	Checkpoint	Yes	No	Remarks
1.	Is the site demarcated & fenced			
2.	Is copy of Project EIA available			
3.	Is copy of Environmental Clearance from Central / State Government available			
4.	Whether the applications for the following consents have been submitted			
	a) Water Pollution			
	b) Air Pollution			
	c) Hazardous Waste			
5.	Is application to conduct specified process such as batching plant submitted			
6.	Have appropriate barriers been erected around the site to prevent adverse impact on surroundings			
7.	Have site temporary drainage facilities been installed			
8.	Whether areas for waste storage and sorting have been demarcated			
9.	Whether suitable areas have been demarcated for storage of hazardous material such as oil, chemicals etc.,			
10.	Has tree survey been carried out for the site			
11.	Whether suitable haul roads, site entrances and exits demarcated			

12.	Have areas for labor camp have been established with adequate facilities.			
13.	Have wastewater discharge points been identified.			
14.	Have waste collection points for inert, construction and demolition material, recyclable wastes, etc., been located and demarcated			
15.	Has First Aid Room / Ambulance room been established with adequate facilities			
16.	Has Safety Committee been appointed			
17.	Is adequate PPE available			
18.	Have emergency numbers been identified and posted			
19.	Is adequate site security in place			
20.	Have adequate safety signages been displayed			
21.	Are all Safety Officers employed at the site adequately qualified			
22.	Has Medical Officer been appointed for the Site			

Site Specific Environmental Issues Foreseen

Site Specific OH & S Issues Foreseen

Members of Review Team

S. No.	Name	Designation	Signature

Annexures B: Environmental Aspects & Impacts Register

S.No	Activity/ Process	Environmental Aspect	Impact	Control Measures Available	Nature of EA (N/A/E)	Legal / Non-Legal	Probability of Occurrence	Impact on Environment	Existing Controls	Score = A x B x C
							A	B	C	

Annexures C

Refer IEISL/IMS/HIROAR

or

Annexure 2 in Annex-ESMS 5-1-2: Occupational Health and Safety Risk Evaluation Procedure

Annexures D: Environmental Aspect Rating Criteria

A. Probability of Occurrence

Criteria	Score
Less than once in 6 months	1
Less than once a month up to once in 6 months	2
Less than once a week up to once a month	3
Less than once a day up to once a week	4
Up to once a day or continuously	5

B. Impact on Environment

Impact on Environment	Score
Visual impact / Negligible noise / dust / vibration No Resource conservation potential Easily renewable (e.g. grass impacted) Inert solid waste up to 2.5 T /day / biodegradable solid waste up to 200 kg/day Effluent waste up to 300 lts	1
Slight discomfort / low noise / dust / vibration Low Resource conservation potential Moderately renewable like paper / metal impacted Inert solid waste from 2.51 T/day to 5 T /day / biodegradable solid waste from 201 to 500 kg/day Liquid waste from 301 to 1000 lts	2
Medium impact / Noise /Vibration / damage to flora and fauna Medium Resource conservation potential Global issues Use of depletable resources (e.g. oil) Inert solid waste from 5 T /day to 10 T/day / biodegradable solid waste from 501 to 1000 kg/day Liquid waste from 1001 to 3000 lts	3

High impact beyond plant boundary (Noise, dust, vibration) / irreversible damage to flora and fauna High Resource conservation potential High Ground water contamination Inert solid waste > 10 T/day / Biodegradable solid waste > 1000 kg/day Liquid waste > 3000 lts	5

C. Existing Controls

Criteria	Score
Complete controls and Standardized procedures exist	1
Complete control and Standardized procedures absent	2
Partial Control / Not completely reliable / controls require human interaction	3
No control	5

SCORE = A X B X C

Criteria for Significant aspect: Score > 9 & Legal

Annex-ESMS 5-1-2: Occupational Health and Safety Risk Evaluation Procedure

1. Purpose

The purpose of this procedure is to:

a) Ensure that risk management is embedded in IEISL's / EE's culture and practices;
b) Ensure a systematic approach to risk management;
c) Ensure that hazards are identified, risks are evaluated and appropriate control measures are implemented and monitored;
d) To identify the opportunities to strengthen the OHS management system and improvement in the working conditions based on Hazard identification & Risk assessment;
e) Describe specific risk assessment methodologies that can be applied and against which compliance can be measured.

2. Scope

This procedure shall apply to all workplace hazards and risks, and all activities are undertaken by IEISL / EE and include:

a) The routine, and non-routine, activities of all persons having access to the workplace;
b) Hazards associated with plant, machinery, and equipment;
c) Hazards associated with substances and materials in the workplace;
d) Hazards originating outside of the workplace that could adversely affect the work environment;
e) Hazards associated with inclement weather or emergency situations;
f) The complete lifecycle of facilities from specification through to decommissioning and disposal.

3. Procedure

3.1 Abbreviations

ALARP: As Low As Reasonably Practicable

CFT: Cross Functional Team

EE: Ever Enviro

FRA: Fire Risk Assessment

HAC: Hazardous Area Classification

HAZOP: Hazard and Operability Study

HIRAO: Hazard Identification and Risk Assessment

HSE: Health, Safety and Environment

IEISL: Indo Enviro Integrated Solutions Limited

MAWP: Maximum Allowable Working Pressure

MOC: Management of Change

SDS: Safety Data Sheet

OEM: Original Equipment Manufacturer

OHS Occupational Health & Safety

O&M: Operations and Maintenance

PDF: Portable Document Format

P&ID: Piping and Instrumentation Diagram

PFD: Process Flow Diagram

PPE: Personal Protective Equipment

RACI: Responsible, Accountable, Consulted, Informed

SOP: Standard Operating Procedure

Definitions

Routine Activity: Routine works are jobs and tasks done at certain defined intervals, to facilitate the normal operation of the plant.

Non-Routine Activity: Non-routine work are jobs and tasks that are performed irregularly or being performed for the first time.
Since these tasks and jobs are not performed regularly, it can be difficult to understand all of the hazards associated with the job.
Non-routine work includes jobs or tasks that are, (but not limited to):

- Performed infrequently
- Outside of normal duties
- Do not have a documented procedure
- Performed in a different way from the documented procedure
- Have never been performed before
- Routine tasks that carry a high level of risk

Hazard: A hazard is any agent that can cause harm or damage to people, property and/or the environment.

Worker: Person performing work or work-related activities that are under the control of organization. (Definition as per ISO 45001:2018)

Probability: Probability is the likelihood or chance of an event occurring

Risk:	Risk is defined as the probability that exposure to a hazard will lead to a negative consequence.
Residual risk:	Residual risk is the risk remaining, associated with a job or an activity after the precautions are taken.
Severity:	Severity describes the highest level of damage possible when an accident occurs from a particular hazard.
Risk Ranking:	Th e numerical value is given to the level of risk based on the risk matrix.
Controls:	Precautions put in place to reduce the risk.

The risk management process can be divided into five steps:

- Identify the hazards.
- Identify who is at risk or what can be damaged and how.
- Evaluate the risk and identify any additional control measures necessary to reduce the risk to As Low As Reasonably Practicable (ALARP).
- Implement control measures in the workplace.
- Monitor and review the effectiveness of the control measures.

The aim should be to eliminate the hazard or risk wherever practicable. Where it is not possible to eliminate the risk then a hierarchy of controls can be applied ranging from substitution (i.e. the use of less hazardous substances, materials, equipment or processes), through to the application of engineering or administrative controls, and finally the use of personal protective equipment (PPE).

IEISL / EE employs the use of HIRAO processes for the assessment and control of workplace risks and identification of Opportunities.

3.2 Hazard Identification & Risk Assessment with Identification of Opportunities (HIRAO)

The objective of the HIRAO process is to provide a systematic basis for the identification of hazards, risks, and controls with determination of opportunities associated with IEISL / EE facilities and activities and to ensure that all risks are maintained ALARP. It is intended to be a working document that IEISL / EE personnel can use to help them understand the workplace risks and manage them effectively. The identification, implementation and maintenance of effective controls is key to ensuring that all workplace risks are appropriately managed. Employee and contractor participation, consultation and communication are key to a successful outcome.

3.2.1 Applicability

The HIRAO process shall address:

a) Routine, and non-routine, activities;
b) Hazards associated with plant, machinery, and equipment;
c) Hazards associated with substances and materials in the workplace;
d) Hazards originating outside of the workplace that could adversely affect the work environment;
e) Hazards associated with inclement weather or emergency situations;
f) The complete lifecycle of facilities from specification through to decommissioning;

g) Determining the Opportunities

3.2.2 Methodology

A flow diagram for the HIRAO process is given in Annex. 1. The worksheet given in Annex. 2 shall be used to record the results of the analysis. A CFT (ensure consultation and participation of workers either by including them in CFT or by other documented medium) shall be nominated to facilitate and compile the worksheet as the analysis progresses.

The role of the facilitator is to:

- lead the team;
- prompt the brainstorming effort;
- manage the discussion without compromising creativity;
- identify the key issues;
- ensure that the worksheet accurately reflects the points discussed
- and all foreseeable risks are identified and documented along with required control measures.

The HIRAO process shall be broken down into the following basic steps:

- List down all activities / Operations (Routine, Non-routine activities and situations (like severe rain, extreme temperature, emergencies etc.) inside the plant and the activities and-situations outside the plant which directly or indirectly controls the working conditions inside the plant.
- These activities and situations must include the infrastructure, machines, equipment, materials, substances and physical conditions of the workplace.
- Select the operation / activity which is to be considered.
- Describe the operation / activity which is to be carried out with machine or equipment is being used and define the occupation (Like Driving, Brick work, Rag picking etc.)
- Brainstorm all the potential hazards and risks associated with the job.
- While listing the potential hazard proper attention must be provided to design, testing, production process, assembly, delivery, maintenance, disposal, human factors and how the work is performed.
- During the listing of the hazards; a proper listing of past relevant incident (internal or external to the organization) including emergencies to be done.
- All proposed changes in organization, operations, processes, activities and the OH&S management system to be considered while performing HIRAO.
- Change of knowledge and information about hazard shall also be included in HIRAO
- Identify the reason of hazard either by source, situation or Act.
- Identify the type of concerns / situations either an interested party is affected or a legal concern or an Emergency Situations
- All Legal concerns and Emergency conditions must have the required control in place, should be categorized Un-acceptable irrespective of quantitative analysis hence need not to calculate the risk rating. All legal concerns & emergencies shall also be identified as OHS risks.
- For each hazard define the worst-case outcome based on the criteria defined in Annex – 4 and the existing controls as defined in Annex – 3.
- Assess the probability, severity, and level of risk with the existing controls in place for hazards.
- Based on risk matrix as Figure – 1 categorize in acceptable and Un-acceptable risks.
- Discuss about the remedial actions / additional controls and agree on most suitable and feasible solution based on hierarchy of control as per risk acceptance.
- Assess the residual risk following the implementation of the proposed actions or controls.

- Identify the OHS Risks & Opportunities based on the risk acceptance.
- Select the next area of the plant or the next job until the HIRAO is complete for the entire plant consisting of all activities.

Some Example of Hazards are given below for the reference.

Biological Hazard

Consumption of infected food
Consumption of infected medicine
Contact with infected coolant
Contact with infected medical equipment
Contact with infected wastes
Contact with mineral wool
Exposure to honey bees
Exposure to infected environment
Exposure to infected patients
Exposure to snake
Exposure to wild animals
Exposure to wild insects
Inhalation of infected air
Drinking of contaminated water

Fire Hazard

Accumulation of flammable liquid near heat source
Development of high pressure
Exothermic reaction
Generation of excessive heat
Generation of high temperature
High accumulation of combustible/ flammable waste
High accumulation of flammable gas/
Hot work in fire prone zone
Leakage of flammable gas/ vapor in sparking zones
Leakage of flammable liquids on hot surface
Loosely connected electrical wires/ devices
Overloading the electrical circuit
Poor access to switch board

Ergonomical Hazard

Lifting of heavy loads
Working in awkward postures

Mechanical Hazard

Collision of trolleys in motion
Exposure to trap zone between two things
Exposure to trap zone between belt and pulley in motion
Exposure to trap zone in energized machinery
Hit against the moving object
Hit by flying broken tool/ cutter
Hit by flying component
Working with unguarded machinery

Chemical Hazard

Consumption of expired medicine
Contact with chemical
Contact with corrosive chemical
Exposure to dust
Exposure to oil mist/ coolant mist
Exposure to toxic gases
Ingestion of toxic chemical
Inhalation of chemical fumes
Inhalation of toxic vapours

Physical Hazard

Lack of expansion joints
Lack of heat insulation
Lack of ventilation
Lack of vibration damping
Over speeding of the vehicle
Unsecured working at elevated platforms
Unsecured working at heights
Unsecured working at roofs
Usage of damaged slings/ ropes/ material handling equipment
Walking in poorly illuminated walkway
Working in poorly illuminated area
Walking in slippery floor
Walking over unsecured pit
Weak foundation

Electrical Hazard

Exposure to bare live wires in electrical circuit
Exposure to damaged/ exposed live wires in electrical circuit
Exposure to unearthed machinery/ equipment
Poor access to switch board

Physical Hazard

Application of high hand force
Contact with hot objects
Contact with sharp edges in the tool/ cutter
component
Exposure to excessive cold
Exposure to excessive heat
Exposure to noise <=90 dB
Exposure to noise >90 dB
Exposure to pressurized gasses
Exposure to pressurized liquid
Exposure to pressurized steam
Exposure to radiation
Exposure to soil dust
Exposure to vibration
Hit against a protruding object in the walkway
Hit against a stationary object
Hit against the parts in the machine
Hit by broken glass
Hit by broken hand tools
Hit by falling imbalanced trolley
Hit by falling material kept on a runnig machine
Hit by falling of unsecured objects from height
Hit by falling overloaded trolley
Hit by sharp edge
Inadequate entry and exits
Inadequate fire retardency
Inhalation of contaminated air
Lack of emergency exits

The involved CFT should have access to any supporting information or documentation that might add value to the assessment such as details of previous incidents, Process Flow Diagrams (PFDs), Piping and Instrumentation Diagrams (P&IDs), Safety Data Sheets (SDS), plant layouts, Audit reports, PSA etc.

The IEISL / EE qualitative criteria given in Appendix 3 shall be used to assess the probability of occurrence and potential severity of the scenarios considered, which will, in turn, define the level of risk (i.e. Acceptable and un-acceptable). The risk is assessed based on the potential impact on people, assets, and company reputation.

3.2.3 Risk Acceptance

Based on the risk level, as derived from the IEISL / EE risk matrix (Figure 1) and assigned during the HIRAO assessment, the following actions shall be taken to ensure effective risk management.

Un-Acceptable

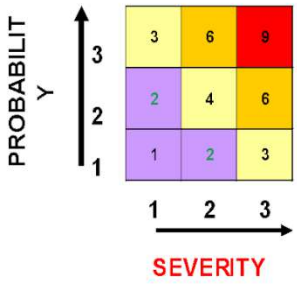
If the residual risk is 9 (Intolerable), then the operation or activity shall require immediate action; if the residual risk is 6 (Significant) urgent management attention is needed. These risks give rise to OHS Risks.
If the residual risk is 3 or 4 (Medium), then plant has to implement risk reduction measures within a defined period. It gives the opportunity to enhance the OHS system to implement the risk reduction measures.

Acceptable

If residual risk is 2 then monitoring may be required to verify ongoing effectiveness of controls. It also provides the opportunity to investigate more cost-effective controls. While if residual risk is 1 than no additional control is required but to enhance the safety standard it provides the opportunity to identify the full-proofing of the process.

Risk matrix

The seriousness of a risk is rated in the following risk matrix:



Risk Level	Category	Abbreviation	Meaning	Action Plan	Risk or Opportunity
9	NA (Not Acceptable)	I	INTOLERABLE	Immdiate Action Required	Risk to OHS
6		S	SIGNIFICANT	Urgent management attention needed.	
3,4		M	MEDIUM	Implement risk reduction measures within a defined period.	Opportunity
1,2	A (Acceptable)	A	ACCEPTABLE	No additional controls are required. Monitoring may be required to verify ongoing effectiveness of controls. Investigate more cost-effective controls	Gives the Opportunity

Figure 1: The IEISL / EE Risk Matrix

3.2.4 The CFT

The selection of the CFT has a direct effect on the usefulness and quality of the HIRAO process. The CFT shall consist of personnel that are knowledgeable about the plant being considered, its operation and maintenance, the materials used and the activities to be undertaken. The team can be relatively small but it should contain sufficient knowledge and expertise to be able to identify all the hazards and the risks associated with the plant and the activities.

As a minimum, the assessment team should include: the equipment plant supervisor/equipment engineer or the process plant supervisor/process engineer for the plant; operations representatives (supervisor, senior operator); maintenance representatives (supervisor, senior technician) and an HSE representative. The HSE representative shall ensure consistency of approach and provide input on the

hazards, risks and the potential severity of the consequences. Where specialized knowledge is required to address specific hazards or risks then additional team members can be temporarily included as necessary.

3.2.5 Roles and Responsibilities

A RACI chart for the HIRAO process is given in Table 1 below. The RACI chart defines who is responsible and accountable for each step in the process and who needs to be consulted or informed.

Table 1: RACI Chart for the HIRAO Process

Process Step	Project Head / Manager	Engineers	CFT
Define the scope of the assessment	A	R	I
Form the CFT	A	R	I
Select area, process or job	A		R
Identify the hazards	A		R
Identify the present controls	A		R
Assign probability and severity	A		R
Determine the current risk level	A		R
Identify remedial actions/controls	A	C	R
Identify the responsible party	A	C	R
Determine the residual risk	A		R
Review the HIRAO for accuracy and Completeness	A	R	C
Add HIRAO to database	A	I	R
Verify controls are implemented	A	C	R

Legends
R: Responsible for Carrying out the Activity
A: Accountable for the Outcome of the activity
C: Must be Consulted
I:Must be Informed

3.2.6 Timing of Assessments

HIRAO shall be reviewed and updated when:

a) There is a change to the existing plant or new facilities are added;
b) There is a change to the hazards, operational environment or working conditions;
c) There is a change to the activities undertaken or new activities are proposed or there are any changes as per Management of Change procedure;
d) There has been an incident / accident/ occupational illness or high potential near-miss.

Any changes in the HIRAO shall be circulated to all concerned agencies and all the changes must be documented as per MOC.

Each HIRAO shall be subject to review at least every year from the date of the last revision if there have been no changes.

3.2.7 Verification of Controls

After completion of the HIRAO, it is the responsibility of the line management of the concerned project to:

a) Disseminate the key findings from the HIRAO and specifically highlight any medium or high risks and their associated controls;
b) To check that the identified controls have been implemented and are being complied with in the field.

Checking the effectiveness of controls can be achieved through the inspection of documentation such as SOPs, method statements, work permits, inspection and maintenance records, training records, and direct observation.

4. Associated Studies

There are a number of associated studies that are outside the scope of this procedure that can nevertheless provide useful input into the identification of risks and controls.

4.1 Hazard Operability Study (HAZOP)

A HAZOP is a structured and systematic assessment of processes or operations to identify and evaluate problems that may represent risks to personnel or equipment by examining the impact of deviations from normal operations.

4.2 Hazardous Area Classification (HAC)

A HAC assessment involves the evaluation of a manufacturing or process facility to identify areas where potentially flammable atmospheres can occur, to enable the selection of equipment that will minimize the chances of ignition.

4.3 Fire Risk Assessment (FRA)

An FRA is used to identify what needs to be done to prevent fires and protect personnel. It is a structured process for identifying fire hazards, the personnel at risk and what can be done to eliminate or reduce the risks.

5. Communication and Dissemination

For the risk assessment and management practices described in this procedure to be effective IEISL / EE personnel must be made aware of the workplace risks and the associated controls. The identification, implementation and, maintenance of effective controls is key to ensuring that all workplace risks are appropriately managed. Employee participation, consultation, and communication are essential to a successful outcome.

5.1 IEISL / EE Company

This latest version of this procedure shall be made available to all IEISL / EE employees. It is a line management responsibility to ensure that the hazards, risks, and controls identified through the application of this procedure are effectively communicated to supervisors and shop floor workers. A

wide range of mechanisms are available to achieve this goal, including training, coaching and toolbox talks, etc.

5.2 Contractors

IEISL / EE has a responsibility to ensure that its contractors are made aware of the hazards, risks and associated controls that can affect them while working for IEISL / EE. It is the responsibility of the IEISL / EE contract supervisor to ensure that these are effectively communicated to contractors prior to the starting work on IEISL / EE facilities.

6. Sources of Information

Relevant sources of information include:

Operation and maintenance manuals;
PFDs and P&IDs;
Plant layouts;
Chemical inventories;
SDS;
Incident investigation reports;
Standard operating procedures;
Work permit audit reports;
External party audits and technical reports etc.

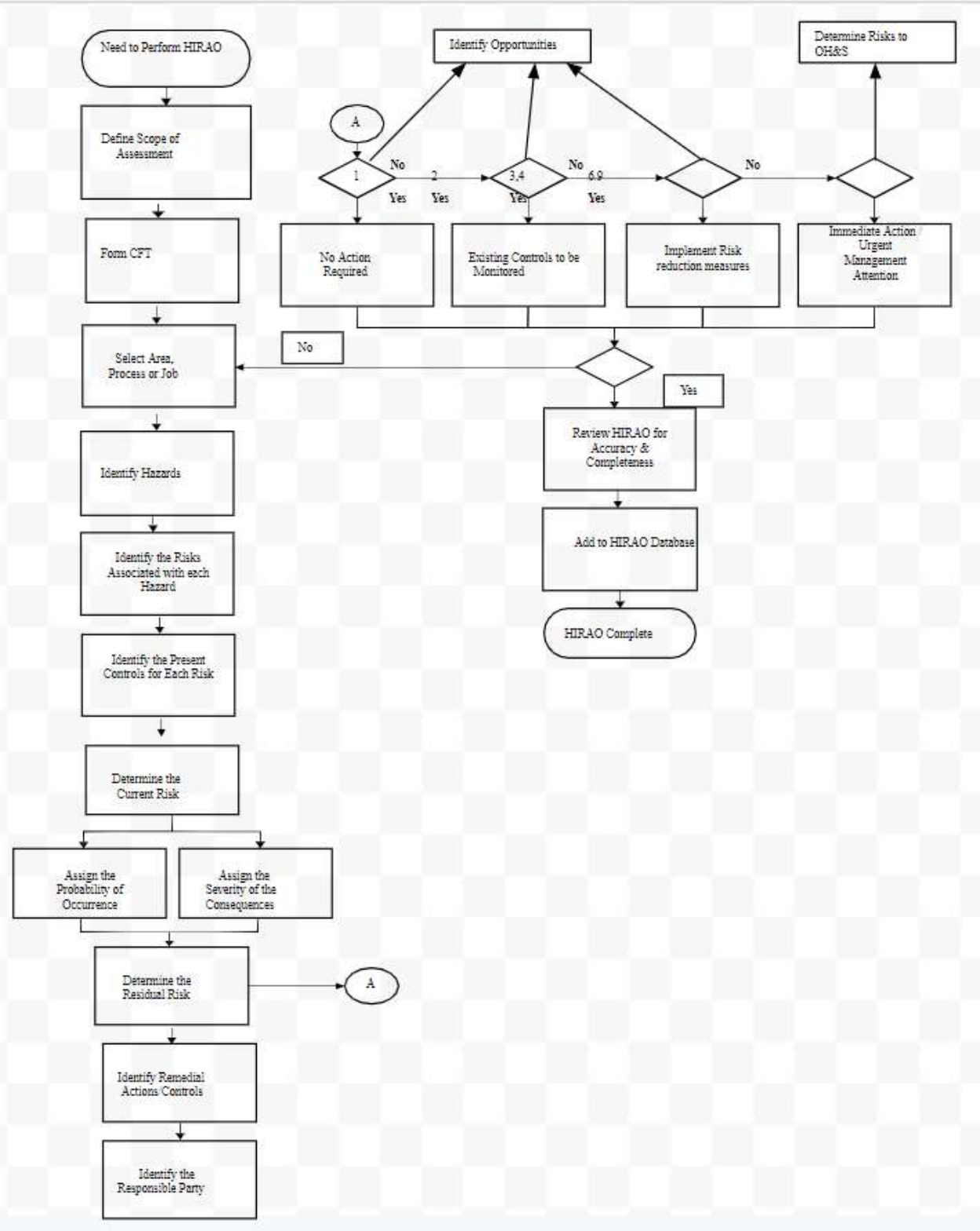
7. Management of Change (MOC)

No changes shall be made to this procedure without approval from the IEISL / EE HSE General Manager. Any suggestions or recommendations for updates or improvements to this procedure should be submitted in writing to the HSE General Manager. Each submission should give details of the proposed amendment and the reason why it is considered necessary.

The Site HSE officer / supervisor will keep a log of all change requests, prioritize them for action and, subject to IEISL/EE HSE General Manager approval, schedule them for inclusion in the next relevant update of the document. Earlier versions shall be retained in accordance with the IEISL / EE document management system.

8. Annexures

Annex 1: HIRAO Process Flow Diagram



Annex 2 - HIRAO Worksheet

INDO ENVIRO INTEGRATED SOLUTIONS LIMITED																				
Hazard Identification, Risk Assessment, Determination of Control And Identification of Opportunities																				
Location / Plant					CFT Members									Date of Preparation					Next Review	
S. No.	Operations/ Activity	Occupation Involved	OH&S Hazards	Source, situation or Act	Risk (Indicate body part, if possible)	Emergency Situations (Y/N)	Legal Requirements (Y/N)	Base Risk Assessment		Base Risk Level	Acceptable/ Unacceptable (A/UA)	Existing Control in Place & in Use (A/B/C/D/E)	Residual Risk		Final Risk Level	Acceptable/ Unacceptable (A/UA)	Define Risk / Opportunity	Additional Control Required (Consider from control A onward)	Responsibilty	Target Date of Complition
								Severity	Probability				Severity	Probability						

Annex 3 - Hierarchy of Controls

HIERARCHY OF CONTROLS			
Level of Control	**Controls**	**Description**	**Concept**
A	Elimination	Elimination of process/dangerous operation, reorientation of work place, machines etc. so as to eliminate the hazards.	No Activity/No Man/No Machine/No Material than No Hazard. If no hazard than no RISK.
B	Substitution	Alteration/modification/replacement of machine, tolls, substances etc. so as to minimize/reduce the risk.	Change in type of hazard which has less Risk Level
C	Engineering Control	Automation, robotic operations, safety guards, limit switches, Auto Switch off Buttons, Warning Hooters, Warning Signals, Sensors, Human Sensors, Floor Mounted Ladders, Deployment of Competent Person etc.	Activity/Machine/Materials will be there and hence associated hazards too. Controls here are inbuilt with machine (mostly mechanical/alert/emergency indicators) to avoid contact of hazard and human.
D	Administrative	Signage, warnings, SOPs, OCPs, Work Instructions, Motivational program., Trainings, Penalties Etc.	Activity/Machine/Materials will be there and hence associated hazards too. Controls are mostly "WISH" in terms of display/trainings to control risks. If practice does not improve RISK Shall Happen.
E	PPEs	Correct type of Helmet, Nose mask, Aprons, Earmuffs/plugs, safety belts as per type of the hazards.	Minimum Shall be provided.

Annex 4 – Criteria

Criteria for evaluating the severity and probability of a risk

Weightage	Criteria for Severity	
	Severity (Injury / ILL Health)	**Explanation**
1	Minor injury/slightly harmful	First Aid required on job, Superficial injuries, Minor cuts, bruises, minor burns, temporary ill health, irritation from dust/noise/vibration etc., Nuisance/ Irritation/ Discomfort, Absenteeism from work for few hours but less than a shift or an assets / materialistic loss of less than Rs. 50000/-
2	Moderate injury/Harmful	Multiple injuries, minor fractures, serious sprains, ill-health leading to permanent minor disability, Absenteeism from work for more than a shift or a materialistic loss of More than Rs. 50000/- or loss of company reputation at regional level
3	Catastrophic injury/Extremely Harmful	Death, Severe life shortening diseases, Occupational cancer, amputations, fatal injuries, Permanent Disability or a loss of company reputation on National / International level

Weightage	Criteria for Probability	
	Probability (Likelihood of an occurrence of a hazardous exposure)	**Explanation**
3	Likely	Hazardous exposure is expected to occur in ALL circumstances.
		(Continuous to once a day)
2	Unlikely	Hazardous exposure is expected to occur in MOST circumstances.
		(Once a week but not daily)
1	Highly Unlikely	Hazardous exposure WILL PROBABLY occur in MOST circumstances.
		(Once a month or more but not weekly)

Annex–ESMS 5-2: Contractor Environmental & Social Management Plan

1. Statement of Procedure

The goal of Indo Enviro Integrated Solution Limited / EverEnviro (IEISL / EE), and thereby the goal of all Contractors and visitors to any IEISL / EE property, is to manage risks to prevent fatalities and other occupational health and safety incidents and to commit to a safe and healthy work environment. All Contractor employees are responsible to work safely and immediately resolve any unsafe conditions or observed at-risk behaviors / unsafe acts and to take right precautions to reduce the risks of workplace dangers to workers and the public.

All Contractors, suppliers, vendors and visitors must comply with the provisions of this procedure and the IEISL / EE Health and Safety Policies. Where differences in detail or requirements exist between this manual and a site-specific requirement, the more stringent policy will prevail. Non-compliance with health and safety requirements may result in work stoppage or removal of Contractor or its employee(s) from IEISL / EE property. Any wilful or repeated non-compliance could result in Contractor dismissal.

Regulatory compliance is the responsibility of each Contractor. This procedure is not to be construed as superseding national, regional or local regulations, nor is it a definitive or comprehensive listing or description of the applicable rules and regulations.

2. Contractor Selection

Selecting a qualified and skilled contractor is a major step toward achieving safe contractor performance. Proper framing of the scope of work, pre-qualification criteria, special contract requirement, experience profile of the contractor and its workmen/ supervisors etc. is essential for proper selection of a contractor. The contractor's safety standard can be judged by the following attributes:

- The contractor's safety commitment, as demonstrated by its own safety programs supported by their top management.
- Experience profile of the contractor, its supervisor and workmen.
- Past safety performance of the contractor as can be evaluated through old data tracking or through documentary evidence submitted by the contractor such as Accident data, Near-Miss data, safety violation during the job, system of safety training, hazard identification and mitigation plan, safety meeting, safety promotion program, safety enforcement and disciplinary action plan, safety standard available with contractor for similar jobs etc.
- Availability of safety equipment/ appliances with the contractor.
- Availability of qualified and skilled safety personnel with the contractor to monitor safety performance during the progress of the job.
- After completion of the work as per contract, performance towards Health, Safety & Environment of the contractor will be evaluated & contractor safety performance form (Annex. 1) will be filled by the Engineer In-charge / Project HSE head of IEISL /EE on monthly basis during the course of work. This form will be used in future during selection of contractor for job allocation.

3. Roles and Responsibilities

3.1 Project Manager

Project Manager is the IEISL / EE employee who has oversight for the services being performed and/or responsibility for managing the project on behalf of IEISL / EE. Responsibilities include the oversight of health and safety performance of the Contractor(s), the provisions of this procedure and any changes or revisions, safety advisories to include Potential high-risk event(s), and to communicate project relevant safety information in a timely manner.

3.2 Contract Administrator

Contract Administrator is the IEISL / EE employee who manages the contract with the Contractor on behalf of IEISL / EE. They manage the Contractor relationship as well as conformance with, and adherence to the contract documents.

3.3 IEISL / EE Site Health and Safety Head

The IEISL / EE site Health and Safety Head periodically audits Contractor performance and adherence to the provisions of this procedure, company policies and regulations. Organizes and presents monthly health and safety meetings to discuss project-relevant health and safety issues. Provides technical support to the IEISL / EE Project Manager as requested or needed.

3.4 Contractor Roles & Responsibilities for Health and Safety (H&S)

A contractor is any person, persons, firm or company appointed / asked to undertake / do work for IESISL /EE. Contractor is a third-party provider, its employees and all subcontractors and their employees who perform services for IEISL / EE and its subsidiaries. Visitors, consultants, delivery personnel and others will be excluded on a case-by-case basis based on risk and exposure.

Contractors are responsible to site / project manager for the control and management of health and safety in relation to their undertaking and work activities at IEISL /EE. Contractors shall comply with current legislative requirements, best practices and industry standards, contractual terms and conditions; and IEISL / EE HSE policy. Contractors are responsible for establishing, implementing and maintaining their health and safety programs to meet the safety goals and objectives as stated by IEISL / EE, and for monitoring the programs of their subcontractors to ensure compliance with IEISL / EE expectations.

Contractors have the obligation to:

1) Abide by all national, regional, local regulations and IEISL / EE policies and procedures.
2) Provide the safety plan as per Annex. 2.
3) Protect the public from all hazards which result from Contractor activities.
4) Provide all Contractor employees with necessary personal protective safety equipment.
5) Maintain the highest standards of housekeeping.
6) Provide appropriate risk assessment and method statement prior to work and ensure all employees have been made aware to those risk assessment and method statement along with local site / project rules.
7) Ensure all Contractor employees have received project health and safety orientation and IEISL / EE required health and safety training as well as specific task training requirements for the project as identified in the Contractor's Health and Safety Plan (HASP).

8) Keep all registers, records and reports up-to-date and properly completed, and maintained for review by IEISL / EE and / or any legal or regulatory agencies.
9) Stop the job when an unsafe act or condition is recognized and take prompt corrective action.
10) Ensure that no Contractor's manager, supervisor, owner or other person in charge requires, condones, asks or allows employees to work in or around unsafe acts or conditions. If so, it may be result in immediate removal from the project.
11) Require management or supervisor level representative for each Contractor to attend periodic (as defined by the project) project safety meetings to which they have been notified.
12) Inform the site / project manager or site / project safety head about all injuries, incidents including near-misses, reportable accidents, diseases and dangerous occurrences; if any.

3.4.1 Contractor Senior Management/Project Manager

- Establish and enforce rules and programs designed to promote health and safety.
- Hold individuals accountable for fulfilling their health and safety responsibilities.
- Provide training for employees to perform tasks safely.
- Provide a safe and healthy work environment.
    - Conduct regular safety inspections, maintain records, and continually monitor for effectiveness.

3.4.2 Contractor Project Supervision

- Be accountable for on-the-job health and safety and ensure that all deficiencies are corrected.
- Monitor employee actions and behaviors.
- Review and investigate incidents, supervise correction of unsafe practices, and file incident reports.
- Conduct regular project health and safety meetings and provide employees with proper instruction on related requirements.
- Require conformance to health and safety standards from subcontractors.
- Instruct new employees and existing employees performing new tasks on safe working practices.
- Make sure personal protective equipment is available and used properly.
- Secure prompt medical attention for any injured employees.
    - Ensure regular and thorough communication with the Project Manager.

3.4.3 All Contractor Employees

No employee shall be required or knowingly be allowed to work in an unsafe environment. Each employee is responsible for learning and abiding by those rules and regulations which are applicable to his or her work, and for reporting and correcting observed or anticipated hazards to his or her immediate supervisor. The Contractor is responsible to provide each employee initial training on the project health and safety rules, risks of the tasks and controls to mitigate the risks prior to starting work. Contractor employees will:

- Report to work fit for duty, well-rested, free from effects of drugs or alcohol.
- Work safely to ensure personal safety as well as that of co-workers and others.
- All contract employees are responsible and accountable for working safely and productively, while remaining aware of the hazards of their jobs and following recognized safe job procedures.

- Follow all health and safety rules and keep work areas clean and free of debris and obstacles.
- Request help when unsure about how to perform any task safely.
- Utilize established health and safety controls to reduce risks of the tasks performed.
- If work cannot proceed safely, stop work and notify their supervisor until the necessary steps have been taken to address and correct the hazards.
- Report any uncorrected unsafe acts or conditions to the appropriate supervisor.
- Correct unsafe acts or conditions within the scope of the immediate work.
- Use and maintain all health and safety devices as required.
- Not interfere or disable any safety device including remote control, automatic equipment, safety interlocks or warning systems or guards.
- Immediately report incidents (injury, illness, property damage, near miss, environmental events, etc.) to supervisor.
- Not tamper with the scene of a safety event.
- Not tamper with any emergency medical supplies or emergency vehicles.
- Not engage in horseplay.
- Not interfere with any radio communications.
    - Not use cell phones or other electronic devices while operating mobile equipment or vehicles.

3.5 General Responsibilities

It is the Contractor's responsibility to be familiar with the provisions and requirements of this Contractor Health and Safety procedure, applicable legal requirements, act, rules and regulations, and the IEISL / EE Health and Safety Policy. When and where a revision of the procedure occurs, the Contractor shall implement any changes which result from the revision within 48 hours, of the time they are notified of that revision or obtain an approved variance. Implementation includes actions such as, but not limited to, training of personnel, acquisition of equipment, revision of standard operating procedures, and any other actions which provide the means to achieve the requirements of a policy.

Within ten days after receipt of notification of the contract award, but prior to the start of work, the Contractor must submit to the IEISL / EE representative the following:

1) Final list of all subcontractors working on the project with all IEISL / EE required health and safety documentation.
2) Validation of drug and alcohol testing of Contractor employees performing services on IEISL / EE property or projects with negative or non-negative test results, maintaining strict confidentiality.
3) Written Hazard Communication Program.
4) Written respirator certifications of fit testing (Note: applicable for project work requiring respirators)
5) Written Medical Surveillance Program, as applicable.
6) Any project related contractor's standard operating procedures (i.e.
7) utility locate, confined space entry,
8) hazardous energy control, etc.)
9) All other relevant written Occupational Health & Safety Programs (i.e. Hearing Conservation, PPE Program, Respiratory Protection, etc.)

10) Accepted written HASP for proposed work.
11) Risk assessment of work activities in order to identify protective and preventive measures and record significant findings.
12) Ensure the adequate provision of emergency arrangements if not provided by IEISL / EE.
13) Training documentation for equipment/machinery/tasks that employees/subcontractors operate or perform. This includes copies of specialized training certificates and current refresher documentation for all employees on project.
14) Copies of licenses to operate equipment and associated regulated inspections.

3.5.1 Contractor Health and Safety Plan (HASP)

Prior to beginning work, Contractor shall prepare and submit to the Project Manager / HSE head for review and acceptance a project-specific HASP that reflects the Contractor's intentions for full and complete compliance with this procedure and associated health and safety policies. The plan will include:

- Description of the duties and responsibilities of supervision and health & safety personnel (if required) for the proposed work
- Organizational chart showing the reporting relationship between project/construction and H&S oversight (management, supervision, workers and health & safety personnel) for the proposed work
- The identification of project hazards and control plan
- Risk assessment (including JHA/JSA) process
- Reference to all previously submitted contractor's standard operating procedures
- Reference to all applicable health and safety policies and procedures
- Detailed incident reporting and investigation process
- Traffic control plan (as applicable)
- Written emergency response plan including on-site and client contact information, nearest medical facility/hospital, ambulance, fire department, police/sheriff, etc.
- List of emergency equipment proposed for work location Written project specific occupational health programs.
- Copies of HIRA/JHA/JSA forms
- Copies of supervisor and employee work area inspection/examination forms
- Copies of equipment/machinery pre-operation inspection forms, as applicable
- Approved training plan if required by regulatory agency

The Contractor's HASP must also address any IEISL / EE facility specific health and safety provisions that are not identified in this manual.

Contractors shall attend a project safety conference with the IEISL / EE Project Manager and Health and Safety heads(s), during which, the Contractor's project specific HASP will be reviewed to ensure it meets all health and safety expectations and is specific to the job or task being completed. An IEISL / EE representative will communicate to the Contractor any specific details not addressed by the plan which must be included. Modifications to the HASP will be finalized at this meeting. Subsequent amendments or changes to the plan must be submitted for review and approval before being implemented.

3.5.2 Contractor Health and Safety Representation

Each Contractor shall provide, as a minimum, one full-time, qualified safety professional whenever the Contractor's workforce meets or exceeds defined number of employees. Additional fulltime,

competent health and safety professionals will be assigned to the project for each additionally defined number of employees. For some jobs/tasks, the IEISL / EE Project Manager may request additional safety support based on the risks rather than headcount. The names and credentials of all Contractor health and safety professionals that will be assigned to the project shall be provided to the IEISL / EE Project Manager and Health and Safety Department for review prior to initiating work. All Contractor health and safety professionals, through education, training and experience, must be capable of:

- Identifying existing or potential risks, including unsafe acts, of the tasks being performed.
- Identifying and implementing controls to mitigate the risks of tasks.
- Identifying working conditions that are unsafe, hazardous or dangerous to the health and safety of employees and the environment.
- Identifying any non-conformance with health and safety rules and policies, including at-risk behavior.
- Authorizing prompt action to maintain a healthy and safe work environment.

4. Training Requirements

- Each Contractor is required to ensure regular and continuing health and safety training for all employees and its subcontractor(s).
- All training will be conducted by a competent/qualified person and be provided before tasks are performed.
- All training must be documented and a process implemented allowing a quick verification of training received by any employee of the Contractor and its subcontractor(s).
- No individual will be allowed to work on any IEISL / EE property who has not received the required initial health and safety orientation training.
- Verification of training received should be readily available within 24 hours of request.
- Emergency case-by-case exceptions to training requirements may be granted by the Project Manager and Project Health and Safety Head.
- Training may include:
    - IEISL / EE health and safety orientation, to include this document ○ Project health and safety orientation – may be combined with IEISL /
    - EE health and safety orientation ○ Site safety/hazard recognition – may be combined with project health and safety orientation
    - Training identified in the Contractor's HASP ○ Regulatory training, as applicable
    - Specific IEISL / EE Health and Safety Policies, as applicable ○ Task Training, as applicable
- Health and safety orientation should address, as applicable, the following:

- Site-specific hazards
- Incident reporting procedures
- Emergency evacuation procedures
- Reporting of near miss, unsafe acts or conditions
- How to obtain first aid or summon for emergency help
- Hazard communication standard requirements
- Personal protective equipment requirements
- Identification of workplace hazards, risks and controls of those risks.
- Permit to Work System
- Drug and alcohol policy
- General safety rules responsibilities/critical safety rules
- Fire protection and exit procedures for the work area
- Safety procedures unique to each job
- Traffic procedures
- Environmental procedures
- Working around heavy equipment
- IEISL / EE Health and Safety Policies
- Roles, responsibility and accountability (employees, supervisor and management)
- Stop Work

5. Communication, Documentation and Reports

5.1 Health and Safety Meetings and Communication

The IEISL / EE Project Manager / Site health and safety head will hold regular Contractor health and safety meetings where Contractor's management representative must participate. Additional meetings requiring contractor attendance include, but are not limited to, the following:

Weekly Health and Safety Meetings: At a minimum, each Contractor supervisor will hold a health and safety meeting with employees in his or her work area. Meetings will be documented and records will be made available upon request.

Monthly Supervisor Safety Meetings: Each Contractor will hold or attend a monthly meeting for all supervisors and managers to review safety statistics and safety incidents addressing any safety concerns. IEISL / EE Project Manager or their representatives should be invited to these monthly meetings.

Safety Communications: Each Contractor shall be responsible for sharing with employee's pertinent information regarding health and safety as necessary with respect to: health and safety regulatory information, IEISL / EE health and safety information, communication of workplace incidents, etc.

5.2 Permits and Inspections

Where potentially hazardous activity is identified, no contractor will be permitted to work unless they are in possession of a "Permit to Work" signed by site / project manager or Contractor project manager if the activity is being performed by subcontractors or when contractor is overall incharge of the project.

Certain work activities, procedures and piece of equipment may require a "Permit to Work" which is specific to the following work activities. For example:

- High Voltage or Low Voltage Electrical Systems
- Maintenance or isolation of fire System
- Hot Work
- Working at Height, including Access Equipment and Towers Boilers and Pressure systems.
- Confined spaces.

- Machinery in motion.

Work activity permits and forms (confined space, hot work, pre-operational inspections etc.) provided by the Contractor are subject to review by the IEISL / EE Health and Safety Department for adherence to policies.

The Project Manager / site Health and Safety Head will identify any certifications or permits that Contractor may need for equipment, portable units, or scope of project. The issue of a Permit to Work must not be regarded as a mere formality. It will not be issued until and unless all necessary preliminary safety precautions are in place.

The authorization, receipt, clearance and cancellation arrangements in place must be strictly adhere to.

5.3 Monthly Report

All Contractors shall provide to the IEISL / EE Health and Safety Department and Project Manager (or their delegate) a monthly summary, in connection with the services provided in the preceding month, to include:

1) Number of lost time injuries
2) Number of first aid injuries
3) Number of occupational illnesses
4) Number of near misses
5) Number of hours worked by Contractor employees (Note: Hours and injuries reported must be specific to the location where services are being performed).
6) Fire incidents
7) Vehicle equipment damages
8) Property damages
9) No. of trainings provided along with no. of hours of training.
10) No. of inspections performed.
11) No. of unsafe acts / unsafe conditions identified and corrected.

These reports are to be project specific, not company-wide, and are DUE NO LATER THAN THE 5TH DAY OF EACH MONTH during the term of services being provided.

5.4 Documentation

Records of training, permits, safety meetings, etc. shall be maintained for the duration of the project/contract plus a minimum of three years, unless there is a regulatory requirement for them to be retained for a longer period of time.

6. Assessments, Inspections and Audits

Audits and/or inspections must be conducted to identify deficiencies and positive elements in health and safety performance to build and maintain a positive safety culture. They must be documented and corrective actions assigned to correct deficiencies, identify and track trends and evaluate the effectiveness of training and health and safety procedures and to ensure regulatory compliance. Contractor employees should be given opportunities to become involved with these audits and inspections. The type of audit and/or inspections required are listed below.

6.1 Workplace Examination

Each workplace will be examined by a competent person for conditions that may adversely affect the safety or health of Contractor employee(s). The workplace must be examined at least once each shift, before work begins or as Contractor employees begin work in that place.

6.2 Monthly Project Audit

The IEISL / EE and Contractor Project Manager shall jointly organize and perform a monthly documented health and safety assessment. Their supervisors and safety professionals should accompany them in their respective areas. Audit results will be documented and corrective actions will be identified and tracked to completion.

6.3 Equipment and Facilities Inspections

All Contractors shall operate, inspect and maintain equipment and facilities as directed. Each operator of stationary and mobile equipment must complete a written pre-operation inspection of the equipment prior to operation. Any deficiencies identified from the inspection will be corrected in a timely manner; however, if any represent an immediate safety hazard they must be corrected before the piece of equipment is placed into service. Any documentation related to Contractors equipment and facilities shall be made available for review upon request.

The IEISL / EE Project Manager and site HSE Head shall be notified when any additional equipment is added or changed after the project has commenced.

IEISL / EE reserves the right to inspect equipment prior to acceptance onto IEISL / EE property and anytime during use of the equipment on property. Equipment found to have deficiencies will be tagged out or removed from property until such deficiencies are corrected.

6.4 External Audits

Health and Safety Department and/or Contract Administrators or their delegates, will perform periodic, comprehensive safety audits of the Contractor's work areas. Any deficiencies will be documented. The Contractor will be required to respond in writing with the corrective actions taken or plan to address deficiencies. Follow-up audits will be conducted as necessary.

7. Specific Safety Requirements

7.1 Hazardous Substance Management

- All hazardous substances, including chemicals require prior approval from the Health and Safety Department and environmental department before being brought to the project.
- The Contractor shall provide a list of all hazardous substances proposed for use for the services being performed along with the corresponding safety data sheet (SDS), the anticipated quantity, and the use and storage location. This shall be made available to IEISL / EE for approval purposes.
- The list and respective SDS shall be updated on an ongoing basis -- substances previously not included in the initial submittal are subject to project approval and must undergo review before being brought onto the IEISL / EE property.

- Care shall be taken to select and use materials which can successfully accomplish the required work with minimal health or environmental impact.
- All hazardous substances must be removed from the project within three days of completion of the work involving the substances, or within three days of completion of the contract, whichever occurs first.
- Contractors must maintain the most current SDS provided by manufacturers and distributors.
- Contractors must have an established Hazard Communication Program that meets all national, regional and local requirements.

7.2 Personal Protective Equipment

All Contractors are responsible for providing and ensuring use of the required personal protection equipment (PPE). Each work area will be reviewed as to the hazards present, and appropriate PPE to control these hazards will be provided.

7.2.1 General Requirements

- Wearing jewelry is not permitted in areas where moving parts or equipment is located and/or where chemicals are being used.
- Approved, non-conductive hardhats, Safety Shoes and reflective vests are mandatory in all project areas 100% of the time.
- Bare feet, tennis shoes, sandals, or other footwear that doesn't meet the standard are prohibited. Metatarsal protection may be required when operating tamping equipment and where employees handle or carry heavy tools or objects.
- All PPE shall be visually inspected by the employee before use and after any event which may have adversely affected the PPE.
- Nothing shall be worn between the hardhat and head unless approved by the site Health and Safety Head / Project Manager or his delegate.
- Safety glasses with side shields will be provided by the Contractor where applicable.
- Appropriate gloves shall be provided and worn when handling hazardous objects or substances that could cut, tear, burn, be absorbed through the skin or otherwise injure the hands or health of employees.
- Other required equipment used under unusual circumstances such as high temperature work, handling corrosive liquids, etc., not specifically covered in this section shall be reviewed by the Site HSE Head / Project Manager with the Contractor and will be furnished by the Contractor when required.
- PPE shall be destroyed if it has been altered in any manner that reduces effectiveness.
- A tag line shall be used to control all loads and there will be no multi-tiering of loads (Christmas-Treeing).

7.2.2 Respiratory Protection

When necessary, Contractors will provide their written respiratory protection policy to include:

- Selection and use of respirators that specifies which respirator to use under specific conditions.
- Procedures for medical evaluation of each employee required to use respiratory equipment (Note: Medical clearance is required prior to respirator use).
- Procedural systems to ensure proper respirator usage is adhered to at all times, including policy of clean- shaven faces to ensure proper seal of respirator to face piece.

- Initial and annual training for employees on the proper use and limitations of respirators to be used for routine or emergency work to include respirator selection, functions and limitations of individual respirator types.
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding and otherwise maintaining respirators.
- Identification of, and communication on, workplace areas and job-specific tasks requiring respiratory protection to all employees.

7.2.3 Hearing Conservation

The criteria and requirements for occupational noise exposures are contained in IEISL / EE Health and Safety Policy. Employee hearing will be protected per accepted hearing conservation measures. Contractor hearing conservation programs will include:

- A written hearing conservation plan.
- Engineering and administrative controls to reduce employee exposures to 85 dBA or less.
- Training on the effects of noise exposure and the proper use of earplugs and earmuffs.

7.3 Other

7.3.1 Protection of Employees and the Public

All necessary precautions shall be taken to prevent injury to the public or damage to property of others. Precautions to be taken shall include, but are not limited to, the following:

- Work shall not be performed in any area occupied by IEISL / EE employees, any of its contractors, or the public unless specifically allowed by IEISL / EE.
- When it is necessary to maintain public use of work areas involving pedestrian ways and vehicular roadways, Contractors shall protect the public with appropriate shields, signage, barricades, guardrails, adequate visibility and entrance/exit.
- Appropriate warnings and instructional safety signs shall be conspicuously
- posted. In addition, a signalman shall control the movement of motorized equipment in areas where the public might be endangered.
- A temporary fence shall be provided around the perimeter of aboveground operations and excavations adjacent to public areas.
- Barricades shall be provided, where required, between work areas and walkways unless fences, guardrails, or sidewalk sheds have been used. Barricades shall be secured to prevent accidental displacement and shall be maintained except where temporary removal is necessary to perform the work. During the period when a barricade is temporarily removed for the purpose of work, a spotter shall be positioned at each opening in the barricade.
- Temporary sidewalks shall be provided when a permanent sidewalk is obstructed by a Contractor's operation.
- When night work is performed, illumination shall be provided from dusk to sunrise for all temporary walkways in both owner- controlled and project areas.

7.3.2 Welfare arrangements

- Contractors are required to provide and arrange their own suitable and sufficient welfare facilities as required by law.
- Contractor will ensure that all such facilities provided by them are kept in a clean and hygienic condition, and that any regulation or instruction laid down by the site HSE head / project manager is complied with.

8. Environmental Requirements

Contractors will comply with all applicable laws, rules, regulations, and standards, including IEISL / EE Corporate Environmental Policy. The Project Manager and site Environmental Department will decide whether permits or authorizations will be obtained by contractor or site. When obtained by the Contractor, they should be submitted to the Project Manager prior to commencing work. Additionally, the Contractor will:

- Immediately notify the Project Manager of any spills, releases or other environmental incidents and take all reasonable steps to prevent and clean up any release or spills.
- Provide and maintain adequate secondary containment for all hazardous chemicals, petroleum related products and process solutions that could damage the environment.
- Provide and maintain appropriate spill kits in work areas where petroleum products or hazardous materials are used.
- Properly label, accumulate and dispose of all waste materials generated from activities in accordance with project guidance. The contractor shall coordinate all disposal activities with the Project Manager.
- Prevent discharges to drains and/or sewers and not add, disturb, or modify storm water controls or out falls without prior written approval.
- Not disturb or take any cultural resources.
- Prohibit eating, drinking and smoking where chemicals, hazardous materials or waste materials are present.

9. Emergency Action and Incident Reporting

In the event of a serious incident or injury, immediately activate the project emergency response/notification system, maintain scene safety and trained Contractor personnel should render first aid to any incident victims. IEISL / EE will address any media inquiries or announcements and make other decisions critical to the overall site and project.

Emergency telephone numbers/radio channels must be posted in areas accessible to Contractor employees.

If an incident requires immediate notification to government agencies, the area must be secured and nothing disturbed or removed after evacuation of the injured employee until approval from all government agencies, and IEISL / EE representatives is received. The area can only be released by an authorized representative of IEISL / EE.

9.1 Incident Reporting

- Incidents of a serious nature i.e. reportable lost time injuries, dangerous occurrence or occupational diseases, may require "immediate" notification to government agencies and the IEISL / EE health and safety representative must also be notified. Contractors are responsible for this notification in the time limits set in regulation.
- All incidents shall be reported to the IEISL / EE Health and Safety Department immediately with the initial written report to be submitted by shift end. Initial reports will include, at minimum:
    - ✓ Location of incident
    - ✓ Name of persons involved
    - ✓ Equipment involved

- ✓ Time/date of incident
- ✓ Nature of incident: occupational injury, occupational illness, near miss, property damage
- ✓ Brief description of incident
- ✓ Where injured (body part)
- ✓ Name of person contacted for report

- Written final report is due to the Health and Safety Department within 48 hours of the incident, unless otherwise extended based on severity of incident.
- Each incident will be reviewed immediately to determine if it had the potential to result in a fatality. In such instances, the event will be investigated with the same rigor as if a fatality had actually occurred.
- Contractors may be required to conduct or participate in any investigations and/or root cause analysis (RCA).
- Action plans may be developed and implemented to prevent re-occurrence.

9.2 Emergency Response

All Contractors have responsibility for developing and maintaining a current emergency response/evacuation plan for their employees on the project. An emergency or disaster is an event or condition, which has the potential of causing bodily injury or harm to employees and/or significant damage to the property and/or infrastructure.

Contractors will develop a project specific emergency response plan in coordination with the project and site-specific plans and procedures to include evacuation routes, rally point locations, emergency responders, communication plans, emergency alarms/signals and employee training. These plans must be posted in all Contractor controlled/inhabited locations.

10. Drug and Alcohol Testing/Programs

It is the position and intent of IEISL / EE to maintain a workplace free from the use and influence of drugs and alcohol— this includes all stakeholders in a safe workplace, including Contractors. Contractors with drug and alcohol programs shall have a written drug and alcohol program consistent with national, regional and local regulations. It shall be made available to IEISL / EE upon request. Contractors without drug and alcohol programs shall notify the IEISL / EE Project Manager / Site Health & Safety Head, in writing of their lack of a drug and alcohol program.

Contractor employees shall be subject to an initial test, with a negative result, prior to performing services on any IEISL / EE properties or projects. They shall be periodically included in the IEISL / EE contractor managed, unannounced random testing schedule with a probability of 20% (or one chance in five) of Contractor's employees being selected for testing in a calendar year. Only negative or nonnegative test results will be submitted to IEISL / EE, no personal identifying information should be provided.

11. Testing Requirements

The screening test shall require each employee to produce his or her sample (biological sample being one or more of the following: urine, blood, hair, breath as applicable and relevant). IEISL / EE will not bear the cost and expenses associated with drug screening.

Employees producing non-negative test results will NOT be allowed to work on any IEISL / EE property for a period of two years from the date of testing.

All test results will be handled with the utmost confidentiality. Information will be provided only on a need-to-know basis. All samples will be conveyed maintaining a documented chain of custody at all times.

12. Enforcement

Contractors will not tolerate the use, possession or distribution of alcoholic beverages or drugs on IEISL / EE property, nor the presence of any person under the influence of drugs or alcohol. Individuals found in violation of this policy will immediately be escorted off the property. Accordingly, persons who exhibit behaviors causing there to be reasonable suspicion that they may be under the influence of drugs and/or alcohol will be directed to leave IEISL / EE property. These persons may not return until their employer can certify to IEISL / EE that the employee has passed a timely drug test and/or non-invasive test for alcohol and, in fact, was not under the influence of drugs or alcohol. Individuals testing positive, or who tamper with or alter a drug and/or alcohol sample, or who refuse to submit to testing in a timely period will forfeit their right to work at any IEISL / EE property.

On a quarterly basis, the Contractor shall provide information on their drug and alcohol testing processes and program which details:

- The number of persons tested each year, aggregate for the quarter being reported
- The number of non-negative results determined each year, aggregate for the quarter being reported
- The percentage of persons selected to be randomly tested along with the frequency of random testing
- A basic program description which describes the processes in place and who manages the program

NOTE: The Contractor shall not submit any confidential information of the individuals who have been or are subject to testing.

Annex - ESMS 5-1-3: Labour and Working Conditions Risk Evaluation Procedure

1. Introduction

This procedure is being implemented to ensure systematic identification and evaluation of risks associated with labour and working conditions.

2. Definitions

Working Conditions means the conditions under which the work of an employee is performed, including physical and other welfare measures as required by labour legislations. Working conditions cover a broad range of topics and issues, from working time (hours of work, rest periods, and work schedules) to remuneration, as well as the physical conditions that exist in the workplace.

3. Responsibility

The facility in-charge of human resources will be responsible for implementing the procedure on Labour and Working Conditions Risk Evaluation in consultation with representatives of all departments.

4. Procedure

The labour and working conditions risk evaluation will consider gaps and absence of procedures and practices related to:

- Legal requirements
- Human Resources Policies and Procedures
- Working Conditions and Terms of Employment
- Workers' Organizations
- Non-Discrimination and Equal Opportunity
- Retrenchment
- Grievance Mechanism
- Child Labor
- Forced Labor
- Deployment of security
- Migrant labour (as applicable)
- Worker's accommodation (as applicable)
- Contractors and contract labour
- Personal Protective Equipment (PPE)
- Primary supply chain and risks of forced labour and child labour

4.1 Risk Assessment

The labour and working conditions risk will be assessed as 'High', 'Medium' or 'Low' based on consultation, so far as is reasonably practicable, with Plant Head, HSE In-charge and HSSE Team.

The existing controls will be evaluated on two criteria:

- Whether the control is well designed?
- Whether the control is effectively implemented?

The existing controls in place could be Procedures/ Practices/ Measurement & Monitoring Measures and their combinations.

The criteria for evaluating existing controls is presented below:

Well Designed Control?		Effectively implemented?	
Need improvement	3	Deficient	3
Adequate	2	Marginal	2
Strong	1	Effective	1

For the above use the higher number

The risk assessed through consultation, will consider the status of existing controls and document the residual risk.

For labour and working condition aspects that are identified to have high or medium risk and the associated controls are assessed to be weak in terms of designed or are deficient in implementation will be considered to be of high-risk category under residual risk.

4.2 Additional Controls

All aspects that are identified to have high residual risk will be further addressed through additional controls like new procedures or through strengthening of the implementation of the existing procedures. These will also be documented.

4.3 Labour & Working Conditions Risk Register

The Labour & Working Conditions risk assessment outcome will be documented as per the format in **Tool: 5-1/F3**

At a minimum, the assessment against the above-mentioned requirements will be reassessed once every three years or as and when required to make any necessary modifications and to reflect any changes to processes. This review will be documented.

Annex-ESMS 9-1: Terms of Reference for Phase I Environmental Site Assessment

This Annex through its various sub-sections provides the Terms of Reference (ToR) for conduct of the Phase I Environmental Site Assessment (Phase I ESA) as well as reporting structure. It is expected that the external consultants engaged will adhere to the ToR and reporting structure for conduct of the Phase I ESA.

1. Description of the Project

[While issuing the ToR, brief details about the target project to be assessed will be provided. The facilities to be covered under the Phase I ESA scope will be specified here]

2. Purpose of Study

To investigate the existing and the historical land use to determine potential environmental concern, associated contaminants of potential concern of the project site. The study through visual observations, historical use evaluations and regulatory records identifies potential or existing environmental contamination liabilities.

3. Reference Framework

The Phase I ESA will be carried out in accordance with the following reference framework:

- ASTM International (ASTM) Standard E1527-21 'Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process'

4. Consultant Qualifications

The assignment has to be carried out by suitably qualified independent environmental experts, with appropriate environmental site assessment background and experience.

5. Objective and Scope of Work

The Phase I ESA is to be conducted to identify known/suspected environmental issues associated with the site, including recognized environmental conditions (RECs), historical recognized environmental conditions (HRECs), and controlled recognized environmental conditions (CRECs) as defined below, and other environmental conditions not considered to be RECs/HRECs/CRECs.

- A REC is the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.
- A HREC is a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).
- A CREC is a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting

risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

The scope of the Phase I ESA will consist of the following activities.

- A review of available information to document the site history, development of the site and surrounding area, site ownership and operations, permit and regulatory issues, and potential sources of environmental contamination or evidence of spills.
- A site reconnaissance, review of appropriate and available site records, and interview of site personnel, as permitted, to document the status of the site.

6. Proposed Methodology

The Phase I ESA will comprise of the following steps:

- **Information Review**: This should include a review of all relevant documentation and information (such as site features, utilities, site history, hazardous substances used at site, chemical handling and storage at site, environmental consents and permits) as determined relevant to the target operations.
- **Site Reconnaissance:** A site investigation of the project site or portfolio sample sites should be undertaken through visual observation of relevant areas, discussions with key internal and external stakeholders, review of site-level documentation and investigation of relevant environmental issues in and around the target operations.
- **Report Preparation:** Two reports will be required of the Phase I ESA including (i) a back to office report summarizing red flag or high-risk issues and (ii) detailed Phase I ESA report covering all aspects of the scope of work.

7. Schedule

- The site-visits are to be concluded within 1 week after the preparatory information/ documentation has been made available to the consultant. (Typically, would mean 2 days site visit but could be more if the project/portfolio is large).
- The consultant should submit a back to office report within 3 working days of completing the site visit identifying any red flag and high-risk issues.
- The draft report should be submitted within 10 working days of submitting the back to office report. The final report will be submitted within 7 working days of receiving comments from ERMPL on the draft report.

All reports should be written and prepared in English and delivered in electronic format. The back to office and draft report should be submitted in an editable document (MS PowerPoint, MS Excel or MS Word preferably) and the final document should be a signed PDF document.

8. Proposal

The proposal for the Phase I ESA should at least contain the sections listed below:

- Limitations (if any)
- Tasks proposed
- Project team and qualifications
- Detailed timelines

- Estimated costs

9. Sample Structure of Phase I ESA Report

A typical Phase I ESA report will need to cover the following at minimum.

1. **Introduction:** This section shall primarily include:
   - Background
   - Primary objective and scope of the assessment
   - Methodology adopted for the assessment
   - Report organization and
   - Limitations to the assessment

2. **Site Background:** This section shall include - Site background, including site description and adjoining properties and the physical setting.
3. **Review of Records and Interviews:** This section shall include - Records review and interviews, including environmental databases review, historical use information sources, site records and interviews, summary of previous assessments/actions, and operational permits/licenses.

4. **Site Visit:** This section shall include - General site visit information including assessment team, site visit dates & site visit plan, site features & operations, and utilities.

5. **Environmental Observations:** This section shall include - Environmental observations, including air emissions sources and management, water use and discharges (wastewater management and storm water management), waste management, chemical management, underground and aboveground storage tanks, and hazardous materials management.

6. **Findings and Data Gaps -** Findings and data gaps related to the information obtained during the assessment.

7. **List of references cited**

8. **Limitations to the study**

Annex-ESMS- 10-1: Stakeholder Engagement Framework

Preamble

This document provides a template for preparing Stakeholder Engagement Plans (SEP) for ERMPL's plants. This template is applicable to all plant locations, new and operational. This template will be used for preparing plant level SEPs.

The Stakeholder Engagement process involves the following steps:

Text in *red colour italics* in the subsequent sections are instructions for customizing the template to individual plants. These should be deleted while preparing plant level SEPs.

This Preamble should be deleted from the SEP of individual plants.

Stakeholder Identification & Analysis

Stakeholder Identification

Considering the nature of activities in the healthcare plants, the key stakeholders are identified below.

Note: While customizing the template to respective plants, there may be additional stakeholders that would need to be included or some that need to be deleted from the list. Under each category list the stakeholders based on the guidance included.

Stakeholder Groups	
Workers • On-roll workers • Contract workers (including housekeeping, security)	**Contractors** • EPC contractors • Package contractors
Regulators • Government, regulatory and municipal authorities ○ *List the regulatory bodies issuing various environmental and labour safety related approvals*	**Institutional Stakeholders** • Equity Investors • Lenders

Stakeholder Groups	
• National, state and local level agencies/councils	

Surrounding Communities
• Nearby community
  ○ *List the villages immediately neighbouring the plant.*
• Farmers owning land neighboring the plant (if any)
  ○ *List the names of owners of land neighbouring the plant, if any, else mention 'Nil'*
• Other neighboring population in the vicinity
  ○ *List the villages/ urban centres located within 3-5 km of the plant.*
	Industrial & Commercial Establishments
	• Commercial establishments[1] in the nearby area
	  ○ *List the names of individual industries in the neighbouring the plant, else mention 'Nil'*
	• Industrial authorities
	  ○ *List the names of industrial authorities in the region*
	• Industrial associations
	• *List the names of industrial associations in the region, else mention 'Nil'*

Customers • Bricks • CBG	**Suppliers and Vendors** • Feed Stock suppliers[2] • Material suppliers including diesel, cement etc. • Equipment suppliers • Logistics vendors[3]
Community Representatives • Urban/ Village Local Bodies ○ *List the names of Heads of the neighbouring villages*	**Other Groups** • Civil society organizations • NGOs • Media organizations • Political Parties

Stakeholder Analysis

Once the stakeholders of the plant are identified, their influence on the business and vice versa needs to be analysed. Stakeholder Analysis involves a more in-depth look at the interests of the stakeholders, how they will be affected and what influence they have on a plant.

The influence and priority have both been primarily rated as:

- ***High Influence***: This implies a high degree of influence of the stakeholder on the organization in terms of participation and decision making or high priority to engage with the stakeholder.
- ***Medium Influence***: This implies a moderate level of influence and participation of the stakeholder in the organization as well as a priority level to engage the stakeholder which is neither highly critical nor are insignificant in terms of influence.
- ***Low Influence***: This implies a low degree of influence of the stakeholder on the organization in terms of participation and decision making or low priority to engage that stakeholder.

[1]Commercial establishments include small businesses selling ERMPL's recycled products including stones, recycled chips etc.
[2] Farmers supplying paddy straw, press mud etc.
[3] Specifically related to Collection and Transportation Operations

Stakeholder Analysis will be conducted in the template provided below.

Relevant Stakeholders	Impact/ Influence of the plant on this Stakeholder Group	Impact/ Influence of the Stakeholder Group on the plant	Expectations, Opinions, Key Concerns of Stakeholders	Rating of Stakeholder Influence

Stakeholder Engagement Plan

Based on the stakeholder identification and analysis process, a Stakeholder Engagement Plan will be drafted for corporate level and at individual plants. These plans will guide the process of engagement with the various stakeholder groups identified.

The Stakeholder Engagement Plan (SEP) provides an understanding of the levels and methods of engagements for each stakeholder group based on the following aspects:

- Level of importance of stakeholder group
- Key expectations of the group
- Desired outcome
- Existing relationship with the stakeholder group
- Stakeholder receptiveness, their engagement abilities and the time constraints, if any

The methods of engagement could range across various formats listed below:

- Meetings
- Focussed group discussions
- Responding to queries received
- Online receipt of consumer feedback
- Trainings
- Written Agreements
- Official communications

The methods of communication as part of the engagement can be either verbal or written, based on the purpose of communication and the target stakeholder group.

The stakeholder engagement takes into consideration the various stakeholder engagement and Corporate Social Responsibility (CSR) or community activities being undertaken by the company/ plant and existing communication routes being followed. This SEP considers:

The SEP for the corporate level and individual plants will be prepared in the template provided below. Some examples are included for reference.

Relevant Stakeholders	Purpose of Consultation	Mode of engagement	Minimum Information to Disclose	Responsible designation/ department
Workers				
On-roll workers	Keep workers motivated and engaged Maximizing worker productivity contributing to company revenue/ profits Encourage ownership of company strategies and goals Alleviate worker grievances	Induction training Periodic training and leadership development Employee handbook Notices and circulars Appraisals	Hazards and risks of their relevant work areas HR policies and practices Emergency preparedness and response plan Workforce safety and hygiene practices Outcomes of incident investigations Developments on E&S practices at the plant Grievance redress contact details	*[to be input by the respective plant]*
Contract workers	Keep workers motivated and engaged Alleviate worker grievances	Induction training Periodic training Notices and circulars	Hazards and risks of their relevant work areas Relevant HR practices Emergency preparedness and response plan Workforce safety and hygiene practices Outcomes of incident investigations Developments on E&S practices at the plant Grievance redress contact details	*[to be input by the respective plant]*
Contractors				
EPC contractors **Package contractors**	Ensuring quality of package services provided Ensuring compliance	Through written communication Agreements and work orders	E&S Policy of the company E&S requirements to be followed by contractors during	*[to be input by the respective plant]*

Relevant Stakeholders	Purpose of Consultation	Mode of engagement	Minimum Information to Disclose	Responsible designation/ department
	requirements are met by all contractors	Periodic monitoring and reporting (site visit) Regular training	construction of new plants	
Surrounding Communities				
Nearby community **Farmers owning land neighbouring the plant** **Other neighbouring population in the vicinity**	To maintain 'social license to operate' Alleviate community (or individual) grievances	One-to-One meetings/ group discussions Through written communication Response to queries raised (if any) Grievance redressal	Plant description and benefits Provide information about plant operation activities concerning the community in a pro-active and timely manner in a language understood by community Offsite Emergency Preparedness and Response Plan Grievance redress contact details	*[to be input by the respective plant]*
Community Representatives				
Urban/ Village Local Bodies	To maintain 'social license to operate' Alleviate community (or individual) grievances	Through written communication	Plant description and benefits Grievance redress contact details	*[to be input by the respective plant]*
Industrial & Commercial Establishments				
Commercial Establishments	Alleviate establishments grievances Discussion on specific E&S issues of concern	In-person meetings Feedback	Prior communications on activities that may have impact on their establishments Grievance redress contact details	*[to be input by the respective plant]*
Individual industries in the regional area	Alleviate industries grievances	In-person meetings Through written communication	Prior communications on activities that may have impact on the	*[to be input by the respective plant]*

Relevant Stakeholders	Purpose of Consultation	Mode of engagement	Minimum Information to Disclose	Responsible designation/ department
	Discussion on specific E&S issues of concern		other industries in the region	
Industrial Authorities **Industry Associations**	Discussion on specific E&S issues of concern Building and maintaining Company reputation	Partnerships Response to queries raised (if any)	Prior communications on activities that may have impact on the other industries in the region	*[to be input by the respective plant]*
Regulators				
Regulatory bodies issuing various environmental and labour safety related approvals	Various permissions and licenses related to operation of the plant Submission of compliance related reports	In-person meetings Official communications as required by the law and the permits issued. Response to queries raised, notices/ letters received	Information required by the law and under the permits issued	*[to be input by the respective plant]*
Institutional Stakeholders				
Investors	Appraise Investors on progress of implementation of ESMS and E&S performance of ERMPL's plants	Investment Agreement with Investor Annual E&S Performance Report Response to queries	ERMPL's E&S Policy & ESMS Annual E&S Performance Report All major incidents that might have occurred in ERMPL's plants that may lead to disruption of business or result in reputation risk Response to concerns raised, if any	*[to be input by the respective plant]*
Customers				
Recycled Bricks **CBG Cylinders**	Building and maintaining company reputation	Online receipt of consumer feedback/ grievance and their redressal	Legally mandated quality of products Grievance redress contact details	*[to be input by the respective plant]*

Relevant Stakeholders	Purpose of Consultation	Mode of engagement	Minimum Information to Disclose	Responsible designation/ department
		Customer experience surveys		
Suppliers & Vendors				
Feed Stock suppliers	Ensuring quality of product delivery	Partnerships One-to-One meetings Feedback	Pricing criteria and rate Grievance redress contact details	*[to be input by the respective plant]*
Equipment suppliers	Ensuring quality of machinery and supplies received Ensuring compliance requirements are met by suppliers	Partnerships Agreements and work orders	E&S Policy of the company E&S requirements to be followed at company plants	*[to be input by the respective plant]*
Logistics Vendors	Ensuring quality of transport services provided Ensuring compliance requirements are met by vendors	Partnerships Agreements and work orders	E&S requirements to be followed at company plants Grievance redress contact details	*[to be input by the respective plant]*
Other Groups				
Civil society organizations **NGOs** **Political Parties**	Discussion on specific issues of concern to environment and social issues Building and maintaining ERMPL reputation	Partnerships Response to queries raised (if any)	None in specific	*[to be input by the respective plant]*
Media	Building and maintaining Company reputation	Response to queries raised (if any)	None in specific	*[to be input by the respective plant]*

Implementation of SEP

All communication with stakeholders will be recorded in the form of minutes or any other relevant format across the plant lifecycle. The following details on each stakeholder engagement should be maintained in the relevant format:

- Stakeholder group
- Location
- Date of communication
- Purpose of communication
- Mode of communication
- Stakeholder response
- Further action
- Reference document (if any)

A clear protocol of communication between the Corporate Leadership team (including MD & CEO), HSSE Head, the plant level management and the various stakeholders will be established. The appropriate stakeholder engagement records as required will be consolidated across these levels.

Annex-ESMS- 10-3: Procedure on Developing Emergency Preparedness and Response Plans

1. Introduction

This procedure is being implemented to develop plans be adopted in plant operations during the event of an emergency. The procedure helps in identification of the various forms of emergencies and establish a state of readiness which will enable prompt and effective response to possible emergency events.

2. Definitions

Emergency - "Emergency" is an unforeseen situation that threatens employees or the public, disrupting / shutting down operations, or causing physical or environmental damage.

Usually occurs suddenly and unexpectedly. Such circumstances can cause death or significant injuries to people, disrupt operations, cause physical or environmental damage, or cause extensive damage to property within the plant and surrounding community.

An emergency situation often requires immediate intervention to prevent worsening of the situation.

An emergency situation can arise due to operations/activities within the plant (e.g., fire), natural calamities (e.g., earthquake) or be man-made (e.g., bomb threat).

Preparedness - Plans or preparations made to save lives and to help response and rescue operations. Preparedness activities take place before an emergency occurs.

Response - Actions taken to save lives and prevent further property damage in an emergency situation. Response is putting preparedness plans into action.

3. Responsibility

The **Plant Head** will be responsible for implementing the procedure on developing emergency preparedness and response plans and ensure that the plant under their purview have the plans for Emergency Preparedness and Response for the possible emergency scenarios relevant to the plant.

The Plant Head will designate coordinators from the team personnel to address the specific issues that arise during an emergency. The number of coordinators will depend on the size of the plant, the manpower engaged as well as the potential of emergency envisaged. Multiple roles can be designated to a single person. Following are the coordination roles that are envisaged for a plant:

- **General Emergency Coordinator** – Assumes overall responsibility of managing any emergency incident. During an emergency incidence, General Emergency Coordinator will assess the severity of the emergency, mobilize the relevant team(s) and specific coordinators.
- **Transport Coordinator** – Responsible for evacuating personnel away from emergency site/project and coordinate with transport agencies.
- **Hospital Coordinator** – Responsible for coordinating with first aid team to identify casualties that require medical treatment and guide the ambulance.
- **Statutory (police/fire/security) Coordinator** – Responsible for coordinating with fire department in case of fire incident, local police in case of injury or fatal incident and other statutory authorities like labour officer, municipal corporation etc.
- **Local emergency leader at each work location** – One trained local emergency leader will be present at each location.

- **Welfare Coordinator** – Responsible for looking after the welfare of the employees including water arrangement, coordinating with families etc.

Special teams include the following:

Electrical and mechanical team will respond to the alarm and decide to de-energize the plant if necessary.

Rescue teams include fire rescue and stretcher team and will be guided by a local emergency leader.

Response teams include the firefighting team, first aid team, ambulance or emergency vehicle driver and transport operator.

4. Procedure

The process of developing emergency preparedness and response plans will be through the following steps:

The following sections presents the activities to be undertaken under each of the steps.

Every plant will maintain the status about its emergency preparedness and response planning as per the format **ESMS: 8-1/F1**.

4.1. Identification of all potential emergency scenarios

Depending on the size of the organization, its geographical location and physical surrounding, the potential emergency categories will be identified. An indicative listing of such potential emergency situations for healthcare plants are listed below:

- Fire & explosion
    - Fire in the plant
    - Explosion of gas receptacle
- Natural calamities
    - Cyclonic storm

    - Tsunami
    - Flooding
    - Earthquake
- Man made
    - Civil disorder
    - Bomb threat
    - Terrorism
    - Epidemic/Contagious Disease (COVID-19)
- Electrical
    - Electrical Shock
- Gaseous leaks
    - Gas leak (Methane)
- Offsite Emergencies
    - Vehicle Collision
    - Community/ individual impacts

All identified potential emergency categories will be documented.

4.2. Preparedness and response planning

A comprehensive and well-practiced plan is essential to respond to emergencies in an orderly and effective manner. The plant will ensure that for all the identified potential emergency scenarios, procedures are prepared for immediate implementation in the event of an emergency incident. For all the identified potential emergencies, preparedness and response plans will be developed which will cover all aspects of the action to be taken in the event of an emergency. The plan will minimally include:

- Individual or teams responsible for implementing a procedure
- The specific action to be taken by those at the location of the emergency to raise the alarm
- Initial action to contain and overcome the incident
- Procedures to be followed in mobilising the resources, as required by the incident
- Actions to be taken to minimize the impact of the incident (Incident Control)

The plans will also include the actions to be taken post the emergency period. These actions are aimed at rehabilitation for return to normalcy.

Following general preparedness will be considered at all plants:

- Alarm systems (siren) will be maintained. The alarm system will be made known to all workers.
- Emergency lighting facilities will be available to aid evacuation at night and in poor lighting conditions.
- Means of escape will be provided in all work areas and storages and maintained and kept free from obstruction, at all times.
- Emergency evacuation signages (glow-in-the-dark labels) to be placed across the facility
- Daily attendance register of all personnel at site will be maintained.
- Visitor registers, including other personnel coming to the facility premises will be maintained.

4.3. Emergency plant shutdown procedure

Emergency plant shutdown procedure should be developed considering the processes implemented in the plant. The emergency shutdown procedure may include 9but not limited to):

- Shut down of part systems and equipment
- Isolation of electrical equipment
- Depressurization or blowdown
- Emergency ventilation control
- Feed control / stoppage

Every plant will develop its emergency plant shutdown procedure.

4.4. Evacuation planning

Many of the emergency incidences will require evacuation employees in the plants. First aid team to list all evacuation resources and/ or equipment assigned to the incident. Following considerations will be undertaken for evacuation:

- Depending on the type and extent of emergency, the evacuation may be carried out.
- Layout of the plant should be printed with the evacuation routes clearly marked.
- Every plant will document safe exit plan and will have identified and demarcated all exit points.
- Adequate exit signages which are radiolucent (to ensure visibility in dark) will be placed in the plant which will direct the evacuees towards the location of exit.
- Emergency Control Centres (ECCs) will be established to ensure the viability of evacuation equipment along with emergency and rescue equipment.
- The location of ECCs may vary plant to plant.
- In case of an emergency, the employees may evacuated to a nearby hospital (General Emergency Coordinator will coordinate the shifting of affected employees to nearby hospitals).
- Employees will be trained and during the conduct of mock drills the safe evacuation from the plant will also be tested.

The evacuation process will be overseen by the Emergency Control Centre headed by Plant Head and will have assume communication with authorities needed to take any decision related to the evacuation process.

Depending on the plant infrastructure, evacuation plans will be defined for each plant of ERMPL. This will be documented. Designated evacuation teams will be formulated and trainings on evacuation will be conducted along with mock drills.

4.5. Identification of emergency response organization

The Plans will state the authorities and responsibilities of the organizational representatives. Every plant will define the emergency response organization and specifically state the roles and responsibilities of the personnel in case of an emergency.

4.5.1 Site Safety Committee

Every plant will constitute a Site Safety Committee. The Committee will be headed by Plant Head. All other members of this committee will be designated. The Committee will meet at least once every month and will have a discussion around the emergency Preparedness of the plants. The meeting agenda minimally will be the following:

- Any emergency and incident addressed
- Status of Emergency Preparedness Equipment
- Test and verification of Emergency Preparedness Equipment undertaken
- Coordination and liaison with external agencies
- Mock drills conducted and outcomes
- Associated investigation report review
- Adequacy of the existing EPRP

The meeting outcomes will be recorded as minutes of the meeting and the records will be maintained.

4.5.2 Emergency Control Centre

In case of an emergency, the Site Safety Committee members will assemble at the ECC. The ECC locations will be identified and documented for instance administrative building, security gates etc. The Command Centre will be equipped with the latest copies of the emergency response plans, communication devices and will have ready access to transport at all times.

Every plant will also identify the evacuation teams. The team members will be trained in Evacuation procedures as laid down in Plant Evacuation Plan.

All emergency equipment will be available at ECC and documented.

During an emergency, the ECC will be activated, and the designated members will reach the designated location at the earliest possible.

4.6. Identification of emergency equipment

Every plant will equip itself with emergency equipment that will be required for abatement and containment of impacts arising out of the emergency incident. Emergency equipment will comprise of devices for (not limited to):

- Emergency Treatment
    - First Aid Box
    - Self-contained breathing apparatus
- Emergency communication
    - Telephones
    - Walkie talkies
    - Public address systems
- Early detection and alarm system
    - Smoke detectors
    - Alarm systems
- Emergency Lighting
    - Emergency lighting with batteries or powered from a source independent of normal lighting system
- Fire abatement and containment
    - Fire hydrant system (including distribution and fire hoses)
    - Fire extinguishers

    - Sprinkler system
    - Fire beater
    - Fire suit
- Flammable gas detectors
    - CBG Storage to be provided with flammable gas detectors which shall activate visual and audible alarm
- Personal protective equipment
    - Electrical gloves
    - Masks
    - Goggles
    - Safety helmets
    - Safety shoes
    - Fire suits
    - Breathing apparatus
- Others
    - Rescue kit
    - Spill care kit
    - Folding stretchers
    - Rescue ladders
    - Barricade tape

An updated list of emergency equipment will be maintained at the plants. Routine inspection/monitoring will be carried out by competent persons to ensure that all emergency equipment and plants are in operational condition and accessible in case of an emergency.

5. Communication, Trainings and Capacity Building

Communication, training and capacity building on emergency preparedness is considered of paramount importance by the Company and towards these various modes may be used. The communication on emergency response will be intended for all employees and contractual workers. The content of communication will be decided based on the role envisaged for the stakeholders and on the need-to-know basis.

Following mandatory Signage will be displayed at prominent work locations:

- Dos and Don'ts in case of emergency incidents
- Safety Instruction Signage (Safe Assembly Point, First-aid centre, emergency phone numbers etc.) at prominent locations on project site to create emergency awareness

All persons at the plant, including contract workers, will be provided with induction and ongoing training to ensure they have a general awareness of the emergency preparedness plans and the capability to undertake their roles and responsibilities in the event of an emergency incidence. The training coverage will at the minimum include:

- General duties, roles and responsibilities in case of emergencies
- Emergency functions of the organisational structure
- Emergency procedures
- Emergency equipment

All trainings to workers will be conducted in language(s) easily understood by the workers.

Such workers who may be involved in firefighting or evacuation will be trained to build competence in use firefighting systems and correct evacuation techniques.

Training will be a continuing process and all workers will undergo refresher trainings. All records of trainings will be maintained at the plant.

6. Community Preparedness & Response on Emergencies

The plants should identify the communities located in close proximity to the facility that may be impacted due to their potential operational emergencies. For such emergency incidents that may impact the community, the preparedness and response measures planned for the plants to address these emergencies should be communicated.

7. Off-Site Emergencies – Preparedness & response

The plant should identify the industries and activities present in the surroundings and the hazards and risks posed to plant. The operational emergencies that could occur in the neighbouring facilities should be understood and their emergency preparedness and response plan should be evaluated for adequacy. Accordingly preparedness and response measures should be planned at the plant.

The following should be documented at the minimum:

- Neighbouring facilities on all eight sides of the plant (N-NE-E-SE-S-SW-W-NW)
- Businesses / Activities conducted in these facilities in brief
- Potential operational emergencies that could occur in these facilities
- Evaluation of adequacy of EPRP in these facilities
- Contact details of Site Incharges of all neighbouring facilities
- Additional preparedness and response measures to be adopted by the plant.

8. Mock Drills

The emergency action plans developed at each plant will be tested on a regular basis through Mock Drills to test the response procedures which includes but not limited to:

- Firefighting using equipment that will be available in an emergency
- Co-ordinated operation with outside bodies
- Evacuation
- Spill containment and clean-up
- Speed of mobilisation of emergency teams

Mock drill schedule will be developed for each plant. Unannounced drills will also be held, followed by discussions aimed at highlighting any deficiencies encountered. Evacuation drills are considered as an essential part of mock drill and will help to minimise panic in an actual emergency.

These drills could include outside emergency response agencies, as applicable.

Record of mock drills with key observations will be recorded as per the format provided **(Tool 10-3/A/F2)**. Lessons learnt will be recorded and formally followed up. These records will be discussed and required corrective actions will be initiated.

The records will be maintained at the plant.

9. Emergency Contact Numbers

There are two levels of emergency contact numbers that need to be maintained at the plants, these are:

- On-site emergency numbers
- Off-site emergency numbers (such as police station, hospital, fire station etc.)

The emergency numbers will be displayed on all floors and should be accessible to the Command Centre team.

Annex-ESMS: 10-4: Management Program on Resource Efficiency

1. Introduction

This procedure is being implemented to develop resource efficiency programs at the plants of ERMPL.

The objectives of the Management Program on Resource Efficiency (MPRE) will be to:

- Manage key resources used in the operations;
- Improve resource efficiency;
- Promote sustainable use of resources (energy and water);
- Reduce facility level emissions; and
- Set measurable targets and measure progress.

2. Definitions

Resource Efficiency - Resource efficiency means using the Earth's limited resources in a sustainable manner while minimising impacts on the environment.

3. Responsibilities

Plant Head

- Facilitate resource efficiency,
- Monitor resource use on a regular basis.

HSE Incharge

- will be responsible for implementing Management Program on Resource Efficiency in consultation with representatives of all departments.

4. Process

The broad process for implementing MPRE at the plants of ERMPL will be as per the outline below. The facilities may suitably modify the approach to meet their requirement giving due consideration to the size and type of facility and its resource intensity.

#	Activity	Descriptions of Activities	Responsibility	Record
1	Establishing Team	A cross-functional team should be formed to implement the program.	Plant Head	List of MPRE team members
2	Establishing Baseline	Set the existing baseline for key resource (like water, electricity, chemicals) consumptions. These should be normalized based on the size of the facility and its operations as follows: • Water consumption – kilo litre per square meter (kL/sq. m.) • Electricity consumption – KWh square meter (KWh/sq. m.)	HSE Incharge	Agreed baseline report

#	Activity	Descriptions of Activities	Responsibility	Record
3	Target Setting	Targets should be set for resource conservation (for e.g. 5% reduction in electricity usage, 10% reduction in freshwater usage, etc.). The targets should be time bound.	Plant Head	EMP Targets agreed
4	Identification of Implementable Resource Conservation Opportunities	• Identifying high resource consuming areas • Identification of possible causes of wastage/losses and/or higher resource consumption • Identifying resource conservation opportunities • Finalizing resource conservation opportunities based on techno-economic viability and setting timelines for completion	HSE Incharge	List of agreed resource conservation opportunities (refer to format **Tool 10-4/A/F1**)
5	Implementation of the resource conservation opportunities	Implementing the resource conservation opportunities identified and ensuring completion in the agreed timelines.	HSE Incharge	--
6	Monitoring and review	Post implementation, review of the resource conservation opportunities to assess the benefits	HSE Incharge	Implementation note

Annex-ESMS: 10-5: E&S Legal Compliance to be followed by Vendors and Suppliers

Name of Plant:	
Date:	
Vendor/Supplier Name:	
Contact Person & contact details	

- **Vendor/Supplier to self-assess on the following E&S requirements that is expected to be complied to by EMRPL.**
- **Provide EMRPL's representatives access to relevant records, upon EMRPL's request.**
- **Respond to reasonable inquiries from EMRPL's representatives in relation to the implementation of the E&S requirements.**

#	E&S Legal Compliance	Applicability (Yes, No, NA)	Remarks
1.	The Company complies with the applicable environmental and occupational health & safety related laws and regulations.		
2.	The Company complies to the conditions of the Consent to Operate (CtO) granted to the Company under the Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution) Act, 1974.		
3.	Employees working in the Company are paid wages in compliance with the respective Minimum Wages Act of the State Government (based on location). The wages paid to the employees also consider working hours and overtime as required under labour laws.		
4.	Statutory contributions towards Employee State Insurance (ESI) Employee Provident Fund (EPF) for the eligible workers are made.		
5.	The Company does not engage any form of child labour at any of its premises.		
6.	The Company does not discriminate on the basis of caste, creed, religion, gender, sexuality etc.		
7.	As per Factories Act 1948 and State Factories Rules, the facilities have obtained the following: • Factories license from the Chief Inspector of Factories • Approval of factory plan/layout from Directorate of Industrial Safety Health for the 'in use' layout		

	• Fire No Objection Certificate (NOC) from Local Fire Department		
8.	The Company offices have been registered as per the respective Shops and Establishment Acts.		
9.	The facilities ensure safe and healthy working conditions for its employees and contractors		

[Signature of Authorized Signatory and Designation]

Annex-ESMS: 12-1: E&S Internal Audit Checklist

Name of Plant:	
Address:	
Date of Internal Audit:	**Name(s) of Auditor(s):**

Note:

1. *Site specific parameters may be further added as relevant.*
2. *This Audit does not cover requirements related to human resource procedures and these are to be assessed independently.*
3. *This audit is not a replacement for legal compliance audit(s).*

#	Checkpoint	Response (Yes/ No/ NA)	Details of Conformance/ Non-conformance	Corrective Action	Responsibility
1.	Does the plant have a Controlled Copy of the Corporate ESMS comprising of: • Part I: E&S Policy • Part II: ESMS Manual • Updated Annexes 1 to 19				
2.	Are the following plant-specific documentation available in updated versions and approved by HSSE Head?				
	a) Plant Specific Arrangements for Implementation of ESMS				
	b) E&S Legal Register				
	c) List of Management Program on Resource Efficiency				
	d) Emergency Preparedness and Response Plan				
	e) Annual Training Calendar				
	f) Stakeholder Engagement Plan				
	g) Traffic Management Plan				

#	Checkpoint	Response (Yes/ No/ NA)	Details of Conformance/ Non-conformance	Corrective Action	Responsibility
3.	Have the Plant specific roles and responsibilities under ESMS communicated to the concerned personnel?				
4.	Legal Compliance				
	a) Is the legal tracker updated and include all applicable environmental, labour, occupational health & safety, community health & safety related regulations?				
	b) Are all applicable legal Permits/ licenses available and valid?				
	c) Has the plant implemented the following based on the applicable regulatory requirements: • Procedures at the plants as stipulated in the regulations. • Reporting to be carried out to regulatory authorities on a periodic basis.				
	d) Is the plant compliant to the conditions stipulated as part of various environmental and social permits?				
	e) Are records for wastewater treatment and disposal maintained?				
	f) Does the plant undertake monitoring of treated wastewater and air emissions?				
	g) Are records of disposal of all types of wastes generated at the plant maintained and up to date?				
5.	Risk Mitigation				

#	Checkpoint	Response (Yes/ No/ NA)	Details of Conformance/ Non-conformance	Corrective Action	Responsibility
	a) Has the plant developed Environmental Aspects & Impacts Register?				
	b) Has the plant developed Hazard Identification and Risk Assessment with Identification of Opportunities (HIRAO) Register?				
	c) Has the plant developed Labour and Working Conditions Risk Register (LWCRR)?				
	d) Have the identified risks and impacts been communicated to all employees and workers, as relevant?				
	e) Have the actions been adequately implemented to mitigate the significant **environmental** risks and impacts?				
	f) Have the actions been adequately implemented to mitigate the significant/ high **occupational health & safety** risks and impacts?				
	g) Have the actions been adequately implemented to mitigate the significant/ high **labour working conditions** risks and impacts?				
6.	Resource Efficiency				
	a) Has Resource Efficiency Management Programs formulated at the plant?				
	b) Has the baseline been established on resource use (eg. Electricity and water)?				
	c) Have annual targets on reduction of resource use been taken?				

#	Checkpoint	Response (Yes/ No/ NA)	Details of Conformance/ Non-conformance	Corrective Action	Responsibility
	d) Have resource conservation opportunities been identified and documented?				
	e) Is progress on resource conservation opportunities periodically tracked?				
7.	Are work permits issued for non-routine activities?				
8.	Incident Reporting and Investigation				
	a) Are the people trained to report on various incidences?				
	b) Are all incidents recorded (near miss, non-LTI, LTI, fatalities)?				
	c) Is incident investigation conducted for incidents that have occurred?				
	d) Are corrective actions identified and implemented for incidents that have occurred?				
9.	Emergency Preparedness & Response				
	a) Has the plant developed Emergency Preparedness and Response Plans (EPRPs) specific to potential emergency incidents relevant to the plant?				
	b) Does the plant have sufficient and qualified resources (human & financial) allocated to achieve effective implementation of actions, measures, and monitoring activities as directed under the Plan?				
	c) Is Emergency infrastructure available and in usable condition?				
	d) Are mandatory Signages displayed at prominent work locations across the plant?				

#	Checkpoint	Response (Yes/ No/ NA)	Details of Conformance/ Non-conformance	Corrective Action	Responsibility
	e) Have people been trained to use emergency infrastructure and respond to various emergencies?				
	f) Are mock drills conducted for various emergencies and proceedings are recorded?				
10.	Training & Capacity Building				
	a) Has a specific training needs assessment based on competency requirements been undertaken at the plant?				
	b) Have training sessions been conducted as per the annual training calendar?				
	c) Were records of training (including toolbox talks) available for review?				
	d) Are workers in the plants aware of the environmental and social risks associated with their activities and procedures to be adopted for mitigating the risks?				
12.	Were personnel designated with responsibilities under the ESMS at the plant level found competent in terms of training or education or qualifications and were aware of their responsibilities?				
13.	Stakeholder Engagement				
	a) Has the Stakeholder Engagement Plan developed for the plant?				
	b) Have stakeholder engagement activities been carried out as per the Stakeholder Engagement Plan?				

#	Checkpoint	Response (Yes/ No/ NA)	Details of Conformance/ Non-conformance	Corrective Action	Responsibility
	c) Are minutes of stakeholder engagement maintained?				
	d) Have actions identified during engagements been implemented?				
14.	Has the Contractor of the plant developed a Contractor Environmental & Social Management Plan (ESMP)?				
15	Have the roles and responsibilities of the contractor been defined by Company?				
16.	Are records of E&S requirements applicable to the vendors/suppliers communicated to them during the onboarding process?				
17.	Grievance Redress				
	a) Is a record of all grievances received (named persons and anonymous) maintained in the format provided in the Grievance Redress Procedure?				
	b) Have grievances identified during stakeholder engagements also been recorded in the format?				
	c) Have the aggrieved been responded to within the timeframe specified in the procedure?				
	d) Were personnel designated for engaging with the community on grievance redressal found competent in terms of training or experience and were aware of their responsibilities?				
18.	Are Key Performance Indicators (KPIs) monitored by the plant on a monthly basis and reported to HSSE Head?				

#	Checkpoint	Response (Yes/ No/ NA)	Details of Conformance/ Non-conformance	Corrective Action	Responsibility
19.	Previous Internal Audit		*[specify date of previous Internal Audit in this cell]*		
	a) Have actions been planned to close previous Internal Audit non-conformances?				
	b) Have all actions to close non-conformances been implemented?				
	c) Have non-conformances identified in previous Internal Audit repeated in the current Internal Audit?				
20.	Best Practices Observed				

Internal Audit Score = [count of 'Yes' ÷ count of applicable items]
Count of 'Yes' achieved in the Internal Audit =
Count of applicable items in the Audit Checklist *(summation of 'Yes' and 'No')* =

Tool: 4-3/F1: ESG Screening Checklist against the Exclusion List

Tool to be used in conjunction with the Annex-ESMS: 4-3: ERMPL's E&S Exclusion List. All terms used in this tool have the meaning and context given in the Annex.

Name of Project/Investee Company:		**Date:**	
#	**List of Exclusions**	**Response (Yes/No)**	**Remarks**
1.	Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements subject to international phase outs or bans		
2.	Production of, or trade in, arms		
3.	Commercial logging operations or the purchase of logging equipment for use in primary tropical moist forest or old-growth forests		
4.	Production or trade in wood or other forestry products other than from sustainably managed forests		
5.	Destruction of High Conservation Value areas		
6.	Production or activities involving forced labour or child labour		
7.	Production of, use of, or trade in, unbonded asbestos fibres		
8.	Production or trade in alcoholic beverages (excluding beer and wine)		
9.	Production or trade in radioactive materials		
10.	Racist and/or anti-democratic media		
11.	Gambling, casinos, and equivalent enterprises		
12.	Production of or trade in Tobacco or tobacco related products		
13.	Business in which following activities form a substantial part of a project sponsor's primary operations • Gambling, gaming casinos and equivalent enterprises • Production of or trade in Tobacco or tobacco related products • Pornography		
14.	Sub-sectors comprising of upstream activities (exploration and production of fossil fuels); midstream (transportation and storage of raw fossil fuels); downstream (refining and distribution of refined fossil fuels); and power generation (defined as grid-connected rather than in captive capacity)		

Tool 4-3/F2: Environmental, Social & Safety Screening Criteria for Project Site

S. No	Questions	Yes / No	Please Provide Distance and Other Details with Good Accuracy
1	Closer than 500 m to sensitive receptors like hospital, school, public place, etc.		
2	High flood prone areas		
3	Areas with unstable ground		
4	Closer than 500 m to major habitation		
5	Closer than 1 km to perennial riverbank		
6	Any Electricity Transmission line / oil pipeline / gas pipeline / major drains passing through site		
7	Closer than 200 m to NH / SH / Railway line		
8	Existing use of site (Forest / Old dump site)		
9	Closer than 500 m to any fire / spark creating unit like brick kiln, jaggery plants, etc.		
10	Closer than 500 m from Eco Sensitive Zone (ESZ) / Marine parks, national park, sanctuary, bio spherical reserve, mangroves, CRZ, estuarine, wetland / breeding grounds		

	Above Project Site Information Collected by	Above Project Site Information Verified by
Name, Destination & Company		
Signature & Date:		

Preliminary Decision by ESG Team:	**Site is suitable for detailed evaluation – Yes / No**
Comments by ESG Team if Any:	

Tool 4-3/F3: Preliminary E&S Risk Assessment

S. No.	Information		Details	Remark
1	Project Name:			
2	Type of project			
3	Duration of project (years)			
4	Project details	Type of Feedstock	Paddy straw / Press Mud /Napier grass	Quantity:.... TPD
		Bio-CNG (TPD)		Expected no. of vehicles daily....
		Compost quantity (TPD)		Expected no. of vehicles daily....
		Liquid fertiliser (KLD)		Expected no. of vehicles daily....
		On-site CNG dispensing station	Yes / No	Expected no. of vehicles daily....
5	Project Site	Village & Tehsil		
		District with Pin code		
		State		
6	Location details	Coordinates		
		Distance of Site from City centre (km)		
7	Nearest Residential Area	Name		
		Distance from site		
8	Nearest railway station	Name		
		Distance from site		
9	Nearest airport	Name		
		Distance from site		
10	Any legacy waste available on site	Type of material		
		Active or old dumpsite		
		Area		
		Depth		
		Age		
		Extent of soil / Ground water contamination		
11	Availability of all-weather access road to site along with width (m)			

12	Proximity to legally protected area (e.g., core zone or buffer zone of forest, special area for protecting biodiversity) / ecologically sensitive area (e.g., mangrove, estuarine, wetland / breeding grounds)			
13	Proximity to culturally sensitive / indigenous area			
14	Is the site located in critically polluted area or forest?			
15	Engineering Property of Soil (Good or poor in bearing capacity)			
16	Ground Water Availability & Classification by CGWA / state ground water department such as Over exploited, Critical, Semi critical & Safe			
17	Depth of Ground water table below ground level (m)			
18	Ground water quality (Potable / Not Potable)			
19	Distance of nearest STP (km) and treated sewage cost (Rs./KL)			
20	Distance of nearest municipal water supply line from site (m)			
21	If tanker water is source, what is cost in Rs. per KL?			
22	Distance of nearest municipal sewer from site (m)			
23	Distance of nearest storm water drain from site (m)			
24	Existing Land use of Site (Waste land/Grazing/Fallow /Single Crop/Double Crop/Plantation/ MSW dumpsite)			
25	Land use of site in approved area/city development plan or master plan			
26	Whether purchase of Land is required			
27	Displacement/resettlement of local settlements (physical displacement)			
28	Impact on indigenous peoples, including territories or natural or cultural resources that Indigenous Peoples own, use,			

	occupy, or claim as an ancestral domain or asset.			
29	Whether any stakeholder/community complaint or grievance is there?			
30	Pl. Mention Physical Climate Risk (River flood, Water scarcity, Extreme heat, wildlife, Earthquake, urban flood, Landslide, Cyclone, Tsunami, volcano, coastal flood.)			
31	Electricity Supply (Hours of outage per day)			
32	Level of site from approach road (----m below road level and prone to flooding and needs filling)			
33	Level of site from approach road (Highest point----m above road level and land development &levelling costs are significant)			
34	Any pond or lake within 200 meters from site?			
35	Any water supply well within 200 meters from site?			
36	Any public park within 200 meters from site?			
37	Distance of National/State Highway/Major District Road from site (m)			
38	Electricity Transmission line passing through site			
39	Any public place like school, hospital, religious place, etc within 100 m from site?			
40	Any fire/spark creating unit like brick kiln, jaggery plants, etc in the vicinity of the site?			
41	Oil, gas pipeline passing through site			
42	Average distance of transport of feedstock (km)			
43	Topography of site (Concave or Convex)			
44	Accessibility of site			
45	Is the site located in flood prone area?			

	Date of Site Visit:			
		Above Information collected by	**Above Information verified by**	
	Signature			
	Name			
	Designation & Company			

Tool 4-4-3/F2: Detailed Site Visit Report

The site visit report is to be prepared as per the format presented below and is to be in place prior to the Platform IC and findings on the ESG risks and opportunities are presented in the IC meeting.

Format:

1. **Introduction**

- Describe the site i.e., land use, historic land use, any structures (overground/underground), surrounding land use (visual assessment), fence-line communities, proximity to water bodies (if any), presence of industries in the surrounding region (visual assessment) and known areas of natural hazard risk (e.g., flood risk)
- Land procurement status, land ownership status
- Proximity to ecologically sensitive sites, cultural heritage sites and indigenous people land/customary areas. If all are not applicable, then a line saying the same will suffice.

2. **Legal Compliance Status**

- Only focus on pre-construction phase such as environmental clearance, consent to establish, non-agricultural conversion, forest clearance, wildlife clearance, etc.

3. **Red Flag Risks**

- Description of any red flag issues and any risks where there is an exclusion list trigger *(Refer Annex 4-4-1: Exclusion List of the ESMS)*

4. **High and Medium Priority Risks**

- Description of any high and/or medium priority risks identified by the site visit (see example below). This should cover all relevant topics – labour (local or migratory labour, where will be the labour camp to be provided by Project Execution team), land, community, natural hazards, pollution streams, resource efficiency, GHG emissions, community safety, traffic (traffic estimate of Feedstock , Bio-CNG vehicles required from design team), etc.

Risk	**Priority**	**Risk Controls**	**Timeline for Implementation**
Low lying area; known cases of localized flooding	Medium	Requirement for flood risk assessment to be evaluated in due diligence stream	To be determined in due diligence stream

5. **Preliminary Categorization**

- In addition to stating the categorization as A, B or C need to provide bulleted justification points below on why this has been classified as A, B or C. Use the language from the EverSource Capital ESGMS (e.g., "irreversible impacts", "diverse impacts", "site-specific risks") to justify the categorization. The preliminary categorization will then get confirmed by external consultant during their due diligence.

6. **Further Studies**

- The note should end with the suggested further studies including external due diligence, impact assessment and specialist studies (e.g., critical habitat assessment, land acquisition review, indigenous peoples plan, etc. as relevant).

The report can be brief (3-4 pages) if the above points are covered. This could precede **an external E&S due diligence.** The objective of the process is to make sure that risks are adequately identified and assessed prior to the IC before even the bid happens.

A follow-up study against the IFC Performance Standards and other investors guidelines and standards can be done with the help of an external agency. HIRA and EIAR exercise is also to be undertaken post-bid and before construction.

Name of Target Project:	
#	Parameters for identification of E&S Categorization
1	**Assessment of land acquisition or involuntary resettlem**
a)	Is the proposed project likely to have significant involuntary resettlement impacts involving physical displacement from home of 200 or more persons or loss of 10% or more of their productive or income-generating assets? OR Does the project have legal liabilities or unsolved compliance issues related to physical displacement or loss of income-generating assets that may contribute to the above mentioned involuntary resettlement impacts?
b)	Is the proposed project likely to have involuntary resettlement impacts but **does not** involve physical displacement from home of 200 or more persons or loss of 10% or more of their productive or income-generating assets?
c)	The proposed project **does not** involve involuntary resettlement
2	**Assessment of impact of the project on water bodies**
a)	Will the project involve construction or operational activities to be undertaken in the sea or lakes or over rivers or across rivers that will contribute to the changes of water quality, coastal hydrology, bottom contamination and / or displace fishery resources to the extent that such impacts will be permanent in nature or will be cumulative, impacting beyond the project area?
b)	Will the project require construction activities to be undertaken in the sea or lakes or over rivers or across rivers that are for limited duration and **is not expected to** contribute to long term changes of water quality, coastal hydrology, bottom contamination and / or displace fishery resources, with the **impact being limited to the project area?**
c)	The project **will not** involve construction or operational activities to be undertaken in the sea or lake or over rivers or across rivers.

3	**Assessment of impact of the project on air shed**
a)	Will the project involve construction or operational activities that will lead to significant contribution of cumulative gaseous emissions to a non-degraded air shed? or Will the project involve construction or operational activities that will lead to net increase of gaseous emissions to a degraded air shed?
b)	Will the project involve construction or operational activities that will lead to non significant contribution of cumulative gaseous emissions to an air shed?
c)	The project will not have construction or operational activities contributing to gaseous emissions.
4	**Assessment of impact of the project on Biodiversity Cor**
a)	Is the project likely to involve construction or operational activities that will lead to adverse impact on legally protected areas, endangered species of plants/animals, critical habitats (i.e. areas with high biodiversity sensitivities or values such as High Conservation Value Forests), habitat for designated species, valuable or scarce natural resources?
5	**Assessment of impact on indigenous people and/or vul**

a)	Is the project likely to have significant impact (including loss of identity, culture, and natural resource-based livelihoods, as well as exposure to impoverishment and disease) that is adverse and widespread at the community or sub community (rather than individual or household) level on indigenous peoples - Schedule V areas (Scheduled Areas) notified in the States? Or will the project impact the traditional knowledge, practices or systems of Indigenous People or will involve impacts on land granted to or possessed by members of indigenous community?

Note:
-The highest category assigned to any of the above mentioned aspect will be
-The outcomes of the Preliminary E&S Categorization will be suitably factored

Preliminary E&S Categorization
Final E&S Categorization

Tool 4-3/F4: E&S Categorization Checklist

Google Earth Coordinate:	Prepared by:
Guidance	**Source of Information & Next Steps (Only an indicative list)**
ıent related impacts arising from the project	
If response to 1 (a) is 'Yes', project is categorized as Category A. *'If response 1 (b) is 'Yes', project is categorized as 'Category B'* *'If response 1 (c) is 'Yes', project is categorized as 'Category C'* *'If no information or inadequate information is available to assess land acquisition or involuntary resettlement impacts, the project will be categorised as 'Category B' and the same mentioned under the Remarks column*	*- Information from the Target Company* *If the case is evaluated to be 'Category A' or 'Category B', or the land acquisition was recent, i.e., recently completed (completed in past 3 years), then the E&S due-diligence will cover this aspect in detail to understand compliance with the reference framework and the clear understanding of additional cost of compliance.* *For projects involving involuntary resettlement, a resettlement plan is required to be prepared that is commensurate with the extent and degree of the impacts, the scope of physical and economic displacement and the vulnerability of the affected persons.*
If response to 2 (a) is 'Yes', project is categorized as Category A. *'If response 2 (b) is 'Yes', project is categorized as 'Category B'* *'If response 2 (c) is 'Yes', project is categorized as 'Category C'* *'If no information or inadequate information is available to assess construction activities to be undertaken in the sea or over rivers or across the rivers, the project will be categorised as 'Category B' and the same mentioned under the Remarks column*	*Review of project location on Google Earth* *Project Information Memorandum for project components*

If response to 3(a) is 'Yes', project is categorized as Category A. *'If response 3(b) or 3(c) is 'Yes', project is categorized as 'Category C'* *If no information or inadequate information is available to assess construction and operational activities of the project ,the project will be categorised as 'Category B' and the same mentioned under the Remarks column*	*Project Information Memorandum for project components*

nservation & Sustainable Management of Living Natural Resources

If response is 'Yes', project is categorized as Category A. *If response is No, project is categorized as Category C'* *'If no information or inadequate information is available to assess location of the project, the project will be categorised as 'Category B'*	The item can be cursorily checked by review of project location on Google Earth and reviewing the notifications issued by the MoEFCC related to eco-sensitive zones. 'If the Project is located within or near eco-sensitive zone of National Park or Wildlife Sanctuary, and it proceeds to the next stage, then the due-diligence will cover this aspect in detail to understand compliance with Reference Framework requirements on Biodiversity Conservation & Sustainable Management of Living Natural Resources.

nerable groups

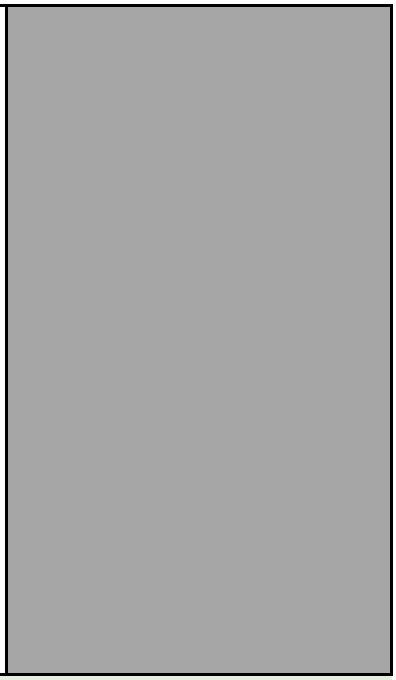
If response is 'Yes', project is categorized as Category A. *If response is No, project is categorized as Category C'* *'If no information or inadequate information is available to assess impact, the project will be categorised as 'Category B'*	*Identify whether and Scheduled Areas are present adjacent to the project.* *Scheduled Areas are present in Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Maharashtra, Madhya Pradesh, Odisha, Rajasthan, Telangana.* *One of the key requirements should be of Free Prior Informed Consent (FPIC) in case of projects impacting land, natural resources, traditional knowledge or critical cultural heritage of IPs. An FPIC in retrospect is not possible.* *If the case is evaluated to be 'not Category A', and it proceeds to the next stage, then the due-diligence will cover this aspect in detail to understand compliance with Reference Framework requirements.*

the preliminary E&S category assigned to the Project.
d in determining the Terms of Reference for conduct of the ESGDD

Category Assigned	Justification

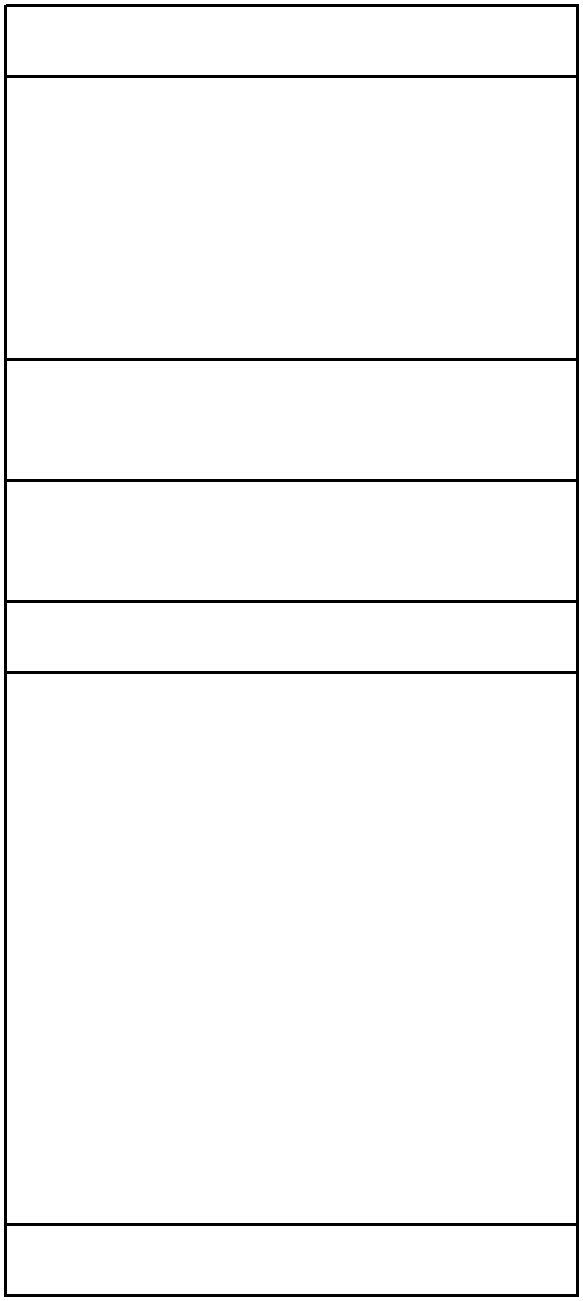
Revision no.:	
Response (Yes/ No/ Information Not Available / Not applicable)	**Category Assigned**
	(Please mention category here)
	(Please mention category here)

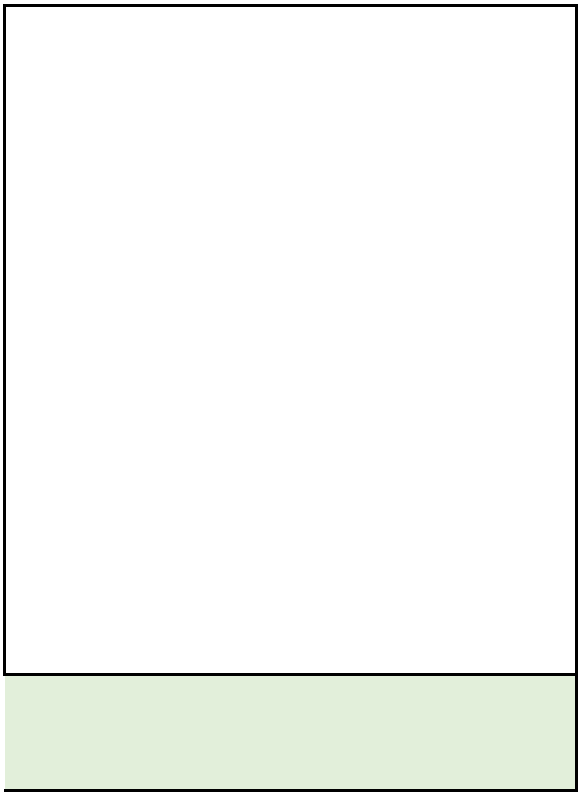
	(Please mention category here)
	(Please mention category here)
	(Please mention category here)

Date

Date of Assessment:
Remarks **Where available, please mention the necessary statutory clearances / remedial actions/ control measure in place.** *(To filled per the personnel conducting the categorization)*





Tool 4-4/F1: E&S Action Plan

Name of Project/Plant:			**Prepared by:**		**Revision no.:**		**Date:**
#	**Nature of Non-Compliance / Non-Conformance**	**E&S Risk Classification**	**Recommended Corrective Action**	**Responsibility**	**Timeline**	**Budget**	**Monitoring Indicator**
1.							
2.							
3.							
4.							
5.							
6.							
7.							

Tool 5-1/F1: Environmental Aspec

Name of Plant:	Prepared by:

S.No	Activity/Process	Environmental Aspect (EA)	Impact

N/A/E – Normal / Abnormal / Extremely Abnormal

Social Management System

cts & Impacts Evaluation Format

	Revision no.:	Date:

Control Measures Available	Nature of EA (N/A/E)	Legal / Non Legal	Probability of Occurrence	Impact on Environment	Existing Controls	Score = A x B x C

ERMPL's Environmental & Social Management System	
SL No	**Activity / Process**
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

ERMPL's Environme

Tool 5-1/F2: Occupational

Name of Plant:						CFT Members:				
S. No.	Operations / Activity	Occupation Involved	OH&S Hazards	Source, situation or Act	Risk (Indicate body part, if possible)	Emergency Situations (Y/N)	Legal Requirements (Y/N)	Base Risk Assessment		Base Risk Level
								Severity	Probability	

Originated By:- Name

Date :-

ntal & Social Management System

Health & Safety Risk Evaluation Format

Date of Preparation:

Next Review Date:

Acceptable/ Unacceptable (A/UA)	Existing Control in Place & in Use (A/B/C/D/E)	Residual Risk		Final Risk Level	Acceptable/ Unacceptable (A/UA)	Define Risk / Opportunity	Additional Control Required (Consider from control A onward)	Responsibilty	Target Date of Complition
		Severity	Probability						

Approved By -

ER

Criteria

Weightage	Severity (Injury / ILL Health)
1	Minor injury/slightly harmful
2	Moderate injury/Harmful
3	Catastrophic injury/Extremely Harmful

Wieghtage	Probability (Likelihood of an occurrence of a hazardous exposure)
3	Likely
2	Unlikely
1	Highly Unlikely

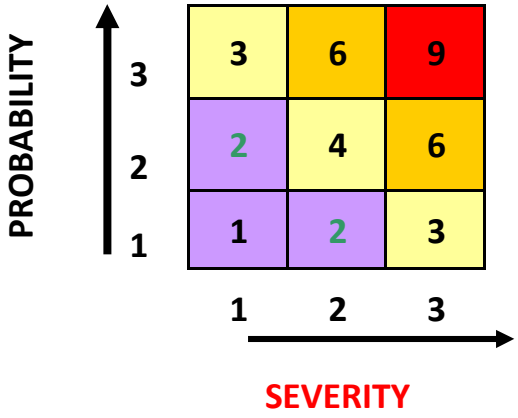
for Evaluating the Severity and Probability of a Risk

Criteria for Severity
Explanation
First Aid required on job, Superficial injuries, Minor cuts, bruises, minor burns, temporary ill health, irritation from dust/noise/vibration etc., Nuisance/ Irritation/ Discomfort, Absenteeism from work for few hours but less than a shift or a assets / materialistic loss of less than Rs. 50000/-
Multiple injuries, minor fractures, serious sprains, ill-health leading to permanent minor disability, Absenteeism from work for more than a shift or a materialistic loss of More than Rs. 50000/- or loss of company reputation at regional level
Death, Severe life shortening diseases, Occupational cancer, amputations, fatal injuries, Permanent Disability or a loss of company reputation on National / International level

Criteria for Probability
Explanation
Hazardous exposure is expected to occur in **ALL** circumstances.
(Continuous to once a day)
Hazardous exposure is expected to occur in **MOST** circumstances.
(Once a week but not daily)
Hazardous exposure **WILL PROBABLY** occur in **MOST** circumstances.
(Once a month or more but not weekly)

Risk matrix

The seriousness of a risk is rated in the following risk matrix:



Risk Level	Category	Abbreviation	Meaning	Action Plan
9	NA (Not Acceptable)	I	INTOLERABLE	Immdiate Action Required
6		S	SIGNIFICANT	Urgent management attention needed
3,4		M	MEDIUM	Implement risk reduction measures within a defined period
1,2	A (Acceptable)	A	ACCEPTABLE	No additional controls are required Monitoring may be required to verify ongoing effectiveness of controls Investigate more cost-effective controls

Risk or Opportunity
Risk to OHS
Opportunity
Gives the Opportunity

Hierarchy of Controls		
Level of Control	**Controls**	**Description**
A	Elimination	Elimination of process/dangerous operation,reorientation of work place,machines etc. so as to eliminate the hazards.
B	Substitution	Alteration/modification/replacement of machine, tolls, substances etc. so as to minimize/reduce the risk.
C	Engineering Control	Automation, robotic operations, safety guards, limit switches, Auto Swithoff Buttons, Warning Hooters, Warning Signals, Sensors, Human Sensors, Floor Mounted Ladders, Deployment of Competent Person etc.
D	Administrative	Sinage, warnings, SOPs, OCPs, Work Instructions, Motivational porg., Trainings, Penalties Etc.
E	PPEs	Corret type of Helmet, Nose mask, Aprons, Ear muffs/plugs, safety belts as per type of the hazards.

ystem

Concept
No Activity/No Man/No Machine/No Material than No Hazard. If no hazard than no RISK.
Change in type of hazard which has less Risk Level
Activity/Machine/Materials will be there and hence associated hazards too. Controls here are inbuilt with machine (mostly mechanical/alert/emergency indicators) to avoid contact of hazard and human.
Activity/Machine/Materials will be there and hence associated hazards too. Controls are mostly "WISH" in terms of display/trainings to control risks. If practice does not improve RISK Shall Happen.
Minimum Shall be provided.

Biological Hazard

Consumption of infected food

Consumption of infected medicine

Contact with infected coolant

Contact with infected medical equipment

Contact with infected wastes

Contact with mineral wool

Exposure to honey bees

Exposure to infected environment

Exposure to infected patients

Exposure to snake

Exposure to wild animals

Exposure to wild insects

Inhalation of infected air

Drinking of contaminated water

Fire Hazard

Accumulation of flammable liquid near heat source

Development of high pressure

Exothermic reaction

Generation of excessive heat

Generation of high temperature

High accumulation of combustible/ flammable waste

High accumulation of flammable gas/

Hot work in fire prone zone

Leakage of flammable gas/ vapor in sparking zones

Leakage of flammable liquids on hot surface

Mechanical Hazard

Collision of trolleys in motion

Exposure to trap zone between two things

Exposure to trap zone between belt and pulley in motion

Exposure to trap zone in energized machinery

Hit against the moving object

Hit by flying broken tool/ cutter

Hit by flying component

Working with unguarded machinery

Chemical Hazard

Consumption of expired medicine

Contact with chemical

Contact with corrosive chemical

Exposure to dust

Exposure to oil mist/ coolant mist

Exposure to toxic gases

Ingestion of toxic chemical

Inhalation of chemical fumes

Inhalation of toxic vapours

Physical Hazard

Lack of expansion joints

Lack of heat insulation

Lack of ventilation

Lack of vibration damping

Over speeding of the vehicle

Electrical Hazard

Exposure to bare live wires in electrical circuit

Exposure to damaged/ exposed live wires in electrical circuit

Exposure to unearthed machinery/ equipment

Poor access to switch board

Physical Hazard

Application of high hand force

Contact with hot objects

Contact with sharp edges in the tool/ cutter

Contact with sharp edges in the

Exposure to excessive cold

Exposure to excessive heat

Exposure to noise <=90 dB

Exposure to noise >90 dB

Exposure to pressurized gasses

Exposure to pressurized liquid

Exposure to pressurized steam

Exposure to radiation

Exposure to soil dust

Exposure to vibration

Hit against a protruding object in the walkway

Hit against a stationary object

Loosely connected electrical wires/ devices	Unsecured working at elevated platforms	Hit against the parts in the machine
Overloading the electrical circuit	Unsecured working at heights	Hit by broken glass
Poor access to switch board	Unsecured working at roofs	Hit by broken hand tools
	Usage of damaged slings/ ropes/ material handling equipment	Hit by falling imbalanced trolley
Ergonomical Hazard	Walking in poorly illuminated walkway	Hit by falling material kept on a runnig machine
Lifting of heavy loads	Working in poorly illuminated area	Hit by falling of unsecured objects from height
Working in awkward postures	Walking in slippery floor	Hit by falling overloaded trolley
	Walking over unsecured pit	Hit by sharp edge
	Weak foundation	Inadequate entry and exits
		Inadequate fire retardency
		Inhalation of contaminated air
		Lack of emergency exits

	Activity	Hazard	Risk	Existing control
1	Chemical movement	Spillage	Accidents	Awareness
			Loss of resources	Awareness
		Physical contact	skin irritation	Wear rubber hand gloves while handling
2	Mixing of chemicals	Spillage	Accidents	Awareness
			Loss of resources	Awareness
		Physical contact, Splash	skin irritation	Wear rubber hand gloves while handling
3	Transfer of chemical to dip-spin unit	Physical contact, Splash	skin irritation	Wear rubber hand gloves, Goggles while handling
4	loading and unloading	Improper handling of basket.	Accidents	Awareness
			Loss of resources	Awareness
5	Preheating and curing	contact with hot products	skin burns	Use tongs for inspection quality & place empty trays for auto unload
6	Chemicals used for testing.	Improper disposal of chemical materials	Water contamination	Chemical disposed in ETP for treatment.
			Soil contamination	
7	Maintenance and cleaning of dip-spin unit	Chemical contact	Skin irritation	wear rubber hand gloves
		Waste water disposal	Water contamination	Chemical disposed in ETP for treatment.
			Soil contamination	
8	Storage of chemical in dip spin	Non availability of continuous power	Chemical contamination, wastage of power	
9	Stripping of rework material	Caustic fumes	Health hazards	Wear mask & rubber hand gloves while stripping
			air pollution	Exhaust system to be provided
1	Use of Polythene	Disposal of waste polythene	Can block drainage system if disposal is not proper	Training & Monitoring
2	Scrap Packing material	Disposal of waste packing material	Solid waste	Waste control **IMP/05/23**

		(like card board)		
3	Storage of finished goods	Electric short circuit	Fire hazard	Fire extinguisher provided & training given
		Repetitive or difficult movement during loading	Body Ache, Stress & strain	Training
		Slippage at steps	Injury to human being	Side support
		Falling of boxes from higher racks	Injury to human being	Load fixed, No high height stacking
4	Packing of material	Oil may come in contact with skin	Skin problem	Training, PPE provided
		Oil spillage	Loss of natural resources Injury to human being	Stored separately
		Falling of materials from table	Injury to human being	Training 5S
		Electric shock through polythene packing	May be fatal	Regular monitoring
Finishing				
1	Loading of Material	Oil carryover with material & collected in tank	Water pollution, Resource depletion. If thrown in open	Oil trapper provided to separate the oil from water & oil are being stored in drums **IMP04/04** taken to recycle the waste water & to ensure ETP compliance.
		Unsafe practices/act	**Body Injury**	**Work instruction**
		Repetitive or difficult movements	**Body ache**	**Awareness**
		Oil spillage	**Injury to human being.** **Loss of human resources**	**Safety instructions**
		Falling of material form trays during loading	**Body injury**	**PPE provided, Shoes mandatory.**

2	Alkaline Soak Degreasing -Caustic soda -Detergent	Alkaline solution	Can cause water pollution if drained in open.	WI7550
		Splashes of alkaline solution	Skin burn/eye injury	PPE provided, Shoes mandatory
		Inhalation of alkalis during handling	Respiratory irritation	Nose mask
		Alkaline rinse water disposal	Water pollution	WI7550
		Alkaline Fumes	**Irritation to the workmen / Breathing problem / Lungs problem in long run**	**WI7563, WI6411** **IMP/04/17**
		Handling of chemical without PPE	Injury to human being	PPE provided
3	De scaling - Caustic soda - Potassium permanganate	Alkaline solution	Can cause water pollution if drained in open.	WI7550
		Alkaline rinse water disposal	Water pollution	WI7550
		Alkaline Fumes	Irritation to the workmen / Breathing problem / Lungs problem in long run	WI7563, WI6411
		Handling of chemical without PPE	Injury to human being	PPE provided
4	Pickling - Sulphuric Acid	Acid solution handling	Water pollution	WI6407
			Eye/Skin problem.	
		Rinse water	Water pollution	WI6407
		Acidic Fumes	Eye/Skin/Breathing problem.	WI6407
		Heat generation	**health hazard** **energy loss**	**WI6407** **IMP/05/12**
		Splashing during addition of chemicals and barrel transfer	Burn/Eye/Skin problem/ breathing problem	WI6407, WI6411

5	Anodic cleaning	Alkaline solution	Can cause water pollution if drained in open.	WI7550
	- Caustic soda	Alkaline rinse water disposal	Water pollution	WI7550
	- Detergent	Alkaline Fumes	Irritation to the workmen / Breathing problem / Lungs problem in long run	WI7563, WI6411, Fume extraction system
		Handling of chemical without PPE	Injury to human being	PPE provided, Awareness training
6	Neutralizer	Rinse water	Water pollution	
	Dilute Hydrochloric acid	Acidic fumes	Eye irritation, Breathing problem	Fume exhaust, awareness training
7.1	Zinc Plating: Dilute Hydrochloric acid, Zinc Anode Zinc Chloride Potassium chloride	Drag out water	Water pollution	WI7564
	Boric acid	Rinse water	Water pollution	WI7564
	Organic brightener	**Heat radiations**	Rise in work zone temp	Work instruction **IMP/05/12**
7.2	Zinc Plating	**Zinc sludge /plate**	Sludge can cause water/land pollution if thrown in open	Stored in slude room , WI 6417
		Scrap /rework	Water/land pollution Loss of resources	Sop 8301 WI 7546 **IMP/05/05** **IMP/05/08**
8	Phosphating Iron (normal/very less amount)	Sludge containing iron	Soil pollution if thrown on open land	Being stored in sludge room
		Handling of Acidic solution	Skin/eye problem.	Awareness training
9	Dewatering oil	Waste oil	Water pollution	Provision provided for oil separation in ETP
		Dirty water disposal	Water pollution	WI7550
10	Chemical Storage/handling	Leakage of chemicals from	Water pollution.	WI7553/WI7564

		Tank	**Excess chemical consumption**	**IMP/05/14**
		Leakage of containers/ pockets	Water pollution	WI6411
			Air pollution	WI6411
			Breathing problem	WI6411, WI6407
			Skin problem.	WI6411, WI6407
11	Testing of chemicals: -Zinc plating solution test - Zinc phosphating solution test -Pre-treatment density test -pH of zinc plating solutions	Disposal of solution /samples remained after testing.	Can cause water pollution if thrown in sewage line	WI7553,WI7547, WI7564 Being stored in separate bucket and send to ETP
		Fumes while carrying out testing	Health hazard	WI6411 Exhaust fan provided
12	Ventury Scrubber -Water	Smoke through chimney	Air pollution	WI7563
		Use of Water for spray	Water pollution	Water goes to ETP
		Noise/ Vibration	Human discomfort, Reduction in machine life	WI7563
		Fumes of plating/ phosphating	Irritation to the workmen / Breathing problem / Lungs problem in long run	WI7563, WI6411, Exhaust through scrubber, Being monitored by HSPCB
13	Thermopac: Oil Diesel	Storage of diesel	Can cause fire	Emergency plan, 5-S, Area restricted for fire prone activity
		Fumes of diesel through chimney	Air pollution	WI7563, Being monitored by HSPCB
14	ETP - Rinse water from plating / phosphating -Treatment chemicals - Sodium meta by sulphite	Disposal of Treated water	water/land pollution if thrown untreated.	WI7550

	- Dilute sodium hydroxide - Dilute sulphuric acid - Sediwell - Oil			
		Sludge from ETP	Sludge can cause water/land pollution if thrown in open.	Stored in the sludge room WI6417
		Leakage / Excess use of chemicals	**Land pollution / product quality can deterioted**	**IMP/05/18**
15	R.O.PLANT - Baring water - Bajri/Stone - Sodium chloride - Resin - SHM phosphate - Citric acid/water - RO Water - Caustic soda - Commercial HCL	Rejected water	Can cause water pollution if drained with mixed potable water.	WI7549
		Waste resin	Hazardous in nature Soil contamination	WI7549
16	Hydrogen De-embitterment	Hot air	Rise in work zone temperature	WI7548
17	Passivation	Rinse water	Water pollution	WI7550
			Health hazard	WI6411, WI6407 Medical Examination
		Use of passivated chemicals	Land contamination if thrown in open	WI7550
			Skin problem/eye problems	Safety instruction, use of PPE
		Use of broken baskets	**Loss of chemicals Chances of injury**	**Awareness training /do & don'ts**
18	EOT Crane operation	Improper movement	Injury	Training, Safety manual
19	Cleaning of tanks, empty containers /filters	Waste water	Water pollution	WI7550
		Excess consumption of water	Loss of natural resources	Water meter installed

			Violation against Legal requirement/loss of natural resources	Water meter installed, being monitored.
		Proper Dozing of Chemicals	Due to Zinc metal being used instead of Zinc oxide, Zinc metal consumption is less due to auto dosing, consumption of chemicals is optimum.	Auto control system
20	ZINC GENERATOR -Zinc metal -NaOH	generation of scrap during processing	Loss of Resources	**Consider as IMP/05/05**
			loss of natural resources,	Consider as **IMP/05/04,** **IMP05/08**
21	PLATING / PHOSPHATING	Loose electric wiring	Electric Shocks	Proper Insulation/ Awareness training
		Scrap /rework	Water/land pollution Loss of resources	SOP 8301 WI 7546 **IMP/05/04**
22	**Finishing activities**	**Working on Damage panels**	**Electric Shocks** **Injury to human being** **Unsafe condition.**	**5s activity** **Safety audit** **IQA**
		Slip hazards	**injury to human being**	**Awareness training.**
		Rusting of plating equipment	**Equipment damage** **Quality problem**	**Cleaning and painting schedule established**
		Handling of chemicals	**Land contamination if thrown in open**	**WI7550**
			Skin problem/ eye problems	**Safety instruction, use of PPE**
		broken/leaky condition of eye shower	**Loss of resources** **Unsafe condition during first aid.**	**Awareness/maintenance checklist**
Forging				

1	Polythene on RM	Disposal of Polythenes	Land Pollution	Stored in Drums (Identified)
2	Forging (Burning of Oil)	Fumes (In S.S)	Respiratory problem	Fume Extraction system **IMP/04/07**
			Air Pollution at defined interval	Oil changed Ensure use of exhaust fans fume collector required
		Excess use of oil	Loss of Natural Resources	Consider as a **EMP/05/17**
3	Oil collection	Disposal of Oil Collected in trays	Water/Soil Pollution	Stored in Drums and used after filtration
4	Lubrication of Machine	Spillage of Oil	Loss of Natural resources	Oil consumption records
			injury to human being	Safety instruction
5		Noisy Environment	Health Hazard (Deafness)	Ear Muffs Provided
		Air Leakage	Loss of Natural resources	Preventive maintenance /**plant round by maintenance**
		Generation of scrap	Loss of Natural resources	Consider as a **IMP 05/06**
		Use of Sulphur on wire	Harmful to Skin	Hand Gloves provided
		Disposal of empty Sulphur Box/Poly Bag	Health Hazard/Land pollution	WI6415
		M/c door opened at the time of production	Air pollution	WI7538
			Respiratory problem	PPE provided
		Inclination of conveyer not proper/ broken conveyer	Oil leakage/Loss of natural resources	Regular monitoring
			Land pollution, Accident due to slippery floor	House keeping
		Use of files & other tools with out wooden handle.	Injury to human being	Tool Inspection

			Possibility to accident	Safety audits/safety instructions
		Use of grinder for tools finishing	Damaged grinding wheel	Safety audits/safety instructions
		Loose wiring near machine.	Accident & lose of life.	Dept. audit
		movement of end pieces on coil stand	injury to human being	Guard provided
		Stacking of coils	Injury	Awareness training **IMP/04/02**
	Forging	Storage/Disposal of end billets, Tool & damaged Die	Health Hazard.	WI6415
		Excess use of power	**Loss of energy**	**Monitoring by maintenance, IMP/ 05/09**
		Breakage of Chain	Accident	Helmets Provided, Crane under PMS
		Cutting of binding wire from RM coil	injury to human being	Awareness training **IMP /04/02**
6	Loading/ Unloading of coil through crane	loading of coil through roller(straightening)	injury to human being	Work instruction WI7538
		handling of heavy die & punch	Stress & strain in body	Work instruction **IMP/04/13**
7	Loading/ Unloading of die & punch	slippage at steps	injury to human being	5 S activity
		Assembling & disassembling of die & punch at m/c	Strain in body, injury due to improper tools	Work instruction Awareness training
8		product spills and contact with soil	Land pollution, Accident due to slippery floor	
9	Material handling & stacking	product spills and come into contact with ground water	water pollution	Material handling & storage instruction provided.
General store				
1	Storage & handling of chemicals/oils/spares	Leakage/spillage during handling / incompatibility	Fumes, smell Corrosive effect	
			Injury to person, leading to blast	
	Kerosene oil		Loss of natural	

	Thinner		resources.	
			Floor damage	
	Solution preparation	**In halation of dust**	**Health hazard Breathing problem**	**Suitable PPE provided**
		Chemical splash	**Eye &skin problem**	**Safety appliance**
		If spillage/Leakage	**Land pollution**	**Regular physical monitoring**
		From chemical tank	**Loss of resources**	**Safety audit**
	Disposal of chemical in drums	**If spillage/Leakage**	**Land pollution and.**	**Keep in a tightly closed container and protect from physical damage during handling**
		Or splashes during transportation	**Legal concern if thrown in open land**	**And sent to ETP for treatment.**
			Health hazard Skin problem Eye irritation	**Use safety appliances**
	Zinc bath LPG, Molten Zinc	Fumes(Co2,CO, H2 gas)	Air pollution	Exhaust duct to be provided **IMP/04/08**
			Health Hazard	
		Zinc ash (as dust particles)	Air pollution, Health Hazard	Exhaust duct to be provided
		Heat Radiation	Skin Burn	Safety appliances
			Respiratory problem	Safety appliances
			Skin irritation	Safety appliance

		Drossing	Health Hazard	To be stored in a drum
	Spinning Pit	Heat Radiation	Skin Burn	Safety appliance
			Skin irritation	Safety appliance
		Fumes	Respiratory problem	Safety appliance
	Water quenching Cap-1500lits	Fumes generate during quenching	Respiratory problem	Safety appliance IMP/04/08
Garden (HRD)				
1	To make Factory premises green and Attractive	Plantation	Reduce Air pollution, Improve greenery	Positive impact
2	To irrigate the Plant	Excess use of water, Leakage in pipe line	Loss of Natural resources	Being Monitored, sprinkler installed.
3	Spray of Pesticides and Composting	Hazardous or Toxic materials	Land Pollution/ Water Pollution	Awareness
			Health Hazard	PPE provided, Awareness training
		Generation of used Containers, Plastic bags	Health Hazard/ Solid waste	Awareness
4	Sweeping of Leafs and Cutting Wastes	Disposal of Waste Leafs and Stems	Solid Waste	Waste Leafs are used for Composting (Positive impact)
5	Storage of Pesticides	Leakage/Spillage of Pesticides	Water Pollution	Awareness training
			Health Hazard	Awareness training
6	Storage of manure	Growth of insects	Health Hazard	Special storage
		Bad Odor	Health Hazard	Isolated store
7	Use of polythene bags for plant germination.	Disposal of Polythene.	Land Pollution	All used polythene being stored and sent to scrap yard for proper disposal (sale)

House keeping				
1	Cleaning of Floor	Disposal of Phenol based water	Water Pollution	Awareness training
		Disposal of nylon based brush	Land Pollution	Being stored separately
		Disposal of Acidic Water (incase of wash basin)	Water Pollution	Awareness training
		Slippery tiles	Injury to human being	Warning displays
2	Cleaning of Wash Basin Mirror/ Fans/ light /glasses / cobwebs/insect killer	Disposal of detergent based water		Least use
		Repetitive or difficult movement	Body ache	Awareness training Electric mopping machine
		Electrical hazard	Electrical shock	Awareness training
3	Furniture cleaning	Disposal of waste clothes	Slid waste if burn	Awareness training
		Use of electric cleaning machine	Health Hazard (incase of electric shock)	Awareness training
		Excess use of water in cleaning	Loss of natural resources	Awareness training
		Disposal of Rubber mats, dust bins	Land Pollution, Solid waste	WI6415,6416
Canteen				
1	To provide food to employees	Disposal of Organic Waste	Health Hazards	Training & Monitoring
		Waste Water	Water Pollution	Going to septic tank
2	Storage of Food Stuff and Drinking Water	Contamination of food and water/unhygienic condition	Health Hazards, Biological Hazard	Training & monitoring
3	Use & Storage of Gas Cylinder	Leakage	Air Pollution, Loss of input	Training & monitoring
		Unnecessary burning	Loss of input	Training & monitoring

		Fire	Health Hazards, Major loss	Training & monitoring
4	Cleaning of Utensils and Floor	Waste water	Water pollution	Septic tank
		Improper cleaning of utensils	Health hazards	Training and monitoring
		Waste food	Biological hazard	Stored in separate drum
5	Unpack the packed food materials/ eatables	Generation of Polythene	Land Pollution, Solid waste	Proper storage & disposal
6	Use of water for processes/ canteen/ toilet	Excess use of water/ leakage	Loss of natural resources	Training & water consumption monitoring
7	Disposal of waste food	Dump in sewage line	Bad odor, blockage of drainage, increase in BOD	
8	Pest control	Use of insecticide	Food contamination	Being done through external agencies, training & supervision
9	Storage of empty Gas cylinder	If no designated space	Can cause injury may create obtruction biological hazards	Separate area to be provided
10	Food servicing Food preparation	Nails of workmen not cut/not cleaned	Health hazards	Awareness Health checkups.
LPG				
	Storage of LPG in Bullets	Leakage	Loss of Natural Resources	Regular monitoring
			Fire	Regular monitoring
			Breathing problem	Regular monitoring
		Bursting of Bullets due to High Temp. Lightening	Fire/ Emergency Situation	WI Temp/pressure monitoring

	Decanting of LPG	Leakage during unloading	Loss of Natural Resources	WI7567
			Fire	WI7567
		Floor Compression due to heavy Load.	Leakage of LPG/ Fire	Proper floor monitoring
		Electric spark due to Static Electricity	Fire/ Emergency Situation	Earthing provided
	Mock/Safety Drill in LPG Yard	Excess use of Water during drill	Loss of Natural Resources	Drill conducted for 1 min
		injury during drill	Health hazard, Body strain	Training
	Emergency preparedness	Failure of fire box. Sand not available in buckets. Wet sand in buckets.	Loss of company, property. Accidents. Loss of company image.	Regular monitoring. Preventive maintenance schedule. Safety Audits. Mock drill. Plant under Insurance.
	Movement of product through crane	Breakage of crane wire rope	Accident	Under Preventive maintenance schedule
		Leakage of oil from crane	Accident due to slippage	Under PM Schedule.
	Manual lifting of product trays	Stress & strain on muscles	Disabling to work , Long term backache	Load in trays fixed (Max. 50 kg) Visual Display
	Abrasive grinding m/c	metallic dust	Health hazard	WI7523 training to workers and retraining
		Waste belt, breakage of belt	Solid waste, accident	Training to workers. and retraining, Machine guard provided
	Abrasive cutting m/c water based coolants	waste content	Water pollution	WI7522

abrasive cutting wheel	scrap wheel	Waste item for disposal, loss of input	Stored separately
Abrasive cutting m/c	waste content	Water pollution	WI7522
water based coolants	scrap wheel	Waste item for disposal, loss of input	Stored separately
abrasive cutting wheel	noise	Health hazards	PPE provided
	breakage of wheel	Accident	training to workers, machine are under PMS.
Abrasive Cutter Inputs - (Water based coolant Abrasive cutting wheel)	Waste coolant	Water pollution	
	Scrap wheel	Waste item for disposal	Hazardous waste matrix
	Noise	Health Hazard (Deafness)	Using ear plug
	Waste (Metallic)	Loss of input	
Magna Flux Crack	Waste water	Water pollution	WI6401
Detection Inputs-(Fluorescent powder Water / kerosene)	Ultra violet light.	Health hazards	Rubber gloves/ goggle provided/ Training imparted.
Tensile strength measurement	Use of heavy Samples & fixtures	Accident	Training
		Strain in body	
	High noise	Health hazardous	PPE
	Breaking& jumping of fixtures & samples	Injury to human being	Acrylic sheet provided
		Loss of property	Auto system
	Falling from ladder	Injury to human being	Proper fixing
Torque Tension	**Use of heavy fixtures**	**Strain in Body Chances of accident**	**Training**
Maintenance (Forging)	Waste lubricant (every 6 month)	Can cause water/ land pollution Loss of natural resource	WI6406, Added in Check Sheet F7506
	Spillage /leakage of oil	Can cause fatal accident Land contamination	WI6406

	Leakage of Air	Loss of resources	Maintenance check sheet Provided F7506, Air leakage & oil leakage from machine are being monitored by maintenance
	Mis- handling of tools while maintenance	**Can cause injury /accident hazards**	**Safety instructionWI6405 DO & Don'ts**
	Unsafe practices during changing and replacing parts	**Body Ache** **Body injury**	**Safety instruction** **WI6405**
	Scarped Spares, Scrap & Metal waste	**Cut** **Land contamination**	**Awareness**
	Noise	**Air pollution** **Loss of hearing**	**Ear plugs**
Maintenance (Secondary) Grinding machines	Soluble coolant oil	Can cause water / land pollution	WI6406, to be stored in identified drum and hand over to store.
	Hyd Oil	water pollution Soil/land Pollution	WI6406, to be stored in Hydraulic oil is being reused
	Leakage of air	Loss of Natural Resource	Check sheet provided F7506
	Scarped Spares, Scrap & Metal waste	**Cut/injury** **Land contamination**	**Awareness**
	Unsafe practices during changing and replacing parts	Body Ache Body injury	Safety instruction
Turing/drilling m/c	Soluble Cutting oil	Can cause water /soil pollution Skin diseases	WI6406 , to be stored in identified drums and send to ETP for treatment. PPE Provided.

Maint. (Tool Room) Lathe/Milling/Engraving/ Drilling/Grinding	Soluble oil (Water based)	Water/Land pollution Skin diseases	WI6406 , to be stored in identified drums and send to ETP for treatment PPE Provided
	Disposal of Hyd. Oil	Water/soil Pollution	WI6406, Used hydraulic oil being used for lubrication
	Mis- handling of tools while maintenance	**Can cause injury /accident hazards**	**Safety instruction** WI 6405
Maintenance EDM / Wire cut/Spark erosion	Cutting oil Oily floor due to cutting oil	Water/soil Pollution Body injury	WI6406 , to be stored in identified drums and send to ETP for treatment. safety instructions
	Used oil	Water/soil Pollution	WI6406 , to be stored in identified drums and send to ETP for treatment
	spark	**Eye injury**	**PPE provided, guard provided**
Maint.(Finishing) (Phosphating / plating ETP Thermopac RO Plant Chilling Plant)	Dangler cable PVC Pipe Rubber buffer V block Disposal of waste Membrane Leakage of water	Land pollution, Disposal of solid waste	WI6406 Maintenance check sheet
	Unsafe practices during changing and replacing parts	**Body Ache** **Body injury**	**Safety instruction** **WI 6405**
DM-PLANT	Leakage of water	Loss of Resources	Under AMC, Maintenance check sheet Provided.
	Generation of waste resin	**Land pollution**	
R.O.PLANT - Baring water	Rejected water	Can cause water pollution if drained	WI7549 **IMP/04/04**

- Bajri/Stone - Sodium chloride - Resin - SHM phosphate - Citric acid/water - RO Water - Caustic soda - Commercial HCL		with mixed potable water.	
	Waste resin	Hazardous in nature Soil contamination	WI7549
	Waste heating element/wire	Waste Spares	WI6406
Maintenance DG Set (3 nos)	Spillage of Used Oil	Land/water Pollution	WI6406 To be monitored
	Consumption of Diesel	**Loss of resources**	**Maintenance check sheet IMP/04/18**
	Smoke from DG set	Air Pollution	Height of the stack as per Legal Requirement
	Sound/Noise, Vibration	Noise Pollution	Noise monitoring. Ear plug given . Acoustic treatment
	Batteries.(Lead acid1111111)	**Loss of resources. (Water pollution), Hazardous**	**Buy back system** **IMP/04/05**
	Electrical hazard	Electric shock	Awareness training Unauthorized entry restricted
	Hot part of engine may come in contact with body	Body burn	Awareness training Unauthorized entry restricted
Maintenance LPG Yard	Decanting Leakage of LPG	Can cause fire	WI7567 Verification by security
Maintenance Fork lift (2 nos)	Smoke	Air pollution	Pollution control certificate are regularly monitored.

Scrubber, ETP	Break down of pump, motor, hour meter, energy meter, water meter	Legal requirement, Air pollution. Water pollution	Check sheet already provided Scrubber monitoring monthly
Suction of fumes	Improper suction	Discomfort to worker, Air pollution	Monitoring of suction system
LPG pipe line (Reporting/painting)	Leakage	Fire accident	Check sheet already provided
	Damage of valve	Loss of resource	LPG storage monitoring monthly, check sheet F7506 . work permit system
Air compressor	Leakage	Loss of natural resource	Monitoring by maint /daily check points
	Moisture	Improper functioning of m/c	Air drier installed
	Noise	Discomfort	Ear muff provided **IMP/04/16**
Air compressor	**Exceed pressure**	**Lead to accident Chances of blast**	**Thickness test**
	Consumption of compressed air/energy	**Loss of resources**	**Work instruction , taken as IMP/05/11**
HSD tank	Leakage/spillage	Loss of natural resource Can cause accident	Regular stock verified by maintenance
	Elec. Short circuit	Fire accident	Earthing available
	Over flow of service tank	Loss of Natural resources	Dispenser provided
	Diesel come into contact with skin	Lead to skin disease	Usage of PPE
EOT crane	Improper movement	Unsafe condition	Added in PM check sheet EOT crane monthly pm F7506
	Electric Hazard	Electric shock	Awareness training
	Chances of material falling from EOT	Body injury, Material loss	Safety training
	Repetitive or difficult movement	Falling of material due to jerk	Awareness training

	Unsafe practices / act lead to equipment Mis handling	Severe accident , Body injury, Machine damage	Awareness training
Pressure vessel	Deterioration in thickness	Unsafe condition, Chances of blast	Thickness test & safety valve function being checked as per requirement, Safety relief valve
Electricity	Excess use of electricity	Loss of energy	Regular monitoring , IMP 05/09,10,11 taken , Hanging switch provided.
Installation, shifting & commissioning of new equipment	Equipment hazard	Electrical shock	Awareness training
	Unsafe practices / act lead to equipment Mis handling	Body injury, Machine damage	Awareness training
	Unsafe practices / act lead to Erection hazard	Body injury	Awareness training
	Improper utilization of shifting equipment	Body injury, Machine damage	Awareness training
Maintenance of transformer	Electrical hazard	Electrical shock, Fire	PPE provided, Entry restricted for unauthorized people, Testing of parameters reqd.
	Oil may come in contact with body	Can cause serious illness	Awareness
Maintenance of electrical panels	Electrical hazard	Electrical shock	Auto shield rubber met of sufficient length
Maintenance of electrical wiring	Unsafe practices	Electrical shock	Usage of PPE Safety instruction
Drinking water supply	Leakage of pipe	Health hazard	Periodic check
Maintenance / Monitoring of under ground & roof sealing wiring	Electrical hazard	Electrical shock	Awareness
	Chance of catching fire	Fire hazard	Periodic check
	Repetitive or difficult movement	Body ache	Awareness
	Chances of falling from roof sealing	Body injury	Awareness

	Use of Asbestos for roofing during civil work	Disposal of asbestos	May degrade the land Health hazards Legal requirement	Use of asbestos restricted training
1	Air conditioning in office	Electrical hazard	Electrical shock	Proper wiring
		Low level of O2	Tiredness, Laziness	Periodic check
2	Working on computer	Back pain due to continuous sitting	Body ache	Awareness
		Strain/Glare on eyes	Eyesight may get affected	All PC's are equipped with antiglare screen
3	Working in office	Improper sitting of working table arrangement	Body ache, Discomfort	
		Strain on eyes	Eyesight may get affected	All PC's are equipped with antiglare screen
		Noise	Can cause irritation	Awareness, Silence board
		Fire	Fire hazard	Fire safety equipment / Periodic check
4	Xerox Machine	Electrical hazard	Electrical shock	Awareness training
		Toner refilling	Respiratory Problem if inhale	Awareness training
			Skin disease	Awareness training
			May cause lung cancer if inhale	Awareness training
		Repetitive or difficult movement	Body ache	Awareness
		Strain on eyes due to glare	Eyesight may get affected	Awareness training
		Wastage of paper	Loss of natural resources	Awareness training
5	Cleaning sanitation & horticulture	Use of Insecticide & pesticides	Vapours may affect lungs	Awareness training, PPE provided
		Cleaning of shop & office floor	Slippage	Awareness

		Cleaning of urinal	Infection can take place	Awareness training for house keeping
6	Floor painting	Paint fumes	Health hazard	Facemask, training
7	Wall / roof painting	Paint may drop in eyes	Eye injury	Goggles, training
		Falling / slippage of ladder	Body injury	Safety belt
		Repetitive or difficult movement	Body ache	Awareness
8	Parking of vehicle	Exhaust gases at peak time	Can affect lungs, Air pollution	PUC checked
		High traffic during peak hours	Can cause car / scooter, motor cycle / bicycle accident	Awareness, Area marked
		Improper parking	Body injury, Space constraint, vehicle damage	Awareness, Display of rules
		Leakage of oil from vehicle	Water Pollution Loss of N.R.	instruction given, being monitored regularly by security.
		Chance of hitting to person	Body injury, Space constraint, vehicle damage	Speed limit of vehicle fixed
9	Plant Security	Monkeys in the factory premises	Can bite / injure employees.	Fencing at plant boundry
		Snake bite	Can cause fatal accidents	Street light at all area, regular cleaning of junked area.
10	Cleaning of light and Glazed window at high height	Slippage	Can cause loss of legs / life	Awareness
11	Use of Light	Excess Use of Light (Electricity)	Loss of Natural Resources	Monitoring
12	Records of Activities Carried out / Communication	Excess Use of paper	Loss of Natural Resources	**IMP/05/34 IMP/05/24**

		Disposal of used paper	Solid waste	Only important papers are allowed shredding, otherwise it is given to vendors for making hand pad.
13	Storage of Data	Disposal of Waste Floppies	Land Pollution	Circular by SIG
14	Printing	Disposal of Waste Cartridge	Land Pollution	Circular by SIG
15	Smoking	Unsafe practices/ conditions	Fire, Respiratory problem, Injurious to health	Awareness, Smoking area marked
16	Use of water	Leakage during transportation.	Loss of N.R.	Water through pipeline
		Leakage during storage	Loss of N.R.	Pipe of proper quality provided to avoid leakage.
		Over flow from storage tank	Loss of N.R.	Automatic water stopper are provided.
		Excess use of water	Loss of N.R.	training to workers given. Training to workers given.
			Violation of Legal Requirements Violation of Legal Requirements	regular monitoring of water consumption being done regularly.
17	Storm water/water from ETP	Improper collection & storage	Water Pollution/loss of resources if not stored properly	storm water being collected in ETP pond thru a drainage line
18	Storage of water from ETP	Foul smell Mosquito breeding Improper monitoring	Overflow if not stored properly. Biological hazard/Health hazard. Deplantation	Fortnightly monitoring of water by HRD. WI7410
19	Cleaning tiles.	Slip hazards	injury to human being	Awareness training.

20	Emergency preparedness	Failure of fire box. Sand not available in buckets. Wet sand in buckets.	Loss of company, property. Accidents. Loss of company image.	Regular monitoring. Preventive maintenance schedule. Safety Audits. Mock drill. Plant under Insurance.
21	Painting of equipment	Rusting of equipment	Equipment damage Quality problem	Cleaning and painting schedule established
22	Sewage handling & storage	Overflow of septic tank/soak pit. Biological hazards if not stored properly.	Accident may occur if not covered properly.	Monthly monitoring of septic tank level. Cleaning of septic tank/soak pits bi-annually. WI6416
PPC				
1	Receiving/movement of Products	Disposal of oil collected in Trays	Water Pollution	Stored separately
			Soil Pollution	
		Loading & Unloading of Products	Accident may occur due to Heavy Lifting at high height	Training
2	Movement of product through trolley	Improper movement of wheels/ damaged trolley	Discomfort, Extra work load	Monitoring
		Improper Stacking of product	Accident, Major loss	Stacking/ Load fixed
3	Storage of product in damaged tray	Spillage of oil	Loss of natural resources	Monitoring **IMP/05/33**
		Damaged handle	Possibility of accident	Monitoring
4	Storage of product in WIP/Vendor area	Obstruction in the gang way	Accident	Monitoring, Area marked
		High Stacking height	Strain in body while lifting	Stacking height fixed

			Chances of falling down	
5	Fork lift	Movement of fork lift at blind end	Collision	Training, Speed limit fixed
		High speed	Accident	Awareness
6	Loading & unloading of bins in truck by fork lift	Comp / bins may fall down	Product loss	Awareness training
7		Exhaust fumes	May affect lungs / eyes	Periodic check, PUC
		Repetitive or difficult movement while driving	Body ache	Awareness
		Chance of hitting to person	Body injury	Awareness
Purchase				
1	Procurement of Materials	Generation of waste if not kept properly	Land Pollution	Stored in Drums (Identified)
2	Procurement of Chemicals	Leakage, Hazardous waste	Water pollution, Work instruction, Land pollution	Instruction of MSDS being followed. **IMP/05/29**
3	Transportation of materials	Vehicle smoke	Air pollution	All PUC checked vehicles are used.
4	Used oil disposal	Generation of waste oil	Water pollution	
5	Procurement of LPG, Diesel	Leakage	Fire	Supplier has been asked to follow rules. Hazardous chemicals Management & Handling. **IMP/05/29**
RM Store				
1	Storage of raw material	Rusting of raw materials	Loss of N. resource	Rust preventive oil
2	Loading/Unloading of raw material by Fork Lift	Smoke from fork-lift	Can cause air pollution	PUC check
		Speed of fork-lift	Can cause injury	Speed limit
		Noise of fork-lift	Noise pollution	PMS
3		Running of fork lift by Untrained driver	-Accident -Material damage -Vehicle breakdown	Duly trained driver deputed
4	Staking of R/M coils	improper Stacking	can cause accident	Training
5	Application of rust preventive	Improper application	Land pollution	Training

	oil	Use with bare hand	Skin problem	Training
6	Loading/ Unloading of coil through crane	Breakage of Chain	Accident	Helmets Provided, Crane under PMS
		Cutting of binding wire from RM coil	injury to human being	Adequate tool training
7	Sample for lab inspection	Disposal of sample pieces	Loss of natural resources	Sampling plan
5	Handling of the product	oil in the hands of workmen	skin problem	workers training & PPE'S
		generation of oily cloth as waste	hazardous waste	properly stored in identified bins WI6415
12	Abrasive grinding m/c	metallic dust	Health hazard	WI7523 training to workers and retraining
		Waste belt, breakage of belt	Solid waste, accident	training to workers. and retraining, Machine guard provided
13	Abrasive cutting m/c	waste content	Water pollution	WI7522
	water based coolants	scrap wheel	Waste item for disposal, loss of input	Stored separately
	abrasive cutting wheel	noise	Health hazards	PPE provided
		breakage of wheel	Accident	training to workers, machine are under PMS.
		Disposal of coolant	Hazardous, if released in potable water. Water pollution	System for disposal provided, WI7542
		Contact with skin	Dermatitis / allergy.	Awareness training **IMP /04/02**
1	Cooling by coolant	Leakage / spreading on floor	Loss of Resources. Land contamination	Awareness training Preventive maintenance WI7527
2	Electrical connection	Improper earthing	Electric shock	Earthing provided at all machine

		Grinding sludge 4-5 Kg/day	Land contamination	System for disposal of sludge provided WI 6415
		Cleaning / filtration of grinding sludge	If not properly clean, it will affect product quality	Filtration system in place
3	Grinding Wheel/ Regulating Wheel	Grinding dust	May affect lungs / eyes	Nose mask, WI for disposal WI6415
		Oil overflow from toppling of tray	Soil pollution	System of disposal is provided WI7544
		Coolant oil/ Diesel handling collection of oil in trays	water pollution if released in water Soil pollution if the oil mixed with water and not stored properly	System of disposal is provided (WI7539 /7540/ WI7541, **IMP/05/15,IMP/05/16**
		Waste oil	Loss of natural resources	Sold to authorized party for recycling.
		spillage	loss of natural resources, chances of accidents	Oil storage system provided near the m/cs
6	Diesel / Coolant Oil			
Turning, Facing, Rolling, Grooving, Pointing, Counter sunk & Drilling machines (9).				
		Disposable of coolant	Hazardous, if released in source water. Water pollution	System for disposal provided, WI7542, Being Treated in ETP
1	Cooling by coolant	Contact with skin	Dermatitis / allergy.	Awareness
2	Electrical connection	Improper earthing	Electric shock	Earting provided, ensured by safety audits.
		Noise	Uneasy feeling, Discomfort to workers	Ear plug provided
		Generation of Setting scrap through rolling	**If thrown in open, loss of natural resources.**	**IMP/05/23**
		Generation of scrap in traub operation	**If thrown in open, loss of natural resources.**	**EMP/03/07**

		Generation of scrap in CNC turning M/c	**If thrown in open, loss of natural resources**	**EMP/05/35**
		Excess use of power	**Loss of energy**	**IMP/05/10**
3	Turning, Facing, Rolling, Grooving, Pointing, Counter sunk & Drilling operation	**Working without guard**	**Chances of accident**	**Do & Don'ts , Awareness training**
5	Cutting tools & Drills	Turning & drilling chips	Can cause injury if not handled properly or thrown in open.	System of handling & disposal of chips provided(WI7543/WI7544)
		Breaking of dies, Tools not in use	Can cause injury if thrown in open or not handled/ stores properly	System of storage of tools provided (WI7542)
6	Rolling/Knurling dies	Generation of scrap during process	Loss of natural resource	Taken as **IMP/05/23**
		Tools not in use	Can cause injury if thrown in open or not handled/ stores properly	System of storage of tools provided (WI7543 /WI7544)
		Generation of grinding dust during tool resharpening	Harmful to human being, Health hazard	Nose mask to be used, Safety training provided
		Vibration	Discomfort to worker	Regular maintenance
6	**Bench Grinders**	Electric short circuit	Shock to Operator	Dept. audit
HR 3/Nut Tapping/DPR 6s				
		Air leakage	Loss of resource	Regular monitoring
1	Air	Noise	Uneasy feeling, Noise pollution	Noise monitoring being done, PPE provided
			Loss of resources	Taken **IMP/05/15**
2	Tapping oil	Waste oil	Land pollution	Disposal as per WI6417
		Tapping chips	Can cause injury if not handled properly	System in place for handling & disposal
		Broken taps	Can cause injury if not stored properly or thrown in open	System in place for handling & disposal
			Water pollution if released in potable	System of handling & disposal of chips

			water.	provided(WI7545)
		Tapping oil carried with chips	Soil pollution if released in agriculture water.	Waste oil collected & stored properly
		Tapping oil collected in trays	Water pollution, Loss of resources	Collected in drums for selling.
3	Taps	Noise generation	Uneasy feeling	Noise monitoring being done PPE provided
BUFFING MACHINE				
1	Rotation of buffing wheel	Buffing wheel residual (Dust)	Health hazard/air pollution	Arrangement of buffing guard, masks, Exhaust system
2	Electrical connection	Electric short circuit/improper earthing	Electrical shock/ Fire hazard	Earthing provided at all machines
3	Buffing operation	Overheating of buffing wheel due to excessive pressure between collate and buffing wheel	Frictional sparking/Fire	Marking of safe pressure limit, DOs and Don't Dos, worker's training
		Disposal of waste material(buffing wheel ,paste)	Land pollution/health hazard	Being stored and returned to party
		Mal functioning of Exhaust system	Dusty environment, health hazard/ Accident	Under regular preventive maintenance
3	Operation of server	generation of heat	Cause fire & fumes	
7	Manufacturing / Rework of tools	Hand struck between tools & jobs	Injury to persons	Work instruction
		Splashing of chips	Injury to persons	WI, PPE, Training
		Waste generation	Loss of natural resources	Training **IMP/04/02** **IMP/05/20**
6	Storage of Dies & tools	Overloading on rack, improper placement	Accident, tools damage, body stress	Training

1	Loading of Material	Oil carryover with material & collected in tank	Water pollution, Resource depletion If thrown in open	Oil trapper provided to separate the oil from water & oil are being stored in drums **IMP04/04** taken to recycle the waste water & to ensure ETP compliance.
		Unsafe practices/act	Body Injury	Work instruction
		Repetitive or difficult movements	Body ache	Awareness/ No proper training
		Oil spillage	Injury to human being. Loss of human resources.	Safety instruction **(No display of Do and don't in hindi)**
		Falling of material form trays during loading	Body injury	PPE provided, Shoes mandatory.

ERMPL's Environmental & Social Management System	
SL No	**Activity / Process**
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ERMPL's Environme

Tool 5-1/F2: Occupational

Name of Plant:						CFT Members:				
S. No.	Operations / Activity	Occupation Involved	OH&S Hazards	Source, situation or Act	Risk (Indicate body part, if possible)	Emergency Situations (Y/N)	Legal Requirements (Y/N)	Base Risk Assessment		Base Risk Level
								Severity	Probability	

Originated By:- Name

Date :-

ntal & Social Management System

Health & Safety Risk Evaluation Format

	Date of Preparation:						Next Review Date:		
Acceptable/ Unacceptable (A/UA)	Existing Control in Place & in Use (A/B/C/D/E)	Residual Risk		Final Risk Level	Acceptable/ Unacceptable (A/UA)	Define Risk / Opportunity	Additional Control Required (Consider from control A onward)	Responsibilty	Target Date of Complition
		Severity	Probability						

Approved By -

ER

Criteria

Weightage	Severity (Injury / ILL Health)
1	Minor injury/slightly harmful
2	Moderate injury/Harmful
3	Catastrophic injury/Extremely Harmful

Wieghtage	Probability (Likelihood of an occurrence of a hazardous exposure)
3	Likely
2	Unlikely
1	Highly Unlikely

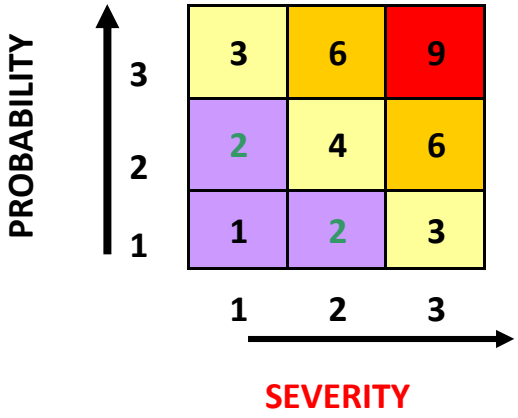
for Evaluating the Severity and Probability of a Risk

Criteria for Severity
Explanation
First Aid required on job, Superficial injuries, Minor cuts, bruises, minor burns, temporary ill health, irritation from dust/noise/vibration etc., Nuisance/ Irritation/ Discomfort, Absenteeism from work for few hours but less than a shift or a assets / materialistic loss of less than Rs. 50000/-
Multiple injuries, minor fractures, serious sprains, ill-health leading to permanent minor disability, Absenteeism from work for more than a shift or a materialistic loss of More than Rs. 50000/- or loss of company reputation at regional level
Death, Severe life shortening diseases, Occupational cancer, amputations, fatal injuries, Permanent Disability or a loss of company reputation on National / International level

Criteria for Probability
Explanation
Hazardous exposure is expected to occur in **ALL** circumstances.
(Continuous to once a day)
Hazardous exposure is expected to occur in **MOST** circumstances.
(Once a week but not daily)
Hazardous exposure **WILL PROBABLY** occur in **MOST** circumstances.
(Once a month or more but not weekly)

Risk matrix

The seriousness of a risk is rated in the following risk matrix:



Risk Level	Category	Abbreviation	Meaning	Action Plan
9	NA (Not Acceptable)	I	INTOLERABLE	Immdiate Action Required
6		S	SIGNIFICANT	Urgent management attention needed
3,4		M	MEDIUM	Implement risk reduction measures within a defined period
1,2	A (Acceptable)	A	ACCEPTABLE	No additional controls are required Monitoring may be required to verify ongoing effectiveness of controls Investigate more cost-effective controls

Risk or Opportunity
Risk to OHS
Opportunity
Gives the Opportunity

Hierarchy of Controls		
Level of Control	**Controls**	**Description**
A	Elimination	Elimination of process/dangerous operation,reorientation of work place,machines etc. so as to eliminate the hazards.
B	Substitution	Alteration/modification/replacement of machine, tolls, substances etc. so as to minimize/reduce the risk.
C	Engineering Control	Automation, robotic operations, safety guards, limit switches, Auto Swithoff Buttons, Warning Hooters, Warning Signals, Sensors, Human Sensors, Floor Mounted Ladders, Deployment of Competent Person etc.
D	Administrative	Sinage, warnings, SOPs, OCPs, Work Instructions, Motivational porg., Trainings, Penalties Etc.
E	PPEs	Corret type of Helmet, Nose mask, Aprons, Ear muffs/plugs, safety belts as per type of the hazards.

ystem

Concept
No Activity/No Man/No Machine/No Material than No Hazard. If no hazard than no RISK.
Change in type of hazard which has less Risk Level
Activity/Machine/Materials will be there and hence associated hazards too. Controls here are inbuilt with machine (mostly mechanical/alert/emergency indicators) to avoid contact of hazard and human.
Activity/Machine/Materials will be there and hence associated hazards too. Controls are mostly "WISH" in terms of display/trainings to control risks. If practice does not improve RISK Shall Happen.
Minimum Shall be provided.

Biological Hazard

Consumption of infected food

Consumption of infected medicine

Contact with infected coolant

Contact with infected medical equipment

Contact with infected wastes

Contact with mineral wool

Exposure to honey bees

Exposure to infected environment

Exposure to infected patients

Exposure to snake

Exposure to wild animals

Exposure to wild insects

Inhalation of infected air

Drinking of contaminated water

Fire Hazard

Accumulation of flammable liquid near heat source

Development of high pressure

Exothermic reaction

Generation of excessive heat

Generation of high temperature

High accumulation of combustible/ flammable waste

High accumulation of flammable gas/

Hot work in fire prone zone

Leakage of flammable gas/ vapor in sparking zones

Leakage of flammable liquids on hot surface

Mechanical Hazard

Collision of trolleys in motion

Exposure to trap zone between two things

Exposure to trap zone between belt and pulley in motion

Exposure to trap zone in energized machinery

Hit against the moving object

Hit by flying broken tool/ cutter

Hit by flying component

Working with unguarded machinery

Chemical Hazard

Consumption of expired medicine

Contact with chemical

Contact with corrosive chemical

Exposure to dust

Exposure to oil mist/ coolant mist

Exposure to toxic gases

Ingestion of toxic chemical

Inhalation of chemical fumes

Inhalation of toxic vapours

Physical Hazard

Lack of expansion joints

Lack of heat insulation

Lack of ventilation

Lack of vibration damping

Over speeding of the vehicle

Electrical Hazard

Exposure to bare live wires in electrical circuit

Exposure to damaged/ exposed live wires in electrical circuit

Exposure to unearthed machinery/ equipment

Poor access to switch board

Physical Hazard

Application of high hand force

Contact with hot objects

Contact with sharp edges in the tool/ cutter

Contact with sharp edges in the

Exposure to excessive cold

Exposure to excessive heat

Exposure to noise <=90 dB

Exposure to noise >90 dB

Exposure to pressurized gasses

Exposure to pressurized liquid

Exposure to pressurized steam

Exposure to radiation

Exposure to soil dust

Exposure to vibration

Hit against a protruding object in the walkway

Hit against a stationary object

Loosely connected electrical wires/ devices	Unsecured working at elevated platforms	Hit against the parts in the machine
Overloading the electrical circuit	Unsecured working at heights	Hit by broken glass
Poor access to switch board	Unsecured working at roofs	Hit by broken hand tools
	Usage of damaged slings/ ropes/ material handling equipment	Hit by falling imbalanced trolley
Ergonomical Hazard	Walking in poorly illuminated walkway	Hit by falling material kept on a runnig machine
Lifting of heavy loads	Working in poorly illuminated area	Hit by falling of unsecured objects from height
Working in awkward postures	Walking in slippery floor	Hit by falling overloaded trolley
	Walking over unsecured pit	Hit by sharp edge
	Weak foundation	Inadequate entry and exits
		Inadequate fire retardency
		Inhalation of contaminated air
		Lack of emergency exits

	Activity	Hazard	Risk	Existing control
1	Chemical movement	Spillage	Accidents	Awareness
			Loss of resources	Awareness
		Physical contact	skin irritation	Wear rubber hand gloves while handling
2	Mixing of chemicals	Spillage	Accidents	Awareness
			Loss of resources	Awareness
		Physical contact, Splash	skin irritation	Wear rubber hand gloves while handling
3	Transfer of chemical to dip-spin unit	Physical contact, Splash	skin irritation	Wear rubber hand gloves, Goggles while handling
4	loading and unloading	Improper handling of basket.	Accidents	Awareness
			Loss of resources	Awareness
5	Preheating and curing	contact with hot products	skin burns	Use tongs for inspection quality & place empty trays for auto unload
6	Chemicals used for testing.	Improper disposal of chemical materials	Water contamination	Chemical disposed in ETP for treatment.
			Soil contamination	
7	Maintenance and cleaning of dip-spin unit	Chemical contact	Skin irritation	wear rubber hand gloves
		Waste water disposal	Water contamination	Chemical disposed in ETP for treatment.
			Soil contamination	
8	Storage of chemical in dip spin	Non availability of continuous power	Chemical contamination, wastage of power	
9	Stripping of rework material	Caustic fumes	Health hazards	Wear mask & rubber hand gloves while stripping
			air pollution	Exhaust system to be provided
1	Use of Polythene	Disposal of waste polythene	Can block drainage system if disposal is not proper	Training & Monitoring
2	Scrap Packing material	Disposal of waste packing material	Solid waste	Waste control **IMP/05/23**

		(like card board)		
3	Storage of finished goods	Electric short circuit	Fire hazard	Fire extinguisher provided & training given
		Repetitive or difficult movement during loading	Body Ache, Stress & strain	Training
		Slippage at steps	Injury to human being	Side support
		Falling of boxes from higher racks	Injury to human being	Load fixed, No high height stacking
4	Packing of material	Oil may come in contact with skin	Skin problem	Training, PPE provided
		Oil spillage	Loss of natural resources Injury to human being	Stored separately
		Falling of materials from table	Injury to human being	Training 5S
		Electric shock through polythene packing	May be fatal	Regular monitoring
Finishing				
1	Loading of Material	Oil carryover with material & collected in tank	Water pollution, Resource depletion. If thrown in open	Oil trapper provided to separate the oil from water & oil are being stored in drums **IMP04/04** taken to recycle the waste water & to ensure ETP compliance.
		Unsafe practices/act	**Body Injury**	**Work instruction**
		Repetitive or difficult movements	**Body ache**	**Awareness**
		Oil spillage	**Injury to human being.** **Loss of human resources**	**Safety instructions**
		Falling of material form trays during loading	**Body injury**	**PPE provided, Shoes mandatory.**

2	Alkaline Soak Degreasing -Caustic soda -Detergent	Alkaline solution	Can cause water pollution if drained in open.	WI7550
		Splashes of alkaline solution	Skin burn/eye injury	PPE provided, Shoes mandatory
		Inhalation of alkalis during handling	Respiratory irritation	Nose mask
		Alkaline rinse water disposal	Water pollution	WI7550
		Alkaline Fumes	**Irritation to the workmen / Breathing problem / Lungs problem in long run**	**WI7563, WI6411** **IMP/04/17**
		Handling of chemical without PPE	Injury to human being	PPE provided
3	De scaling - Caustic soda - Potassium permanganate	Alkaline solution	Can cause water pollution if drained in open.	WI7550
		Alkaline rinse water disposal	Water pollution	WI7550
		Alkaline Fumes	Irritation to the workmen / Breathing problem / Lungs problem in long run	WI7563, WI6411
		Handling of chemical without PPE	Injury to human being	PPE provided
4	Pickling - Sulphuric Acid	Acid solution handling	Water pollution	WI6407
			Eye/Skin problem.	
		Rinse water	Water pollution	WI6407
		Acidic Fumes	Eye/Skin/Breathing problem.	WI6407
		Heat generation	**health hazard** **energy loss**	**WI6407** **IMP/05/12**
		Splashing during addition of chemicals and barrel transfer	Burn/Eye/Skin problem/ breathing problem	WI6407, WI6411

5	Anodic cleaning	Alkaline solution	Can cause water pollution if drained in open.	WI7550
	- Caustic soda	Alkaline rinse water disposal	Water pollution	WI7550
	- Detergent	Alkaline Fumes	Irritation to the workmen / Breathing problem / Lungs problem in long run	WI7563, WI6411, Fume extraction system
		Handling of chemical without PPE	Injury to human being	PPE provided, Awareness training
6	Neutralizer	Rinse water	Water pollution	
	Dilute Hydrochloric acid	Acidic fumes	Eye irritation, Breathing problem	Fume exhaust, awareness training
7.1	Zinc Plating: Dilute Hydrochloric acid, Zinc Anode Zinc Chloride Potassium chloride	Drag out water	Water pollution	WI7564
	Boric acid	Rinse water	Water pollution	WI7564
	Organic brightener	**Heat radiations**	Rise in work zone temp	Work instruction **IMP/05/12**
7.2	Zinc Plating	**Zinc sludge /plate**	Sludge can cause water/land pollution if thrown in open	Stored in slude room , WI 6417
		Scrap /rework	Water/land pollution Loss of resources	Sop 8301 WI 7546 **IMP/05/05** **IMP/05/08**
8	Phosphating Iron (normal/very less amount)	Sludge containing iron	Soil pollution if thrown on open land	Being stored in sludge room
		Handling of Acidic solution	Skin/eye problem.	Awareness training
9	Dewatering oil	Waste oil	Water pollution	Provision provided for oil separation in ETP
		Dirty water disposal	Water pollution	WI7550
10	Chemical Storage/handling	Leakage of chemicals from	Water pollution.	WI7553/WI7564

		Tank	**Excess chemical consumption**	**IMP/05/14**
		Leakage of containers/ pockets	Water pollution	WI6411
			Air pollution	WI6411
			Breathing problem	WI6411, WI6407
			Skin problem.	WI6411, WI6407
11	Testing of chemicals: -Zinc plating solution test - Zinc phosphating solution test -Pre-treatment density test -pH of zinc plating solutions	Disposal of solution /samples remained after testing.	Can cause water pollution if thrown in sewage line	WI7553,WI7547, WI7564 Being stored in separate bucket and send to ETP
		Fumes while carrying out testing	Health hazard	WI6411 Exhaust fan provided
12	Ventury Scrubber -Water	Smoke through chimney	Air pollution	WI7563
		Use of Water for spray	Water pollution	Water goes to ETP
		Noise/ Vibration	Human discomfort, Reduction in machine life	WI7563
		Fumes of plating/ phosphating	Irritation to the workmen / Breathing problem / Lungs problem in long run	WI7563, WI6411, Exhaust through scrubber, Being monitored by HSPCB
13	Thermopac: Oil Diesel	Storage of diesel	Can cause fire	Emergency plan, 5-S, Area restricted for fire prone activity
		Fumes of diesel through chimney	Air pollution	WI7563, Being monitored by HSPCB
14	ETP - Rinse water from plating / phosphating -Treatment chemicals - Sodium meta by sulphite	Disposal of Treated water	water/land pollution if thrown untreated.	WI7550

	- Dilute sodium hydroxide - Dilute sulphuric acid - Sediwell - Oil			
		Sludge from ETP	Sludge can cause water/land pollution if thrown in open.	Stored in the sludge room WI6417
		Leakage / Excess use of chemicals	**Land pollution / product quality can deterioted**	**IMP/05/18**
15	R.O.PLANT - Baring water - Bajri/Stone - Sodium chloride - Resin - SHM phosphate - Citric acid/water - RO Water - Caustic soda - Commercial HCL	Rejected water	Can cause water pollution if drained with mixed potable water.	WI7549
		Waste resin	Hazardous in nature Soil contamination	WI7549
16	Hydrogen De-embitterment	Hot air	Rise in work zone temperature	WI7548
17	Passivation	Rinse water	Water pollution	WI7550
			Health hazard	WI6411, WI6407 Medical Examination
		Use of passivated chemicals	Land contamination if thrown in open	WI7550
			Skin problem/eye problems	Safety instruction, use of PPE
		Use of broken baskets	**Loss of chemicals Chances of injury**	**Awareness training /do & don'ts**
18	EOT Crane operation	Improper movement	Injury	Training, Safety manual
19	Cleaning of tanks, empty containers /filters	Waste water	Water pollution	WI7550
		Excess consumption of water	Loss of natural resources	Water meter installed

			Violation against Legal requirement/loss of natural resources	Water meter installed, being monitored.
		Proper Dozing of Chemicals	Due to Zinc metal being used instead of Zinc oxide, Zinc metal consumption is less due to auto dosing, consumption of chemicals is optimum.	Auto control system
20	ZINC GENERATOR -Zinc metal -NaOH	generation of scrap during processing	Loss of Resources	**Consider as IMP/05/05**
			loss of natural resources,	Consider as **IMP/05/04,** **IMP05/08**
21	PLATING / PHOSPHATING	Loose electric wiring	Electric Shocks	Proper Insulation/ Awareness training
		Scrap /rework	Water/land pollution Loss of resources	SOP 8301 WI 7546 **IMP/05/04**
22	**Finishing activities**	**Working on Damage panels**	**Electric Shocks** **Injury to human being** **Unsafe condition.**	**5s activity** **Safety audit** **IQA**
		Slip hazards	**injury to human being**	**Awareness training.**
		Rusting of plating equipment	**Equipment damage** **Quality problem**	**Cleaning and painting schedule established**
		Handling of chemicals	**Land contamination if thrown in open**	**WI7550**
			Skin problem/ eye problems	**Safety instruction, use of PPE**
		broken/leaky condition of eye shower	**Loss of resources** **Unsafe condition during first aid.**	**Awareness/maintenance checklist**
Forging				

1	Polythene on RM	Disposal of Polythenes	Land Pollution	Stored in Drums (Identified)
2	Forging (Burning of Oil)	Fumes (In S.S)	Respiratory problem	Fume Extraction system **IMP/04/07**
			Air Pollution at defined interval	Oil changed Ensure use of exhaust fans fume collector required
		Excess use of oil	Loss of Natural Resources	Consider as a **EMP/05/17**
3	Oil collection	Disposal of Oil Collected in trays	Water/Soil Pollution	Stored in Drums and used after filtration
4	Lubrication of Machine	Spillage of Oil	Loss of Natural resources	Oil consumption records
			injury to human being	Safety instruction
5		Noisy Environment	Health Hazard (Deafness)	Ear Muffs Provided
		Air Leakage	Loss of Natural resources	Preventive maintenance /**plant round by maintenance**
		Generation of scrap	Loss of Natural resources	Consider as a **IMP 05/06**
		Use of Sulphur on wire	Harmful to Skin	Hand Gloves provided
		Disposal of empty Sulphur Box/Poly Bag	Health Hazard/Land pollution	WI6415
		M/c door opened at the time of production	Air pollution	WI7538
			Respiratory problem	PPE provided
		Inclination of conveyer not proper/ broken conveyer	Oil leakage/Loss of natural resources	Regular monitoring
			Land pollution, Accident due to slippery floor	House keeping
		Use of files & other tools with out wooden handle.	Injury to human being	Tool Inspection

			Possibility to accident	Safety audits/safety instructions
		Use of grinder for tools finishing	Damaged grinding wheel	Safety audits/safety instructions
		Loose wiring near machine.	Accident & lose of life.	Dept. audit
		movement of end pieces on coil stand	injury to human being	Guard provided
		Stacking of coils	Injury	Awareness training **IMP/04/02**
	Forging	Storage/Disposal of end billets, Tool & damaged Die	Health Hazard.	WI6415
		Excess use of power	**Loss of energy**	**Monitoring by maintenance, IMP/ 05/09**
		Breakage of Chain	Accident	Helmets Provided, Crane under PMS
		Cutting of binding wire from RM coil	injury to human being	Awareness training **IMP /04/02**
6	Loading/ Unloading of coil through crane	loading of coil through roller(straightening)	injury to human being	Work instruction WI7538
		handling of heavy die & punch	Stress & strain in body	Work instruction **IMP/04/13**
7	Loading/ Unloading of die & punch	slippage at steps	injury to human being	5 S activity
		Assembling & disassembling of die & punch at m/c	Strain in body, injury due to improper tools	Work instruction Awareness training
8		product spills and contact with soil	Land pollution, Accident due to slippery floor	
9	Material handling & stacking	product spills and come into contact with ground water	water pollution	Material handling & storage instruction provided.
General store				
1	Storage & handling of chemicals/oils/spares	Leakage/spillage during handling / incompatibility	Fumes, smell Corrosive effect	
			Injury to person, leading to blast	
	Kerosene oil		Loss of natural	

	Thinner		resources.	
			Floor damage	
	Solution preparation	**In halation of dust**	**Health hazard Breathing problem**	**Suitable PPE provided**
		Chemical splash	**Eye &skin problem**	**Safety appliance**
		If spillage/Leakage	**Land pollution**	**Regular physical monitoring**
		From chemical tank	**Loss of resources**	**Safety audit**
	Disposal of chemical in drums	**If spillage/Leakage**	**Land pollution and.**	**Keep in a tightly closed container and protect from physical damage during handling**
		Or splashes during transportation	**Legal concern if thrown in open land**	**And sent to ETP for treatment.**
			Health hazard Skin problem Eye irritation	**Use safety appliances**
	Zinc bath LPG, Molten Zinc	Fumes(Co2,CO, H2 gas)	Air pollution	Exhaust duct to be provided **IMP/04/08**
			Health Hazard	
		Zinc ash (as dust particles)	Air pollution, Health Hazard	Exhaust duct to be provided
		Heat Radiation	Skin Burn	Safety appliances
			Respiratory problem	Safety appliances
			Skin irritation	Safety appliance

		Drossing	Health Hazard	To be stored in a drum
	Spinning Pit	Heat Radiation	Skin Burn	Safety appliance
			Skin irritation	Safety appliance
		Fumes	Respiratory problem	Safety appliance
	Water quenching Cap-1500lits	Fumes generate during quenching	Respiratory problem	Safety appliance IMP/04/08
Garden (HRD)				
1	To make Factory premises green and Attractive	Plantation	Reduce Air pollution, Improve greenery	Positive impact
2	To irrigate the Plant	Excess use of water, Leakage in pipe line	Loss of Natural resources	Being Monitored, sprinkler installed.
3	Spray of Pesticides and Composting	Hazardous or Toxic materials	Land Pollution/ Water Pollution	Awareness
			Health Hazard	PPE provided, Awareness training
		Generation of used Containers, Plastic bags	Health Hazard/ Solid waste	Awareness
4	Sweeping of Leafs and Cutting Wastes	Disposal of Waste Leafs and Stems	Solid Waste	Waste Leafs are used for Composting (Positive impact)
5	Storage of Pesticides	Leakage/Spillage of Pesticides	Water Pollution	Awareness training
			Health Hazard	Awareness training
6	Storage of manure	Growth of insects	Health Hazard	Special storage
		Bad Odor	Health Hazard	Isolated store
7	Use of polythene bags for plant germination.	Disposal of Polythene.	Land Pollution	All used polythene being stored and sent to scrap yard for proper disposal (sale)

House keeping				
1	Cleaning of Floor	Disposal of Phenol based water	Water Pollution	Awareness training
		Disposal of nylon based brush	Land Pollution	Being stored separately
		Disposal of Acidic Water (incase of wash basin)	Water Pollution	Awareness training
		Slippery tiles	Injury to human being	Warning displays
2	Cleaning of Wash Basin Mirror/ Fans/ light /glasses / cobwebs/insect killer	Disposal of detergent based water		Least use
		Repetitive or difficult movement	Body ache	Awareness training Electric mopping machine
		Electrical hazard	Electrical shock	Awareness training
3	Furniture cleaning	Disposal of waste clothes	Slid waste if burn	Awareness training
		Use of electric cleaning machine	Health Hazard (incase of electric shock)	Awareness training
		Excess use of water in cleaning	Loss of natural resources	Awareness training
		Disposal of Rubber mats, dust bins	Land Pollution, Solid waste	WI6415,6416
Canteen				
1	To provide food to employees	Disposal of Organic Waste	Health Hazards	Training & Monitoring
		Waste Water	Water Pollution	Going to septic tank
2	Storage of Food Stuff and Drinking Water	Contamination of food and water/unhygienic condition	Health Hazards, Biological Hazard	Training & monitoring
3	Use & Storage of Gas Cylinder	Leakage	Air Pollution, Loss of input	Training & monitoring
		Unnecessary burning	Loss of input	Training & monitoring

		Fire	Health Hazards, Major loss	Training & monitoring
4	Cleaning of Utensils and Floor	Waste water	Water pollution	Septic tank
		Improper cleaning of utensils	Health hazards	Training and monitoring
		Waste food	Biological hazard	Stored in separate drum
5	Unpack the packed food materials/ eatables	Generation of Polythene	Land Pollution, Solid waste	Proper storage & disposal
6	Use of water for processes/ canteen/ toilet	Excess use of water/ leakage	Loss of natural resources	Training & water consumption monitoring
7	Disposal of waste food	Dump in sewage line	Bad odor, blockage of drainage, increase in BOD	
8	Pest control	Use of insecticide	Food contamination	Being done through external agencies, training & supervision
9	Storage of empty Gas cylinder	If no designated space	Can cause injury may create obtruction biological hazards	Separate area to be provided
10	Food servicing Food preparation	Nails of workmen not cut/not cleaned	Health hazards	Awareness Health checkups.
LPG				
	Storage of LPG in Bullets	Leakage	Loss of Natural Resources	Regular monitoring
			Fire	Regular monitoring
			Breathing problem	Regular monitoring
		Bursting of Bullets due to High Temp. Lightening	Fire/ Emergency Situation	WI Temp/pressure monitoring

	Decanting of LPG	Leakage during unloading	Loss of Natural Resources	WI7567
			Fire	WI7567
		Floor Compression due to heavy Load.	Leakage of LPG/ Fire	Proper floor monitoring
		Electric spark due to Static Electricity	Fire/ Emergency Situation	Earthing provided
	Mock/Safety Drill in LPG Yard	Excess use of Water during drill	Loss of Natural Resources	Drill conducted for 1 min
		injury during drill	Health hazard, Body strain	Training
	Emergency preparedness	Failure of fire box. Sand not available in buckets. Wet sand in buckets.	Loss of company, property. Accidents. Loss of company image.	Regular monitoring. Preventive maintenance schedule. Safety Audits. Mock drill. Plant under Insurance.
	Movement of product through crane	Breakage of crane wire rope	Accident	Under Preventive maintenance schedule
		Leakage of oil from crane	Accident due to slippage	Under PM Schedule.
	Manual lifting of product trays	Stress & strain on muscles	Disabling to work , Long term backache	Load in trays fixed (Max. 50 kg) Visual Display
	Abrasive grinding m/c	metallic dust	Health hazard	WI7523 training to workers and retraining
		Waste belt, breakage of belt	Solid waste, accident	Training to workers. and retraining, Machine guard provided
	Abrasive cutting m/c water based coolants	waste content	Water pollution	WI7522

abrasive cutting wheel	scrap wheel	Waste item for disposal, loss of input	Stored separately
Abrasive cutting m/c	waste content	Water pollution	WI7522
water based coolants	scrap wheel	Waste item for disposal, loss of input	Stored separately
abrasive cutting wheel	noise	Health hazards	PPE provided
	breakage of wheel	Accident	training to workers, machine are under PMS.
Abrasive Cutter Inputs - (Water based coolant Abrasive cutting wheel)	Waste coolant	Water pollution	
	Scrap wheel	Waste item for disposal	Hazardous waste matrix
	Noise	Health Hazard (Deafness)	Using ear plug
	Waste (Metallic)	Loss of input	
Magna Flux Crack	Waste water	Water pollution	WI6401
Detection Inputs-(Fluorescent powder Water / kerosene)	Ultra violet light.	Health hazards	Rubber gloves/ goggle provided/ Training imparted.
Tensile strength measurement	Use of heavy Samples & fixtures	Accident	Training
		Strain in body	
	High noise	Health hazardous	PPE
	Breaking& jumping of fixtures & samples	Injury to human being	Acrylic sheet provided
		Loss of property	Auto system
	Falling from ladder	Injury to human being	Proper fixing
Torque Tension	**Use of heavy fixtures**	**Strain in Body Chances of accident**	**Training**
Maintenance (Forging)	Waste lubricant (every 6 month)	Can cause water/ land pollution Loss of natural resource	WI6406, Added in Check Sheet F7506
	Spillage /leakage of oil	Can cause fatal accident Land contamination	WI6406

	Leakage of Air	Loss of resources	Maintenance check sheet Provided F7506, Air leakage & oil leakage from machine are being monitored by maintenance
	Mis- handling of tools while maintenance	**Can cause injury /accident hazards**	**Safety instructionWI6405 DO & Don'ts**
	Unsafe practices during changing and replacing parts	**Body Ache** **Body injury**	**Safety instruction** **WI6405**
	Scarped Spares, Scrap & Metal waste	**Cut** **Land contamination**	**Awareness**
	Noise	**Air pollution** **Loss of hearing**	**Ear plugs**
Maintenance (Secondary) Grinding machines	Soluble coolant oil	Can cause water / land pollution	WI6406, to be stored in identified drum and hand over to store.
	Hyd Oil	water pollution Soil/land Pollution	WI6406, to be stored in Hydraulic oil is being reused
	Leakage of air	Loss of Natural Resource	Check sheet provided F7506
	Scarped Spares, Scrap & Metal waste	**Cut/injury** **Land contamination**	**Awareness**
	Unsafe practices during changing and replacing parts	Body Ache Body injury	Safety instruction
Turing/drilling m/c	Soluble Cutting oil	Can cause water /soil pollution Skin diseases	WI6406 , to be stored in identified drums and send to ETP for treatment. PPE Provided.

Maint. (Tool Room) Lathe/Milling/Engraving/ Drilling/Grinding	Soluble oil (Water based)	Water/Land pollution Skin diseases	WI6406 , to be stored in identified drums and send to ETP for treatment PPE Provided
	Disposal of Hyd. Oil	Water/soil Pollution	WI6406, Used hydraulic oil being used for lubrication
	Mis- handling of tools while maintenance	**Can cause injury /accident hazards**	**Safety instruction** WI 6405
Maintenance EDM / Wire cut/Spark erosion	Cutting oil Oily floor due to cutting oil	Water/soil Pollution Body injury	WI6406 , to be stored in identified drums and send to ETP for treatment. safety instructions
	Used oil	Water/soil Pollution	WI6406 , to be stored in identified drums and send to ETP for treatment
	spark	**Eye injury**	**PPE provided, guard provided**
Maint.(Finishing) (Phosphating / plating ETP Thermopac RO Plant Chilling Plant)	Dangler cable PVC Pipe Rubber buffer V block Disposal of waste Membrane Leakage of water	Land pollution, Disposal of solid waste	WI6406 Maintenance check sheet
	Unsafe practices during changing and replacing parts	**Body Ache** **Body injury**	**Safety instruction** **WI 6405**
DM-PLANT	Leakage of water	Loss of Resources	Under AMC, Maintenance check sheet Provided.
	Generation of waste resin	**Land pollution**	
R.O.PLANT - Baring water	Rejected water	Can cause water pollution if drained	WI7549 **IMP/04/04**

- Bajri/Stone - Sodium chloride - Resin - SHM phosphate - Citric acid/water - RO Water - Caustic soda - Commercial HCL		with mixed potable water.	
	Waste resin	Hazardous in nature Soil contamination	WI7549
	Waste heating element/wire	Waste Spares	WI6406
Maintenance DG Set (3 nos)	Spillage of Used Oil	Land/water Pollution	WI6406 To be monitored
	Consumption of Diesel	**Loss of resources**	**Maintenance check sheet IMP/04/18**
	Smoke from DG set	Air Pollution	Height of the stack as per Legal Requirement
	Sound/Noise, Vibration	Noise Pollution	Noise monitoring. Ear plug given . Acoustic treatment
	Batteries.(Lead acid1111111)	**Loss of resources. (Water pollution), Hazardous**	**Buy back system** **IMP/04/05**
	Electrical hazard	Electric shock	Awareness training Unauthorized entry restricted
	Hot part of engine may come in contact with body	Body burn	Awareness training Unauthorized entry restricted
Maintenance LPG Yard	Decanting Leakage of LPG	Can cause fire	WI7567 Verification by security
Maintenance Fork lift (2 nos)	Smoke	Air pollution	Pollution control certificate are regularly monitored.

Scrubber, ETP	Break down of pump, motor, hour meter, energy meter, water meter	Legal requirement, Air pollution. Water pollution	Check sheet already provided Scrubber monitoring monthly
Suction of fumes	Improper suction	Discomfort to worker, Air pollution	Monitoring of suction system
LPG pipe line (Reporting/painting)	Leakage	Fire accident	Check sheet already provided
	Damage of valve	Loss of resource	LPG storage monitoring monthly, check sheet F7506 . work permit system
Air compressor	Leakage	Loss of natural resource	Monitoring by maint /daily check points
	Moisture	Improper functioning of m/c	Air drier installed
	Noise	Discomfort	Ear muff provided **IMP/04/16**
Air compressor	**Exceed pressure**	**Lead to accident Chances of blast**	**Thickness test**
	Consumption of compressed air/energy	**Loss of resources**	**Work instruction , taken as IMP/05/11**
HSD tank	Leakage/spillage	Loss of natural resource Can cause accident	Regular stock verified by maintenance
	Elec. Short circuit	Fire accident	Earthing available
	Over flow of service tank	Loss of Natural resources	Dispenser provided
	Diesel come into contact with skin	Lead to skin disease	Usage of PPE
EOT crane	Improper movement	Unsafe condition	Added in PM check sheet EOT crane monthly pm F7506
	Electric Hazard	Electric shock	Awareness training
	Chances of material falling from EOT	Body injury, Material loss	Safety training
	Repetitive or difficult movement	Falling of material due to jerk	Awareness training

	Unsafe practices / act lead to equipment Mis handling	Severe accident , Body injury, Machine damage	Awareness training
Pressure vessel	Deterioration in thickness	Unsafe condition, Chances of blast	Thickness test & safety valve function being checked as per requirement, Safety relief valve
Electricity	Excess use of electricity	Loss of energy	Regular monitoring , IMP 05/09,10,11 taken , Hanging switch provided.
Installation, shifting & commissioning of new equipment	Equipment hazard	Electrical shock	Awareness training
	Unsafe practices / act lead to equipment Mis handling	Body injury, Machine damage	Awareness training
	Unsafe practices / act lead to Erection hazard	Body injury	Awareness training
	Improper utilization of shifting equipment	Body injury, Machine damage	Awareness training
Maintenance of transformer	Electrical hazard	Electrical shock, Fire	PPE provided, Entry restricted for unauthorized people, Testing of parameters reqd.
	Oil may come in contact with body	Can cause serious illness	Awareness
Maintenance of electrical panels	Electrical hazard	Electrical shock	Auto shield rubber met of sufficient length
Maintenance of electrical wiring	Unsafe practices	Electrical shock	Usage of PPE Safety instruction
Drinking water supply	Leakage of pipe	Health hazard	Periodic check
Maintenance / Monitoring of under ground & roof sealing wiring	Electrical hazard	Electrical shock	Awareness
	Chance of catching fire	Fire hazard	Periodic check
	Repetitive or difficult movement	Body ache	Awareness
	Chances of falling from roof sealing	Body injury	Awareness

	Use of Asbestos for roofing during civil work	Disposal of asbestos	May degrade the land Health hazards Legal requirement	Use of asbestos restricted training
1	Air conditioning in office	Electrical hazard	Electrical shock	Proper wiring
		Low level of O2	Tiredness, Laziness	Periodic check
2	Working on computer	Back pain due to continuous sitting	Body ache	Awareness
		Strain/Glare on eyes	Eyesight may get affected	All PC's are equipped with antiglare screen
3	Working in office	Improper sitting of working table arrangement	Body ache, Discomfort	
		Strain on eyes	Eyesight may get affected	All PC's are equipped with antiglare screen
		Noise	Can cause irritation	Awareness, Silence board
		Fire	Fire hazard	Fire safety equipment / Periodic check
4	Xerox Machine	Electrical hazard	Electrical shock	Awareness training
		Toner refilling	Respiratory Problem if inhale	Awareness training
			Skin disease	Awareness training
			May cause lung cancer if inhale	Awareness training
		Repetitive or difficult movement	Body ache	Awareness
		Strain on eyes due to glare	Eyesight may get affected	Awareness training
		Wastage of paper	Loss of natural resources	Awareness training
5	Cleaning sanitation & horticulture	Use of Insecticide & pesticides	Vapours may affect lungs	Awareness training, PPE provided
		Cleaning of shop & office floor	Slippage	Awareness

		Cleaning of urinal	Infection can take place	Awareness training for house keeping
6	Floor painting	Paint fumes	Health hazard	Facemask, training
7	Wall / roof painting	Paint may drop in eyes	Eye injury	Goggles, training
		Falling / slippage of ladder	Body injury	Safety belt
		Repetitive or difficult movement	Body ache	Awareness
8	Parking of vehicle	Exhaust gases at peak time	Can affect lungs, Air pollution	PUC checked
		High traffic during peak hours	Can cause car / scooter, motor cycle / bicycle accident	Awareness, Area marked
		Improper parking	Body injury, Space constraint, vehicle damage	Awareness, Display of rules
		Leakage of oil from vehicle	Water Pollution Loss of N.R.	instruction given, being monitored regularly by security.
		Chance of hitting to person	Body injury, Space constraint, vehicle damage	Speed limit of vehicle fixed
9	Plant Security	Monkeys in the factory premises	Can bite / injure employees.	Fencing at plant boundry
		Snake bite	Can cause fatal accidents	Street light at all area, regular cleaning of junked area.
10	Cleaning of light and Glazed window at high height	Slippage	Can cause loss of legs / life	Awareness
11	Use of Light	Excess Use of Light (Electricity)	Loss of Natural Resources	Monitoring
12	Records of Activities Carried out / Communication	Excess Use of paper	Loss of Natural Resources	**IMP/05/34 IMP/05/24**

		Disposal of used paper	Solid waste	Only important papers are allowed shredding, otherwise it is given to vendors for making hand pad.
13	Storage of Data	Disposal of Waste Floppies	Land Pollution	Circular by SIG
14	Printing	Disposal of Waste Cartridge	Land Pollution	Circular by SIG
15	Smoking	Unsafe practices/ conditions	Fire, Respiratory problem, Injurious to health	Awareness, Smoking area marked
16	Use of water	Leakage during transportation.	Loss of N.R.	Water through pipeline
		Leakage during storage	Loss of N.R.	Pipe of proper quality provided to avoid leakage.
		Over flow from storage tank	Loss of N.R.	Automatic water stopper are provided.
		Excess use of water	Loss of N.R.	training to workers given. Training to workers given.
			Violation of Legal Requirements Violation of Legal Requirements	regular monitoring of water consumption being done regularly.
17	Storm water/water from ETP	Improper collection & storage	Water Pollution/loss of resources if not stored properly	storm water being collected in ETP pond thru a drainage line
18	Storage of water from ETP	Foul smell Mosquito breeding Improper monitoring	Overflow if not stored properly. Biological hazard/Health hazard. Deplantation	Fortnightly monitoring of water by HRD. WI7410
19	Cleaning tiles.	Slip hazards	injury to human being	Awareness training.

20	Emergency preparedness	Failure of fire box. Sand not available in buckets. Wet sand in buckets.	Loss of company, property. Accidents. Loss of company image.	Regular monitoring. Preventive maintenance schedule. Safety Audits. Mock drill. Plant under Insurance.
21	Painting of equipment	Rusting of equipment	Equipment damage Quality problem	Cleaning and painting schedule established
22	Sewage handling & storage	Overflow of septic tank/soak pit. Biological hazards if not stored properly.	Accident may occur if not covered properly.	Monthly monitoring of septic tank level. Cleaning of septic tank/soak pits bi-annually. WI6416
PPC				
1	Receiving/movement of Products	Disposal of oil collected in Trays	Water Pollution	Stored separately
			Soil Pollution	
		Loading & Unloading of Products	Accident may occur due to Heavy Lifting at high height	Training
2	Movement of product through trolley	Improper movement of wheels/ damaged trolley	Discomfort, Extra work load	Monitoring
		Improper Stacking of product	Accident, Major loss	Stacking/ Load fixed
3	Storage of product in damaged tray	Spillage of oil	Loss of natural resources	Monitoring **IMP/05/33**
		Damaged handle	Possibility of accident	Monitoring
4	Storage of product in WIP/Vendor area	Obstruction in the gang way	Accident	Monitoring, Area marked
		High Stacking height	Strain in body while lifting	Stacking height fixed

			Chances of falling down	
5	Fork lift	Movement of fork lift at blind end	Collision	Training, Speed limit fixed
		High speed	Accident	Awareness
6	Loading & unloading of bins in truck by fork lift	Comp / bins may fall down	Product loss	Awareness training
7		Exhaust fumes	May affect lungs / eyes	Periodic check, PUC
		Repetitive or difficult movement while driving	Body ache	Awareness
		Chance of hitting to person	Body injury	Awareness
Purchase				
1	Procurement of Materials	Generation of waste if not kept properly	Land Pollution	Stored in Drums (Identified)
2	Procurement of Chemicals	Leakage, Hazardous waste	Water pollution, Work instruction, Land pollution	Instruction of MSDS being followed. **IMP/05/29**
3	Transportation of materials	Vehicle smoke	Air pollution	All PUC checked vehicles are used.
4	Used oil disposal	Generation of waste oil	Water pollution	
5	Procurement of LPG, Diesel	Leakage	Fire	Supplier has been asked to follow rules. Hazardous chemicals Management & Handling. **IMP/05/29**
RM Store				
1	Storage of raw material	Rusting of raw materials	Loss of N. resource	Rust preventive oil
2	Loading/Unloading of raw material by Fork Lift	Smoke from fork-lift	Can cause air pollution	PUC check
		Speed of fork-lift	Can cause injury	Speed limit
		Noise of fork-lift	Noise pollution	PMS
3		Running of fork lift by Untrained driver	-Accident -Material damage -Vehicle breakdown	Duly trained driver deputed
4	Staking of R/M coils	improper Stacking	can cause accident	Training
5	Application of rust preventive	Improper application	Land pollution	Training

	oil	Use with bare hand	Skin problem	Training
6	Loading/ Unloading of coil through crane	Breakage of Chain	Accident	Helmets Provided, Crane under PMS
		Cutting of binding wire from RM coil	injury to human being	Adequate tool training
7	Sample for lab inspection	Disposal of sample pieces	Loss of natural resources	Sampling plan
5	Handling of the product	oil in the hands of workmen	skin problem	workers training & PPE'S
		generation of oily cloth as waste	hazardous waste	properly stored in identified bins WI6415
12	Abrasive grinding m/c	metallic dust	Health hazard	WI7523 training to workers and retraining
		Waste belt, breakage of belt	Solid waste, accident	training to workers. and retraining, Machine guard provided
13	Abrasive cutting m/c	waste content	Water pollution	WI7522
	water based coolants	scrap wheel	Waste item for disposal, loss of input	Stored separately
	abrasive cutting wheel	noise	Health hazards	PPE provided
		breakage of wheel	Accident	training to workers, machine are under PMS.
		Disposal of coolant	Hazardous, if released in potable water. Water pollution	System for disposal provided, WI7542
		Contact with skin	Dermatitis / allergy.	Awareness training **IMP /04/02**
1	Cooling by coolant	Leakage / spreading on floor	Loss of Resources. Land contamination	Awareness training Preventive maintenance WI7527
2	Electrical connection	Improper earthing	Electric shock	Earthing provided at all machine

		Grinding sludge 4-5 Kg/day	Land contamination	System for disposal of sludge provided WI 6415
		Cleaning / filtration of grinding sludge	If not properly clean, it will affect product quality	Filtration system in place
3	Grinding Wheel/ Regulating Wheel	Grinding dust	May affect lungs / eyes	Nose mask, WI for disposal WI6415
		Oil overflow from toppling of tray	Soil pollution	System of disposal is provided WI7544
		Coolant oil/ Diesel handling collection of oil in trays	water pollution if released in water Soil pollution if the oil mixed with water and not stored properly	System of disposal is provided (WI7539 /7540/ WI7541, **IMP/05/15,IMP/05/16**
		Waste oil	Loss of natural resources	Sold to authorized party for recycling.
		spillage	loss of natural resources, chances of accidents	Oil storage system provided near the m/cs
6	Diesel / Coolant Oil			
Turning, Facing, Rolling, Grooving, Pointing, Counter sunk & Drilling machines (9).				
		Disposable of coolant	Hazardous, if released in source water. Water pollution	System for disposal provided, WI7542, Being Treated in ETP
1	Cooling by coolant	Contact with skin	Dermatitis / allergy.	Awareness
2	Electrical connection	Improper earthing	Electric shock	Earting provided, ensured by safety audits.
		Noise	Uneasy feeling, Discomfort to workers	Ear plug provided
		Generation of Setting scrap through rolling	**If thrown in open, loss of natural resources.**	**IMP/05/23**
		Generation of scrap in traub operation	**If thrown in open, loss of natural resources.**	**EMP/03/07**

		Generation of scrap in CNC turning M/c	**If thrown in open, loss of natural resources**	**EMP/05/35**
		Excess use of power	**Loss of energy**	**IMP/05/10**
3	Turning, Facing, Rolling, Grooving, Pointing, Counter sunk & Drilling operation	**Working without guard**	**Chances of accident**	**Do & Don'ts , Awareness training**
5	Cutting tools & Drills	Turning & drilling chips	Can cause injury if not handled properly or thrown in open.	System of handling & disposal of chips provided(WI7543/WI7544)
		Breaking of dies, Tools not in use	Can cause injury if thrown in open or not handled/ stores properly	System of storage of tools provided (WI7542)
6	Rolling/Knurling dies	Generation of scrap during process	Loss of natural resource	Taken as **IMP/05/23**
		Tools not in use	Can cause injury if thrown in open or not handled/ stores properly	System of storage of tools provided (WI7543 /WI7544)
		Generation of grinding dust during tool resharpening	Harmful to human being, Health hazard	Nose mask to be used, Safety training provided
		Vibration	Discomfort to worker	Regular maintenance
6	**Bench Grinders**	Electric short circuit	Shock to Operator	Dept. audit
HR 3/Nut Tapping/DPR 6s				
		Air leakage	Loss of resource	Regular monitoring
1	Air	Noise	Uneasy feeling, Noise pollution	Noise monitoring being done, PPE provided
			Loss of resources	Taken **IMP/05/15**
2	Tapping oil	Waste oil	Land pollution	Disposal as per WI6417
		Tapping chips	Can cause injury if not handled properly	System in place for handling & disposal
		Broken taps	Can cause injury if not stored properly or thrown in open	System in place for handling & disposal
			Water pollution if released in potable	System of handling & disposal of chips

			water.	provided(WI7545)
		Tapping oil carried with chips	Soil pollution if released in agriculture water.	Waste oil collected & stored properly
		Tapping oil collected in trays	Water pollution, Loss of resources	Collected in drums for selling.
3	Taps	Noise generation	Uneasy feeling	Noise monitoring being done PPE provided
BUFFING MACHINE				
1	Rotation of buffing wheel	Buffing wheel residual (Dust)	Health hazard/air pollution	Arrangement of buffing guard, masks, Exhaust system
2	Electrical connection	Electric short circuit/improper earthing	Electrical shock/ Fire hazard	Earthing provided at all machines
3	Buffing operation	Overheating of buffing wheel due to excessive pressure between collate and buffing wheel	Frictional sparking/Fire	Marking of safe pressure limit, DOs and Don't Dos, worker's training
		Disposal of waste material(buffing wheel ,paste)	Land pollution/health hazard	Being stored and returned to party
		Mal functioning of Exhaust system	Dusty environment, health hazard/ Accident	Under regular preventive maintenance
3	Operation of server	generation of heat	Cause fire & fumes	
7	Manufacturing / Rework of tools	Hand struck between tools & jobs	Injury to persons	Work instruction
		Splashing of chips	Injury to persons	WI, PPE, Training
		Waste generation	Loss of natural resources	Training **IMP/04/02** **IMP/05/20**
6	Storage of Dies & tools	Overloading on rack, improper placement	Accident, tools damage, body stress	Training

1	Loading of Material	Oil carryover with material & collected in tank	Water pollution, Resource depletion If thrown in open	Oil trapper provided to separate the oil from water & oil are being stored in drums **IMP04/04** taken to recycle the waste water & to ensure ETP compliance.
		Unsafe practices/act	Body Injury	Work instruction
		Repetitive or difficult movements	Body ache	Awareness/ No proper training
		Oil spillage	Injury to human being. Loss of human resources.	Safety instruction **(No display of Do and don't in hindi)**
		Falling of material form trays during loading	Body injury	PPE provided, Shoes mandatory.

Tool: 5-1/F3 Labour and Working Conditions Risk Evaluation Format

Name of Project/Plant:			**Prepared by:**		**Revision no.:**	**Date:**
#	**Issues on labour and working conditions**	**Risk Assessment (High/Medium/Low)**	**Existing Control**	**Evaluation of Existing Control**	**Residual Risk (High/Medium/Low)**	**Additional Actions Proposed**

Tool 7-1/F1 - E&S Monitoring & ESAP Implementation Forma

Name of Plant:					
A	**E&S Action Plan**				
#	**Nature of Non-Compliance / Non-Conformance**	**E&S Risk Classification**	**Recommended Corrective Action**	**Timeline**	**Budget**

at
Monitoring Indicator

Tool 7-2/F1: Serious E&S Incident Reporting Format

Serious E&S Incident Report

In case of any serious accident/incident[1] the plants are required to report to HSSE Head at the Corporate level within 24 hours of its occurrence in Part 1.

Further details and investigation findings to be reported within 12 days by completing both Part 1 & 2.

1. Preliminary Report		
Date of the Report:		
Name of the Project/Plant		
Name of the Project Manager		
Name of Contractor (if any) and Contact Details		
A. Category of Incident *(refer definition of serious incident)*		
Death or permanent injury to any person	**Environmental issue**	**Social issue**
B. Details of the Accident *(Write N.A if not applicable)*		
Date & time of Incident		
Description of the Incident *(Narrative and contextual information)*		
Work or non-work related incident		
Causes of incident		
Investigation status		

[1]A **Serious Incident** is one of the following which affects any employee, customer, supplier or other person who has dealings with, or is affected by the activities of ERMPL or which occur on or nearby any site, plant, equipment or facility of ERMPL:

(a) an incident resulting in death or permanent injury to any person;

(b) any other incident which has a material negative impact on the environment or the health, safety and security situation (including without limitation any explosion, spill or workplace accident which results in death, serious or multiple injuries or material environmental contamination); and

(c) any incident of a social nature (including without limitation any violent labour unrest or dispute with local communities, accident/incident to local person due to company related activity), which has or is reasonably likely to have a material negative effect on the social and cultural context.

Parties involved in investigation	**Witnesses and staff** **Unions** **Police** **Other authorities** **Other parties**
Media coverage / publicity	

2. Follow-up Report	
Date of the Report:	
Company's view of the incident *(Degree of severity, possible uncertainties or disputed facts to be investigated)*	
Status of investigation	
Reports produced	
Immediate actions taken by company and other parties	
Further actions proposed to prevent re-occurrence of incident	
Monitoring/reporting arrangements agreed	
Results to date of actions taken	
Conclusions *(Next steps: whether to close the case, or proceed investigations, how to do so, and the rationale for it.)*	

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Tool 8-1/F1-A: Annual ESG Performance

of Company:

:r:

ESG Key Performance Indicators
Environment
Energy
Total Energy directly consumed by the company, irrespective of sources as of the reporting period
Total Energy consumed, sourced from renewable energy sources as of the reporting period, i.e. renewable non-fossil sources, namely wind, solar (solar thermal and solar photovoltaic) and geothermal energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, landfill
Total Energy produced by the company as of the reporting period
Total Energy produced from renewable energy sources as of the reporting period
Do you have a target to reduce energy consumption
Energy Reduction Target Percentage
Do you have a target to increase consumption of renewable energy
Renewable Energy Use Target Percentage
Does the company have programs or initiatives to reduce overall energy usage
What Energy efficiency initiatives do you have in place?
Amount spent/invested on energy efficient equipments, fixtures, building materials to reduce GHG emission or reduction of energy / water etc
Total Bio-diesel or CNG produced/sold
Number of E-buses/vehicles operated as Emaas
Reduction of PM2.5+PM10 SPM emissions due to E-Buses/vehicles used
Energy Saved due to efficiency enhancement
Electricity consumed from Grid
Emission
Scope-1 GHG emission
Scope-2 GHG emission
Scope-3 GHG emission
Purchase Of Goods And Services
Capital Goods
Upstream Transportation And Distribution
Fuel And Energy-Related Activities
Waste Generated In Operations
Business Travel
Employee Commuting
Upstream Leased Assets
Downstream Transport And Distribution
Processing Of Sold Products
Use Of Sold Products
End Of Life Treatment Of Sold Products
Downstream Leased Assets

Franchises
Investments
Do you have a target to reduce GHG Emissions?
GHG Emission reduction target percentage
Do you have initiatives in place to meet your target?
What initiatives do you have in place?
Total amount of hazardous waste generated by the company as of the reporting period
Do you have a target to reduce Hazardous Waste generation?
Hazardous Waste generation reduction target percentage
Total amount of Non-Hazardous waste generated by the company as of the reporting period
Amount of Non-Hazardous waste that was recycled as of the reporting period
Total volume of effluent treated
Total construction & demolition waste processed
Value added products produced from C&D waste as byproducts
Total volume of Municipal Solid Waste (MSW) processed
Total energy generated/produced from waste (if any) -applicable for Waste to Energy Sector
Avoided GHG emission due to RE/energy savings
Water
Total Water consumption as of the reporting period
Do you have a target to reduce water consumption?
Water consumption reduction target percentage
Do you have initiatives in place to meet your target?
What Water efficiency initiatives do you have in place?
Volume of recycle water reused
Total Water saved
Total Water withdrawn as of the reporting period
Environmental Innovation
Total Green building space constructed /used
Total Green Building space certified by IFC-EDGE or IGBC
Risk Management
Have you implemented an Environmental Management System (EMS)?
Do you have any of the below mentioned certifications
Is there any committee to assess various business risks & opportunities -considering its physical, transition, reputation risks and other business opportunities for new products/business considering responsible consumption of raw materials, natural resources etc ?
Have there been serious incidents or regulatory issues of non-compliance with the UNGC Principles, OECD guidelines for Multinational enterprises or local laws relating to the environment reported in the
Do you have Business Continuity Plan (BCP)?
Social
Community
Amount spent on CSR activities
Amount spent towards Education
Amount contributed to PM Care Fund

Amount spent towards Waste Management
Amount spent towards Healthcare sector
Amount spent towards Zero Hunger
Amount spent towards Skill Development
Amount spent towards Covid Relief initiatives
Amount spent towards Access to RE
Amount spent towards Environment
Amount spent towards Clean Water & Sanitation
Amount spent towards Social Welfare
Amount spent towards Other initiatives
Workforce
Male Full time employees
Female Full time employees
Number of full time female employees in managerial and above level
Male Part time employees including trainees
Female Part time employees including trainees
Male-Contractor employees
Female-Contractor employees
Total number of employee who left during the period(resignations, dismissals, retirements, retrenchme
Employee hired during the reporting period
Net hire during the reporting period
Employee attrition
Expense on training
Percentage of employees trained in a year on Environment, Health & Safety measures
Do you conduct an annual employee survey?
% employees responded to survey
Strategy
Have there been any enforcement actions, charges or penalties for breaches of relevant H&S legislation in accordance with OECD Guidelines for Multinational enterprises or local laws in the last 12
Do you have ISO 18001/45001 certification?
Total accident or injuries for the year
Fatalities for the period
Lost days for the period
Injury rate for the period
Do you have Diversity & Inclusion Policy?
Existence of Policy on prohibition of Child Labour within the organization and its supply chain?
Do you have Human Resource Manual and Code of Conduct?
No. of child labour deployed /employed
Total Hiring during the period due to M&A
Organic Net New Hires (excluding those from M&A)
Number of senior managers
Number of LGBTQ senior managers
Number of LGBTQ employees

Number of employees who self identify as belonging to a culturally and linguistically diverse (CALD) group within the senior management team
Number of employees who self identify as belonging to a culturally and linguistically diverse (CALD) group across whole company
Supply Chain Management
Do you have a supplier code of conduct?
Do you have purchase/procurement policy for Female suppliers?
Number of Female suppliers
Do you conduct supply chain audit (specially to evaluate Child labour, forced labour and health & safety
% of total suppliers screened as per ESG criteria
% of total contractors screened as per ESG criteria
Number of MSME Suppliers
Product Service Accountability
Number of data breaches
Total amount of monetary losses as a result of legal proceedings associated with customer privacy
Corporate Governance
Board & Committee Functioning
No of Board meetings held during the reporting period
Total number of Board of Directors
The percentage of independent board members
Number of female Board members
Do you have any of the below mentioned committees
Number of LGBTQ board members
Number of board members who identify as belonging to a culturally and linguistically diverse (CALD) gro
Business Ethics
Existence of Anti-corruption and Anti-bribery (ABC) policies?
Existence of policies on Anti-money laundering, Whistleblowing and Corporate Code of Ethics?
No. of grievances received from local communities on account of environmental & social issues/concern
Have there been any litigations related to business ethics in accordance with the OECD Guidelines in the
Has the company been subject to any controversy that might have adversely affected its reputation in th
Is the company involved in manufacturing or selling of controversial weapons? (Controversial weapons: anti-personnel mines, cluster munitions, chemical weapons and biological weapons)
Compliance
Existence of engagement policy with the various stakeholders (viz. employees, customers, suppliers, contractors, local communities, Project Affected People (PAP), statutory/Govt bodies, NGOs and
Do you have grievance redressal mechanism for project affected community?
Is statutory audit being conducted every year?
No. of materialistic legal notices received from any statutory authorities and/or other stakeholders
Amount spent/compensated in dispute/ controversy from legal proceedings as a % of total revenue
Does the company have a separate and independent compliance cell/function?
Properity
Financial metrics
Revenue

Revenue from export
EBITDA
Tax paid to the Govt (Direct + Indirect including Customs Duty etc)
R&D Expenses (if any)
No. of new patents/FDA registrations filed during the reporting period
No. of FDA approval received during the reporting period
No. of new products/drugs have started its commercial production
Percentage of revenue comes from new products/ services with life cycle less than 12 months
Operational metrics
Total number of clients
No. of new clients added during the reporting period
Number of domestic clients
Number of Foreign Clients
How many clients contribute 80% of total revenue as cumulative basis
Number of countries served

e Report

Financial Year:

Date:

Units	Limits	Q1	Q2	Q3	Q4
kWh					
kWh					
kWh					
kWh					
Yes/No					
%					
Yes/No					
%					
Yes/No					
TEXT					
mn USD					
tonne					
Nos					
tonne					
MWh					
kWh					
tCO2e					
tCO2e					
tCO2e					
tCO2e					
tCO2e					
tCO2e					
tCO2e					
tCO2e					
tCO2e					
tCO2e					
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tCO2e					
tCO2e					
tCO2e					
tCO2e					

tCO2e					
tCO2e					
Yes/No					
%					
Yes/No					
TEXT					
tonne					
Yes/No					
%					
tonne					
tonne					
Cu.mtr (m3)					
MT					
MT					
MT					
kWh					
tCO2e					
Cu.mtr (m3)					
Yes/No					
%					
Yes/No					
Text					
Cu.mtr (m3)					
Cu.mtr (m3)					
Cu.mtr (m3)					
Million Sqr Ft					
Million Sqr Ft					
Yes/No					
Yes/No					
Yes/No					
Yes/No					
Yes/No					
USD					
USD					
USD					

USD					
USD					
USD					
USD					
USD					
USD					
USD					
USD					
USD					
USD					
Nos					
Nos					
Nos					
Nos					
Nos					
Nos					
Nos					
Nos					
Nos					
Nos					
%					
USD					
%					
Yes/No					
%					
Yes/No					
Yes/No					
Yes/No					
Number					
Number					
Number					
%					
Yes/No					
Yes/No					
Yes/No					
Nos					
Nos					
Nos					
Nos					
Nos					
Nos					

Nos					
Nos					
Yes/No					
Yes/No					
Nos					
Yes/No					
%					
%					
Nos					
Numbers					
Numbers					
Nos					
Nos					
%					
Nos					
Text					
Nos					
Nos					
Yes/No					
Yes/No					
Nos					
Yes/No					
Yes/No					
Yes/No					
Yes/No					
Yes/No					
Yes/No					
Nos					
%					
Yes/No					
Million USD					

Million USD					
Million USD					
Million USD					
Million USD					
Nos					
Nos					
Nos					
%					
Nos					
Nos					
Nos					
Nos					
Nos					
Nos					

	To
Company Name:	
Date of Reporting:	

#	Particulars
A. General Information	
1	***Key products / services***
2	***Market Served***
3	***Revenue (%) from the geography/ country***
4	***Revenue (%) from Tier#1/2/3 cities***
5	***Key Clients***
6	***Name of the Key Management Personnel (KMP)***
7	***Mobile No (KMP)***
8	***Email (KMP)***
9	***Name of the Statutory Auditor***
10	***Provide a brief of the Company and its Business***
11	***Highlights on Corporate Governance***
12	***Highlights on Planet/Environment***
13	***Highlights on People/Social***
14	***Highlights on Prosperity***
15	***Total number of Plants, type of plant & installed capacity***
16	***Employee data***
B. ESG & HS Compliance	
17	***Overall compliance***
18	***Missing Permits***
19	***External / Internal Audits***
20	***ESAP and CAP Status***
21	***Any Deviations/ Scope for Improvement***
C. EHS Statistics	
18	***Reportable incidents (including environmetal incidents)***
19	***Near miss***
20	***First aid cases***
21	***Unsafe acts***
22	***Unsafe conditions***
23	***Mock-drills***
D. Status against Annual ESG Plan (completed vs planned, key outcomes, challenges, monitoring status etc)	
E. Training & capacity building initiatives	

F. Impact related info	
24	***Progress against the relevant SDGs***
25	***Gender-mainstreaming***
26	***CO2 emissions avoided***
27	***Jobs created (Male and Female)***
G. Any other impact indicators (eg water conserved, trees planted)	
H. Certifications/Awards/ recognition/ though-leaership/ CSR activities	
I. Employee/ community grievances and complaints	
J. Knowledge sharing	
k. Any other ESG update	

ool 8-1/F1-B: Annual Performance Update to Eversource

Brief Description	Details (provide supporting information, attach files/ provide weblinks/ photographs etc)
Full time **Male:** **Female:** **Contract** **Male:** **Female:**	

Notes
Highlight new hires (function, gender, type, level etc)
Prepare and submit a formal plan and track progress on monthly basis

Any new policy, regulations, regional/ local trend/ news which may be relevant to the sector

Tool 9-1/F1: ESG Indicator for Project Closure

This Tool can be used for assessing the status of the E&S aspects at the time of project closure/exit as well as can be used for monitoring performance on the E&S aspects.

This Tool has been referred from the GGEF's ESGMS - Appendix I: ESG Indicators for Exit.

Name of Project/Plant:	**Date:**
Prepared by:	**Revision no.:**

S. No	Questions	Yes	No	Remark for Project Exit Planning
1	Have all issues as identified in the initial ESDD been resolved? Are there any residual risks/pending actions from the original ESDD?			
2	Has there been continued improvement in E&S performance, in comparison to the baseline performance measured during the start of investment period?			
3	Have sufficient resources been allocated to manage E&S performance during the project cycle/Plant operations?			
4	Is there any pending/unresolved major legal non-compliance on E&S requirements that can potentially impact the exit/buyer's decision?			
5	Has there been any change in the E&S risk profile of the Project/Plant due to any new development/unplanned event?			
6	Is all documentation to demonstrate the E&S performance available with the Project/Plant?			
7	Are all the best practices and major E&S performance improvements/achievements documented and available for review of buyer? For e.g. a) Cost savings and emission reductions achieved out of energy efficiency improvement projects implemented at the Plant. b) Literature to demonstrate that good E&S performance has improved the returns on the investment *Note- This may include negative E&S performance trends (if any) during specific period and reasons for the same, including actions taken to rectify the causes.*			
8	Is a competent E&S resource available with the Plant to answer/manager E&S related queries from the potential buyer? And to ensure that the E&S management is self-sustaining?			
9	Is the Project/Plant's disclosure on E&S performance up to date? For e.g., non-financial reporting applicable to the investee companies, annual publishing of Sustainability Reports/Corporate Sustainability Reports, Annual Reports covering aspects of E&S performance.			

	Note- In case an IPO is the pursued exit route, sellers should be aware that listing regulations of stock exchanges increasingly include E&S disclosure requirements.			

ESMS: 10-2/A/F1: Plant Grievance Register

Plant Grievance Register								
Name of Plant:								
#	**Date of Grievance**	**Name of Aggrieved/ Anonymous**	**Mode of Communication**	**Details of Grievance**	**Name of Recording Person**	**Details of Action Taken**	**Date of Action taken communication**	**Remarks**
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

ESMS: 10-3/A/F1: Emergency Preparedness and Response Planning

A. Basic Information

<table>
<tr><td>1.</td><td>Name and Address of the Plant:</td><td></td></tr>
<tr><td>2.</td><td>Plant Head:</td><td></td></tr>
<tr><td>3.</td><td>General Emergency Coordinator:</td><td></td></tr>
<tr><td>4.</td><td>Transport Coordinator</td><td></td></tr>
<tr><td>5.</td><td>Hospital Coordinator</td><td></td></tr>
<tr><td>6.</td><td>Statutory (police/fire/security) Coordinator</td><td></td></tr>
<tr><td>7.</td><td>Local Emergency Leader</td><td></td></tr>
<tr><td>8.</td><td>Welfare Coordinator</td><td></td></tr>
<tr><td>9.</td><td>Site Safety Committee:</td><td>•
•
•
•
•</td></tr>
<tr><td>10.</td><td>Emergency Contact Numbers</td><td>Onsite Emergency Contact Numbers:
<table>
<tr><th>Role</th><th>Name of Personnel</th><th>Contact numbers</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table>
Off-site Emergency Contact Numbers:
<table>
<tr><th>Name of Organisation</th><th>Contact Name & Designation</th><th>Contact numbers</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table>
Neighbouring Communities
<table>
<tr><th>Name of the Village/Facility</th><th>Contact Name & Designation</th><th>Contact numbers</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table></td></tr>
</table>

B. Potential Emergency Incidents and Action Plans

#	Potential Emergency Incident	Action Plan Title	Reference	Date of review	Responsibility
1.	Fire in the plant				
2.	Explosion of gas receptacle				
3.	Cyclonic storm				
4.	Tsunami				
5.	Flooding				
6.	Earthquake				
7.	Civil disorder				
8.	Bomb threat				
9.	Terrorism				
10.	Epidemic/contagious disease				
11.	Electrical shock				
12.	Gas leak				
13.	Vehicle Collision				
14.	Community/ individual impacts				

C. Emergency Equipment at Plant

#	Emergency equipment	Specification	Minimum Quantity	Responsibility for review
1.	Siren			
2.	Hand operated siren			
3.	Fire extinguishers			
4.	Fire hydrant system			
5.	DCP trolley mounted fire extinguisher			
6.	CO_2 or Halon-1211-BCF vapour fire extinguishers			
7.	Fire Buckets (set of 3 buckets)			
8.	Fire suit			
9.	First Aid Box			
10.	Self-contained breathing apparatus			
11.	Flammable gas detectors			

#	Emergency equipment	Specification	Minimum Quantity	Responsibility for review
12.	Walkie talkies			
13.	Public address systems			
14.	Emergency lighting with batteries			
15.				
16.				

C. Preparedness Checks

#	Preparedness Checkpoints	Response	Reference	Remarks
1.	Documented evacuation plan has been defined			
2.	Emergency response organization has been defined and documented			
3.	Emergency equipment required are identified and available			
4.	Mandatory signages are be displayed at prominent work locations			
5.	Mock drill records are available			

ESMS: 10-3/A/F2: Observation Sheet for Mock Drills

Name of Plant:	
Type of Emergency:	
Date of Mock Drill:	
Description of Scenario:	

Item	Sounding siren	Evacuation	Site Incharge reaches site	Head Count	First Aid Response	Assessing safety of facility	Total (Mins)
Time Taken							

#	Narration of activities carried out during Mock Drill
1	
2	
3	
4	
5	
6	
7	

#	Observations on non-conformance to written/ communicated procedure
1	
2	
3	
4	
5	
6	
7	

ESMS: 10-4/A/F1: Resource Efficiency Opportunity Tracker

Name of Plant:

Date of Update:

#	Title of Resource Efficiency Measure	Actions Proposed in the Resource Efficiency Measure	Proposed Date of completion	Responsibility	Review Status with date

Tool 12-1/F1: Internal Audit Findings & Correction and Prevention Action

Name of Plant:

Date of Audit: **Name of Auditor(s):**

#	Internal Audit Findings/Non-Conformances	Root Cause of NC	Corrective & Preventive Actions Planned	Responsibility of Actions	Target date for action closing

Tool 13-1/F1: