GOVERNMENT OF ODISHA
OFFICE OF THE CHIEF ENGINEER-CUM–CHIEF ELECTRICAL INSPECTOR
NORTH ZONE, ODISHA, BALASORE
NEAR I.T.I. SQUARE, AT-I.G. MARG, PIN -756001
Email Id: ceinzblsr-od@gov.in
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ANNEXURE-I **OBSERVATIONS AND RECOMMENDATIONS**		
	Report No.	**120/2023-24** Online Application No- **INELEIN/2024/01206**
1	Dates of inspection	16.03.2024
2	Inspection Fees	Due Rs.2,77,500 /-
		Paid: Amount: Rs. 2,77,500 /- Reference Number: CK00AAAPA9, Payment Date: 12-03-2024 Additional inspection dues if any shall be communicated separately after verification of records as available with this office and as per the revised inspection fees notification.
3	Type of inspection	**ANNUAL**
4	Voltage and system of supply	33 KV, 11 KV, 415 V, 3 Phase AC
5	Name of the consumer & address	M/s Ardent Steel Ltd., At/Po- Phuljhar, Dist- Keonjhar
6	Location of the premises:	Inside factory premises
7	Particulars of the installations:	As per Annexure-A
8	Inspection conducted by:	Sri P. M. Mishra, CE-cum-CEI, North Zone, Balasore
	Assisted by:	Sri B. K. Sahoo, TA to CE-cum-CEI, NZ, Balasore
9	Representatives present	Sri Santosh Ku. Lenka (Plant Head), M- 9826009279
10	Single line diagram	Updated SLD and plant layout diagram indicating the electrical installations as per actual installations need to be maintained. SLD needs to be displayed in all control rooms. A layout diagram showing individual earth electrodes/grid and main earth connection is to be maintained for each functional area as per IS 732.
11	**INSPECTION OBSERVATIONS** ● ***During the visit to plant premises, the plant was not in production. Adequate safety measures shall be taken up before resumption of operation/production of the plant.*** ● ***Since construction activities are going on inside plant premises for the new IOBP, adequate safety measures shall be undertaken as per relevant standards/regulations. Safe extension and use of construction power, extension of construction power through use of industrial sockets, RCCB need to be ensured.*** ● ***Existing multifunction panel energy meters for all DG sets shall be replaced with new DLMS type energy meters of class 0.5 s. New Energy Meter needs to be installed after being tested by STL. Sealing arrangement of the metering system is to be ensured.*** ● *Compliance with many of the last year observations are found to be under progress or are yet to be complied. NIPS or HPWS systems are to be installed on priority. The observations are re-iterated for immediate reference.* ● Adequate safety measures need to be ensured through regular patrolling and maintenance to ensure safe operation of the 33kV line to be free of danger to public and wildlife. Since the line passes through forest and elephant corridors, adequate protection needs to be ensured by maintaining the line as per prescribed safety regulations and Indian Standards in consultation with Forest Deptt. Authorities. Prescribed ground clearance, earthing, broken conductor protections are also to be ensured. Please refer to IS 5613 for the purpose. ● Adequate number of fire exits, signage and illumination with backup power, fire detection and alarm need to be ensured for all the control rooms and work areas.	

	• Implementation of QR code based access to drawings and other technical parameters on panels and equipment can be explored for providing instant, online and easy access to drawings and required technical details. • Statutory interlocking and protection arrangements as prescribed in Regulation 47 of CEA (Measures Relating to Safety and Electric Supply) Regulations 2023 needs to be ensured besides protection arrangements as recommended by the manufacturer and records of all such tests are to be maintained. • Transformers (ground cover) made with concrete are impervious and will support spill fire. Impervious surfaces can allow the burning oil to form a large pool fire, which will increase the heat flux to adjacent equipment and structures. The use of 30 cm (12 in) thick crushed stone ground covers below the transformer will suppress the flames from a burning oil spill fire. Refer to IEEE Std 979™-2012: IEEE Guide for Substation Fire Protection • The 33kV S/stns and Transformers are to be maintained safely. The earth electrodes are to be maintained, measured and recorded at regular intervals. Oil leakage from transformers are to be addressed. • All pumps and motors shall be made accessible. Cable terminations to motors and pumps are to be provided with support and sealed at terminal entries, earthing is to be ensured, all panels are to be identified. Unsafe panel covers are to be replaced. • Safe electrical clearances in the 33kV Switchyard is to be ensured near the jumpers from the isolators to the breakers and may be straightened for better clearance. • All auxiliary transformers and associated S/tns shall be identified with voltage level and capacity. • All control rooms and work areas to be provided with adequate illumination and ventilation, fire exits and appropriate signage for emergency exits with backup power supply. Fire alarms and protection systems are to be installed in the control rooms. • Temporary connections and power supply to portable equipment are to be safely extended using armored cables with RCCB and using industrial sockets, ensuring proper earthing and use of adequate PPEs. Many cables/wires are being used in unsafe manners and the cables are to be properly supported and protected. • The name of the designated persons as per regulation CEA (Measures Relating to Safety and Electric Supply) Regulations 2023 is to be communicated to this office. Please refer to Regulation 3 to 6 of the Regulations in this regard and ensure compliance. • Many of the electrical installations need to be maintained as per the prescribed Safety Standards and Safety Regulations besides applicable Indian Standards and also the manufacturers' guidelines, especially the transformers, 33kV switchyards etc. Compliance to many of the last observations are to be undertaken and have been re-iterated for immediate reference. The observations and deficiencies mentioned have already been explained to your representatives present during the inspection visit for compliance. Specific attention is invited regarding fire safety of transformers with oil capacity more than 2000 ltrs as per regulation 46, CEA (Measures Relating to Safety and Electric Supply) Regulations 2023. Attention is also invited to Regulation 48(7) regarding the responsibility of owners. • Since a large volume of process oil is stored, adequate fire safety measures need to be taken as per prescribed statutory guidelines. • Testing of the metering system of DG i.e the energy meter & associated CTs are to be taken up annually by STL. The last sealing and testing details are to be submitted for verification and records.
A	**33 KV Structure and Lines**
	• The SLD needs to be provided in the control room clearly highlighting the installations. 33kV Feeder names with length (Incomers) can be indicated in the SLD. The make of the transformers can be mentioned in the SLD. • HT cables shall be identified with cable tag at both the ends as well as throughout the cable routes. Cable route to be identified with route markers along with danger notices indicating the

presence of HT cables.

- Cables shall be laid, maintained and protected as per IEC 62067 and other applicable IEC standards. The cable trays supporting the HT cables in the switchyard is to be provided with continuous earthing. Control and other power cables are to be laid and maintained as per IS1255.
- The panels/marshaling box connectivity to earth to be maintained. The panel doors are to be connected to earth using flexible copper bond.
- ***The entire area of the substation/ switchyard shall be maintained with 150/100 mm thick gravels to restrict the growth of grass in the outdoor substation/ switchyard. The gravels shall consist of 75/50mm thick of 40mm stone size on the top and 75/150mm thick of 20mm stone size below. The resistivity of gravel shall be 3000Ω-mtr.***
- All open cable trenches and other openings to be covered and protected.
- The fencing around the switchyard to be properly connected to the earth. The gate remains locked. Adequate Voltage level and Danger notices are to be provided.
- The Lightning Arresters need to be verified for proper operation. The leakage currents to be checked to be within the prescribed range. Refer to the Regulation 46(8)(e) of Central Electricity Authority (Technical Standards for construction, operation and maintenance of electrical plants and electric lines) Regulations 2022, regarding provision of surge counters and arresters.
- All earth electrodes are to be tested and verified. Test results are to be submitted. Damaged dysfunctional earth electrodes are to be replaced.
- The earth pits are to be numbered and indicated with individual and combined resistance values and date of last testing. Records of the details need to be maintained. An updated drawing showing the main earth connection and electrodes to be maintained as per clause 4.7 of IS 3043:2018.
- Auxiliary earth mats can be maintained to cover the area below the AB Switch handle for better safety. The operating handles are to be connected to earth using flexible copper bonds.
- Cables used for extending temporary power supply to be laid and supported as per IS 1255. Cables Tobe tagged and identified.
- Phase marking and identification of bays to be done for all the bays with proper nomenclature of voltage level etc. The markings have faded over time.
- The interlock arrangements to be periodically verified. Specific attention is invited to the provisions in regulation 47 of CEA (Measures Relating to Safety and Electric Supply) Regulations 2023 regarding isolators, breakers and earth switches. Both electrical and mechanical interlock needs to be ensured. LOTO systems to be adopted for safety.
- The Switchyard lighting power supply cabling arrangements to be safely done. Joints and loose connections to be attended. Cables to be properly routed and supported.
- The damaged insulating mats provided in the control rooms are to be checked and replaced if necessary.
- An updated clearance statement clearly showing all the line, road, river and other crossings along with their available ground clearance are to be maintained. Statutory safety clearances need to be ensured throughout the line length. Please refer to CEA (Measures relating to Safety and Electric Supply) Regulations 2023, Regulation 60 regarding minimum ground clearances.
- Proper earthing needs to be verified and maintained for all the poles and associated structures. The existing earth electrodes are to be provided and protected from damage. IS 3043 to be adopted for earthing.
- Guarding's are to be provided for road crossings, habitations and other power line crossings. Detailed records of all such critical locations are to be maintained and periodically verified. All guarding is to be connected to earth and securely provided with stays.

	• All poles are to be cooped. Damaged stay wires are to be replaced. Additional stays are to be provided at line deviations as per standard. Please refer to Regulation 96 of the construction standard. • Cut points and DP are to be ensured at angle locations of the line and at deviations as per standard and stays are to be provided for safety. (Regulation 93 of construction standard). • Appropriate height of poles and line spans are to be considered for ensuring adequate and safe ground clearance as prescribed. It may please be noted that the clearances mentioned in CEA (Measures Relating to Safety and Electric Supply) Regulations 2023 prescribes the minimum ground clearance. Hence the organization is advised to provide adequate safety clearances as per site requirements. • Anti-climbing devices are to be properly provided. Please refer to Regulation 97 of the construction standard for the purpose. • ***For line passing through forest areas, appropriate anti-rubbing devices or spikes are to be mandatorily provided in such elephant movement areas in consultation with the forest authorities. GI spikes/anti-rubbing devices to be used.*** • The 33kV and LT Line are to be maintained as per prescribed statutory provisions. Please refer to CEA (Measures Relating to Safety and Electric Supply) Regulations 2023 and also the Technical Standards. Earthing of each pole, anti-climbing, pole numbering, guarding is to be mandatorily provided besides danger notices. Safe clearances are to be ensured for the entire stretch of the line. Joist Poles are to be painted. • Guarding to the L.T line crossing road near the switchyard to be provided & earthed at both ends.
B	**7500 KVA 33/11 kV, 2 x 5800 KVA 33/0.433 kV and 2850 KVA 11/0.433kV Transformers**
	• Entry gate of the 7.5MVA,33/11KV transformer area to be connected to earth. • The transformers are to provide enclosure/fencing with gates and to be connected to earth. • Nitrogen injection to be provided (if available) near the transformers. • The name plate details of the transformer are to be shifted to an accessible location. • Adequate capacity and size of oil soak pit needs to be constructed • It is observed that the area below many transformers (ground cover) has been made with concrete which is impervious and will support spill fire. Impervious surfaces can allow the burning oil to form a large pool fire, which will increase the heat flux to adjacent equipment and structures. • The use of 30 cm (12 in) thick crushed stone ground covers below the transformer will suppress the flames from a burning oil spill fire. Refer to IEEE Std 979™-2012: IEEE Guide for Substation Fire Protection. • ***The prescription as made in Regulation 46(viii) & (ix) of*** *CEA (Measures Relating to Safety and Electric Supply) Regulations 2023* ***regarding provision of fire detection, alarm and protection system, fighting system as per IS- 3034:1993 or with Nitrogen Injection Fire Protection System has not been implemented for transformers with oil capacity of more than 2000 ltrs. It is highly recommended to install firefighting systems as prescribed in the Safety Regulation and applicable Indian Standard.*** • The physical distance of the transformers from other transformers installed needs to be clearly indicated and accordingly provisions of fire wall and fire safety is to be made. Please refer to Regulation 46(2) (vii) (a) of CEA Safety Regulation 2023. • Since there is a significant volume of oil in the transformers, oil drainage arrangement needs to be verified. The capacity of the oil soak pit should be more than the total oil volume of the transformers. Adequate capacity and size of transformer oil soak pit needs to be ensured as per CEA Safety Regulation 46(2) (vii) (b) and proper size of drainage arrangement is to be made as per IS 3034. • The control cables of the transformers are to be supported, dressed and supported. • Oil leakages from the 7500 KVA transformers are to be rectified. The transformers are to be kept clean to facilitate identification of oil leakage. • It needs to be ensured that the earthing of marshaling boxes, control panels and equipment are always made with two separate earth connections from distinct sources. Please refer to clause 4.2 of IS 3043 regarding the statutory provisions for earthing

	• The transformers are to provide enclosure/fencing with gates and to be connected to earth.
C	**E.S.P. Installations**
	• The ESP transformer units are to be maintained as per prescribed guidelines. The ESP being a critical installation for environmental and pollution compliance, needs to be maintained regularly for required operation. • The ESP floor cables to be routed or supported. The silica gel of the transformers to be changed and oil level to be maintained. • Earth flats are to be laid properly, joints if any to be welded. • The MV control/main switches on the ESP floor are to be properly maintained and earthed. The connections are to be properly done using appropriate connectors rather than being loosely twisted. Entry/exit of cables from the panels/switches to be done using cable glands, gland covers and properly sealed. MCCBs to be properly mounted. • Danger Boards are to be provided at the E.S.P. Transformer. Control and power cables to be laid separately for the ESP transformer. Cable tag markers at regular intervals are to be provided both for control & power cables. • Lightning spikes at suitable intervals on the metal structure over the E.S.P. transformers can be provided as necessary. • I.D. fan motors are to be double earthed and their earth connections to be verified and properly routed. • Cable trays to be provided for carrying power and control cables to the transformers and are to be earthed by using adequate size of earth flat.
D	**Control Rooms and Control Panels**
	• Fire barriers are to be provided at all entries of the cable trays into the control rooms. • Fire retardant painting to be done near the exit of the cable from the control room. • 33kv spare feeder to be marked with bold letter. • ***The door of the capacitor bank room is to be kept locked and door switches/sensors are to be installed to disconnect the power in case of opening of the door.*** • Temporary unsafe cables running on the floor of the control rooms are to be removed. • Unsafe openings near panels are to be closed. • Adequate safety clearance is to be maintained for the capacitor banks and reactors mounted inside the capacitor bank rooms. Appropriate danger notice needs to be provided clearly indicating the voltage level. The live terminals are to be properly covered with insulation and made accessible. • Working space around the control panels and control areas needs to be ensured as prescribed under CEA safety regulation 39. Storage of materials needs to be avoided for the purpose. • All the panels are identified with proper voltage. SLD and Shock treatment chart is to be fixed at the conspicuous places. Panels shall be provided with the description of its identification at front and at the rear along with voltage level. • RCCBs are to be provided for the industrial socket in place of MCCBs available in the control room/panels meant for extending temporary power supply. • Emergency switches to be provided with fluorescent markers for visibility during power failures. Regular checking for sparks, damaged insulations and loose connections etc. are to be taken up for all terminations/joints and attended immediately. Thermos vision scanning can be useful for detecting hot spots.
E	**Ball Mill, Kiln Installations**
	• Ball mill control room to be provided SLD clearly highlighting the installations, improved illumination, sealed from dust and openings to be closed. • Ball mill control room to be identified with painting &exit of the room to be marked. • Compressor power distribution board damaged cover to be replaced. • All masonry earth chambers of the plant are to be maintained periodically by measuring earth

	resistance value, cleaning of electrodes and flats, greasing of the welding area. ● Transformer body is to be cleaned for identifying oil leakage. Oil leakage from transformer to be identified and arrested. ● *Unsafe cable terminations and panels near the pellet cooling pumping areas, multi stage pumps etc. are to be safely maintained.* ● The electrical systems of the hoists and cranes are to be maintained as per IS 3177, IS 4137 and other prescribed standards. Statutory safety inspection needs to be undertaken for the hoists and cranes as applicable. ● Nomenclature of each earth pits along with earth resistance value with date of measurement is to be displayed. ● Control Rooms are to be maintained to avoid dust deposit on panels. ● Annunciation systems (audio and visual) need to be provided in the control room panel for operation during faults. ● Open terminals of various motors should be avoided and motor body cover must be provided. ● Fire hydrant system in the control rooms, Exhaust fan arrangement in the control system and MCC rooms to be arranged. ● Poor illuminations in the control rooms must be rectified. ● Nomenclature of all panels to be done in bold letters. ● Cables inside the substation area should run through cable trenches or using cable trays. ● OTI & WTI viewing glass to be kept cleaned.
F	**HT/MV Motors, Drives and HT/MV Loads**
	● All the motors, compressors, machines, metallic parts etc. not intended as conductors, iron support structures etc. shall be earthed by two separate and distinct connections with earth. Frame of every metallic part not intended as conductors, iron support structures shall be earthed by two separate and distinct connections with earth. All the motor couplings exposed rotating parts are to be provided with guard covers for safety of the workforce. ● Cable entry or exit into the control rooms, panels, motor terminals, marshaling/console box to be properly done using cable glands and the unused openings to be properly sealed. IS 1255 needs to be adopted for installation and maintenance of cables. ● All cables to be properly tagged with cable tag at both the ends as well as at intermittent points. HT cables and their routes to be specifically marked at specific intervals. ● Since conveyors and other metal fines are being moved in the system, adequate protection needs to be taken against static electricity building up in the conveyors, pipes, structures etc. by providing proper earthing arrangements as per IS 7689. A prescribed maximum resistance of 10 ohm is acceptable to avoid static electricity hazards as per section 15.3 of the IS. Transportable metal items should have a resistance to earth of 10 ohm or less, provided by a special earth connection. ● All the auxiliary Transformers are to be maintained as per standard and checked for oil leakage. The metal barricades are to be connected to earth. The metal barricades/enclosures are to be connected to equipotential bonding/earthing. The winding and oil temperature indicators are to be preferably relocated to the front side for safe access, visibility and reading. ● The electrical systems of the hoists and cranes are to be maintained as per IS 3177, IS 4137 and other prescribed standards. Statutory safety inspection needs to be undertaken for the hoists and cranes as applicable. ● All the motors, compressors, machines, metallic parts etc. not intended as conductors, iron support structures etc. shall be earthed by two separate and distinct connections with earth. ● Frame of every metallic part not intended as conductors, iron support structures shall be earthed by two separate and distinct connections with earth. ● Unused openings in control panels/ distribution boards shall be sealed. All panel/board covers shall be connected to earth using flexible copper bonds.

	• Since storage of oil and inflammable items are undertaken as part of the manufacturing process, adequate fire safety measures need to be as per statutory provisions. Use of fire detection and alarms, fire extinguisher systems as applicable needs to be ensured as per prescribed fire hazard classification. Please refer to IS 3594 section 11 regarding electrical installations at storage areas, IS 1641 regarding classification etc.
G	**DG Sets**
	• *The energy metering system needs to be tested annually by STL and the reports are to be submitted to this office for records.* • The changes over panels, DBs and panels of the DG sets are to be safely maintained. Unsafe cable terminations and wirings are to be addressed. • Voltage level and change over positions are to be clearly indicated. The unsafe cable entries are tobe addressed. • The cable densities are found to be high at the DG terminal box and panels. Please refer to IS 12459 (1988): Code of Practice for Fire Safety in Cable Runs and take applicable measures. Cable densities can be reduced by using separate panels. • The DG sets earthing are to be ensured at minimum two points using an exclusive independent earth electrode i.e for the prime mover body and for the generator body and the neutral. Please refer to IS:3043 for further details. The present earthing to be properly verified and measured. • Oil and lubricant leakage if any from the DG sets are to be checked. • The DG room is to be kept clean and dry of spilled oil and lubricants. Oil storage from the DG rooms can be relocated. • It should be ensured that the exhaust system operated with minimum back pressure. • The asbestos ropes used for the exhaust piping inside the acoustic enclosure/Genset to be periodically checked and replaced to avoid heat input inside the enclosure. • In case the exhaust gas enters the nearby working areas, the direction can be altered or the height can be changed. • The exhaust stack height needs to be verified as per prescribed standard to ensure disposal of exhaust above building height. • All moving parts of the DG set need to be mechanically guarded in such a manner that a human finger cannot reach any moving part. • The space heaters of the DG sets with capacity of more than 500 KVA needs to be verified for their operation so that the winding temperature is maintained to avoid moisture during long idle periods. • The interlocking and protection arrangements are to be verified for all the DG sets operating in islanding mode for necessary compliance to regulation 47. • Attention is also invited to the provisions contained in IS 732:2019, specifically the sections 5.5.2.6 and 5.5.2.7, i.e. additional requirements for installations with generating sets providing backup supply or which may operate in parallel with other sources.
H	**Office/Building installations**
	• Compliance to the provisions of National Electrical Code, specifically the provisions for lightning protection, earthing, protection against voltage surges, energy efficiency, electrical installation of office buildings, outdoor lighting installations, electrical installation in hazardous areas etc. needs to be considered. • For false ceilings, provision of inspection windows/opening needs to be considered to facilitate inspection of electrical connections running within the false ceilings. • Periodical checking of the air conditioning system needs to be ensured, mostly for the stand alone type air-conditioners so that overloaded operation can be verified to avoid insulation damage due to overheating leading to short circuits. • For proper operation of the circuit breakers/MCCBs, the fault loop impedance of the circuits needs to be verified to ensure proper tripping of the RCDs/MCCBs.

	• Attention is also invited to the provisions of the National Building code, regarding the electrical and allied installations under section 2 Part-8, Volume -I of the Code besides other provisions regarding escalators, lifts, fire and life safety etc. • It is strongly recommended to undertake the energy efficiency study to determine the SEC and take necessary steps to reduce its carbon footprint.
I	**N.B**
	• *The installation, operation and maintenance manual of the equipment manufactures is to be strictly adhered to for safe operation.* • Appropriate training shall be provided to personnel working in the plant regarding safety, first aid and shock treatment. • Considering that this is a Manufacturing plant with furnaces, power plants, SMS etc. adequate safety measures need to be taken for ensuring safety of the workforce. Fire alarms and detection systems need to be provided. Adequate number of fire extinguishers, gas masks and other safety devices at accessible locations needs to be provided. Exit routes to be identified and prominently displayed for use during emergencies. • All the motors, compressors, machines, metallic parts etc. not intended as conductors, iron support structures etc. shall be earthed by two separate and distinct connections with earth. Frame of every metallic part not intended as conductors, iron support structures shall be earthed by two separate and distinct connections with earth. All the motor couplings exposed rotating parts are to be provided with guard covers for safety of the workforce. • The Regulations 29 and 30 of the CEA (Measures Relating to Safety and Electric Supply) Regulations 2023 regarding the provision of protective equipment and display of instructions for resuscitation of persons suffering from electric shock is to be strictly followed besides other applicable provisions. Danger notices are to be provided as per regulation 20. • The Regulation regarding safety procedures, inspection and patrolling, maintenance schedules, use of diagnostic techniques for condition monitoring of equipment, thermo vision scanning, failure analysis, training etc. needs to be adopted. • The regulation 48(7) regarding responsibility of the owner needs to be adequately addressed. Also compliance to the CEA (Technical Standards for connectivity to the Grid) Regulations 2007, CEA (Grid Standard) Regulation 2010 needs to be ensured as a bulk consumer. • Insulating mats are to be installed and maintained as prescribed in the "Indian Standard 15652 (2006):Insulating mats for electrical purposes", needs to be referred for the purpose. • Fire extinguishers and detection systems are to be maintained in the control room and other locations as per prescribed Indian Standards i.e. IS 3034, IS 1646, IS 1647, IS 2189, Tariff Advisory Committee manual as applicable. • All equipment, panels shall be marked with the description of its identification at front and at the rear. • An updated drawing showing the main earth connections and earth electrodes for the electrical installations incorporating the earthing arrangement is to be prepared and maintained. • IS 2026, IS 10028, CBIP manual publication no 295 for transformers and other applicable standards needs to be adopted during installation, operation and maintenance of the transformers. • IS 10118-4 (1982): Code of practice for selection, installation and maintenance of switchgear and control gear, Part 3: Installation, may please be referred for maintenance of switchgears besides other applicable standards such as IS/IEC 62271-203 (2003): High-Voltage Switchgear and Control gear, Part 203: Gas-Insulated Metal-Enclosed Switchgear for Rated Voltages Above 52 kv [ETD 8: High Voltage Switchgear and Control gear] etc. • Regular testing of earth value, insulation resistance/IR values, operation of protecting and isolating devices, interlocks etc. to be taken up as per applicable standards to ensure safety and

	a record of such periodic testing and maintenance is to be recorded in a register and is to be produced during inspection as necessary. ● Safety arrangements to be ensured as per Central Electricity Authority (Safety requirements for construction, operation and maintenance of electrical plants and electric lines) Regulations 2022, CEA (Measures relating to Safety and Electric Supply) Regulations 2023 etc. Specific attention is invited to the regulations 3 to 6 regarding designating and engagement of trained and qualified persons, role of electrical safety officer etc. You may refer to appropriate Regulations of Central Electricity Authority by visiting the CEA website and ensure compliance. ● Reference is also invited to the Central Electricity Authority (Safety requirements for construction, operation and maintenance of electric plants and electric lines) regulations 2022, indicating safety provisions relating to owner, safety manual, safety officer and safety committee, safety provision relating to contractors, reporting of accidents, emergency management plan, medical facilities, safety training and awareness etc. for necessary implementation. ● Required statutory clearances as necessary for operation of the plant needs to be obtained as applicable. ● Deficiencies if any in the report may please be brought to the notice of the undersigned for further necessary action. ● *The report in no way relieves the installation owners from any of their statutory obligations and responsibility for ensuring operation and maintenance of the installations in a condition free from danger and as recommended by the manufacturer or by relevant codes of practice of the BIS and CEA.* ● *Required statutory clearances as applicable need to be ensured for operation of the Plant.* ● Electricity duty return is to be submitted each month and payment is to be made regularly as per provisions of the Odisha Electricity Duty Act 1961 and applicable rules. ● The annual inspection of the electrical installations is due from 1st April onward of every year.
Existing multifunction panel energy meters for all DG sets shall be replaced with new DLMS type energy meters of class 0.5s. New Energy Meter needs to be installed after being tested by STL. Sealing arrangement of the metering system is to be ensured. T***he metering system of the DG sets need to be annually tested by STL including the energy meters, associated CTs. The last test and sealing details are to be submitted to this office for verification and records. Sealing systems are to be maintained properly to avoid any damage to the seals***.	
Many of the transformers with oil capacity of more than 2000 ltrs are found without installation of appropriate fire safety measures and are not safe to be operated without additional care to avoid fire hazard as mentioned before. The prescribed fire safety measures are to be installed on priority and till such time proactive monitoring of the transformer temperatures and loads are to be ensured and in case of any abnormal temperature rise, the transformers are to be shut down immediately. The support of manufacturers in this regard may be obtained. Also, oil leakages in many transformers have been observed which increases the fire hazard and need to be addressed on priority. *The installations covered in this report are allowed to remain energized subject to rectification of defects and deficiencies mentioned in the report, and detailed compliance needs to be submitted to this office within 90 days of issue of the report.*	

Sd/-
P. M. Mishra
C.E-Cum-C.E.I.,North Zone
Odisha, Balasore

ANNEXURE-A

DG Set Details and Meter Reading as on 16.03.2024

DG	DG1	DG2	DG4
Make.:-	Leroy Somer	Leroy Somer	Leroy Somer
Alternator Sl. No.	L86-074	L86-072	L86-073
VOLTAGE	415V 3 Ph AC	415V 3 Ph AC	415V 3 Ph AC
Capacity	2100 KVA	2100 KVA	2250 KVA
Energy Meter Make and Sl No	SECURE, X1897201	SECURE, X1897209	SECURE, X1877770
Energy Meter Reading	222938 kWh	221510 kWh	263305 kWh
Meter TP Box & CT Box Seal	0036394 & 0036395	0036392 & 0036393	0036317 & 0036390, 0036391

ANNEXURE-B

Provisional annual inspection fees of FY- 2023-24 of M/s Ardent Steel Limited Keonjhar, INELEIN/2024/01206

SLNO	SCALE	EQUIPMENT	QTY	RATE	AMOUNT
1	Scale .B SL No.3	5.8 MVA 33/0.433 KV, Transformer	2	32500	65000
2	Scale .B SL No.3	7.5 MVA 33/11 KV, Transformer	1	32500	32500
3	Scale .B SL No.3	2.85 MVA 11/.415 KV,Transformer	1	15000	15000
4	Scale .C SL No.C1	33 KV HT ,3x400 sq mm Cable (Approx -2 Km)	2 KM	3000	3000
5	Scale .C SL No.1	11 KV HT Cable & LT Cable (Approx-20 KM)	20 KM	3000	3000
6	Scale .B SL No.6	200 KVAr,11 KV Capacitor Bank	3	7000	21000
7	Scale .A,SL No.3	2250 KVA DG Set	3	25000	75000
8	Scale .D,SL No.	Aggregate Load	6727.45 KW	63000	63000
Annual Inspection Fees					**277500**

NB-The amount is provisional based on details submitted and may be revised if necessary after verification if necessary and in case additions and alterations are noticed subsequently which are not included in the list. The amount has been claimed as per revised notification which can be downloaded from our website. Deficiency if any may be brought to the notice for necessary revision as applicable.

AGGREGATE LOAD		
SL NO	Equipment's details	Load in KW
1	BALL MILL Load	1232.86
2	PROPORTIONATE Load	190.69
3	BALLING DISC & TG Load	446.09
4	KILN & COOLER Load	513.14
5	PUMP HOUSE Load	319.08
6	ESP Load	295.59
7	COMPRESSOR Load	616.5
8	LIGHTING HOUSE Load	315
9	DELTA SIDE Load	669.5
10	STAR SIDE Load	1029
11	ID & HR FAN Load	1100
TOTAL AGGREGATE LOAD		6727.45