No: DCH/E&M/ Date:

To

The Director (T/O)

NCL, Singrauli

Sub:- Failure of 2 motors of CHP at Dudhichua Project.

Ref:- Your Letter No………………………………………………………………..

Dear Sir,

I am in receipt of your letter mentioned above. Reasons of failure of motors are as under;

1. **400 kW, 6.6 kV, 992 rpm, Kirloskar make motor installed at Gyratory Crusher No-1 at CHP Dudhichua:** The said motor was received from CWS, Jayant after repairing, which was installed at gyratoty crusher No-1 on 6.12.2016. Before installation, the motor was given a light run for about 30 minutes. On dated 6.08.2017, the motor got earthed. This caused tripping through NGR due to imbalance current taken by the motor after earthling of one winding. The failure is due to insulation failure of the winding. The motor was protected through MPR (Motor protection relay) which has tripping for over current/over load, earth leakage, earthing and single phasing. However no tripping is available which can pre-determine failure of insulation. Also surge protection is in working condition at Sub-Station.
2. **400 kW, 6.6 kV, 1477rpm Crompton Greaves make motor installed at C-5A conveyor at CHP Dudhichua:** The said motor was received from Ancillary M/s. Shivalic Engineering Works, Singrauli after repairing. Before failing on dated 06.08.17, the motor has given service of about 2 ½ years. The failure was known after over current tripping at control panel. The insulation of the winding has failed. In November 2016, during regular maintenance of the motor it was noticed that the winding insulation resistance has degraded to 2M OHM only. This was brought to my notice and also recorded in motor maintenance record. However the motor was allowed to run as replacement motor was not available. The insulation of the winding gradually failed over time. The failed motor is more than 25 years old. The aging had caused the insulation to weaken and It is common for motors with weak insulation to fail during rainy season due to high humidity.

About non-functioning of the protective relays, it is humbly stated that most of the protective relays are working and in operation. Relays are tested every six month departmentally for which test facility is available departmentally and for advanced microprocessor based electronic relays which cannot be tested departmentally are tested annually by engaging outside agency. Faulty relays if found are replaced with priority, but sometimes due to non-availability of desired relay it is bypassed, but generally through backup protection.

After incident of 6/08/17 following steps have been taken .:

1. Protective relays & its recording fortnightly. Relays testing of the complete plant in every six months instead of 01 year, which will be directly monitored by the CHP I/c.
2. Survey off of the old mootors, which have linked their useful life, rewound multiple time & lost their characterstic has been initiated.