MOIL LIMITED

(A Government of India Enterprise)
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CS/NSE-BSE/2021-22/ **Date 08.06.2021**

To,
The GM (Listing),
National Stock Exchange of India Ltd,
Exchange Plaza, Plot No.C-1, G Block,
Bandra Kurla Complex, Bandra (East),
Mumbai – 400053

To,
Listing Department
BSE Limited
Phiroze Jeejeebhoy Towers
Dalal Street
Mumbai- 400001

Sub: Patent on Innovation in Technology

Stock Code: NSE – MOIL & BSE - 533286

Dear Sir/Madam,

In terms of Regulation 30 of the Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015, it is to inform that the Company got a patent for an invention entitled **"A COMPOSITION USEFUL AS AN ALTERNATIVE FILLING MATERIAL FOR HYDRAULIC STOWING IN AN UNDERGROUND MINE AND THE METHODS THEREOF".** The details of the patent are enclosed as **Annexure I**.

This is for your kind information.

Thanking you,

Yours faithfully,

For **MOIL Limited**

(Neeraj Dutt Pandey)
Company Secretary

Encl: as above.

MOIL LIMITED

PATENT ON INNOVATION IN TECHNOLOGY

MOIL is a manganese ore mining company which operates eleven manganese ore mines in Nagpur and Bhandara districts of Maharashtra and Balaghat district of Madhya Pradesh. Except four, rest of the mines are operated through underground mining method.

Presently, hydraulic sand stowing is used for filling voids created in underground. This requires use of large quantity of river sand and other materials for filling the voids. This area filled with sand and other materials acts as a floor for men and machines during mining the stope block. MOIL incurs about Rs. 10 crores annually on this head, which is expected (a) to go up with shafts at Munsar mine and Ukwa mine into production and (b) to drastically go up with high speed shafts at Balaghat mine and Gumgaon mine coming into production.

MOIL took up a project of replacement of sand – a valuable natural resource - with alternate materials. Under the project, MOIL prepared an in-house kiln for heat treatment of the waste/overburden materials and invented suitable mix and heat technology by addition water, gypsum, bentonite, dolomite, etc. Trials were conducted with newly developed product from mix of overburden in 2018 and the success in the trials confirmed that the product developed by the heat treatment from the waste is suitable for hydraulic transportation in underground mine. Thereafter, further trials were conducted with changing foreign material like dolomite, gypsum, heating temperature and time. After the successive experimental trials, it was confirmed that the bed of pallets filled material having comfortable compactness.

The relative advantages of the heat treated pallets of overburden material over the river sand are as under.

- Water retaining capacity is the same as of river sand.
- Compact fill have more in-built compressive and tensile than sand floor.
- Minimum expansion of bed with higher load is achievable.
- Floor is easy for movement of men and machines, thus increasing productivity.
- Old refuse material can be utilized for hydraulic transportation in underground.
- Use of such material in underground has the advantage of conservation of valuable natural resource (sand), besides making available more dumping space on the surface thus reducing requirement of huge areas for dumping waste rock.
- More environment-friendly.
- Saving in cost of filling.

On getting the success of the project, a patent application was submitted in the name of MOIL titled *a composition useful as an alternative filling material for hydraulic stowing in an underground mine and the methods thereof*. The Government has now granted patent for twenty years from 31.03.2018. This is first patent of MOIL since its inception.

This technology is highly useful for any type of the waste material which is lying at mine/lease area. Any waste material which is excavated from the earth can be utilised for this process and processed material is able to give its geo-engineering strength up to 80% from the *in situ* to the product as confirmed from the field trials. The invention, a *Made in India Technology,* has very good potential to use any waste material lying in the mine and, as such, will save the river sand which is scarce natural resource.

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