एनएमडीसी लिमिटेड
(भारत सरकार का उद्यम)
NMDC Limited
(A GOVT. OF INDIA ENTERPRISE)

पंजीकृत कार्यालय : 'खनिज भवन', 10-3-311/ए,
कैसल हिल्स, मासाब टैंक, हैदराबाद - 500 173.

Regd. Office : **'Khanij Bhavan' 10-3-311/A,**
Castle Hills, Masab Tank, Hyderabad-500 173.

ENV/BLD/DEP-5/SMPR/2015/3414 Dated: 10.12.2015

Additional Director (Scientific)
Govt. of India
Ministry of Environment and Forest
Regional Office, Western Region,
Kendriya Paryavaran Bhavan,
Link Road No.3, Ravi Shankar Nagar,
Bhopal – 462 016.

Sub: Six Monthly Progress Report (April' 2015 to September' 2015) on Environmental Compliance in respect of Bailadila Iron Ore Project, Deposit – 5 Bacheli of NMDC Ltd, South Bastar, Dantewada, Chhattisgarh.

Ref: Environmental Clearance letter no.J-11015/261/2007-IA.II(M) dated 23/07/2007 received from MoEF, New Delhi.

Sir,

With reference to the above, please find enclosed herewith Six Monthly Progress Report for the period April' 2015 to September' 2015 on Environmental Compliance in respect of Bailadila Iron Ore Project, Deposit – 5 Bacheli of NMDC Ltd, South Bastar, Dantewada, Chhattisgarh.

Thanking you,

Yours faithfully,
M. Jayapal Reddy 10/12/15
(M.Jayapal Reddy)
JGM (Env)

Encl: As above.

दूरभाष / PHONES : 23538713-21 (9 Lines), 23538723, 23538767 फैक्स / Fax : +91-40-23538711,
ई-मेल / E-mail : hois@nmdc.co.in वेबसाइट / Website : www.nmdc.co.in

Half yearly Compliance Report

Bailadila Iron ore Mine (540.05Ha), Deposit No: 5, Bacheli,
South Bastar Dantewada Dt, CG – 494 553

Period: **April ' 2015 to September' 2015**

EC letter & date: **J-11015/ 261/ 2007- IA. II (M) dated 23rd July' 2007.**

S. no	Condition	Compliance
A	**Specific conditions**	
(i)	Appropriate management of slime shall be undertaken to prevent pollution of surface water bodies. As per the action plan submitted to the Ministry of Environment and Forests for utilization of slime including additional slime to be generated due to proposed expansion, the slime shall be utilized for pellets manufacturing after beneficiation.	• The Slimes generated during wet screening operations are impounded in Tailing dam no: 1. De-silting is done before onset of Monsoon, so that clear water is ensured to discharge from Tailing dam-1. • Slime Beneficiation plant of 4 MTPA capacity is proposed at Bacheli on 33 Hect. of forestland for utilization of de-silted slimes of Tailing Dam for which, public hearing was organized by Chhattisgarh Environment Conservation Board (CECB) on 29/04/2015 at Dantewada. • Further, 1st stage forest clearance for 33 Ha forestland accorded from MOEF, Regional office, Nagpur vide letter no. 431 dated 02/11/2015
(ii)	Detailed report on de-silting of Tailing dams and management of silt shall be submitted to the Ministry of Environment and Forests at regular intervals.	• The slime accumulated in Tailing dam-1 is de-silted every year in planned intervals before onset of monsoon. • The de-silted slimes are stacked properly for future utilization for beneficiation plant. • About 6,14,163 tons of slime has been de-silted from all check dams, check bunds and TD-1.
(iii)	Top soil / solid waste shall be stacked properly with proper slope with adequate safeguards and shall be backfilled (wherever applicable) for reclamation and rehabilitation of mined out areas.	• All mining benches are active, top soil is not encounter during mining operations. However, the waste rock incidental due to mining operations is excavated by shovel – dumper combination, stacked at identified places within Mining lease area duly approved by IBM, Nagpur.
(iv)	Over burden (OB) shall be stacked at earmarked dump site(s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 30m, each stage shall preferably be of 10m and overall slope of the dump shall not exceed 28^0.	• The over burden stacked at earmarked dump sites. The height and slopes are being maintained as per guide lines.

	• The OB dump shall be backfilled. • In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. • The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. • Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. • Compliance status shall be submitted to the Ministry of Environment & Forests on six monthly basis.	• All benches are active, back filling is not applicable at this stage. • Part of Waste dump no.3 (about 3.0 Hect.) near dynamic stock pile & Waste dump No.1 has been stabilized with geo textiles. The photographs are enclosed as **Annexure-1**. • The over burden dumps are also being scientifically vegetated with suitable native species to prevent erosion and surface run off. • Monitoring mechanism exists till vegetation becomes self sustaining. • Compliance reports are being submitted to the Ministry once in six months through HO, Hyderabad.
(v)	• Garland drains shall be constructed to arrest silt and sediment flows from soil, and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly de-silted particularly after monsoon and maintained properly. • Garland drain (size, gradient and length) shall be constructed for both mine pit and for waste dump and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper setting of silt material. Sedimentation pits shall be constructed at the corners of the garland and de-silted at regular intervals.	• To ensure turbid free discharge during monsoon season, deep garland drains are made at the toe of fine ore dump (FOD) and Slime dumps before on set of monsoon. Garland drains are also being de-silted every year. • The photographs of garland drains are enclosed as **Annexure-2**.
(vi)	Slope of the mining bench and ultimate pit limit shall be as per the mining scheme approved by Indian Bureau of Mines.	• The slope of the mining bench and ultimate pit limit are as per the mining scheme approved by IBM.
(vii)	Drilling and blasting (if any) shall be conducted by using dust extractors / wet drilling.	• Wet drilling mechanism being adopted while drilling the blast holes. The wet drill machinery is equipped with dust extraction system. Photograph enclosed as **Annexure-3.**
(viii)	Plantation shall be raised in 540.05 ha in the ML area, haul roads, OB dump sites etc. Green belt development shall	• The plantation work has been entrusted to M/s. Chhattisgarh Raj Van Vikas Nigam Ltd.

	be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO / Agriculture Department. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. The density of the trees shall be around 2500 plants per ha. The company shall involve local people with the help of self help group for plantation programme.	• Till 2014-15 under the program of afforestation a total of 11,31,687 lakhs of plants have been planted covering an area of 569.83 hectares. • The native species planted are viz., Khamar, Bija, Teak, Sal, Shisham, Awla, Jamun etc. • Major herbs & shrubs in the green belt includes *Bambusa arundinacia, Bouganvillea spectabilis, Centella asiatica, Calotropis procera, Calotropis gigantea, Pennisetum pedicellatum, Chrysopogon zizanioide, Stylosanthes hamata, Thysanolaena maxima etc.* • As a major step towards plantation work, during the year 2014-15, 150 km long road side plantation through M/s. Chhattisgarh Raj Van Vikas Nigam Ltd for Rs. 10.29 crores. About 97.17 Km road side plantation executed during the year 2014. For the year 2015-16, an amount of Rs. 5.483 Crore has been given to CGVVRN on 05/06/2015 for another 100km road side plantation. The letters to CGVVRN are enclosed as **Annexure-4**
(ix)	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	• M/s. Space Geotech, Bangalore has been entrusted the work for conducting the studies towards implementation of conservation measures to augment ground water resources. The study concluded that the ground water levels & quality are increasing in the buffer zone due to hydraulic loading by the existing check dams in the vicinity. In other words, positive impact on ground water level has been seen due to 8 number of check dams and 25 no.s check bunds constructed across the stream, by NMDC. The positive trend of ground water level is mainly due to limited usage of ground water and continuous recharge.
(x)	Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected shall be regularly sent to MoEF, Central Ground Water Authority and Regional Director, Central	• Ground water quality and water levels are being monitored seasonally from the 30 no.s of piezometric wells. The water levels & quality monitored during Summer Season 2015 is enclosed as **Annexure-5.**

	Ground Water Board.	
(xi)	The waste water from the mines shall be treated to conform to the prescribe standards before discharging into the natural stream. The discharged water from the Tailing dam shall be regularly monitored and report submitted to the Ministry of Environment & Forests, Central Pollution Control Board and the Chhattisgarh Environment Conservation Board.	• The surface run-off from the mine during monsoon season is diverted into various check bunds and check dams through garland drains. The project is ensured to discharge clear water from all check dams & check bunds. • The discharge water from Tailing dam no: 1 is regularly monitored once in each season and every month by C.G. Environment Conservation Board. • Water quality data for Check Dam no: 5 and Tailing dam no: 1 during Summer Season 2015 are enclosed as **Annexure: 6.**
(xii)	Prior permission from the competent authority shall be obtained for extraction of ground water, if any.	• The project does not depend on ground water for Industrial requirement.
(xiii)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of ores and others shall have valid permissions as prescribed under Central Motor Vehicle Rules, 1989 and its amendments. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles transporting ores shall be covered with a tarpaulin or other suitable enclosures so that no dust particles / fine matters escape during the course of transportation. No overloading of ores for transportation shall be committed.	• All the project vehicles are periodically checked for its emission once in six months by approved pollution testing centre at Bacheli. • The PUC is valid till 17/01/2016 for following: ▪ 7 no.s of Motor cycles ▪ 74No.s of Light motor vehicles ▪ 49 No.s of Heavy vehicles ▪ 11 No.s of Medium vehicle • The dumpers carry the blasted iron ore from mining operating benches to crushing plant at hill top. Regular water sprinkling is done on mine haul roads and other feeder roads to control fugitive dust emissions. 5 no.s of water sprinklers having capacity of 28 kl & 30 KL being used for the above purpose. • The ore from Crushing plant to Screening plant and to Loading plant is transported through system of down hill conveyors only. The conveyors are completely covered ensuring of no spillages. The ore is transported to customers through Railway wagons and trucks. No over loading of ore is permitted during transportation of iron ore. It is ensured that the trucks are covered with tarpaulin.
(xiv)	A final mine closure plan, along with details of Corpus Fund, shall be submitted to the Ministry of Environment & Forests, 5 years in advance of final mine closure for, approval.	• MoEF guide lines w.r.t mine closure plan will be strictly complied.
(xv)	A comprehensive report on the details of	• The land oustees are not involved in

	land oustees, their socio-economic profile and action plan for their rehabilitation including formation of self help groups who can facilitate promotion of economic opportunity for local indigenous people shall be submitted to the Ministry of Environment & Forests for record. Socio economic survey of nearby villages to generate baseline data shall also be carried and Socio economic development activities planned accordingly in additions to the on going programmes (if any).	the project. • Socio-economic survey of nearby villages was carried out and included in EIA/EMP report submitted to MoEF while obtaining Environmental clearance. However, project is implementing various social-economic development programs under CSR.
B.	**General conditions**	
(i)	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests.	• The mining technology and scope remains same. Not changed.
(ii)	No change in the calendar plan including excavation, quantum of mineral and waste shall be made.	• Calendar plan is not changed in respect of excavation of mineral, waste etc.
(iii)	Conservation measures for protection of flora and fauna in the core & buffer zone shall be drawn up in consultation with the local forest and wildlife Department.	• M/s. Indian Institute for Bio-social Research & Development, Kolkata has submitted the Study Report for Rs. 12,92,82,700/- on Biodiversity survey & conservation plan of flora, fauna in the core and buffer zone. • The report was submitted to PCCF (Land Management), Raipur on 08/10/2013 for its approval. APCCF (Wild Life) has forwarded the report to CCF, (Wild life), Jagdalpur, who in turn after verification has recommended the report to PCCF (Wild life), Chhattisgarh on 25.07.2015.
(iv)	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for RPM, SPM, SO_2, NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and the frequency of monitoring shall be undertaken in consultation with the State Pollution Control Board.	• Ambient air quality is monitored at following locations. <u>Core Zone</u>: 1. Deposit - 5 Mine 2. 100m away from the Crushing Plant in the downwind direction 3. CRPF Camp, Akash Nagar 4. CISF Check post <u>Buffer Zone</u>: 5. Padapur Village 6. Patelpara Village 7. Chalkipara 8. Pina Bacheli 9. Nerli Village 10. Dhurli Ashram • <u>Frequency of monitoring:</u> The studies

		are conducted throughout the year (Summer, Post monsoon and Winter seasons) by engaging the environmental laboratories recognized by Government of India, Ministry of Environment and Forests, New Delhi / Central Pollution Control Board, Delhi. • The samples are collected on bi-monthly on 24 hourly basis as per NAAQ standards. • The significant parameters analyzed are PM_{10}, $PM_{2.5}$, SO_2, NOx and CO.
(v)	Data on ambient air quality (RPM, SPM, S02, NOx) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / CPCB once in six months.	• Data on ambient air quality (PM 10, PM2.5, S02, NOx, CO) are submitted regularly to the Ministry. Ambient air quality data for Summer Season' 2015 is enclosed as **Annexure-7.**
(vi)	Fugitive dust emissions from all the sources shall be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points shall be provided and properly maintained.	• Fugitive dust emissions are being controlled by regular water sprinkling of water on all mine haul roads and other feeder roads. Mist water spray is done at dumper platform, Crushing plant and at transfer points. • The fugitive dust emissions are being monitored as per the MoEF notification dated 4th Oct'2010. The results of fugitive dust monitored during Summer Season' 2015 are enclosed as **Annexure-8.**
(vii)	Measures shall be taken for control of noise levels below 85dBA in the work environment. Workers engaged in operations of HEMM, etc. shall be provided with ear plugs / muffs.	• The user friendly, soft type ear muffs / ear plugs are available to workers in noise prone zones in the mine and OCSL plant areas. • The HEM operator's cabins are air conditioned and safely guarded from the noise pollution etc. • Rubber coated screens are used in screening plant. • Rubber lining at all transfer points of conveyors and • Vegetation cover is being developed as a sound barriers to help in mitigating the noise levels
(viii)	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to	• The slime generated from screening plant during monsoon / wet screening operations is discharged into TD # 1

	conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.	for treatment. • ETP of 10 KL capacity is also available at Service centre, Hill top and Auto workshop for treatment of suspended solids and oil & grease generate during washing of HEM machinery and Light Motor Vehicles respectively. • The treated water from Tailing dam and ETP(s) always meet the standards prescribed under GSR: 422E dated 19th May' 1993 and as amended from time to time. The water quality analysis report of ETP discharge for Summer season 2015 is attached as **Annexure-09**.
(ix)	Personnel working in dusty areas shall be provided with protective respiratory devices and they shall also be imparted adequate training and information on safety and health aspects.	• The protective respiratory devices have been supplied to all personnel working in plant areas. • Personnel are also given training on safety and health aspects during refresher training programme time to time.
(x)	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	• The periodical medical examination (PME) is carried out at Occupational Health Centre (OHS), NMDC-Apollo Central Hospital, Bacheli for all employees once in 5 years. For above 45 year of age employees once in 3 years.
(xi)	A separate Environmental Management Cell with suitable qualified personnel shall be set-up under the control of a senior Executive, who will report directly to the Head of the Organization.	• A separate Environmental cell available in the project is managed by three qualified Environmental personnel who reports to AGM (Mining) who will report directly to Head of Organization. • AGM (Civil) is responsible for undertaking all civil works related to Environment as proposed by Environment Department. • Horticulture section is responsible for undertaking all Plantation works within and outside ML area of the Project. • Services of Chemical Lab are also being utilized for analysis of the some of the water quality parameters.
(xii)	The Project authorities shall inform to the Regional office of the Ministry located at Bhopal regarding date of financial closure and final approval of	• Noted

	the project by the concerned authorities and the date of start of land development work.	
(xiii)	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bhopal.	• The year wise environmental expenditure along with environmental statement for FY 2014-15 submitted to Regional office, Bhopal vide letter No. 1157 dated 25/09/2015. • An amount of Rs. 898.404 Lakhs has been incurred towards environmental protection expenditure for F.Y 2014-15.
(xiv)	The Project authorities shall inform to the Regional office of the Ministry located at Bhopal regarding date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	• The project authorities shall inform to the Regional office of the MOEF about the land development work and final closure in advance.
(xv)	The Regional Office of the Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	• Noted
(xvi)	A copy of clearance letter will be marked to concerned Panchayat / Local NGO, if any, from whom suggestion ./ representation has been received while processing the proposal,	• Complied
(xvii)	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's office / Tehsildar's office for 30 days.	• Complied
(xviii)	The Project authorities shall advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the state pollution control board and also at web site of the MOEF at http://envfor.nic.in and a copy of the same shall be forwarded to the Regional office of the MOEF located at Bhopal.	• Complied

Stage- I Terracing

Stage-II Geo-coir matting

Stage-III Plantation

Stage-IV

WASTE DUMP NO.1 STABILISATION

Annexure-1

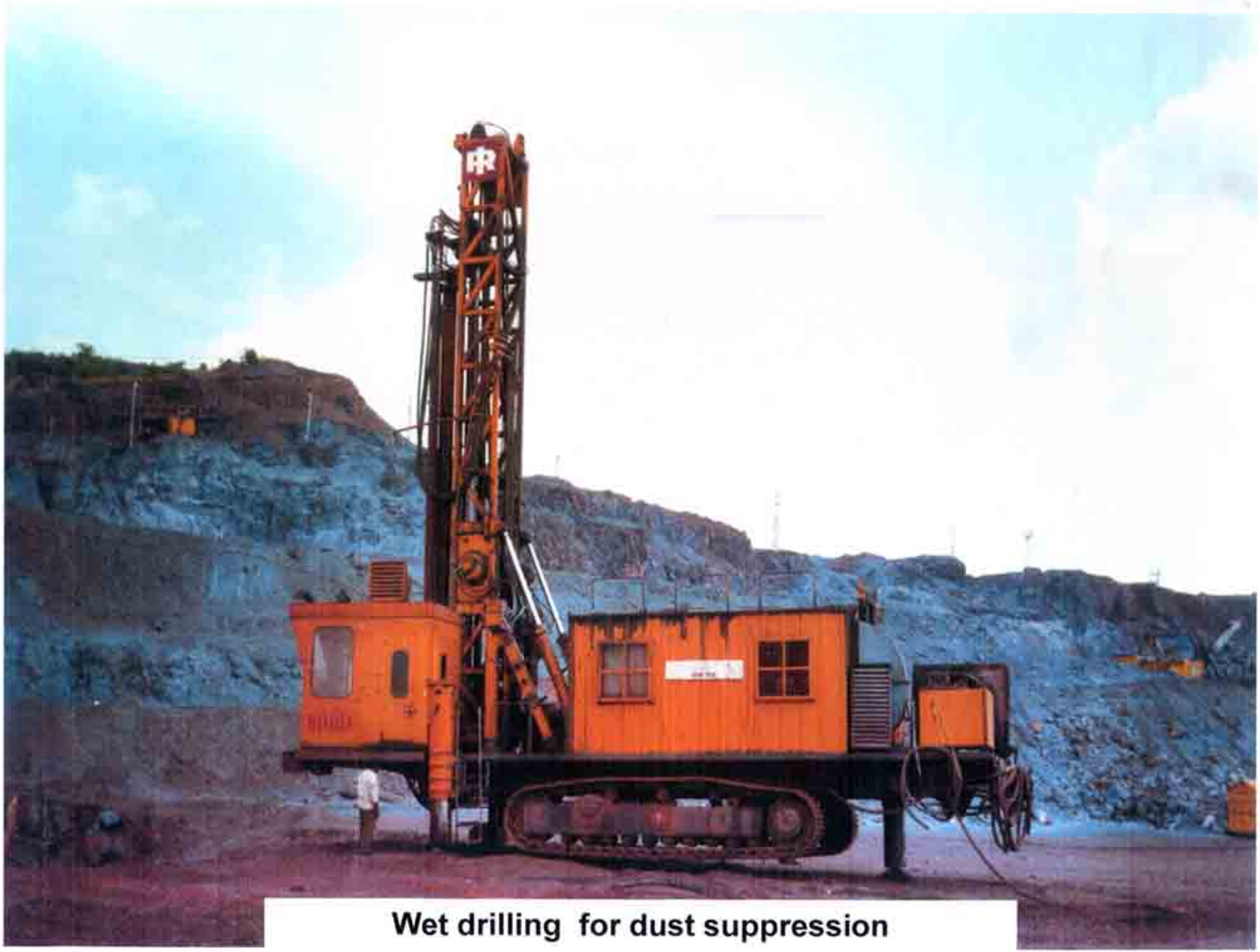
Tailing dam

Garland drain

Garland drain for
restricting outside water
to intermix with slime

Tailing dam

Annexure-2



Wet drilling for dust suppression

Annexure-2

Annexure-4

एनएमडीसी लिमिटेड
(भारत सरकार का उद्यम)
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पंजीकृत कार्यालय : 'खनिज भवन', 10-3-311/ए, कैसल हिल्स, मासाब टैंक, हैदराबाद - 500 028.

Regd. Office : 'Khanij Bhavan' 10-3-311/A, Castle Hills, Masab Tank, Hyderabad-500 028.

NMDC/CGRVVN/NISP/2014/753 15.07.2014.

Managing Director,
M/s Chhattisgarh Rajya Van Vikas Nigam Ltd.,
Lokesh Plaza, Shankar Road,
Shankar Nagar,
Raipur.

Sub: 100 KMs Roadside tree plantations under Harihar Chhattisgarh Programme of Chhattisgarh Govt. – Reg.

Ref: Your Letter No.Vavini/05/2014/1099, dated 19.06.2014.

Sir,

This has reference to review meeting held on 16.06.2014 at Mantralaya, Raipur wherein a target of 100 KM Roadside tree plantation work (150 KM backlog of 2012 target and 50 KM of 2014 target) has been given to NMDC with a direction to deposit the plantation cost and first year maintenance cost to Chhattisgarh Rajya Van Vikas Nigam Ltd. In reference to your letter referred to above, an amount of Rs.10.51 Crores has been sanctioned to deposit with your firm for undertaking 100 KMs Roadside tree plantations in the State of Chhattisgarh. On 15.07.2014, the amount has been transferred through E-Payment as per the details given below.

1.	Two years plantation cost amount	=	Rs.10,51,00000.00
2.	Income Tax Deducted (@ 2%)	=	Rs. 21,02,000.00
	Net amount payable Total :		Rs.10,29,98,000.00

The amount of Rs.10,29,98,000/- is deposited into your account IDBI Bank at Raipur. The copy of the Bank transaction is enclosed for your kind perusal please. Executive Director, NMDC Iron and Steel Plant, Nagarnar, Jagdalpur, Bastar Dt may kindly be contacted for entering into MoU for the above work.

Kindly confirm the receipt of payment.

Thanking you.

Yours faithfully,
M. Jayapal Reddy 15/7/14
Dy. General Manager (RP).

Encl: a/a

DM (Cmt)

दूरभाष / PHONES : 23538713-21 (9 Lines), 23538723, 23538767 फैक्स / Fax : +91-40-23538711,
ई-मेल / E-mail : hois@nmdc.co.in वेबसाइट / Website : www.nmdc.co.in

एनएमडीसी लिमिटेड
NMDC Limited

जारी शीट
Contn. Sheet

Copy for kind information to:-

1). Executive Director, NISP, Nagarnar.
2). Executive Director, (Steel), H.O.
3). G.M. BIOM, Bacheli Complex.
4). G.M. KIOM, Kirandul Complex.
5) P.M, GEC, Raipur

DGM (RP) 15/7/14

भारतीय स्टेट बैंक
State Bank of India
With you - all the way

405

Pa Order Details

PayOrder Number CN24832621

ebit Status Success

15-Jul-2014

CHHATTISGARH RAJYA VAN VIKAS NIGAM

Ten Crores Twenty Nine Lakhs Ninety Eight Thousand Twenty Five only **10,29,98,025.00**

00000010811684417

HYDERABAD MAIN BRANCH	V B MADHAVA RAO **Maker**	P Shanthi **Authorizer 1**	AJAY DWIVEDI **Authorizer 2**

"CN24832621"

Credit to beneficiary 10,29,98,000.00

Commission Amount 25.00

Counterfoil Description NMDCNISPHYDM2202

Transaction Type NEFT Funds transfer

Debit Account Details

Account No.	Branch	Amount
00000010811684417	HYDERABAD MAIN BRANCH	10,29,98,025.00

Credit Account Details

Beneficiary Name/Account No.	Bank/Branch/IFSCCode	Amount	Credit Status	UTR No.
HATTISGARH RAJYA N VIKAS NIGAM/00491040005[illegible]347	RAIPUR/RAIPUR/IBKL0000049	10,29,98,000.00	Fund settled by RBI with beneficiary Bank	SBIN214196633812

-15-2015)	TO TRANSFER INB P00548NMDC-P00548NMDC	C017462015060101CT59303964 TRANSFER TO 62099949940 Mr. EDIGA VENKATESWAR /	99922	23,706.00		63,09,25,315.14
5-Jun-15 05-Jun-2015)	TO TRANSFER INB P00542NMDC-P00542NMDC	C017422015060101CT59304026 TRANSFER TO 62095962738 Mr. NOWSUGALLA RAJASE /	99922	18,344.00		63,09,06,971.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB P00547NMDC-P00547NMDC	C017472015060101CT59303966 TRANSFER TO 52204993331 Mr. MITHUN MOHANTY /	99922	19,662.00		63,08,87,309.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB H00485NMDC	C017492015060101CT59303886 TRANSFER TO 98561207282 /	99922	24,822.00		63,08,62,487.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB M00865NMDC-M00865NMDC	C017382015060101CT59304023 TRANSFER TO 52057039322 Mr. YADAGIRI VENKATA /	99922	89,550.00		63,07,72,937.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB P00546NMDC-P00546NMDC	C017452015060101CT59303962 TRANSFER TO 52057031174 Mr. G SIVARAMA KRISHN /	99922	6,400.00		63,07,66,537.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB M00869NMDC-M00869NMDC	C017412015060101CT59304027 TRANSFER TO 52057027838 NMDC OFFICERS ASSOCIAT /	99922	5,00,000.00		63,02,66,537.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB P00545NMDC-P00545NMDC	C017442015060101CT59303965 TRANSFER TO 62340501871 Mr. GHANASHYAM DEY /	99922	1,862.00		63,02,64,675.14
05-Jun-15 (05-Jun-2015)	CASH CHEQUE SIVA RAMA KRISHNA 980041	980041	20728	1,00,000.00		63,01,64,675.14
-15 -2015)	TO TRANSFER RTGS SBHYR52015060501646147 M S N M D C LTD	TRANSFER TO 99827288889 /	20728	25,00,00,000.00		38,01,64,675.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER RTGS SBHYR52015060501646436 CHHATTISGARH RAJYA VAN	TRANSFER TO 99827288889 /	20728	5,48,31,000.00		32,53,33,675.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER RTGS SBHYR52015060501646512 CHHATTISGARH RAJYA VAN	TRANSFER TO 99827288889 /	20728	5,48,31,000.00		27,05,02,675.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB	011086486456 CK68157759 TRANSFER TO 62057246551 CBDT UNION CUSTOMS 208 /	99922	22,954.00		27,04,79,721.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB	011086486611 CK68157914 TRANSFER TO 62057246551 CBDT UNION CUSTOMS 208 /	99922	20,000.00		27,04,59,721.14
05-Jun-15 (05-Jun-2015)	CHEQUE DEPOSIT TRF 680074	FROM 52057043599 / 680074	20728		3,200.00	27,04,62,921.14
05-Jun-15 (05-Jun-2015)	********** 2072815TP0000181 **********		20728		40,41,319.00	27,45,04,240.14
05-Jun-15 (05-Jun-2015)	Service		20728	1,196.00		27,45,03,044.14
05-Jun-15 -Jun-2015)	CHEQUE DEPOSIT BC PAID 587578	587578	20728		25,000.00	27,45,28,044.14
05-Jun-15 (05-Jun-2015)	CHEQUE DEPOSIT BC PAID 587581	587581	20728		5,725.00	27,45,33,769.14
05-Jun-15 (05-Jun-2015)	CHEQUE DEPOSIT BC PAID 433302	433302	20728		11,300.00	27,45,45,069.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB	IG050615014939214376CK68393064 TRANSFER TO 62242002375 INB CUSTOMS DUTY POOLI /	99922	5,57,82,435.00		21,87,62,634.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB NEFT SBHY715156234809 NIRMALA KAUSHAL W O LATE	NEFT INB: CN36629586 TRANSFER TO 3199301288884 /	99922	7,500.00		21,87,55,134.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB NEFT SBHY715156234810 M BHASKARA RAO CO CHA	NEFT INB: CN36629587 TRANSFER TO 3199301288884 /	99922	1,59,951.00		21,85,95,183.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB NEFT SBHY715156234811 APOLLO HOSPITAL ENTERPRI	NEFT INB: CN36629589 TRANSFER TO 3199301288884 /	99922	1,21,890.00		21,84,73,293.14
05-Jun-15 (05-Jun-2015)	TO TRANSFER INB NEFT SBHY715156234812	NEFT INB: CN36629590 TRANSFER TO 3199301288884 /	99922	1,38,554.00		21,83,34,739.14

TABLE - 3 GROUND WATER QUALITY ANALYSIS OF DEPOSITS 5, 10 & 11A

Sl. NO.	Village	Latitude	Longitude	Ground level (m) above MSL	PRE MONSOON water level in m (BGL)	Parameters				
						pH	TDS (mg/l)	EC µmohos	TH (mg/l)	Ca (mg/l)
1	Tekapara(Binpal)	18°35'38.3"	81°17'8.4"	595	22.36	7.3	170.00	204.00	62.00	17.20
2	Patelpara(Binpal)	18°40'22.0"	81°12'7.0"	595	7.96	7.1	155.00	186.00	86.00	14.60
3	Patelpara(Paddapara)	18°37'37.7"	81°19'3.9"	550	11.36	7.2	75.00	90.00	60.00	12.30
4	Chalkipara(Bacheli)	18°37'48.8"	81°16'11.9"	520	8.59	7.4	146.00	175.20	63.00	10.40
5	Pandupara(Bacheli)	18°37'56.7"	81°16'0.9"	550	7.98	7.5	141.00	169.20	75.00	11.90
6	Manjipara	18°44'28.14"	81°16'14.33"	496	8.36	7.6	241.00	289.20	79.00	13.60
7	Bacheli(NMDC High TechColony)	18°38'5.8"	81°15'18.3	550	6.76	7.2	184.00	220.80	84.00	15.80
8	0	18°38'57.8"	81°15'37.2"	550	5.16	7.1	128.00	153.60	53.00	9.40
9	Amlipara(Dugli)	18°42'16.59"	81°15'34.41"	540	6.92	7.2	57.00	68.40	94.00	20.60
10	Sarpanchpara(Behnar) (Hitupara)	18°43'52.71	81°16'07.95"	490	7.63	7.6	96.00	115.20	76.00	20.40
11	Schoolpara(Nerli)(Maharapara)	18°41'45.33"	81°16'37.86"	515	13.90	7.4	155.00	186.00	80.00	22.60
12	Upparapara(Bade Kameli)	18°35'0.0"	81°14'28.7"	460	7.92	7.2	181.00	217.20	69.00	17.40
13	Patelpara(Bacheli)	18°42'04.4"	81°16'22.6"	500	8.76	7.3	151.00	181.20	73.00	10.30
14	Bajarpara(Bhansi)	18°37'49.3"	81°15'38.3"	420	6.55	7.0	202.00	242.40	70.00	10.40
15	Pina Bacheli	18°39'49.9"	81°17'55.3"	550	6.89	7.2	112.00	134.40	102.00	14.90
16	Katmandu Camp(Spring-4)	18°40'22.000"	81°12'7.000"	994	0.00	7.0	8.00	9.60	4.60	1.50
17	Spring-5(Near Drilling Camp)	18°39'22.6"	81°17'13.1"	1052	0.00	7.2	6.00	7.20	3.80	8.30
18	Katmandu Camp Starting Point (Spring -6)	18°39'44.1"	81°16'51.2"	1121	0.00	7.1	10.00	12.00	4.50	1.50
19	Schoolpara(Bade Kameli)	18°40'27.5"	81°17'41.4"	550	5.62	7.3	151.00	181.20	63.00	1.50
20	Pandupara(Nerli)	18°44'02.38"	81°16'07.21"	493	6.39	7.3	82.00	98.40	36.00	6.40
21	School para(Nerli)	18°44'02.38"	81°16'07.21"	493	7.77	7.5	98.00	117.60	42.00	5.60
22	Nerli Cross	18°43'33.04"	81°15'22.59"	511	8.44	7.4	139.00	166.80	74.00	14.40
23	Bacheli (Behind NMDC Smriti vanam)	18°42'14.42"	81°15'10.15"	624	6.03	7.4	93.00	111.60	64.00	17.80
24	Mandal house (Bacheli)	18°43'37.96"	81°15'25.30"	524	8.05	7.3	251.00	301.20	90.00	21.60
25	Chalkipara(Bacheli	18°41'16.32"	81°16'23.42"	517	7.88	7.4	304.00	364.80	61.00	17.40
26	Patelpara (Bacheli)	18°41'51.01"	81°16'30.23"	510	7.96	7.3	251.00	301.20	78.00	10.30
27	Pina bacheli	18°41'47.07"	81°17'42.95"	518	7.29	7.5	110.00	132.00	63.00	10.80
28	Bacheli Down Steam of TD1	18°41'14.67"	81°15'41.13"	553	5.19	7.3	155.00	186.00	59.00	17.60
29	Bacheli Down Steam of TD2	18°40'55.11"	81°15'19.78"	558	5.62	7.1	275.00	330.00	38.00	22.40
30	Essar TD(Baheli)	18°40'18.02"	81°15'07.49"	598	15.29	7.0	336.00	403.20	44.00	9.30

TABLE - 3 GROUND WATER QUALITY ANALYSIS OF DEPOSITS 5, 10 & 11A

Sl. NO.	Village	Latitude	Longitude	Ground level (m) above MSL	Parameters				
					Mg (mg/l)	Alkalinity	Na (mg/l)	K (mg/l)	CO_3 (mg/l)
1	Tekapara(Binpal)	18°35'38.3"	81°17'8.4"	595	7.40	51.30	7.20	0.15	0.00
2	Patelpara(Binpal)	18°40'22.0"	81°12'7.0"	595	3.60	54.60	9.60	0.20	0.00
3	Patelpara(Paddapara)	18°37'37.7"	81°19'3.9"	550	4.80	59.80	18.40	0.30	0.00
4	Chalkipara(Bacheli)	18°37'48.8"	81°16'11.9"	520	7.10	63.40	17.60	0.50	0.00
5	Pandupara(Bacheli)	18°37'56.7"	81°16'0.9"	550	5.10	76.60	14.30	0.15	0.00
6	Manjipara	18°44'28.14"	81°16'14.33"	496	6.80	74.90	24.80	0.40	0.00
7	Bacheli(NMDC High TechColony)	18°38'5.8"	81°15'18.3	550	6.40	77.80	26.70	0.60	0.00
8	Bacheli(Sathnam Bhavan)	18°38'57.8"	81°15'37.2"	550	6.30	59.40	32.80	0.50	0.00
9	Amlipara(Dugli)	18°42'16.59"	81°15'34.41"	540	7.10	52.60	25.40	0.50	0.00
10	Sarpanchpara(Behnar) (Hitupara)	18°43'52.71	81°16'07.95"	490	6.90	51.80	15.60	0.50	0.00
11	Schoolpara(Nerli)(Maharapara)	18°41'45.33"	81°16'37.86"	515	2.60	63.90	17.90	0.60	0.00
12	Upparapara(Bade Kameli)	18°35'0.0"	81°14'28.7"	460	4.80	62.60	18.40	0.05	0.00
13	Patelpara(Bacheli)	18°42'04.4"	81°16'22.6"	500	7.60	57.40	9.50	0.15	0.00
14	Bajarpara(Bhansi)	18°37'49.3"	81°15'38.3"	420	10.40	80.30	6.50	0.20	0.00
15	Pina Bacheli	18°39'49.9"	81°17'55.3"	550	10.30	80.40	7.00	0.20	0.00
16	Katmandu Camp(Spring-4)	18°40'22.000"	81°12'7.000"	994	0.50	3.50	0.50	0.20	0.00
17	Spring-5(Near Drilling Camp)	18°39'22.6"	81°17'13.1"	1052	0.60	1.00	1.00	0.10	0.00
18	Katmandu Camp Starting Point (Spring -6)	18°39'44.1"	81°16'51.2"	1121	0.50	1.00	1.00	0.05	0.00
19	Schoolpara(Bade Kameli)	18°40'27.5"	81°17'41.4"	550	1.00	26.80	8.90	0.20	0.00
20	Pandupara(Nerli)	18°44'02.38"	81°16'07.21"	493	1.50	19.30	7.20	0.30	0.00
21	School para(Nerli)	18°44'02.38"	81°16'07.21"	493	0.40	34.80	26.80	0.35	0.00
22	Nerli Cross	18°43'33.04"	81°15'22.59"	511	5.61	36.40	10.40	0.72	0.00
23	Bacheli (Behind NMDC Smriti vanam)	18°42'14.42"	81°15'10.15"	624	12.00	63.90	9.30	0.71	0.00
24	Mandal house (Bacheli)	18°43'37.96"	81°15'25.30"	524	10.32	74.80	4.60	0.80	0.00
25	Chalkipara(Bacheli	18°41'16.32"	81°16'23.42"	517	9.40	60.30	19.50	0.85	0.00
26	Patelpara (Bacheli)	18°41'51.01"	81°16'30.23"	510	8.30	72.60	34.60	1.00	0.00
27	Pina bacheli	18°41'47.07"	81°17'42.95"	518	10.80	78.40	18.50	0.95	0.00
28	Bacheli Down Steam of TD1	18°41'14.67"	81°15'41.13"	553	10.90	60.40	12.60	0.50	0.00
29	Bacheli Down Steam of TD2	18°40'55.11"	81°15'19.78"	558	7.20	20.30	14.30	1.00	0.00
30	Essar TD(Baheli)	18°40'18.02"	81°15'07.49"	598	7.60	24.80	36.40	1.50	0.00

TABLE - 3 GROUND WATER QUALITY

Sl. NO.	Village	Latitude	Longitude	Ground level (m) above MSL	Fe (mg/l)	F (mg/l)	Mn (mg/l)	CN (mg/l)	Arsenic (mg/l)
1	Tekapara(Binpal)	18°35'38.3"	81°17'8.4"	595	0.60	0.45	<0.01	<0.01	<0.01
2	Patelpara(Binpal)	18°40'22.0"	81°12'7.0"	595	0.30	0.45	<0.01	<0.01	<0.01
3	Patelpara(Paddapara)	18°37'37.7"	81°19'3.9"	550	0.35	0.45	<0.01	<0.01	<0.01
4	Chalkipara(Bacheli)	18°37'48.8"	81°16'11.9"	520	0.61	0.36	<0.01	<0.01	<0.01
5	Pandupara(Bacheli)	18°37'56.7"	81°16'0.9"	550	0.60	0.50	<0.01	<0.01	<0.01
6	Manjipara	18°44'28.14"	81°16'14.33"	496	0.80	0.45	<0.01	<0.01	<0.01
7	Bacheli(NMDC High TechColony)	18°38'5.8"	81°15'18.3	550	1.40	0.50	<0.01	<0.01	<0.01
8	Bacheli(Sathnam Bhavan)	18°38'57.8"	81°15'37.2"	550	0.16	0.45	<0.01	<0.01	<0.01
9	Amlipara(Dugli)	18°42'16.59"	81°15'34.41"	540	0.22	0.63	<0.01	<0.01	<0.01
10	Sarpanchpara(Behnar) (Hitupara)	18°43'52.71	81°16'07.95"	490	0.32	0.60	<0.01	<0.01	<0.01
11	Schoolpara(Nerli)(Maharapara)	18°41'45.33"	81°16'37.86"	515	0.20	0.40	<0.01	<0.01	<0.01
12	Upparapara(Bade Kameli)	18°35'0.0"	81°14'28.7"	460	0.51	0.70	<0.01	<0.01	<0.01
13	Patelpara(Bacheli)	18°42'04.4"	81°16'22.6"	500	0.25	0.62	<0.01	<0.01	<0.01
14	Bajarpara(Bhansi)	18°37'49.3"	81°15'38.3"	420	0.72	0.45	<0.01	<0.01	<0.01
15	Pina Bacheli	18°39'49.9"	81°17'55.3"	550	0.79	0.51	<0.01	<0.01	<0.01
16	Katmandu Camp(Spring-4)	18°40'22.000"	81°12'7.000"	994	0.40	0.43	<0.01	<0.01	<0.01
17	Spring-5(Near Drilling Camp)	18°39'22.6"	81°17'13.1"	1052	0.46	0.75	<0.01	<0.01	<0.01
18	Katmandu Camp Starting Point (Spring -6)	18°39'44.1"	81°16'51.2"	1121	0.80	0.05	<0.01	<0.01	<0.01
19	Schoolpara(Bade Kameli)	18°40'27.5"	81°17'41.4"	550	0.15	0.15	<0.01	<0.01	<0.01
20	Pandupara(Nerli)	18°44'02.38"	81°16'07.21"	493	0.21	0.71	<0.01	<0.01	<0.01
21	School para(Nerli)	18°44'02.38"	81°16'07.21"	493	0.49	0.65	<0.01	<0.01	<0.01
22	Nerli Cross	18°43'33.04"	81°15'22.59"	511	0.61	0.30	<0.01	<0.01	<0.01
23	Bacheli (Behind NMDC Smriti vanam)	18°42'14.42"	81°15'10.15"	624	0.70	0.42	<0.01	<0.01	<0.01
24	Mandal house (Bacheli)	18°43'37.96"	81°15'25.30"	524	0.21	0.51	<0.01	<0.01	<0.01
25	Chalkipara(Bacheli	18°41'16.32"	81°16'23.42"	517	0.20	0.51	<0.01	<0.01	<0.01
26	Patelpara (Bacheli)	18°41'51.01"	81°16'30.23"	510	0.36	0.70	<0.01	<0.01	<0.01
27	Pina bacheli	18°41'47.07"	81°17'42.95"	518	0.36	0.45	<0.01	<0.01	<0.01
28	Bacheli Down Steam of TD1	18°41'14.67"	81°15'41.13"	553	0.24	0.45	<0.01	<0.01	<0.01
29	Bacheli Down Steam of TD2	18°40'55.11"	81°15'19.78"	558	0.95	0.39	<0.01	<0.01	<0.01
30	Essar TD(Baheli)	18°40'18.02"	81°15'07.49"	598	0.94	0.35	<0.01	<0.01	<0.01

TABLE - 3 GROUND WATER QUALITY ANALYSIS OF DEPOSITS 5, 10 & 11A

Sl. NO.	Village	Latitude	Longitude	Ground level (m) above MSL	Parameters
					Hexavalent Cromium (mg/l)
1	Tekapara(Binpal)	18°35'38.3"	81°17'8.4"	595	<0.01
2	Patelpara(Binpal)	18°40'22.0"	81°12'7.0"	595	<0.01
3	Patelpara(Paddapara)	18°37'37.7"	81°19'3.9"	550	<0.01
4	Chalkipara(Bacheli)	18°37'48.8"	81°16'11.9"	520	<0.01
5	Pandupara(Bacheli)	18°37'56.7"	81°16'0.9"	550	<0.01
6	Manjipara	18°44'28.14"	81°16'14.33"	496	<0.01
7	Bacheli(NMDC High TechColony)	18°38'5.8"	81°15'18.3	550	<0.01
8	Bacheli(Sathnam Bhavan)	18°38'57.8"	81°15'37.2"	550	<0.01
9	Amlipara(Dugli)	18°42'16.59"	81°15'34.41"	540	<0.01
10	Sarpanchpara(Behnar) (Hitupara)	18°43'52.71	81°16'07.95"	490	<0.01
11	Schoolpara(Nerli)(Maharapara)	18°41'45.33"	81°16'37.86"	515	<0.01
12	Upparapara(Bade Kameli)	18°35'0.0"	81°14'28.7"	460	<0.01
13	Patelpara(Bacheli)	18°42'04.4"	81°16'22.6"	500	<0.01
14	Bajarpara(Bhansi)	18°37'49.3"	81°15'38.3"	420	<0.01
15	Pina Bacheli	18°39'49.9"	81°17'55.3"	550	<0.01
16	Katmandu Camp(Spring-4)	18°40'22.000"	81°12'7.000"	994	<0.01
17	Spring-5(Near Drilling Camp)	18°39'22.6"	81°17'13.1"	1052	<0.01
18	Katmandu Camp Starting Point (Spring -6)	18°39'44.1"	81°16'51.2"	1121	<0.01
19	Schoolpara(Bade Kameli)	18°40'27.5"	81°17'41.4"	550	<0.01
20	Pandupara(Nerli)	18°44'02.38"	81°16'07.21"	493	<0.01
21	School para(Nerli)	18°44'02.38"	81°16'07.21"	493	<0.01
22	Nerli Cross	18°43'33.04"	81°15'22.59"	511	<0.01
23	Bacheli (Behind NMDC Smriti vanam)	18°42'14.42"	81°15'10.15"	624	<0.01
24	Mandal house (Bacheli)	18°43'37.96"	81°15'25.30"	524	<0.01
25	Chalkipara(Bacheli	18°41'16.32"	81°16'23.42"	517	<0.01
26	Patelpara (Bacheli)	18°41'51.01"	81°16'30.23"	510	<0.01
27	Pina bacheli	18°41'47.07"	81°17'42.95"	518	<0.01
28	Bacheli Down Steam of TD1	18°41'14.67"	81°15'41.13"	553	<0.01
29	Bacheli Down Steam of TD2	18°40'55.11"	81°15'19.78"	558	<0.01
30	Essar TD(Baheli)	18°40'18.02"	81°15'07.49"	598	<0.01

Table No-13
Water Quality Data

Project : **NMDC Ltd., BIOM, Deposit 5**
Season : **Summer 2015**
Sampling Date : **28.04.2015**

No	Parameter	Unit	WQB5-01	WQB5-02	WQB5-03	WQB5-04	GSR-422E Norms
1	Colour & Odour	Pt-Co	15&OU	22&OU	17&OU	14&OU	-
2	Suspended Solids	mg/l	18	26	19	16	100
3	Particulate size of Suspended Solids	100% are passing	100% are passing	100% are passing	100% are passing	100% are passing	Shall pass 850 µISI sieve
4	Dissolved Solids (Inorganic)	mgO_2/l	48	52	59	42	-
5	pH	-	6.38	6.75	7.24	7.35	5.5-9.0
6	Temperature	°C	32	32	32	32	5°C above
7	Oil & Grease	mg/l	Nil	Nil	Nil	Nil	10
8	Total residual chloride	mg/l	Nil	Nil	Nil	Nil	1.0
9	Ammonical nitrogen as N	mg/l	0.19	0.17	0.16	0.18	50
10	Total Kjeldahl nitrogen	mg/l	0.6	0.8	0.5	0.7	100
11	Free ammonia as NH_3	mg/l	Nil	Nil	Nil	Nil	5.0
12	BOD (3 days at 27 °C)	mgO_2/l	Nil	Nil	Nil	11	30
13	Chemical Oxygen Demand	mgO_2/l	6	7	5	32	250
14	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	0.2
15	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001	0.01
16	Lead as Pb	mg/l	<0.001	<0.001	<0.001	<0.001	0.01
17	Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	<0.001	2
18	Hexavalent chromium as Cr^{+6}	mg/l	<0.001	<0.001	<0.001	<0.001	0.10
19	Total chromium	mg/l	<0.001	<0.001	<0.001	<0.001	2.0
20	Copper as Cu	mg/l	<0.001	<0.001	<0.001	<0.001	3
21	Zinc as Zn	mg/l	0.16	0.18	0.20	0.14	5
22	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	0.05
23	Nickel as Ni	mg/l	<0.001	<0.001	<0.001	<0.001	3
24	Boron as B	mg/l	<0.001	<0.001	<0.001	<0.001	-
25	Percent Sodium	mg/l	15.4	16.5	18.2	17.3	-
26	Residual Sodium carbonate	mg/l	Nil	Nil	Nil	Nil	-
27	Cyanide as CN	mg/l	Nil	Nil	Nil	Nil	0.2
28	Chloride as Cl	mg/l	15	21	17	13	-
29	Fluoride as F	mg/l	0.9	0.8	0.6	0.5	2
30	Dissolved Phosphates	mg/l	0.18	0.14	0.17	0.15	5.0
31	Sulphates as SO_4	mg/l	7	9	5	4	-
32	Sulphides as S	mg/l	Nil	Nil	Nil	Nil	2
33	Phenolic Comp.s as C_6H_5OH	mg/l	Nil	Nil	Nil	Nil	1.0
34	Manganese	mg/l	Nil	Nil	Nil	Nil	2.0
35	Iron as Fe	Mg/l	0.43	0.58	0.73	0.48	3.0
36	Vanadium as V	mg/l	Nil	Nil	Nil	Nil	0.2
37	Nitrate Nitrogen	mg/l	0.23	0.34	0.41	0.25	10

WQB5-01 : Nalla No.25, downstream of check dam-5
WQB5-02 : Tailing dam 1 discharge
WQB5-03 : Nerli dam discharge
WQB5-04 : Influent (Inflow) to Oxidation Pond

Table No.11
Ambient Air Quality Status

Project : NMDC Ltd., BIOM, Deposit – 5

Season : Summer 2015

Units: µg/m^3

Pollutant	Location CoB5e	Min	Percentile Values											Max	Arith. Mean	Geom. Mean	StB5. B5ev.	% of Values ExceeB5ing CPCB norms
			10	20	30	40	50	60	70	80	90	95	98					
PM 10	AB5-1	65.0	66.5	68.0	68.5	69.0	70.0	71.0	71.5	72.0	74.0	75.0	75.6	76.0	70.2	70.08	3.76	0
	AB5-2	62.0	65.0	68.0	68.5	69.0	70.0	71.0	72.0	73.0	75.5	76.8	77.5	78.0	70.2	70.00	5.34	0
	AB5-3	57.0	58.0	59.0	60.0	61.0	61.5	62.0	63.0	64.0	65.5	66.3	66.7	67.0	61.7	61.58	3.56	0
	AB5-4	55.0	56.0	57.0	59.0	61.0	62.0	63.0	63.0	63.0	65.0	66.0	66.6	67.0	61.0	60.87	4.38	0
	AB5-5	54.0	55.5	57.0	58.0	59.0	60.5	62.0	62.0	62.0	64.5	65.8	66.5	67.0	60.2	60.02	4.54	0
	AB5-6	53.0	55.0	57.0	58.0	59.0	60.0	61.0	61.5	62.0	63.5	64.3	64.7	65.0	59.5	59.38	4.18	0
	AB5-7	52.0	52.5	53.0	54.5	56.0	56.5	57.0	57.5	58.0	59.0	59.5	59.8	60.0	56.0	55.93	3.03	0
	AB5-8	54.0	55.0	56.0	58.0	60.0	60.5	61.0	61.5	62.0	64.0	65.0	65.6	66.0	59.8	59.70	4.31	0
	AB5-9	56.0	57.5	59.0	60.0	61.0	62.0	63.0	64.5	66.0	67.0	67.5	67.8	68.0	62.2	62.03	4.45	0
	AB5-10	56.0	57.5	59.0	61.0	63.0	64.0	65.0	66.5	68.0	69.5	70.3	70.7	71.0	63.7	63.46	5.57	0
PM 2.5	AB5-1	25.0	25.5	26.0	26.5	27.0	28.5	30.0	30.0	30.0	30.5	30.8	30.9	31.0	28.2	28.07	2.48	0
	AB5-2	26.0	26.5	27.0	27.5	28.0	28.5	29.0	29.5	30.0	31.0	31.5	31.8	32.0	28.7	28.60	2.16	0
	AB5-3	24.0	24.5	25.0	25.5	26.0	26.0	26.0	26.5	27.0	27.5	27.8	27.9	28.0	26.0	25.97	1.41	0
	AB5-4	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.0	25.0	25.5	25.8	25.9	26.0	24.2	24.13	1.47	0
	AB5-5	22.0	22.5	23.0	23.5	24.0	24.0	24.0	24.5	25.0	25.5	25.8	25.9	26.0	24.0	23.97	1.41	0
	AB5-6	24.0	24.5	25.0	25.5	26.0	26.0	26.0	26.5	27.0	27.5	27.8	27.9	28.0	26.0	25.97	1.41	0
	AB5-7	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5	26.8	26.9	27.0	24.5	24.44	1.87	0
	AB5-8	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5	26.8	26.9	27.0	24.5	24.44	1.87	0
	AB5-9	23.0	24.0	25.0	25.0	25.0	25.5	26.0	26.5	27.0	28.0	28.5	28.8	29.0	25.8	25.77	2.04	0
	AB5-10	22.0	23.0	24.0	25.0	26.0	26.5	27.0	28.0	29.0	29.5	29.8	29.9	30.0	26.3	26.19	3.01	0

Table No.12
Ambient Air Quality Status

Project : NMDC Ltd., BIOM, Deposit – 5 **Season** : Summer 2015

Units: µg/m^3

Pollutant	Location CoB5e	Min	Percentile Values											Max	Arith. Mean	Geom. Mean	StB5. B5ev.	% of Values ExceeB5ing CPCB norms
			10	20	30	40	50	60	70	80	90	95	98					
SO_2	AB5-1	11.2	11.4	11.6	12.0	12.4	12.6	12.8	13.2	13.5	13.6	13.7	13.7	13.7	12.5	12.50	1.00	0
	AB5-2	13.2	13.7	14.1	14.2	14.2	14.3	14.4	14.6	14.7	14.9	15.0	15.1	15.1	14.3	14.27	0.64	0
	AB5-3	11.7	11.9	12.1	12.3	12.5	12.7	12.8	13.0	13.1	13.2	13.2	13.2	13.2	12.6	12.56	0.59	0
	AB5-4	11.2	11.4	11.5	11.7	11.8	12.0	12.2	12.3	12.4	12.6	12.6	12.7	12.7	12.0	11.96	0.57	0
	AB5-5	10.3	10.5	10.7	11.0	11.3	11.5	11.7	12.1	12.4	12.6	12.7	12.8	12.8	11.5	11.50	0.96	0
	AB5-6	09.5	09.9	10.2	10.4	10.6	10.9	11.2	11.5	11.7	12.1	12.2	12.3	12.4	10.9	10.89	1.05	0
	AB5-7	09.8	10.0	10.2	10.4	10.6	10.9	11.1	11.3	11.4	11.8	11.9	12.0	12.1	10.9	10.84	0.84	0
	AB5-8	10.8	11.0	11.1	11.3	11.5	11.7	11.8	12.0	12.1	12.2	12.3	12.3	12.3	11.6	11.59	0.58	0
	AB5-9	10.4	10.6	10.8	11.0	11.1	11.3	11.4	11.6	11.7	12.0	12.2	12.2	12.3	11.3	11.27	0.67	0
	AB5-10	10.6	10.9	11.1	11.3	11.4	11.8	12.1	12.3	12.5	12.6	12.7	12.7	12.7	11.7	11.71	0.83	0
NO_x	AB5-1	17.5	18.0	18.4	18.8	19.1	19.4	19.7	20.3	20.8	21.1	21.3	21.3	21.4	19.5	19.44	1.46	0
	AB5-2	18.5	18.9	19.2	19.4	19.6	20.0	20.4	20.5	20.6	21.0	21.2	21.3	21.4	20.0	19.93	1.05	0
	AB5-3	14.9	15.1	15.3	15.5	15.7	16.0	16.2	16.4	16.5	16.8	17.0	17.0	17.1	16.0	15.93	0.81	0
	AB5-4	14.3	14.5	14.7	15.0	15.3	15.6	15.8	16.0	16.1	16.4	16.5	16.6	16.6	15.5	15.45	0.87	0
	AB5-5	13.6	13.9	14.2	14.5	14.8	15.0	15.2	15.4	15.6	15.9	16.1	16.1	16.2	14.9	14.91	0.94	0
	AB5-6	12.5	12.8	13.1	13.5	13.8	14.1	14.3	14.5	14.7	14.9	15.0	15.1	15.1	13.9	13.89	0.98	0
	AB5-7	12.9	13.2	13.4	13.6	13.7	14.0	14.2	14.5	14.8	15.3	15.5	15.6	15.7	14.1	14.09	1.01	0
	AB5-8	13.4	13.6	13.7	14.0	14.2	14.4	14.5	14.7	14.8	15.0	15.1	15.2	15.2	14.3	14.29	0.68	0
	AB5-9	13.7	13.9	14.1	14.3	14.4	14.6	14.7	15.0	15.3	15.6	15.7	15.8	15.8	14.7	14.65	0.78	0
	AB5-10	13.8	14.1	14.4	14.6	14.8	15.0	15.2	15.4	15.7	16.0	16.1	16.1	16.2	15.0	15.00	0.87	0

Annexure-8

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5 Season: Summer Season 2015

Location : Haul Road near CISF Check Post (EMD5-1)

Table No.11

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	05.03.2015	356.0	280.4	75.6	12.6	15.7
April 2015	04.04.2015	362.6	286.4	76.2	12.1	15.4
May 2015	07.05.2015	373.5	295.2	78.3	11.5	14.7
Min.		**356.0**	**280.4**	**75.6**	**11.5**	**14.7**
Max.		**373.5**	**295.2**	**78.3**	**12.6**	**15.7**
Mean.		**364.0**	**287.3**	**76.7**	**12.1**	**15.3**

Unit: $\mu g/m^3$

Location : Mines Office, Deposit-5 (EMB5-2)

Table No.12

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	05.03.2015	257.7	198.4	59.3	11.8	16.3
April 2015	04.04.2015	283.7	220.3	63.4	11.5	15.7
May 2015	07.05.2015	300.1	234.5	65.6	10.2	14.5
Min.		**257.7**	**198.4**	**59.3**	**10.2**	**14.5**
Max.		**300.1**	**234.5**	**65.6**	**11.8**	**16.3**
Mean.		**280.5**	**217.7**	**62.8**	**11.2**	**15.5**

Unit: $\mu g/m^3$

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5 Season: Summer Season 2015

Location : Dynamic Stock Pile (EMB5-3)

Table No.13

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	06.03.2015	313.2	242.7	70.5	13.7	18.5
April 2015	05.04.2015	337.0	264.2	72.8	13.1	17.6
May 2015	08.05.2015	350.4	275.8	74.6	12.4	16.3
Min.		**313.2**	**242.7**	**70.5**	**12.4**	**16.3**
Max.		**350.4**	**275.8**	**74.6**	**13.7**	**18.5**
Mean.		**333.5**	**260.9**	**72.6**	**13.1**	**17.5**

Unit: $\mu g/m^3$

Location : Active Waste Dump near Dynamic Stock Pile (EMB5-4)

Table No.14

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	06.03.2015	332.6	265.4	67.2	13.7	18.2
April 2015	05.04.2015	350.7	280.3	70.4	12.5	17.6
May 2015	08.05.2015	365.1	292.7	72.4	11.8	15.4
Min.		**332.6**	**265.4**	**67.2**	**11.8**	**15.4**
Max.		**365.1**	**292.7**	**72.4**	**13.7**	**18.2**
Mean.		**349.5**	**279.5**	**70.0**	**12.7**	**17.1**

Unit: $\mu g/m^3$

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5 Season: Summer Season 2015

Location : Drilling Area, South Block (EMB5-5)

Table No.15

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	07.03.2015	361.0	290.4	70.6	14.2	19.3
April 2015	06.04.2015	377.6	304.2	73.4	13.5	18.6
May 2015	09.05.2015	394.5	318.6	75.9	12.4	16.2
Min.		361.0	290.4	70.6	12.4	16.2
Max.		394.5	318.6	75.9	14.2	19.3
Mean.		377.7	304.4	73.3	13.4	18.0

Unit: $\mu g/m^3$

Location : Excavation Area, South Block (EMB5-6)

Table No.16

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	07.03.2015	343.2	275.8	67.4	13.1	17.6
April 2015	06.04.2015	352.4	282.6	69.8	12.4	16.2
May 2015	09.05.2015	366.7	295.3	71.4	11.6	15.3
Min.		343.2	275.8	67.4	11.6	15.3
Max.		366.7	295.3	71.4	13.1	17.6
Mean.		354.1	284.6	69.5	12.4	16.4

Unit: $\mu g/m^3$

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5 Season: Summer Season 2015

Location : Operating Bench, Central Block (EMB5-7)

Table No.17

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	08.03.2015	314.1	247.6	66.5	12.8	17.3
April 2015	07.04.2015	327.7	258.4	69.3	12.1	16.4
May 2015	10.05.2015	339.7	267.3	72.4	11.5	15.3
Min.		**314.1**	**247.6**	**66.5**	**11.5**	**15.3**
Max.		**339.7**	**267.3**	**72.4**	**12.8**	**17.3**
Mean.		**327.2**	**257.8**	**69.4**	**12.1**	**16.3**

Unit: $\mu g/m^3$

Location : Haul Road near Crushing Plant (EMB5-8)

Table No.18

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	08.03.2015	352.9	284.5	68.4	13.5	18.6
April 2015	07.04.2015	371.6	298.2	73.4	12.7	17.2
May 2015	10.05.2015	392.1	315.7	76.4	11.6	15.8
Min.		**352.9**	**284.5**	**68.4**	**11.6**	**15.8**
Max.		**392.1**	**315.7**	**76.4**	**13.5**	**18.6**
Mean.		**372.2**	**299.5**	**72.7**	**12.6**	**17.2**

Unit: $\mu g/m^3$

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5 Season: Summer Season 2015

Location : Primary Stock Pile/ Intermediate stock Pile (EMB5-9)

Table No.19

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	09.03.2015	298.7	234.2	64.5	13.7	18.2
April 2015	09.04.2015	317.7	248.6	69.1	12.5	17.3
May 2015	11.05.2015	337.2	265.4	71.8	11.6	15.9
Min.		298.7	234.2	64.5	11.6	15.9
Max.		337.2	265.4	71.8	13.7	18.2
Mean.		317.9	249.4	68.5	12.6	17.1

Unit: $\mu g/m^3$

Location : Transfer Point near Secondary Crusher (EMB5-10)

Table No.20

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	09.03.2015	371.0	298.4	72.6	14.5	20.3
April 2015	09.04.2015	393.4	318.6	74.8	13.2	18.6
May 2015	11.05.2015	407.8	330.2	77.6	12.1	16.4
Min.		371.0	298.4	72.6	12.1	16.4
Max.		407.8	330.2	77.6	14.5	20.3
Mean.		390.7	315.7	75.0	13.3	18.4

Unit: $\mu g/m^3$

FUGITIVE DUST MONITORING

Project : NMDC Ltd., BIOM, Dep-5 Season : Summer Season 2015

Location : Service Road near Downhill, Deposit-5 (EMB5-11)

Table No.21

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	10.03.2015	297.1	235.4	61.7	12.8	16.4
April 2015	10.04.2015	318.9	254.6	64.3	12.2	15.3
May 2015	12.05.2015	337.7	270.2	67.5	11.4	14.5
Min.		**297.1**	**235.4**	**61.7**	**11.4**	**14.5**
Max.		**337.7**	**270.2**	**67.5**	**12.8**	**16.4**
Mean.		**317.9**	**253.4**	**64.5**	**12.1**	**15.4**

Unit: $\mu g/m^3$

Location : Screening Plant, Deposit-5(Primary Level) (EMB5-12)

Table No.22

Unit: $\mu g/m^3$

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	10.03.2015	320.8	254.3	66.5	13.1	17.4
April 2015	10.04.2015	342.3	272.6	69.7	12.3	16.1
May 2015	12.05.2015	358.5	286.4	72.1	11.2	15.4
Min.		**320.8**	**254.3**	**66.5**	**11.2**	**15.4**
Max.		**358.5**	**286.4**	**72.1**	**13.1**	**17.4**
Mean.		**340.5**	**271.1**	**69.4**	**12.2**	**16.3**

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5

Season: Summer Season 2015

Location : Screening plant – Secondary Level (EMB5-13)

Table No.23

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	12.03.2015	331.1	260.7	70.4	13.6	18.5
April 2015	11.04.2015	347.7	275.4	72.3	12.7	17.3
May 2015	14.05.2015	367.0	290.6	76.4	11.4	15.8
Min.		**331.1**	**260.7**	**70.4**	**11.4**	**15.8**
Max.		**367.0**	**290.6**	**76.4**	**13.6**	**18.5**
Mean.		**348.6**	**275.6**	**73.0**	**12.6**	**17.2**

Unit: $\mu g/m^3$

Location : Screening Plant – Tertiary Level (EMB5-14)

Table No.24

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	12.03.2015	312.2	242.5	69.7	13.5	18.2
April 2015	11.04.2015	335.9	263.4	72.5	12.7	16.8
May 2015	14.05.2015	353.5	278.4	75.1	11.6	15.2
Min.		**312.2**	**242.5**	**69.7**	**11.6**	**15.2**
Max.		**353.5**	**278.4**	**75.1**	**13.5**	**18.2**
Mean.		**333.9**	**261.4**	**72.4**	**12.6**	**16.7**

Unit: $\mu g/m^3$

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5 Season: Summer Season 2015

Location : Truck Loading (Fine Ore) Area (EMB5-15)

Table No.25

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	13.03.2015	369.7	296.3	73.4	14.1	19.5
April 2015	12.04.2015	401.0	324.6	76.4	13.7	18.1
May 2015	15.05.2015	425.5	345.1	80.4	12.5	16.7
Min.		**369.7**	**296.3**	**73.4**	**12.5**	**16.7**
Max.		**425.5**	**345.1**	**80.4**	**14.1**	**19.5**
Mean.		**398.7**	**322.0**	**76.7**	**13.4**	**18.1**

Unit: $\mu g/m^3$

Location : Lump Ore Stacking Area, Deposit-5 (EMB5-16)

Table No.26

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	14.03.2015	326.5	256.4	70.1	13.5	17.3
April 2015	12.04.2015	345.0	272.6	72.4	12.9	16.5
May 2015	15.05.2015	361.3	286.2	75.1	11.7	15.2
Min.		**326.5**	**256.4**	**70.1**	**11.7**	**15.2**
Max.		**361.3**	**286.2**	**75.1**	**13.5**	**17.3**
Mean.		**344.3**	**271.7**	**72.5**	**12.7**	**16.3**

Unit: $\mu g/m^3$

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5 Season: Summer Season 2015

Location : Wagon Loading, Deposit-5 (EMB5-17)

Table No.27

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	15.03.2015	383.0	308.4	74.6	14.6	19.7
April 2015	13.04.2015	405.9	328.4	77.5	13.7	18.5
May 2015	16.05.2015	419.8	340.6	79.2	13.1	16.3
Min.		**383.0**	**308.4**	**74.6**	**13.1**	**16.3**
Max.		**419.8**	**340.6**	**79.2**	**14.6**	**19.7**
Mean.		**402.9**	**325.8**	**77.1**	**13.8**	**18.2**

Unit: $\mu g/m^3$

Location : Haul Road to Weigh Bridge (EMB5-18)

Table No.28

Month{PRIVATE}	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	15.03.2015	342.9	271.4	71.5	14.7	18.6
April 2015	13.04.2015	367.2	292.6	74.6	13.8	17.4
May 2015	16.05.2015	381.4	304.2	77.2	12.5	15.7
Min.		**342.9**	**271.4**	**71.5**	**12.5**	**15.7**
Max.		**381.4**	**304.2**	**77.2**	**14.7**	**18.6**
Mean.		**363.8**	**289.4**	**74.4**	**13.7**	**17.2**

Unit: $\mu g/m^3$

FUGITIVE DUST MONITORING

Project: NMDC Ltd., BIOM, Dep-5

Season: Summer Season 2015

Location : Loading Plant Office (EMB5-19)

Table No.29

Month{PRIVATE }	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	16.03.2015	324.1	254.7	69.4	13.6	18.5
April 2015	14.04.2015	342.2	270.5	71.7	12.8	17.3
May 2015	17.05.2015	357.8	284.6	73.2	12.1	16.4
Min.		**324.1**	**254.7**	**69.4**	**12.1**	**16.4**
Max.		**357.8**	**284.6**	**73.2**	**13.6**	**18.5**
Mean.		**341.4**	**269.9**	**71.4**	**12.8**	**17.4**

Unit: $\mu g/m^3$

Location : Old Fine Ore Dump (EMB5-20)

Table No.30

Month{PRIVATE }	Sampling Date	Parameters (24 Hrly)				
		TPM	SPM	RPM	SO_2	NO_x
March 2015	16.03.2015	347.4	275.8	71.6	14.5	18.8
April 2015	14.04.2015	364.5	290.3	74.2	13.7	17.5
May 2015	17.05.2015	378.9	302.5	76.4	12.8	15.6
Min.		**347.4**	**275.8**	**71.6**	**12.8**	**15.6**
Max.		**378.9**	**302.5**	**76.4**	**14.5**	**18.8**
Mean.		**363.6**	**289.5**	**74.1**	**13.7**	**17.3**

Unit: $\mu g/m^3$

Table No-14
Water Quality Data

Project : **NMDC Ltd., BIOM, Deposit 5**
Season : **Summer 2015**
Sampling Date : **28.04.2015**

No	Parameter	Unit	WQB 5-05	WQB5-06	WQB5-07	GSR-422E Norms
1	Colour & Odour	Pt-Co	21 &OU	34&OU	26&OU	-
2	Suspended Solids	mg/l	23	28	17	100
3	Particulate size of Suspended Solids	100% are passing	100% are passing	100% are passing	100% are passing	Shall pass 850 µ ISI sieve
4	Dissolved Solids (Inorganic)	mgO_2/l	112	54	65	-
5	pH	-	7.52	6.98	6.82	5.5-9.0
6	Temperature	^oC	32	32	32	5^oC above
7	Oil & Grease	mg/l	Nil	Nil	Nil	10
8	Total residual chloride	mg/l	Nil	Nil	Nil	1.0
9	Ammonical nitrogen as N	mg/l	0.6	0.5	0.4	50
10	Total Kjeldahl nitrogen	mg/l	2.7	1.3	2.1	100
11	Free ammonia as NH_3	mg/l	Nil	Nil	Nil	5.0
12	BOD(3 days at 27 ^oC)	mgO_2/l	07	15	12	30
13	Chemical Oxygen Demand	mgO_2/l	21	56	42	250
14	Arsenic as As	mg/l	<0.001	<0.001	<0.001	0.2
15	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	0.01
16	Lead as Pb	mg/l	<0.001	<0.001	<0.001	0.01
17	Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	2
18	Hexavalent chromium as Cr^{+6}	mg/l	<0.001	<0.001	<0.001	0.10
19	Total chromium	mg/l	<0.001	<0.001	<0.001	2.0
20	Copper as Cu	mg/l	<0.001	<0.001	<0.001	3
21	Zinc as Zn	mg/l	0.28	0.26	0.21	5
22	Selenium as Se	mg/l	<0.001	<0.001	<0.001	0.05
23	Nickel as Ni	mg/l	<0.001	<0.001	<0.001	3
24	Boron as B	mg/l	<0.001	<0.001	<0.001	-
25	Percent Sodium	mg/l	20.4	16.5	13.4	-
26	Residual Sodium carbonate	mg/l	Nil	Nil	Nil	-
27	Cyanide as CN	mg/l	Nil	Nil	Nil	0.2
28	Chloride as Cl	mg/l	25	18	16	-
29	Fluoride as F	mg/l	0.4	0.3	0.5	2
30	Dissolved Phosphates	mg/l	0.3	0.4	0.2	5.0
31	Sulphates as SO_4	mg/l	8	9	7	-
32	Sulphides as S	mg/l	Nil	Nil	Nil	2
33	Phenolic Comp.s as C_6H_5OH	mg/l	Nil	Nil	Nil	1.0
34	Manganese	mg/l	Nil	Nil	Nil	2.0
35	Iron as Fe	mg/l	0.43	0.38	0.29	3.0
36	Vanadium as V	mg/l	Nil	Nil	Nil	0.2
37	Nitrate Nitrogen	mg/l	0.6	0.7	0.35	10

WQB5-05 : Effluent (Outflow water) Oxidation pond
WQB5-06 : Influent to Service Center (ETP), Hill top
WQB5-07 : Effluent (Outflow) ETP, Service Centre, HT

Table No-15
Water Quality Data

Project : **NMDC Ltd., BIOM, Deposit 5**
Season : **Summer 2015**
Sampling Date : **28.04.2015**

No.	Parameter	Unit	WQB5-08	WQB5-09	WQB5-10	GSR-422E Norms
1	Colour & Odour	Pt-Co	33&OU	21&OU	15&OU	-
2	Suspended Solids	mg/l	28	23	12	100
3	Particulate size of Suspended Solids	100% are passing	100% are passing	100% are passing	100% are passing	Shall pass 850 µ ISI sieve
4	Dissolved Solids (Inorganic)	mgO_2/l	124	65	83	-
5	pH	-	6.68	6.82	6.52	5.5-9.0
6	Temperature	°C	32	32	32	5°C above
7	Oil & Grease	mg/l	Nil	Nil	Nil	10
8	Total residual chlorine	mg/l	Nil	Nil	Nil	1.0
9	Ammonical nitrogen as N	mg/l	0.72	0.42	0.65	50
10	Total Kjeldahl nitrogen	mg/l	3.6	2.2	3.1	100
11	Free ammonia as NH_3	mg/l	Nil	Nil	Nil	5.0
12	BOD(3 days at 27 °C)	mgO_2/l	14	Nil	Nil	30
13	Chemical Oxygen Demand	mgO_2/l	68	15	8	250
14	Arsenic as As	mg/l	<0.001	<0.001	<0.001	0.2
15	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	0.01
16	Lead as Pb	mg/l	<0.001	<0.001	<0.001	0.01
17	Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	2
18	Hexavalent chromium as Cr^{+6}	mg/l	<0.001	<0.001	<0.001	0.10
19	Total chromium	mg/l	<0.001	<0.001	<0.001	2.0
20	Copper as Cu	mg/l	<0.001	<0.001	<0.001	3
21	Zinc as Zn	mg/l	0.21	0.19	0.17	5
22	Selenium as Se	mg/l	<0.001	<0.001	<0.001	0.05
23	Nickel as Ni	mg/l	<0.001	<0.001	<0.001	3
24	Boron as B	mg/l	<0.001	<0.001	<0.001	-
25	Percent Sodium	mg/l	22.4	20.3	21.5	-
26	Residual Sodium carbonate	mg/l	Nil	Nil	Nil	-
27	Cyanide as CN	mg/l	Nil	Nil	Nil	0.2
28	Chloride as Cl	mg/l	22	19	24	-
29	Fluoride as F	mg/l	0.9	0.5	0.7	2
30	Dissolved Phosphates	mg/l	0.35	0.28	0.31	5.0
31	Sulphates as SO_4	mg/l	13	10	12	-
32	Sulphides as S	mg/l	Nil	Nil	Nil	2
33	Phenolic Comp.s as C_6H_5OH	mg/l	Nil	Nil	Nil	1.0
34	Manganese	mg/l	Nil	Nil	Nil	2.0
35	Iron as Fe	mg/l	0.56	0.41	0.38	3.0
36	Vanadium as V	mg/l	Nil	Nil	Nil	0.2
37	Nitrate Nitrogen	mg/l	1.27	0.83	0.92	10

WQB5-08 : Influent Autoshop, ETP Bacheli
WQB5-09 : Effluent (Outflow water) ETP Autoshop, Bacheli
WQB5-10 : Waste Water from NMDC Appollo Hospital, Bacheli