

**CONTRACT FOR MONITORING, OPERATION AND MAINTENANCE
OF DUST MITIGATION EQUIPMENTS AT MORMUGAO PORT AUTHORITY
FOR A PERIOD OF ONE YEAR**

5.0 INTRODUCTION

- 5.1 Dust prone cargo like. Iron Ore, Bauxite, MOP, Limestone, etc. is being handled at Berth No. 10, 11 and at Railway Yards of the Port round the clock.
- 5.2 The Cargo unloaded/Handled from vessels is stocked in the back up area at various plots and same is being dispatched by loading in Lorries to different destination points by the Cargo Handlers. Indicative drawing / layout of the working area is enclosed herewith.
- 5.3 As Dust is being generated while handling the cargo, the internal roads are kept wet by spraying water intermittently as also the water is sprayed on the stockyards with the help of fog Mist Cannons. The dust mitigating equipments available with the port are:

Sr. No.	Vehicle	Veh. Reg. No.	Year of Registration	Life as on MAY 2023	Proposed Owner of Equipment for the subject tender	REMARKS
EXISTING					PROPOSED	
1.	Water Tanker	GA06-T-0486	Feb. 2007	16 years 3 months	Contractor (Proposed To be hired)	
2.	Mist cannon mounted on old Truck chassis.	GA02-V-7514	Oct. 2005	Life of vehicle: 18 years Life of Cannon: 6 Years 1 month	Contractor (Proposed To be hired)	
3.	Road Sweeper truck	GA06-T-4992	Oct. 2017	5years and 7 months	MPA	
4.	2 Nos. Portable Mist Cannon		Apr.2017	6 years 1 month	MPA	
5	2 Nos. Automatic Wheel Wash Units		Dec. 2021	2 years	MPA	

5.4 SCOPE OF THE WORK

Port now intends to invite a service contract

To monitor operation of Dust Mitigating Vehicles indicated in Cl. No. 5.3 Sr. No. 1 & 2 and to operate & maintain Dust Mitigation Equipments indicated in Cl. No. 5.3 Sr. No. 3, 4, 5 for mitigation of dust at MPA as well as Port Town as per requirement round the clock.

5.4.1 Contractor's Responsibilities:

- a. The successful bidder has to carry out the dust mitigation activity round the clock within the port area with the help of the Dust mitigating equipments as stated in the table above by entering into an Service Contract for monitoring of Hired vehicles (Water Tanker) indicated in Cl. No. 5.3 Sr. No. 1 & 2, and Operation & Maintenance of the Dust Mitigating Equipments with the Port. indicated in Cl. No. 5.3 Sr. No. 3, 4, 5
- b. The salient Technical specification of the dust mitigation equipments are enclosed as **Annexure A**. The available catalogue of the equipments will be provided to the bidder by Port, if reqd.
- c. Contractor shall carryout
 - a) Monitoring of Operation of Hired Vehicles(Water Tanker) mentioned in Cl. No. 5.3 Sr. No. 1 & 2 & monitor , operate & maintain Dust Mitigation Equipments indicated in Cl. No. 5.3 Sr. No. 3, 4, 5.
 - b) all the running repairs of dust mitigating equipments and vehicles owned by MPA except major repairs as indicated at **Annexure -B**.
- d. All spares and consumables required by Contractor for breakdown/preventive maintenance of the Port equipments ie. Road Sweeper , Portable Mist Cannon & Wheel wash Units and for other works shall be supplied by Port or arranged by the Contractor after informing EIC and the bill for the same may be submitted, which will be reimbursed to the Contractor on actuals.
- e. In case of breakdown of any Dust Mitigating Equipment, the equipment shall be made ready within 3 hrs. from the time of availability of spares, failing which Penalty as specified in Clause no. ~~4-20~~ (Annexure-1) will be levied.
- f. A breakdown Register indicating details such time of breakdown, time of availability of spares, time of completion etc. has to be maintained for each equipment and shall be certified by EIC or his representative after the completion of work.

g. There are frequent cases of tyre punctures in the yard. The contractor is required to inform the EIC about any puncture occurrence during the work. On permission by EIC the tyre repair work shall be carried out at Vulcanizer/Puncture repair shop. Removal of tyre and taking it to the repair shop and bringing it back and refitting shall be the responsibility of contractor. Bill towards the Puncture Repairs for MPA owned equipments i.e. Road Sweeper shall be submitted to the EIC or his representative by the Contractor which will be reimbursed.

h. Consumption of Diesel for Dust Mitigation Equipments:

Required diesel for running of the vehicles/equipments and the shall be worked out as per the following procedure:

i. Rate of Diesel Consumption for the Vehicle (Port Road Sweeper) will be worked out as below;

i. Average Mileage of each Port Vehicle based on the mileage clocked for last 1 year is indicated as **Annexure—C**.

ii. Contractor shall maintain vehicle log books indicating daily running of the vehicle in kilometer and get certified by the Port's engineer every day. Month's opening /closing km reading shall be jointly certified by Port's Engineer and Contractor Representative each month.

iii. Total kilometer run by the vehicle per month shall be divided by the average mileage of the vehicle indicated in the **Annexure--C** and accordingly the quantity of the diesel consumed will be arrived at. Accordingly, that much quantity of diesel will be provided by Port at the Pumping station located at Mechanical Workshop, Baina. If any excess quantity more than the quantity of diesel calculated as per rate of diesel consumption of equipment is filled, the amount towards the such excess diesel will be deducted from the Contractor's Bill.

III. The Contractor has to submit consolidated statement of consumption of diesel for Port Owned vehicle(Road Sweeper) alongwith the bills at the end of every month.

i. The Contractor shall maintain/upkeep, operate the dust mitigation equipment with required manpower as per manning pattern at **Annexure D**, by following prevailing labour laws. The Contractor shall ensure smooth operation of the Dust Mitigation Equipments throughout the contract period by continuously monitoring the condition and health of various equipments during the operation.

j. Required Water for spraying shall be supplied by MPA free of cost. The water will have to be filled in the tankers from the Port Well including Jetty Well designated by EIC, pump of which will be operated by the Staff designated by EIC. The water from the tankers has to be transferred to the storage tanks supplying water to Portable Mist Cannon as and when required and as per instructions of EIC.

- k. All the works shall be carried out by the contractor as per the direction of EIC or his Representative. Proper Care shall be taken of all the existing dust mitigation equipments equipments/operations while carrying out the Dust Mitigation activity. However, it doesn't absolve the contractor from carrying out the Operation and Maintenance of Dust Mitigation Equipments, as per the scope of work.
- l. Contractor has to ensure safety and security of all the Dust Mitigation equipments during the operations and maintenance tenure.
- m. Contractor has to arrange all the tools & tackles for carrying out day to day maintenance during the contract period including welding machines, grinding machine, gas cutting etc.
- n. Contractor has to arrange manpower for the transportation of material/ , shifting of Dust Mitigation equipments from one place to another and spares related with dust mitigating equipments.
- o. Contractor has to maintain good liaison and cordial relations with the Port Staff and ensuring that the Dust Mitigation Equipments are being operated as per requisition of Wharf Superintendent/ATM,,Traffic Department.
- p. The trips of water spraying on roads & R&D yard as informed by EIC which shall be carried by the contractor during the fair season and during the peak time of cargo handling (Oct.-May) shall be as indicated in the Chart at **Annexure-E**. Whenever dusty cargo being unloaded/loaded at the berth from the Vessel the Portable Mist Cannon will have to be deployed at the berth to mitigate the dust while handling.
- q. Contractor shall Provide the following uniform and safety materials to persons engaged by the contractor during the contract period for all the staffs deployed:

Sl. No.	Particulars	Qty	Periodicity
1	Uniform – (Pair of Shirt & Pant of Terri Coat blue in colour)	1	Every Year
2	Safety Helmet	1	Every 3 Year
3	Shoes and Socks	1	Every Year
4	Washing soaps	1	Every Month
5	Raincoat	1	Every 3 Years
6	Mask	1 pair	Every 3 months

- r. For operation of the Portable Mist Cannon, Electrical power supply points will be provided by the Port. However, Contractor has to make arrangements for tapping of the supply from the designated power points for operating the Portable Mist Cannon.
- s. The dust mitigating equipments i.e. Water Tankers, Mist Cannon, Portable Mist Cannon and Road Sweeper are equipped with PLC and other electronic components. Contractor is required to maintain and take proper care of these electrical items.. Any issues with regard to electrical system shall be reported to Electrical Engineer EE(E-

Hr)/Asst. Engineer AEE(E-Hr) of MPA. Initial operational training to operate these equipments will be provided by Port Engineer.

OPERATION OF ROAD SWEEPER:

- a. Operation of Dust sweeping machine though presently carried out wherever asphalted/cemented road is levelled and dry to remove dry dust/cargo. This machine cannot be operated on wet and uneven surface roads. Also, it should be noted that Road Sweeper cannot be operated on wet, oily, sticky (like bauxite) dust /cargo and on Chemicals like MOP, food items like sugar, veg. garbage etc. Initial operational training will be given to the Contractor's representative drivers at the time of handing of equipment.
- b. The Road Sweeper required to be operated generally on the FL Gomes Road from IOC Junction to St. Andrew's Church, IOC circle to HL sada circle and Sada Circle to Harbour Gate No.1 during night time to clear the accumulated dust on this road as and when required. Also, the Road from Velankanni Church to IOC circle will have to be cleaned with Road Sweeper on regular basis when the road is dry. The work of asphaltting of internal Port Roads will be taken up in the near future. The Road Sweeper will also have to be deployed on the internal Roads if the roads are even and dry as and when required as per the instruction of EIC.
- c. Maintenance / Servicing of the Mist Cannon & Road Sweeper shall be carried out as per the checklist enclosed as **Annexure F** and **Annexure G** and shall be maintained for inspection time to time.
- d. Preventive Maintenance of all the dust mitigation equipments shall be carried out by the Contractor, for which 12 hrs. per month per equipment shall be allotted. The Contractor has to inform the EIC or his representative before taking up the preventive maintenance work.

5.4.2 OTHER CONDITIONS OF THE CONTRACT:

- i. The dust/debris collected by road sweeper machine shall be dumped at site/area which will be designated and shown by Port Representative. If required, the dust/debris is to be covered with plastic sheets by the Contractor and the same shall be arranged by the Contractor.
- ii. In case of accident taking place while operating the dust mitigation equipments in Port Area or Outside Port Area, it is the responsibility of the contractor to make all necessary formalities. Port will not be held responsible for the same.

- iii. There are 2 Nos. Automatic Wheel Washing Units. In case of any breakdown, the same has to be attended and made available for operation. The spares if any required shall be replaced by the Contractor by informing EIC or his representative and the bill for the same may be produced for reimbursement.
- iv. Any damages taking place to equipment due to negligence of contractor will have to be rectified/repared by Contractor's own cost.
- v. If required, Contractor Drivers should operate other Port Vehicles other than dust mitigation vehicles specified as per the instruction of EIC.
- vi. Dust Mitigating Equipments will be operated in all shifts round the clock in Port, except on Port non-working holidays i. e. Holi, May Day, Ganesh Chaturthi (2 days), Diwali or as declared by Port for respective years.
- vii. The Port shift pattern is as under:
 - 1st Shift : 07:30AM to 03:30PM
 - 2nd Shift : 03:30PM to 11:30PM
 - 3rd Shift : 11:30PM to 07:30AM
 - General Shift: 08.00am to 05.00pm
- viii. For 4 months monsoon period shift pattern as under:

During rainy season, normally for a four months period, the dust mitigating activities will be required to be carried out only when there are dry spells or as and when there is requirement. As such during the monsoon period of 4 months the dust mitigation activities shall be sparingly carried out due to rain and less cargo handling activities. Therefore, the Contractor's staff shall deploy 11 Nos. staff as indicated in Clause 5.4.4 a of the Scope of Work. Either this staff shall be retained at Site for Operation or deployed at Port's Baina Maintenance Section to carryout vehicles maintenance/repair works or any other works allotted by XEN(M), Baina Maintenance Section/EIC, as the situation demands. Accordingly, the monthly charges for a period of 4 months of monsoon shall be reduced to 50% of the monthly contract value.

Alternatively, the contractor can retain full contingency of staff even during monsoon if he so desires as against the said tender condition of 50% staff as indicated at clause no. 5.4.4(ii). In that case, minimum staff of not less than 11 shall be deployed in General/Second shift in such manner that required day to day operations shall not be hampered. However, 50% payment of monthly contract value will be made during this period.
- ix. Routine Maintenance of dust mitigating equipments such as Cleaning, washing, greasing, Diesel filling, filter cleaning , adjustment of brushes of Road Sweeper Machine (RSM) etc. are to be carried out by the Contractor. All necessary prestart checks of the equipments such as checking of diesel, , radiator water level, engine oil level, etc. of the machine before starting of each shift.

- x. The machinery should be kept clean and should be washed with fresh water once a week. Necessary care shall to be taken of electrical components while doing washing/servicing.
- xi. Vehicles and equipments shall be strictly operated at the specified procedure in Machine catalogue and in case it is found that required procedure is not followed, the contractor will be held responsible for damages caused due to faulty operational methods.
- xii. Each shift operation reports shall be maintained as per the format enclosed as **Annexure H** and to be signed by Contractor's representative on shift basis and submit the same daily.
- xiii. Contractor shall provide to their personnel necessary safety gears and also safety jackets during duty hours. Necessary uniform to be provided to duty staff, for working in the Port Areas as well as in Vasco city area as per RTO rules in force.
- xiv. Staff employed by contractor for this contract shall have adequate knowledge in operation and maintenance of the dust mitigating equipments.. The drivers should be able to carryout running repairs of the Dust Mitigating Equipments and also should have adequate knowledge of day to day activities involved in Dust Mitigation Equipments. Statutory requirement such as Police Verification, Badge requirement etc. if any required, for the staff shall be obtained by the Contractor and submit the same for scrutiny.
- xv. Proper record of the fuel and Vehicle log Book is required to be maintained by the Contractor. Day to Day trips is to be entered along-with initial and final km reading and should be made available for verification as and when required.
- xvi. The Operators/Drivers of the Dust Mitigating Equipments must have all the valid documents viz. badge & driving license, valid necessary certificate in their possession at all times, while driving/ plying /operating the Dust Mitigation Equipments.
- xvii. Accommodation for the Contractor employees can be provided in the Port Quarters on Chargeable basis subject to availability or else Contractor has to make his own arrangements.
- xviii. The contractor shall not **sub-let the contract or any part thereof**.
- xix. Contractor shall **not** engage the Operators/Drivers/Staff below **18 years** of age as per prevailing Govt. regulations.
- xx. The Drivers/Operators/Technicians/Supervisors should report in uniform with proper shave and haircut.
- xxi. The Contractor shall provide necessary Contact details, Phone Nos., Addresses of Contact Personnel during the entire Contract period in order to contact him in case of difficulties arising in providing services and other obligations of the contract. The Shift

Manager's shall be available on phone at given time and should be able to provide necessary information to the Port Engineer's as and when required.

- xxii. The contractor has to maintain Attendance Register, Wage Register etc. as per the requirement of ALC. The same shall sent alongwith the monthly Bills duly certified by the EIC or his representative.
- xxiii. The payment to Contractor's staff should be made to their respective individual bank accounts as per the government regulations.
- xxiv. The Contractor has to park the Dust Mitigation Equipments at the designated place instructed by Port Official after operation.
- xxv. The contractor shall have to obtain port entry pass for all their staff at their own cost for operation of the Dust Mitigation Equipments inside the port area during the contract period. The present HEP rates are in port website <https://www.mptgoa.gov.in/>.
- xxvi. The Contractor shall ensure that no Contractor staff(Drivers/Operators/Technicians/Supervisors) are under influence of alcohol during the duty hours. Mormugao Port Authority reserves the right to conduct alcohol consumption test at random by the Authority's Medical Officer of any suspected staff of the contractor during working hours.
- xxvii. If any accident occurred, the contractor shall intimate immediately to the Officer of the concerned department, Safety Officer, CISF and Police authorities.
- xxviii. The Contractor shall provide ESI and PF registration no. of his employees as per the rules in force and should be submitted along with attendance records while submitting the bill.
- xxix. Mormugao Port Authority will not be liable for any altercation/accident involving contractor's staff during the contract period.
- xxx. Contractor shall be solely responsible for any damage to the Port Authority property involving his staff or equipments operated/driven by his staff.
- xxxi. Mormugao Port Authority being a protected Industry the person deployed by the Contractor for this service will not indulge in any illegal/Anti social/ anti-national activities.
- xxxii. The Contractor shall ensure that all safety and security regulation of Mormugao Port Authority are adhered too.
- xxxiii. The contractor shall not give, barter or otherwise dispose of to any person or persons any arms or ammunition of any kind or permit or offer the same as aforesaid.
- xxxiv. In case Government imposes any additional levies or taxes on this service during the contract period, the same will be reimbursed only on production of documentary evidence.

- xxxv. The information provided in tender document is for reference purposes. However, the bidder shall inspect the site and ascertain about the quantum of work before quoting.
- xxxvi. Contractor shall handover all the dust mitigation equipment in good working condition on expiry of the contract.

5.4.3 MPA'S Responsibilities:

- a. Port staff/officials shall inspect and monitor the Dust Mitigating Activity inside operational areas at regular intervals. If any problems are noticed, the same will be communicated to the Shift Manager of the contractor for corrective action either verbally or in the form of inspection report. The defects brought to the notice are to be rectified by the contractor immediately..
- b. Port shall provide Electrical Power at free of cost for the Operation and Maintenance activities of the contract and also for the Office/store room provided to the Contractor.
- c. Water available at the nearby water Well owned by Port shall be utilised by the contractor for dust mitigation. The water will be provided free of cost by Port.
- d. Office/Premises /Store room for the contract will be provided by the Port during currency of the contract on chargeable basis as per prevailing Scale of rates, depending on availability.

5.4.4 Manpower:

- a. Contractor shall provide following manpower for O&M of Dust mitigation equipments for round the clock Operation and Maintenance.
 - i)For Fair Season:

Sr. No.	Category of Labourers	Qty.
1	High Skilled (Shift Manager)	4 Nos.
2	Skilled (Heavy Duty Drivers)	1 No.
3	Skilled (Operator cum Technician)	9 Nos.
4	Unskilled (Helper)	8 Nos.
TOTAL		22 Nos.

- ii) For Rainy Season(Four months):

Sr. No.	Category of Labourers	Qty.
1	High Skilled (Shift Manager)	1 No.
2	Skilled (Heavy Duty Drivers cum Technician)	1 No.
3	Skilled (Operator cum Technician)	5Nos.
4	Unskilled (Helper)	4Nos.
TOTAL		11 Nos.

Alternatively, the contractor can retain full contingency of staff even during monsoon if he so desires as against the said tender condition of 50% staff as indicated at clause no. 5.4.4(ii). In that case, minimum staff of not less than 12 shall be deployed in General/Second shift in such manner that required day to day operations shall not be hampered. However, 50% payment of monthly contract value will be made during this period.

Note: Contractor shall ensure the locations/equipments are adequately manned round the clock. The shift pattern is mentioned in Clause No. 5.4.2 (v and vi).

b. **Qualification of the Staffs to be deployed** :-The Contractor shall submit the profile of the personnel engaged by them for the contract within 7 days from the date of placement of order prior to the start of the contract as indicated in the work order/LOA. The qualification of the staffs deployed shall be as follows:-

1. **Shift Manager** shall be Diploma in Mech./ Electrical Engineering with minimum one year experience or BE/B.Tech in Mechanical/Electrical Engineering.
2. **Skilled manpower** (Heavy Duty Drivers)---All Drivers shall hold Heavy Duty Driving License with minimum 1 year experience in driving. ~~Minimum 3 Nos. Heavy Duty Drivers from the total Driver strength shall hold ITI certificates in Automobile Mechanic/Auto Technician/ Electrician/ Welder. However Contractor may provide 3 nos. Technicians in Diesel Mechanic or any other trade with Heavy duty Driving Licence.~~
3. **Skilled manpower** (Operator cum Technician) shall be ITI in Automobile Mechanic/Auto Technician/ Electrician/Auto Electrician /Welder/Fitter/Plumber passed with 1 years minimum experience. At least 1 each from the above trade shall be maintained by the contractor during the contract period. The welder deployed shall be qualified and capable of welding steel structures, pipelines etc. Further, the deployed staff in this category shall also be capable of carrying out repair, maintenance & painting of these equipments etc. or any other related work as instructed by the EIC.
4. **Unskilled manpower** shall be minimum 8th passed with good physical health and knowledge of operation and maintenance of Mist Cannon, Vehicles. Further, the deployed staff in this category shall also be capable of painting the equipments, pipelines etc. or any other related khalasee/lifting/helper work as per the requirement of EIC.

**EXECUTIVE ENGINEER(F)
MORMUGAO PORT AUTHORITY**

4.20 PENALTY:

4.20.1 The Contractor shall be penalized on following accounts:

4.20.1.1 In case of failure to commence the work within schedule date from the date of LoA, a penalty at a rate equal to the per day contract value on pro-rata basis shall be levied for the each day of delayed period.

4.20.1.2 In case of failure to deploy manpower as per the manning pattern indicated at **Appendix D** of the Scope of Work of the tender, the Contractor shall be penalized at a rate equal to the daily wages of the absent workmen that is being paid to the workmen. This will be in addition to the pro rata deduction from the monthly bill for each day of non-deploying manpower as per the manning pattern.

4.20.1.3 In case of theft/damage to MPA assets provide to the contractor as per the contract terms during the currency of the contract, or any other assets of the Port, on account of any negligence o duty by the Contact Workmen, the Contractor shall be penalized for twice the sum of amount as assessed by MPA for said theft and/or damage.

4.20.2 The contractor shall ensure the system readiness round the clock. Maintenance of all the equipment needs to be carried out such that, the system readiness is not compromised. In case of failure of any Dust Mitigating Equipment, the failed component shall be repaired within 3 hours from the time of supply/arranging of spares. If the contractor fails to rectify/repair the failed component as per the time schedule mentioned above, penalty of Rs.175/- per each breakdown hour of delay of the subject Dust Mitigating Equipment will be imposed till the rectification of the defect.

ANNEXURE ----A

A) Ground (Portable Mist Cannon) Mounted Mist Cannon (2 Nos.) brief specifications are hereunder:

Details of Mist Cannon-Fog Mist Cannon TMC-50 Enron Make which is mounted on portable frame with wheels. Further details , if any required, can be obtained from the available manuals with Port.

B) The Road Sweeper Truck brief Specifications are as follows:

EICHER PRO 1000 Series Truck-Pro 1095XP

Engine Model No.: E483TC1C Di Diesel

Power-----80KW @2800 rpm, Torque-350Nm @1400-1700 rpm

Gear Box Type---ET3SSS(5 Forward & 1 Reverse gear)

Road Sweeper details:

1) Sweeping Path—1800 mm with horizontal and 2 side brushes.

2) Sweeping Speed--- 0 to 10 Km/hr depending on road condition

3) Sweeping Brushes---- One horizontal brush 1800mm long for wide sweeping made of Nylon bristles . Two rotary brushes 600mm on each side made of special steel bristles.

4) Debits Hopper: Capacity 5 Cubic Metre of Stainless steel.

5) Hydraulic System:Power hydraulic sweeping brushes and operating Hopper

6) Water Sprinkler System: At front side brushes and rear side of the machine.

7) Sweeping Control: Auxilary Engine, all sweeping and unloading control panel.

8) Wandering Hose: A 12 feet long flexible suction hose 6 inch diameter with Stainless steel Nozzle provided at the rear of the machine for manual cleaning in areas where the machine cannot reach.

C) Wheel Wash Units:

Automatic Wheel Wash Units- 2 nos. Make: Excel Combine, each unit having 2 Wash Water pumps of 1800LPM, 5.5KW . . Further details , if any required, can be obtained from the available manuals with Port.

Note: The details given above are for reference only. However, the tenderer should visit the site to the ensure the specifications of the Dust suppression Equipments and any other details pertaining to operation and maintenance of the machine before submitting the bid.

ANNEXURE B

MAJOR REPAIRS OF PORT OWNED DUST MITIGATING VEHICLES UNDER THE SCOPE OF PORT

Sr. No.	Description
A	Wheel Wash Units
1	Replacement of Pump
B	Mist Cannon
1.	Replacement of blower motor
2.	Replacement of Centrifugal Pump
3.	DG set engine overhauling, if any
C	ROAD SWEEPING MACHINE
1.	Auxiliary Engine Overhauling
2.	Replacement of Compressor
3.	Road Sweeper Vehicle Engine Overhauling

MILEAGE/DIESEL CONSUMPTION CHART

Vehicle No.	Financial year 2022-23				
	kms	Diesel Consumed	Average Mileage/Ltr	Tyre Size	No. of Tyres
GA-06-T-4992	1136	1571Ltrs	0.723	8.25-16	6

ANNEXURE D

DEPLOYMENT OF MANNING PATTERN

Sl. No.	Dust Suppression Equipment	Designation	Category of Staff	1st Shift	2nd Shift	3rd Shift	Gen./Reliever shift	Total Shift Staff per equipment
1	Hired Water Tanker No.1	H.V. Driver	Skilled	0	0	0	0	0
		Helper	Unskilled	1	1	1	1	4
2	Hired Water Tanker No.1	H.V. Driver	Skilled	0	0	0	0	0
		Helper	Unskilled	1	1	1	1	4
3	Ground (Portable) Mist Cannon (2 Nos.) & Wheel Washing Unit	Operator	Skilled	2	2	2	2	8
4	Road Sweeper	H.V. Driver	Skilled	0	1	0	0	1
		Operator	Skilled	0	1	0	0	1
5	-----	Shift supervisor	High Skilled	1	1	1	1	4
TOTAL				5	7	5	5	22

APPENDIX-E

	Vehicle Type	Tank capacity In lts.	Average trips per shift				Total trips per day	Total quantity of water sprayed per day in lts.	Remarks
			1 st	2 nd	3 rd	Gen.			
1	Water Tanker No.1	8,000	5	4	3	--	12	96,000	
2	Water Tanker No.2	8,000	5	4	3	--	12	96,000	TRIPS may vary if the equipment is deployed at Berth while handling dusty cargo from/to vessel
								192,000	
3	Portable Mist Cannon	2 Nos.						12000 (6000x2)	Portable Mist cannon is operated during cargo unloading at berth and cargo dumping points at the various stack yards as per requirement in three shifts.
Total average Water Requirement per day								2,04,000	

**CHECK LIST FOR
MAINTENANCE OF DUST SUPPRESSION SYSTEM TMS 50/GMS 50**

Sr.No.	Description	Tool Req.	Status on date	Remarks
1	Filter Cleaning	24-27 Spanner (open/D)	Clean/Dirty/Replaced	
2	Cleaning Nozzles	Nozzle removing tool/16-17 Spanner(ring) , Allen Key No.4	Clean/Dirty/Replaced	
3	Slew Bearing Greasing	Allen Key No.3	Greasy/Dry/ Greased	
4	Slew Gear Teeth		OK/NOT OK	
5	Pipe/Hose conditions		OK/NOT OK	
6	Valve conditions		OK/NOT OK	
7	Mist Cannon Adjusting Arm		OK/NOT OK	
8	All Bolts and Nuts		Proper/Tightened	
9	Adjustable pads		OK/NOT OK	
10	FLOW METER Cleaning		Clean/Dirty/Replaced	

Technician

Shift in-charge

APPENDIX-G

PREVENTIVE MAINTENANCE CHECKLIST of GNE MAKE MAXSWEEP®

Name of the supervisor: _____

Truck chassis no: _____ PM: _____ Last PM: _____

Name of Mechanic: _____ Date: _____

Next PM Due On: _____

Note:- Inspection Type RED = Daily YELLOW = Twice in a week

Instructions: Write Initial in Appropriate Boxes Below					
TASKS TO BE PERFORMED	Inspection Type	Inspection Okay	Repaired & Adjusted	Greased & Lubed	Comments & Parts List
A. Auxiliary Engine of MAXSWEEP®					
1. Clean air filter upper nose	RED				
2. Clean primary air filter	YELLOW				
3. Check all belts & tens loners	YELLOW				
4. Check coolant level in reservoir	YELLOW				
5. Check all foundation bolts	YELLOW				
6. Check for engine oil leaks	YELLOW				
7. Check Battery Terminal and remove white carbon if any	YELLOW				
8. Check all Hoses clamps of Turbo charger and radiator	YELLOW				
B. Chassis					
TASKS TO BE PERFORMED	Inspection Type	Inspection Okay	Repaired & Adjusted	Greased & Lubed	Comments & Parts List
1. Clean air filter	RED				
2. Check coolant level in reservoir	YELLOW				
3. Grease all given points if necessary	YELLOW				
C. MAXSWEEP® control panel and Compressor					
TASKS TO BE PERFORMED	Inspection Type	Inspection Okay	Repaired & Adjusted	Greased & Lubed	Comments & Parts List
1. Check all buttons operations in control panel	RED				
2. Check all gauges working in control panel	RED				
3. Check Pulse Jet System Control Unit working	RED				

4. Check air pressure in gauge	RED				
make sure it should be more than					
40 PSI while running					
5. check compressor oil level	YELLOW				
(Glass should be covered with oil)					
6. Check Belt tension of	YELLOW				
compressor					
7. Check foundation bolts of	YELLOW				
compressor					
8. Clean air filter inner and outer	RED				
D. Vacuum Impeller					
TASKS TO BE PERFORMED	Inspection Type	Inspection Okay	Repaired & Adjusted	Greased & Lubed	Comments & Parts List
9. check foundation bolts of	YELLOW				
vacuum impeller					
10. check belt tension of vacuum	YELLOW				
impeller from tensioner pulley					
11. Check Plummer block nut and	YELLOW				
bolts Tight if required					
12. Lubricate plummer blocks with	YELLOW				
our recommended grease					
13. Lubricate Clutch sleeve with	YELLOW				
our recommended grease					
14. Check sealing rubber of	YELLOW				
impeller body faces					
E. Sreet and brushers					
TASKS TO BE PERFORMED	Inspection Type	Inspection Okay	Repaired & Adjusted	Greased & Lubed	Comments & Parts List
15. Check side brushers tilting	YELLOW				
angle					
16. check side brushes adjustment	YELLOW				
17. check central brush	YELLOW				
adjustment					
18. check silicon rubber aprons of	YELLOW				
sreet if consumed then install					
new					
19. check vacuum nozzles and	YELLOW				
make sure no debris is blocked in					
both					
20. check sealing rubbers of	YELLOW				
bellow					
hose flanges make sure there is					
no leakage of vacuum					

F. Hopper and filter					
TASKS TO BE PERFORMED	Inspection Type	Inspection Okay	Repaired & Adjusted	Greased & Lubed	Comments & Parts List
21. check hopper door sealing rubber make sure there is no leakage of vacuum	YELLOW				
22. clean hopper every time after work	RED				
23. clean filter compartment manually if required	RED				
24. check filter cartage conditions If are chocked clean it up by manually by disassembling	YELLOW				
G. Other check points					
TASKS TO BE PERFORMED	Inspection Type	Inspection Okay	Repaired & Adjusted	Greased & Lubed	Comments & Parts List
25. drain water in every 15 minutes from moisture separator at rear of truck chassis	RED				
26. clean pneumatic and hydraulic solenoid valves by using compressed air	YELLOW				
27. check all pneumatic pipes and joint and make sure there is no leakage	YELLOW				
28. check all hydraulic pipes and joint and make sure there is no leakage	YELLOW				
29. check hydraulic pump belts and tension	YELLOW				

Signature of Mechanical Technician

Signature of verified by Shift in Charge/Engineer

Appendix-H

DAILY REPORT FORMAT

Date:

Shift:

Sr. No.	Equipment	Staff Posted with Designation	Area of Operation	No. of Trips/Kms/Hrs Used	Diesel Filled (if any) (in ltrs.)	Remarks
1	Portable Mist Cannon					
2	Water Tanker					
3	Road Sweeper					

Breakdown Details of above along-with details of spares, if any:

SHIFT IN CHARGE

PRICE SCHEDULE

Sr. no.	Description of Work	Period	Rate per month	Amount in Rs.
1	Monthly Charges for the Service Contract for monitoring, operation and maintenance of dust mitigation equipments at Mormugao Port Authority for a period of one year exclusive of EPF,ESI & GST for fair seasons of 8 months	8 months		
2	Monthly Charges for the Service Contract for monitoring, operation and maintenance of dust mitigation equipments at Mormugao Port Authority for a period of one year exclusive of EPF,ESI & GST for monsoon seasons of 4 months	4 months		
3	Total for One year exclusive of EPF, ESI and GST.	12 months		
4	ESI @ _____	12 months		
5	EPF @ _____	12 months		
6	GST @ _____	12 months		
7	Total for One year inclusive of EPF, ESI and GST.	12 months		

*Any changes in the EPF,ESI & GST rates during the contract period will be paid as applicable.