

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, NEW DELHI**

**O.A. NO. 620 / 2022**

**IN THE MATTER OF:**

KAUSHAL KISHORE VISHWAKARMA

...APPLICANT

VERSUS

STATE OF PUNJAB AND OTHERS

...RESPONDENTS

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**NDOH: 22.02.2024**

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**THROUGH**



**(SUNIL TYAGI) (PANKHURI JAIN)**  
**(NIKITA MAHESHWARI) (PARI BHARDWAJ)**  
Counsels for the Respondent No.4  
ZEUS LAW ASSOCIATES  
2, Palam Marg, Vasant Vihar, New Delhi - 110 057  
Tel.: 011- 41733090; 8979331122 | [zeus@zeus.firm.in](mailto:zeus@zeus.firm.in)

Place: New Delhi  
Date: 05.02.2024

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL  
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O.A. NO. 620 / 2022

IN THE MATTER OF:

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AFFIDAVIT

I, Vijay Kant Goyal, S/o Ram Rachh Paul Goyal, aged about <sup>60</sup>~~69~~ years, R/o NFL Township, Bathinda, Punjab, do hereby solemnly affirm and state as under :

1. That I am the Executive Director of National Fertilizers Limited, Bathinda -i.e., the Respondent No.4 in the present proceedings. I am fully conversant with the facts of the case and thus competent and authorised to swear this Affidavit.
2. This Hon'ble Tribunal vide Order, dated 04.10.2023, in the captioned Application, was pleased to direct the Respondent No.4 to file an (i) up to date status report; and (ii) action plan regarding the disposal of the carbon slurry stored at the Respondent No.4's Unit. The present Affidavit is being filed in compliance of the same.
3. A Reply, dated 27.02.2023, an Affidavit, dated 31.07.2023, an Additional Affidavit, dated 03.10.2023, and another Additional Affidavit, dated 22.11.2023, have also been filed on behalf of the Respondent No.4 in the present proceedings before this Hon'ble Tribunal. The contents thereof are not being repeated herein for the sake of brevity and the same may kindly be read as part and parcel of the present Affidavit.



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*[Handwritten signature]*

4. For ease of perusal by this Hon'ble Tribunal, the present Affidavit has been divided into the following heads :

<u>HEAD</u>	<u>DESCRIPTION</u>
A	Generation of Carbon Slurry
B	Nature and composition of Carbon Slurry
C	Storage and management of Carbon Slurry
D	Disposal of Carbon Slurry
E	Current status and Action plan

#### **HEAD A : GENERATION OF CARBON SLURRY**

5. Commercial production at the Unit of Respondent No.4 was declared on 01.10.1979. The Respondent No.4's Unit was using Fuel Oil ("FO") / Low Sulphur Heavy Stock ("LSHS") as feedstock for production of Ammonia from 1979 up until 2013.
6. The Plant was based on partial oxidation of Fuel Oil by Shell Gasification process with the help of oxygen and steam at 55 kg/cm<sup>2</sup> at a temperature of 1350 degrees celsius. During the partial oxidation of Fuel Oil, which was energy intensive, carbon used to get generated due to inevitable thermal cracking. The carbon so generated was removed from the raw gas by water and collected in a carbon separator in the form of the waste in question -i.e., carbon slurry (a mixture of carbon and water).
7. As per design, about 80% of the generated carbon was recycled back to the process in the form of carbon oil as feed through the carbon recovery unit while the balance quantity was sent as carbon slurry to the carbon slurry ponds. During the start-up of the ammonia plant or during disturbance in the carbon recovery unit, the carbon slurry was not recycled and was sent directly to the carbon pond(s) which was earmarked to store the slurry. The carbon was sold in the open market as an industrial product.

8. In an endeavour to keep in pace with clean technology and with a commitment to sustainable development, the Plants of Respondent No.4 were restructured in November, 2012. The feedstock was replaced from LSHS to Natural Gas, which not only reduced the specific energy per metric tonnes of urea, but also lowered the carbon footprint.
9. The change of feedstock from Fuel Oil to Natural Gas also annulled the generation of carbon slurry as a by-product. As a result, there has been no generation of carbon slurry at the Respondent No.4's Unit since 2012 and the leftover carbon slurry was stored at four (4) designated carbon slurry ponds. The carbon slurry in one of the Ponds was disposed off in 2017 – 2018, and the remaining quantity is stored in three (3) ponds.

#### **HEAD B : NATURE AND COMPOSITION OF CARBON SLURRY**

10. Carbon slurry is a waste product generated during partial oxidation of hydrocarbons during the manufacturing of ammonia. In fertilizer plants during partial oxidation of heavy fuel oils, the fine carbon particles produced in the reaction are scrubbed from the gas stream, and aqueous carbon slurry containing 2 to 3 percent carbon is produced.
11. The carbon slurry generated at the Respondent No.4's Unit up until 2012 was in slurry form that time. However, now it is in a soft solid / solid form. The slurry mainly contains carbon, moisture and some quantity of ash.
12. At this point, it is imperative to mention that carbon slurry was categorised as "hazardous waste" only after the notification of the Hazardous Waste (Management and Transboundary Movement) Rules, 2016 (hereinafter referred to as "said Rules") on 04.04.2016.

13. An analysis of the carbon slurry lying at Respondent No.4's Unit was conducted by National Test House (Northern Region), Kamla Nehru Nagar, Ghaziabad in 2016, which was lined up by Projects and Development India Limited (hereinafter referred to as "PDIL") – a Government of India undertaking. As per the analysis, the carbon slurry in question contained 70% moisture content with a further average weight percentage of carbon on dry basis of around 71%.
14. In furtherance of the directions issued by the Ministry of Environment, Forest and Climate Change (hereinafter referred to as "MOEF&CC") vide Office Memo F. No. 23-88/2018-HSM, dated 09.10.2018, the Respondent No.4 got another analysis of the carbon slurry conducted. The test was conducted by Alpha Test House, which is ISO/IEC 17025: 2005, NABL accredited Laboratory.
15. The Alpha Test House collected the samples from the three (3) carbon slurry ponds at Respondent No.4's premises on 23.10.2018 and issued the respective reports on 15.11.2018. As per the three (3) reports, the carbon slurry sample(s) collected from the 3 carbon slurry ponds at Respondent No.4's Unit are non-hazardous as the hazardous content in accordance with Schedule II of the said Rules are below detectable limits.

Copy of Report, dated 15.11.2018, prepared by Alpha Test House for samples from Pond No.1, is attached herewith and marked as **DOCUMENT – 1.**

Copy of Report, dated 15.11.2018, prepared by Alpha Test House for samples from Pond No.2, is attached herewith and marked as **DOCUMENT – 2.**

Copy of Report, dated 15.11.2018, prepared by Alpha Test House for samples from Pond No.6A is attached herewith and marked as **DOCUMENT – 3.**

### HEAD C : STORAGE AND MANAGEMENT OF CARBON SLURRY

16. Since the notification of the said Rules, the Respondent No.4 has been following the required rules, regulations, etc. for safe and environmentally sound management of carbon slurry at its Unit.
17. Rule 4 of the said Rules lays down the responsibilities of the occupier for management of hazardous and other wastes. Rule 3 (21) defines occupier as "...a person who has control over the affairs of the factory or the premises and includes in relation to any hazardous and other wastes, the person in possession of the hazardous or other waste."
18. Thus, in the present case, the Respondent No.4 is the "occupier" of the carbon slurry and its duties are envisaged under the Rule 4, which is produced hereinbelow for ready reference by this Hon'ble Tribunal :

***"4. Responsibilities of the occupier for management of hazardous and other wastes.-***

- 1) *For the management of hazardous and other wastes, an occupier shall follow the following steps, namely:-*
- (a) prevention;*
  - (b) minimization;*
  - (c) reuse,*
  - (d) recycling;*
  - (e) recovery, utilisation including co-processing;*
  - (f) safe disposal.*
- 2) *The occupier shall be responsible for safe and environmentally sound management of hazardous and other wastes.*
- 3) *The hazardous and other wastes generated in the establishment of an occupier shall be sent or sold to an authorised actual user or shall be disposed of in an authorised disposal facility.*
- 4) *The hazardous and other wastes shall be transported from an occupier's establishment to an authorised actual user or to an authorised disposal facility in accordance with the provisions of these rules.*
- 5) *The occupier who intends to get its hazardous and other wastes treated and disposed of by the operator of a treatment, storage and disposal facility shall give to the*

*operator of that facility, such specific information as may be needed for safe storage and disposal.*

*6) The occupier shall take all the steps while managing hazardous and other wastes to-*

*(a) contain contaminants and prevent accidents and limit their consequences on human beings and the environment; and*

*(b) provide persons working in the site with appropriate training, equipment and the information necessary to ensure their safety."*

19. The carbon slurry amounting to approximately 53,100 metric tonnes (MT) generated till 2012 was stored by the Respondent No.4 at four (4) separate designated ponds after taking all necessary precautions and following all the regulations and guidelines. The carbon slurry from one Pond was sold in 2017-18, and now the available quantity is stored in three (3) ponds. The details of the 3 carbon slurry ponds located at the Respondent No.4's premises are as follows :

<b>Pond</b>	<b>Size</b>
Pond Number 1	11,252 square metres
Pond Number 2	12,610 square metres
Pond Number 3	48,300 square metres
<b>Total size</b>	<b>71,300 square metres</b>

20. The carbon slurry ponds are brick lined with High-Density Polyethylene (HDPE) which is excellent in its durability, flexibility, im-permeability. HDPE is highly resistant to environment conditions and is widely used for the manufacture of chemical tanks.
21. To prevent any leaks or spillage from the ponds, the dyke walls are raised by 3 to 5 metres from the carbon slurry storage level. Furthermore, the dyke walls around the carbon slurry ponds are surrounded by a lush tree cover.
22. The Respondent No.4 has also installed two (2) piezometric wells at the north – east and north – west side, as well as two (2) piezometric

wells at the south and west of the carbon slurry ponds. The Respondent No.4 carries out monthly analysis of all the four (4) piezometric wells to ensure the quality of ground water. Monthly reports are also being sent to the Punjab State Pollution Control Board (hereinafter referred to as "PSPCB").

Copy of the plot plan indicating the location of the Piezometers, is attached herewith and marked as **DOCUMENT – 4**.

Copy of Analysis Report, dated 01.02.2024, of ground water samples collected on 12.01.2024, is attached herewith and marked as **DOCUMENT – 5**.

23. Improper slurry management can harm water sources and negatively affect soil quality through contamination. As evident from the monthly analysis of the ground water surrounding the carbon slurry ponds, the Respondent No.4 has assumed all responsibility to guarantee that the carbon slurry stored at its Unit does not have negative environmental impact.
24. It is reiterated that no carbon slurry has been generated at the Respondent No.4's Unit after the notification of the said Rules. Further, the Respondent No.4 has been undertaking all the steps from its end to ensure safe storage, management and disposal of the leftover carbon slurry at its Unit, as provided under the said Rules and other regulations as notified by the Government of India from time to time.

#### **HEAD D : DISPOSAL OF CARBON SLURRY**

25. For the safe disposal and lifting of the carbon slurry from its Ponds, the Respondent No.4 ensures that the carbon slurry is transported / disposed of by the authorised contractor(s) in closed trucks and containers, affixed with labels containing the emergency numbers in case of any spillage of the hazardous waste material, in accordance with the said Rules. Rule 18 is produced hereinbelow for ready reference :



**“18. Transportation of hazardous and other wastes.-** (1) *The transport of the hazardous and other waste shall be in accordance with the provisions of these rules and the rules made by the Central Government under the Motor Vehicles Act, 1988 and the guidelines issued by the Central Pollution Control Board from time to time in this regard.*

(2) *The occupier shall provide the transporter with the relevant information in Form 9, regarding the hazardous nature of the wastes and measures to be taken in case of an emergency and shall label the hazardous and other wastes containers as per Form 8.*

(3) *In case of transportation of hazardous and other waste for final disposal to a facility existing in a State other than the State where the waste is generated, the sender shall obtain 'No Objection Certificate' from the State Pollution Control Board of both the States.*

(4) *In case of transportation of hazardous and other waste for recycling or utilisation including coprocessing, the sender shall intimate both the State Pollution Control Boards before handing over the waste to the transporter.*

(5) *In case of transit of hazardous and other waste for recycling, utilisation including coprocessing or disposal through a State other than the States of origin and destination, the sender shall give prior intimation to the concerned State Pollution Control Board of the States of transit before handing over the wastes to the transporter.*

(6) *In case of transportation of hazardous and other waste, the responsibility of safe transport shall be either of the sender or the receiver whosoever arranges the transport and has the necessary authorisation for transport from the concerned State Pollution Control Board. This responsibility should be clearly indicated in the manifest.*

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*(7) The authorisation for transport shall be obtained either by the sender or the receiver on whose behalf the transport is being arranged."*

26. The Respondent No.4 also ensures that the hazardous waste is packaged and labelled in accordance with Rule 17 of the said Rules, which reads as follows:

*"17. Packaging and Labelling. - (1) Any occupier handling hazardous or other wastes and operator of the treatment, storage and disposal facility shall ensure that the hazardous and other wastes are packaged in a manner suitable for safe handling, storage and transport as per the guidelines issued by the Central Pollution Control Board from time to time. The labelling shall be done as per Form 8 under HWM Rules, 2016.*

*(2) The label shall be of non-washable material, weather proof and easily visible."*

27. The Respondent No.4 also ensures that any such contractor(s) have all the necessary and valid approvals, authorisations and permissions from the concerned Pollution Board(s), in terms of Rule 9 :

*"9. Utilisation of hazardous and other wastes.- (1) The utilisation of hazardous and other wastes as a resource or after pre-processing either for co-processing or for any other use, including within the premises of the generator (if it is not part of process), shall be carried out only after obtaining authorisation from the State Pollution Control Board in respect of waste on the basis of standard operating procedures or guidelines provided by the Central Pollution Control Board.*

*(2) Where standard operating procedures or guidelines are not available for specific utilisation, the approval has to be sought from Central Pollution Control Board which shall be granting approval on the basis of trial runs and*

*thereafter, standard operating procedures or guidelines shall be prepared by Central Pollution Control Board:*

*Provided, if trial run has been conducted for particular waste with respect to particular utilisation and compliance to the environmental standards has been demonstrated, authorisation may be granted by the State Pollution Control Board with respect to the same waste and utilisation, without need of separate trial run by Central Pollution Control Board and such cases of successful trial run, Central Pollution Control Board shall intimate all the State Pollution Control Board regarding the same.*

*(3) No trial runs shall be required for co-processing of waste in cement plants for which guidelines by the Central Pollution Control Board are already available; however, the actual users shall ensure compliance to the standards notified under the Environment (Protection) Act, 1986 (29 of 1986), for cement plant with respect to co-processing of waste:*

*Provided that till the time the standards are notified, the procedure as applicable to other kind of utilisation of hazardous and other waste, as enumerated above shall be followed."*

28. The Respondent No.4 appointed Metal Scrap Trade Corporation Limited - a public sector undertaking under the Ministry of Steel, Government of India (hereinafter referred to as "MSTC") for the disposal of carbon slurry through tendering process. Carbo Chemical Industries was selected by MSTC as the H1 Bidder. The quantity of 9,305.94 MT of carbon slurry was lifted by Carbo Chemical Industries vide Sale Order No. 288, dated 06.03.2017, valid upto 12.01.2018.
29. Thereafter, MSTC issued the Notice Inviting Tender (hereinafter referred to as "NIT") on behalf of the Respondent No.4 on its website



on 11.11.2019 with the auction date as 10.12.2019 for lifting of the remaining quantity of 39,600 MT of carbon slurry.

30. After several extensions, re-auctions, and negotiations, the bid placed by Respondent No.5 herein -i.e., Shubham Sales Corporation Limited, Rohtak, was approved online by the Respondent No.4 on 09.04.2021. The Respondent No.5 furnished the security deposit on 15.04.2021 and 16.04.2021, and accordingly, MSTC issued the Acceptance Letter, dated 20.04.2021, to the Respondent No.5.
31. Before the issuance of the Acceptance Letter, dated 20.04.2021, the Respondent No.4 fulfilled all the compliances as mandated under the said Rules for disposal of 'hazardous waste'. The Respondent No.4 had obtained the following documents from the Respondent No.5 and verified their authenticity-
- i. licence from Pollution Control Board for handling carbon slurry;
  - ii. valid Consent to Operate ("CTO") for both air and water hazardous waste, from the Haryana State Pollution Control Board (hereinafter referred to as "**HSPCB**");
  - iii. authorisation cum passbook from the Haryana SPCB;
  - iv. authorisation for collection, transportation and utilisation of carbon slurry from Respondent No.4's Unit from the Punjab SPCB;
  - v. no objection certificate from the Punjab SPCB and Haryana SPCB.
32. After the issuance of the Acceptance Letter, the Respondent No.5 was unable to deposit the First Instalment payable to Respondent No.4 in a timely manner due to the ongoing Covid-19 pandemic. The Respondent No.5 furnished part of the First Instalment on 11.03.2022 and accordingly, the Sale Order No. 393, dated 21.06.2022, was issued by the Respondent No.4 for lifting of 39,600 MT of carbon slurry.

33. The following measures were adopted by the Respondent No. 4 to ensure the safe lifting of carbon slurry from its Ponds by Respondent No.5, in compliance with the said Rules :
- Before loading of the carbon slurry, the Respondent No.4 ensured that only closed container type vehicles were deputed by the Respondent No.5 for transporting the slurry, as authorised by PPSCB vide Authorisation Letter SSO(HWM)/2020/PPCB/S-14, dated 02.11.2020, and the subsequent Extension Letter SEE(HQ-3)/2022/2225, dated 21.11.2022.
  - The Respondent No.4 also ensured that the suitable sticker or label containing the emergency numbers in case of spillage of Hazardous Waste Material was affixed to the above vehicle.
  - Further, as per the NIT, it was mandatory on part of the Contracting Agency (in the present case - the Respondent No.5) to ensure that the truck is weighed empty while loading the slurry, the truck is covered and further collection/loading is done through mechanised means as per the said Rules to prevent air transmission of the hazardous material.
34. The Respondent No.5 started the lifting of the carbon slurry from Respondent No.4's pond on 13.07.2022.
35. In view of a fresh proposal received from Respondent No.5, dated 07.08.2023, and upon several discussions and deliberations, the Respondent No.4 issued the Amendment No.1, dated 07.10.2023, as well as the Amendment No.2, dated 04.11.2023, to the Sale Order No. 393, for lifting of carbon slurry.

#### **HEAD E : CURRENT STATUS AND ACTION PLAN**

36. It is pertinent to mention that the Respondent No.5 has commenced the re-lifting of the carbon slurry from the three carbon slurry ponds of the

Respondent No.4 from 20.11.2023, in furtherance of Amendment No.2, dated 04.11.2023, to the Sale Order No. 393.

37. At this point, it is pertinent to mention that the Respondent No.5 herein has endeavoured to complete the lifting of the slurry from the ponds of Respondent No. 4 by 30.09.2024.

Copy of the Letter, dated 07.08.2023, sent by the Respondent No.5 to the Respondent No.4, is attached herewith and marked as **DOCUMENT – 6.**

38. As on 31.01.2024, there is an estimated quantity of 37,931.250 MT of carbon slurry lying at the ponds of the Respondent No.4. Since the re-lifting of the carbon slurry commenced on 20.11.2023, an estimated quantity of 325.860 MT of carbon slurry has already been lifted by the Respondent No.5, the details of which are as follows :

39.

Date	Quantity Lifted (MT)
23-11-2023	9.820
08-12-2023	20.860
12-12-2023	22.200
15-12-2023	23.130
18-12-2023	25.890
19-12-2023	9.640
21-12-2023	33.860
23-12-2023	10.100
25-12-2023	21.490
02-01-2024	42.220
06-01-2024	23.630
15-01-2024	22.570
20-01-2024	16.250
30-01-2024	44.200
<b>Total</b>	<b>325.860</b>

40. It is submitted that there are a lot of intricacies involved in the lifting and disposal of the carbon slurry under the said Rules which must be complied with. As stated above, the slurry can be lifted only by contractors authorised by the State or Central Pollution Control Board. Furthermore, the carbon slurry cannot be sold directly to its end users in the open market and must be lifted with utmost care and precaution.
41. Thus, as can be seen, the Respondent No.4 has left no stone unturned to ensure safe storage and management of the carbon slurry and its efficient disposal. The carbon slurry, last generated by the Respondent No.4 in 2012, is kept in isolated ponds specifically designated for the storage of hazardous waste. It is further reiterated, the carbon Ponds at Respondent No.4's Units are built at a considerable distance from civilization / public at large to prevent any hazards while loading and unloading.
42. It is reiterated that the Respondent No.5 herein strives to complete the lifting of the remaining 37,931.250 MT of carbon slurry from the Respondent No.4's ponds by 30.09.2024, in terms of the Amendments to the Sale Order. It is further reiterated that the Respondent No.4 shall take all steps necessary to support the Respondent No.5 in its endeavour and expedite the disposal of the carbon slurry from its ponds.
43. I state that contents of this Affidavit, except the legal averments, are true and correct to the best of my knowledge and belief. The legal averments contained herein are true and correct on the basis of the legal advice received by me and believed by me to be true and correct.



44. I state that no part of this Affidavit is false and no material facts have been concealed therefrom.

DEPONENT

**VERIFICATION:**

I, Vijay Kant Goyal, the above named Deponent, do hereby verify that the contents of this Affidavit are true and correct and no material facts have been concealed therefrom.

Verified at Bathinda on this 05 day of Feb., 2024.

DEPONENT

*Identify the deponent*  
*Jaspreet Kaur*  
*(Kasem Chand)*  
*Sr. M. (Lent)*  
*DFL*

ATTESTED  
*Jaspreet Kaur*  
GURMEET KAUR  
Advocate, Notary  
Appointed by Govt. of India  
BATHINDA

certified that the affidavit was read over & explained to the declarant who understood & Accepted it to be correct attested as identified  
*Jaspreet Kaur*  
NOTARY

Entered in my Notarial Register at  
Sr. No. *50487* Register No. *2*  
Date *5/2/24*  
*Jaspreet Kaur*  
NOTARY  
*5/2/24*

H.Off.: M-577, Guru Harkishan Nagar, Paschim Vihar, New Delhi-110087(India)

+91 11-45768766, 8527763108

Laboratory : 198-199, MIE, Phase-1, Bahadurgarh, Haryana - 124507 (India)

+91 1276-268444

E-mail : info@alphatesthouse.com, support@alphatesthouse.com

www.alphatesthouse.com

**TEST REPORT**

<b>Test Report No. :</b> ATL2960102018	<b>Sample Received Date :</b> 23/10/2018
<b>Issued To :</b> NATIONAL FERTILIZER LIMITED, (A Govt. of India Undertaking) Sibian Road,Batinda-151003 (Punjab)	<b>Start Date of Analysis :</b> 23/10/2018
	<b>End Date of Analysis :</b> 15/11/2018
	<b>Report Issued Date :</b> 15/11/2018
Sample Description : <b>Carbon Slurry</b>	
Sample Drawn on : 22/10/2018	
Sample Quantity : 2 Kg	
Location of Sampling point : <b>Pond No.-1</b>	
Type of Sampling : Composite	
Environmental Condition : Normal	
Sampling Plan/Procedure : ATHB/ENV/04	
Sampling done by : Mr. Anup Singh & Mr. Abhishek Shukla (Lab Representative)	
Remarks (if any) : <b>Letter Ref. No. -NFL/LAB/Carbon Slurry/2018</b> <b>Dated : 18/10/2018</b>	

Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
<b>Class A (Schedule-II) Based on leachable Concentration limits[Toxicity Characteristic Leaching Procedure(TCLP)]</b>					
1.	Arsenic	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
2.	Barium	mg/l	BDL(DL-0.02)	100.0 Max.	ICP-OES
3.	Cadmium	mg/l	BDL(DL-0.004)	1.0 Max.	ICP-OES
4.	Total Chromium	mg/l	BDL(DL-0.02)	5.0 Max.	ICP-OES
5.	Lead	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
6.	Manganese	mg/l	BDL(DL-0.02)	10.0 Max.	ICP-OES
7.	Mercury	mg/l	BDL(DL-0.0008)	0.2 Max.	ICP-OES
8.	Selenium	mg/l	BDL(DL-0.004)	1.0 Max.	ICP-OES
9.	Silver	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
10.	Antimony	mg/l	BDL(DL-0.004)	15 Max.	ICP-OES
11.	Beryllium	mg/l	BDL(DL-0.02)	0.75 Max.	ICP-OES
12.	Chromium (VI)	mg/l	BDL(DL-0.02)	5.0 Max.	ICP-OES
13.	Cobalt	mg/l	BDL(DL-0.02)	80.0 Max.	ICP-OES
14.	Copper	mg/l	BDL(DL-0.02)	25.0 Max.	ICP-OES
15.	Molybdenum	mg/l	BDL(DL-0.02)	350 Max.	ICP-OES
16.	Nickel	mg/l	0.022	20.0 Max.	ICP-OES
17.	Zinc	mg/l	BDL(DL-0.02)	250 Max.	ICP-OES
18.	Thallium	mg/l	BDL(DL-0.02)	7.0 Max.	ICP-OES
19.	Vanadium	mg/l	BDL(DL-0.02)	24.0 Max.	ICP-OES
20.	2,4,5-Trichlorophenol	mg/l	0.046	400.0 Max.	GC-MS
21.	Ammonia	mg/l	5.4	50 Max.	APHA 4500 NH <sub>3</sub> (C)
22.	Cyanide	mg/l	BDL(DL-0.01)	20 Max.	APHA 4500 CN-(E)
23.	Nitrate (as Nitrate Nitrogen)	mg/l	8.2	1000.0 Max.	IS:3025(P-34)1988 RA 2014



H.Off.: M-577, Guru Harkishan Nagar, Paschim Vihar, New Delhi-110087(India)

+91 11-45768766, 8527763108

Laboratory : 198-199, MIE, Phase-1, Bahadurgarh, Haryana - 124507 (India)

+91 1276-268444

E-mail : info@alphatesthouse.com, support@alphatesthouse.com

www.alphatesthouse.com

## TEST REPORT

Test Report No. : ATL2960102018

Sample Description : Carbon Slurry

Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
24.	Suphide (as H <sub>2</sub> S)	mg/l	1.6	5.0 Max.	APHA 4500 S <sup>2</sup> (D)
25.	Fluoride	mg/l	4.2	180.0 Max.	APHA 4500 F (D)
26.	1,1-Dichloroethylene	mg/l	0.026	0.7 Max.	GC-MS
27.	1,2-Dichloroethane	mg/l	0.004	0.5 Max.	GC-MS
28.	1,4-Dichlorobenzene	mg/l	0.001	7.5 Max.	GC-MS
29.	2,4-Dinitrotoluene	mg/l	0.003	0.13 Max.	GC-MS
30.	Benzene	mg/l	0.072	0.5 Max.	GC
31.	Benzo (a) Pyrene	mg/l	BDL(DL-0.00004)	0.001 Max.	GC-MS
32.	Bromodichloromethane	mg/l	BDL(DL-0.00004)	0.6 Max.	GC
33.	Bromoform	mg/l	BDL(DL-0.00004)	10.0 Max.	GC
34.	Carbon Tetrachloride	mg/l	0.033	0.5 Max.	GC
35.	Chloroform	mg/l	BDL(DL-0.00004)	6.0 Max.	GC
36.	Dibromochloromethane	mg/l	BDL(DL-0.00004)	10.0 Max.	GC
37.	Hexachlorobenzene	mg/l	BDL(DL-0.00008)	0.13 Max.	GC-MS
38.	Hexachlorobutadiene	mg/l	BDL(DL-0.00008)	0.5 Max.	GC-MS
39.	Hexachloroethane	mg/l	BDL(DL-0.00008)	3.0 Max.	GC-MS
40.	Methyl ethyl Ketone	mg/l	BDL(DL-0.00008)	200.0 Max.	GC-MS
41.	2,4,6-Trichlorophenol	mg/l	BDL(DL-0.00008)	2.0 Max.	GC-MS
42.	Nitrobenzene	mg/l	BDL(DL-0.00004)	2.0 Max.	GC-MS
43.	Naphthalene	mg/l	0.119	5.0 Max.	GC-MS
44.	Pyridene	mg/l	BDL(DL-0.00004)	5.0 Max.	GC-MS
45.	Tetrachloroethylene	mg/l	0.007	0.7 Max.	GC-MS
46.	Trichloroethylene	mg/l	BDL(DL-0.00004)	0.5 Max.	GC-MS
47.	Vinyl Chloride	mg/l	BDL(DL-0.000045)	0.2 Max.	GC-MS
48.	2,4-Dichlorophenoxyacetic acid	mg/l	BDL(DL-0.00004)	10.0 Max.	HPLC
49.	Alachlor	mg/l	0.005	2.0 Max.	GC-MS
50.	Alpha HCH	mg/l	BDL(DL-0.00001)	0.001 Max.	GC
51.	Beta HCH	mg/l	BDL(DL-0.00001)	0.004 Max.	GC
52.	Delta HCH	mg/l	BDL(DL-0.00001)	0.004 Max.	GC
53.	Butachlor	mg/l	0.012	12.5 Max.	GC-MS
54.	Chlordane	mg/l	0.004	0.03 Max.	GC-MS
55.	Chlorpyriphos	mg/l	0.088	9.0 Max.	GC-MS
56.	Atrazine	mg/l	0.003	0.2 Max.	GC-MS



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## TEST REPORT

Test Report No. : ATL2960102018

Sample Description : Carbon Slurry

Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
57.	Endosulphan (alpha + Beta + sulphate)	mg/l	0.011	0.04 Max.	GC
58.	Endrin	mg/l	BDL(DL-0.00009)	0.02 Max.	GC
59.	Ethion	mg/l	0.013	0.3 Max.	GC-MS
60.	Heptachlor (& its Epoxide)	mg/l	BDL(DL-0.00001)	0.008 Max.	GC
61.	Isoproturon	mg/l	BDL(DL-0.00002)	0.9 Max.	HPLC
62.	Chlorobenzene	mg/l	BDL(DL-0.00002)	100 Max.	GC-MS
63.	Lindane	mg/l	0.004	0.4 Max.	GC
64.	Malathion	mg/l	0.001	19 Max.	GC
65.	Methoxychlor	mg/l	BDL(DL-0.00009)	10 Max.	GC
66.	Methyl parathion	mg/l	0.004	0.7 Max.	GC
67.	Monocrotophos	mg/l	BDL(DL-0.00008)	0.1 Max.	GC
68.	Phorate	mg/l	0.001	0.2 Max.	GC
69.	Aldrin	mg/l	0.005	0.14 Max.	GC
70.	Dichlorodiphenyltrichloroethane	mg/l	BDL(DL-0.00007)	0.1 Max.	GC-MS
71.	Dieldrin	mg/l	0.004	0.8 Max.	GC
72.	Polychlorinated biphenyls	mg/l	0.004	5.0 Max.	GC-MS
73.	Cresol (ortho+meta+para)	mg/l	BDL(DL-0.00007)	200.0 Max.	GC-MS
74.	Pentachlorophenol	mg/l	BDL(DL-0.00012)	100.0 Max.	GC-MS
75.	2,4,5-TP (Silvex)	mg/l	BDL(DL-0.00015)	1.0 Max.	GC-MS
76.	Toxaphene	mg/l	BDL(DL-0.00017)	0.5 Max.	GC-MS
77.	Kepon	mg/l	BDL(DL-0.00008)	2.1 Max.	GC-MS
78.	Mirex	mg/l	BDL(DL-0.00011)	2.1 Max.	GC-MS
79.	Dioxin (2,3,7,8-TCDD)	mg/l	BDL(DL-0.00028)	0.001 Max.	GC-MS

### Class -B (Schedule - II) Based on Total Threshold Limit Concentration (TTLIC)

1. Total Petroleum Hydrocarbons					
a.	n-Pentane (C5)	mg/kg	BDL(DL-0.00004)	--	GC
b.	n- Hexane (C6)	mg/kg	BDL(DL-0.00004)	--	GC
c.	Toluene (C7)	mg/kg	BDL(DL-0.00004)	--	GC
d.	Ethylbenzene (C8)	mg/kg	BDL(DL-0.00004)	--	GC
e.	Xylene (C8)	mg/kg	BDL(DL-0.00004)	--	GC

### Class -C (Schedule - II) Based on Hazardous Characteristics

1.	Flammability	--	Non-Flammable	--	ATH-Bahadurgarh/SOP/C/34
2.	Corrosivity	--	Non-Corrosive	--	ATH-Bahadurgarh/SOP/C/35
3.	Reactivity or explosive	--	Non-Reactive or Non-explosive	--	ATH-Bahadurgarh/SOP/C/36
4.	Toxicity	--	Non-Toxic	--	IS:6582-2001

Note:- BDL-Below Detection Limit, DL-Detection Limit

Remarks: The above Carbon Slurry sample is not in Hazardous category as per the notification of MoEF &amp; CC schedule II of Hazardous Waste Rule-2016.





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E-mail : info@alphatesthouse.com, support@alphatesthouse.com

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+91 1276-268444

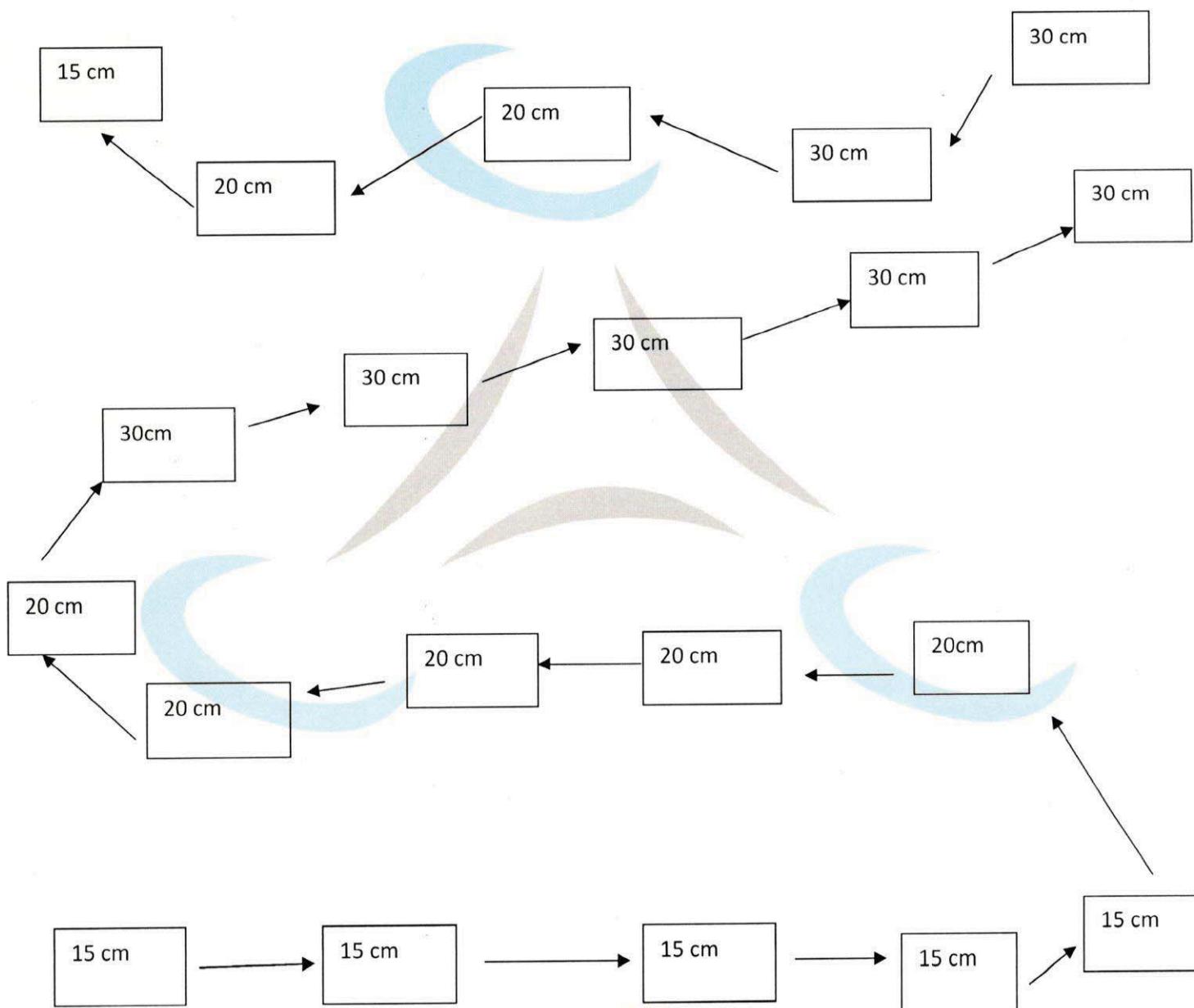
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## TEST REPORT

Test Report No. : ATL2960102018

Sample Description : Carbon Slurry

### Depth Layout of Sampling Plan



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+91 1276-268444

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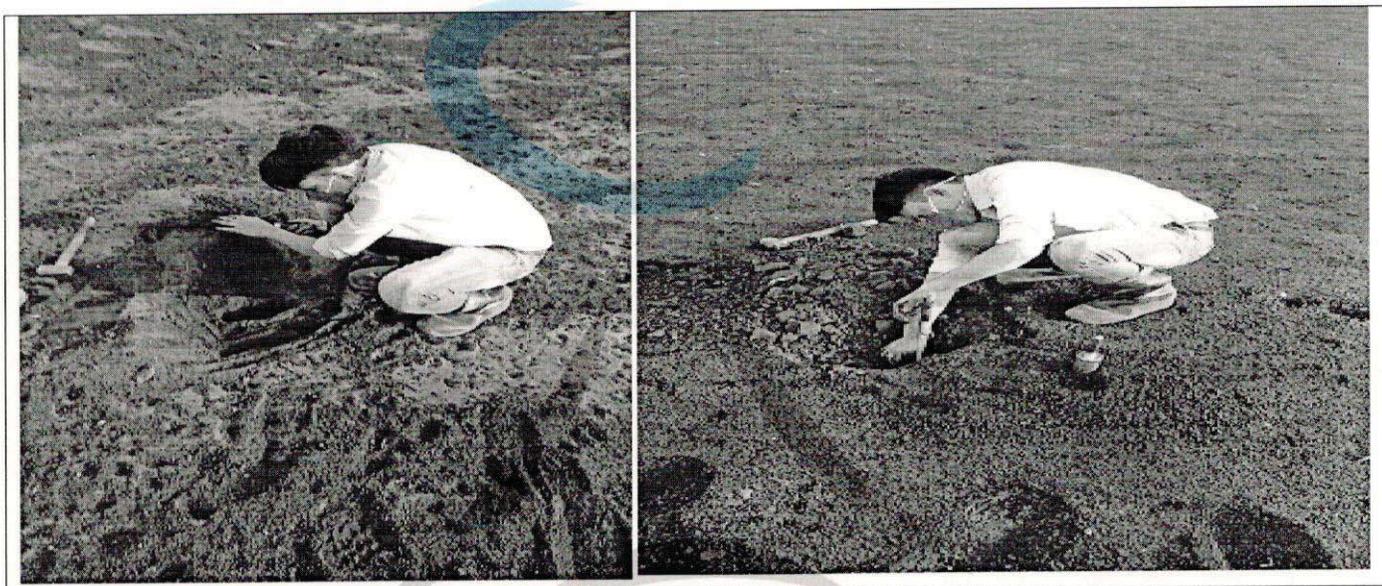
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## TEST REPORT

Test Report No. : ATL2960102018

Sample Description : Carbon Slurry

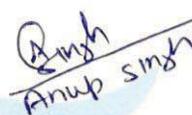
### Photographs



\*\*End of Report\*\*



 Authorized Signatory  
(Instrumentation)



 Authorized Signatory  
(Chemical)



## Document -2

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Laboratory : 198-199, MIE, Phase-1, Bahadurgarh, Haryana - 124507 (India)

+91 1276-268444

E-mail : info@alphatesthouse.com, support@alphatesthouse.com

www.alphatesthouse.com

### TEST REPORT

<b>Test Report No. : ATL2960112018</b>	<b>Sample Received Date : 23/10/2018</b>
<b>Issued To :</b> NATIONAL FERTILIZER LIMITED, (A Govt. of India Undertaking) Sibian Road,Batinda-151003 (Punjab)	<b>Start Date of Analysis : 23/10/2018</b>
	<b>End Date of Analysis : 15/11/2018</b>
	<b>Report Issued Date : 15/11/2018</b>
Sample Description : <b>Carbon Slurry</b>	
Sample Drawn on : 22/10/2018	
Sample Quantity : 2 Kg	
Location of Sampling point : <b>Pond No.- 2</b>	
Type of Sampling : Composite	
Environmental Condition : Normal	
Sampling Plan/Procedure : ATHB/ENV/04	
Sampling done by : Mr. Anup Singh & Mr. Abhishek Shukla (Lab Representative)	
Remarks (if any) : <b>Letter Ref. No. -NFL/LAB/Carbon Slurry/2018 Dated : 18/10/2018</b>	

Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
<b>Class A (Schedule-II) Based on leachable Concentration limits[Toxicity Characteristic Leaching Procedure(TCLP)]</b>					
1.	Arsenic	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
2.	Barium	mg/l	BDL(DL-0.02)	100.0 Max.	ICP-OES
3.	Cadmium	mg/l	BDL(DL-0.004)	1.0 Max.	ICP-OES
4.	Total Chromium	mg/l	BDL(DL-0.02)	5.0 Max.	ICP-OES
5.	Lead	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
6.	Manganese	mg/l	BDL(DL-0.02)	10.0 Max.	ICP-OES
7.	Mercury	mg/l	BDL(DL-0.0008)	0.2 Max.	ICP-OES
8.	Selenium	mg/l	BDL(DL-0.004)	1.0 Max.	ICP-OES
9.	Silver	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
10.	Antimony	mg/l	BDL(DL-0.004)	15 Max.	ICP-OES
11.	Beryllium	mg/l	BDL(DL-0.02)	0.75 Max.	ICP-OES
12.	Chromium (VI)	mg/l	BDL(DL-0.02)	5.0 Max.	ICP-OES
13.	Cobalt	mg/l	BDL(DL-0.02)	80.0 Max.	ICP-OES
14.	Copper	mg/l	BDL(DL-0.02)	25.0 Max.	ICP-OES
15.	Molybdenum	mg/l	BDL(DL-0.02)	350 Max.	ICP-OES
16.	Nickel	mg/l	0.024	20.0 Max.	ICP-OES
17.	Zinc	mg/l	BDL(DL-0.02)	250 Max.	ICP-OES
18.	Thallium	mg/l	BDL(DL-0.02)	7.0 Max.	ICP-OES
19.	Vanadium	mg/l	BDL(DL-0.02)	24.0 Max.	ICP-OES
20.	2,4,5-Trichlorophenol	mg/l	0.031	400.0 Max.	GC-MS
21.	Ammonia	mg/l	2.4	50 Max.	APHA 4500 NH <sub>3</sub> (C)
22.	Cyanide	mg/l	BDL(DL-0.01)	20 Max.	APHA 4500 CN-(E)
23.	Nitrate (as Nitrate Nitrogen)	mg/l	4.1	1000.0 Max.	IS:3025(P-34)1988 RA 2014





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E-mail : info@alphatesthouse.com, support@alphatesthouse.com

+91 11-45768766, 8527763108

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## TEST REPORT

Test Report No. : ATL2960112018	Sample Description : Carbon Slurry
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Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
24.	Suphide (as H <sub>2</sub> S)	mg/l	2.4	5.0 Max.	APHA 4500 S <sup>2</sup> (D)
25.	Fluoride	mg/l	3.9	180.0 Max.	APHA 4500 F (D)
26.	1,1-Dichloroethylene	mg/l	0.019	0.7 Max.	GC-MS
27.	1,2-Dichloroethane	mg/l	0.004	0.5 Max.	GC-MS
28.	1,4-Dichlorobenzene	mg/l	0.002	7.5 Max.	GC-MS
29.	2,4-Dinitrotoluene	mg/l	0.003	0.13 Max.	GC-MS
30.	Benzene	mg/l	0.004	0.5 Max.	GC
31.	Benzo (a) Pyrene	mg/l	BDL(DL-0.00004)	0.001 Max.	GC-MS
32.	Bromodichloromethane	mg/l	BDL(DL-0.00004)	0.6 Max.	GC
33.	Bromoform	mg/l	BDL(DL-0.00004)	10.0 Max.	GC
34.	Carbon Tetrachloride	mg/l	0.005	0.5 Max.	GC
35.	Chloroform	mg/l	BDL(DL-0.00004)	6.0 Max.	GC
36.	Dibromochloromethane	mg/l	BDL(DL-0.00004)	10.0 Max.	GC
37.	Hexachlorobenzene	mg/l	BDL(DL-0.00008)	0.13 Max.	GC-MS
38.	Hexachlorobutadiene	mg/l	BDL(DL-0.00008)	0.5 Max.	GC-MS
39.	Hexachloroethane	mg/l	BDL(DL-0.00008)	3.0 Max.	GC-MS
40.	Methyl ethyl Ketone	mg/l	BDL(DL-0.00008)	200.0 Max.	GC-MS
41.	2,4,6-Trichlorophenol	mg/l	BDL(DL-0.00008)	2.0 Max.	GC-MS
42.	Nitrobenzene	mg/l	BDL(DL-0.00004)	2.0 Max.	GC-MS
43.	Naphthalene	mg/l	0.042	5.0 Max.	GC-MS
44.	Pyridene	mg/l	BDL(DL-0.00004)	5.0 Max.	GC-MS
45.	Tetrachloroethylene	mg/l	0.009	0.7 Max.	GC-MS
46.	Trichloroethylene	mg/l	BDL(DL-0.00004)	0.5 Max.	GC-MS
47.	Vinyl Chloride	mg/l	BDL(DL-0.000045)	0.2 Max.	GC-MS
48.	2,4-Dichlorophenoxyacetic acid	mg/l	BDL(DL-0.00004)	10.0 Max.	HPLC
49.	Alachlor	mg/l	0.005	2.0 Max.	GC-MS
50.	Alpha HCH	mg/l	BDL(DL-0.00001)	0.001 Max.	GC
51.	Beta HCH	mg/l	BDL(DL-0.00001)	0.004 Max.	GC
52.	Delta HCH	mg/l	BDL(DL-0.00001)	0.004 Max.	GC
53.	Butachlor	mg/l	0.006	12.5 Max.	GC-MS
54.	Chlordane	mg/l	0.005	0.03 Max.	GC-MS
55.	Chlorpyriphos	mg/l	0.142	9.0 Max.	GC-MS
56.	Atrazine	mg/l	0.002	0.2 Max.	GC-MS



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+91 1276-268444

E-mail : info@alphatesthouse.com, support@alphatesthouse.com

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## TEST REPORT

Test Report No. : ATL2960112018 Sample Description : Carbon Slurry

Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
57.	Endosulphan (alpha + beta + sulphate)	mg/l	0.01	0.04 Max.	GC
58.	Endrin	mg/l	BDL(DL-0.00009)	0.02 Max.	GC
59.	Ethion	mg/l	0.009	0.3 Max.	GC-MS
60.	Heptachlor (& its Epoxide)	mg/l	BDL(DL-0.00001)	0.008 Max.	GC
61.	Isoproturon	mg/l	BDL(DL-0.00002)	0.9 Max.	HPLC
62.	Chlorobenzene	mg/l	BDL(DL-0.00002)	100 Max.	GC-MS
63.	Lindane	mg/l	0.003	0.4 Max.	GC
64.	Malathion	mg/l	0.002	19 Max.	GC
65.	Methoxychlor	mg/l	BDL(DL-0.00009)	10 Max.	GC
66.	Methyl parathion	mg/l	0.005	0.7 Max.	GC
67.	Monocrotophos	mg/l	BDL(DL-0.00008)	0.1 Max.	GC
68.	Phorate	mg/l	0.013	0.2 Max.	GC
69.	Aldrin	mg/l	BDL(DL-0.00001)	0.14 Max.	GC
70.	Dichlorodiphenyltrichloroethane	mg/l	BDL(DL-0.00007)	0.1 Max.	GC-MS
71.	Dieldrin	mg/l	0.003	0.8 Max.	GC
72.	Polychlorinated biphenyls	mg/l	0.005	5.0 Max.	GC-MS
73.	Cresol (ortho+meta+para)	mg/l	BDL(DL-0.00007)	200.0 Max.	GC-MS
74.	Pentachlorophenol	mg/l	BDL(DL-0.00012)	100.0 Max.	GC-MS
75.	2,4,5-TP (Silvex)	mg/l	BDL(DL-0.00015)	1.0 Max.	GC-MS
76.	Toxaphene	mg/l	BDL(DL-0.00017)	0.5 Max.	GC-MS
77.	Kepone	mg/l	BDL(DL-0.00008)	2.1 Max.	GC-MS
78.	Mirex	mg/l	BDL(DL-0.00011)	2.1 Max.	GC-MS
79.	Dioxin (2,3,7,8-TCDD)	mg/l	BDL(DL-0.00028)	0.001 Max.	GC-MS

### Class -B (Schedule - II) Based on Total Threshold Limit Concentration (TTLC)

1. Total Petroleum Hydrocarbons					
a.	n-Pentane (C5)	mg/kg	BDL(DL-0.00004)	--	GC
b.	n- Hexane (C6)	mg/kg	BDL(DL-0.00004)	--	GC
c.	Toluene (C7)	mg/kg	BDL(DL-0.00004)	--	GC
d.	Ethylbenzene (C8)	mg/kg	BDL(DL-0.00004)	--	GC
e.	Xylene (C8)	mg/kg	BDL(DL-0.00004)	--	GC

### Class -C (Schedule - II) Based on Hazardous Characteristics

1.	Flammability	--	Non-Flammable	--	ATH-Bahadurgarh/SOP/C/34
2.	Corrosivity	--	Non-Corrosive	--	ATH-Bahadurgarh/SOP/C/35
3.	Reactivity or explosive	--	Non-Reactive or Non-explosive	--	ATH-Bahadurgarh/SOP/C/36
4.	Toxicity	--	Non-Toxic	--	IS:6582-2001

Note:- BDL-Below Detection Limit, DL-Detection Limit

Remarks: The above Carbon Slurry sample is not in Hazardous category as per the notification of MoEF & CC schedule II of Hazardous Waste Rule-2016.





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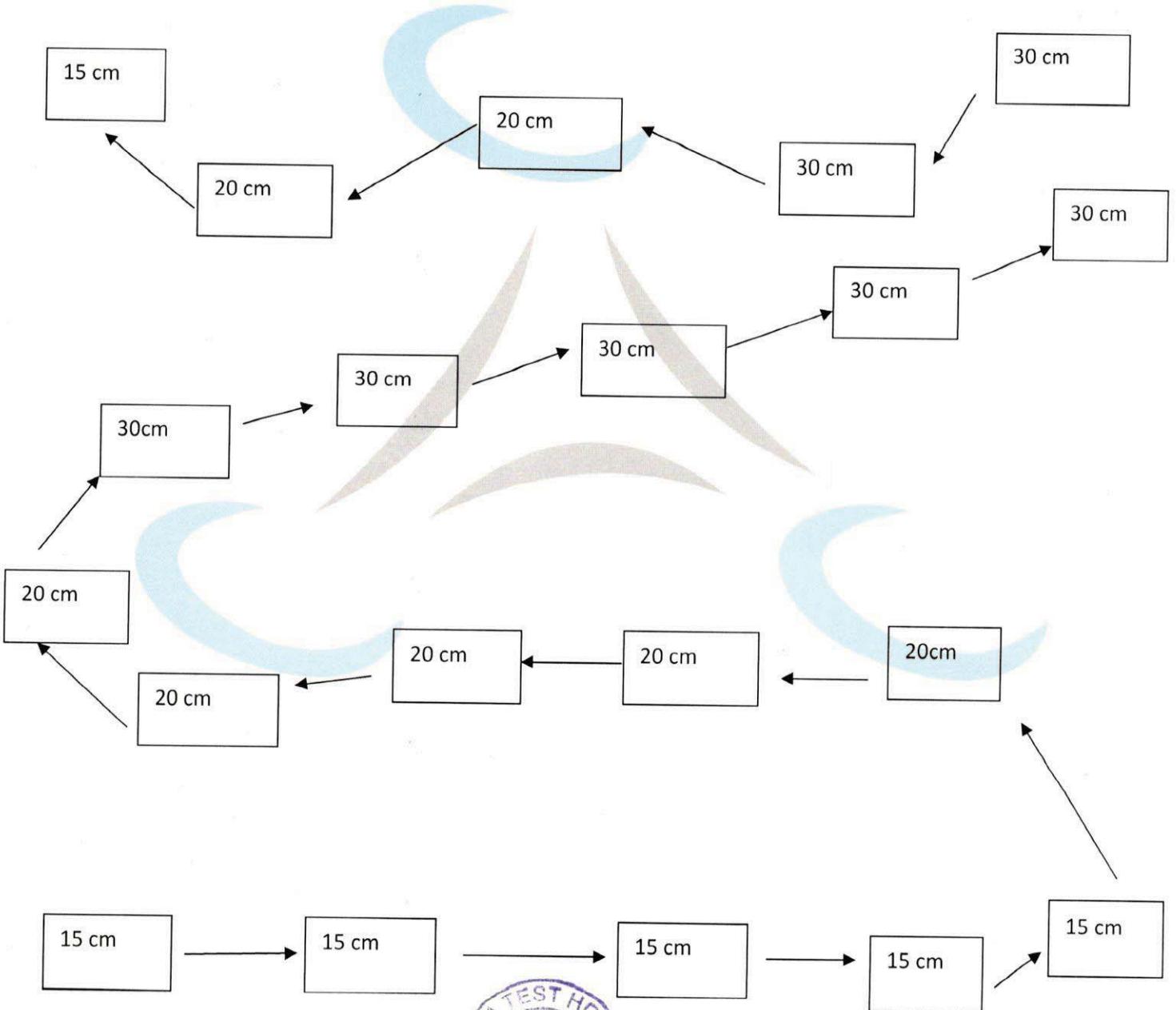
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## TEST REPORT

Test Report No. : **ATL2960112018**

Sample Description : **Carbon Slurry**

### Depth Layout of Sampling Plan



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## TEST REPORT

Test Report No. : ATL2960112018

Sample Description : Carbon Slurry

### Photographs



**\*\*End of Report\*\***

*[Handwritten Signature]*  
A. K. Masani

Authorized Signatory  
(Instrumentation)



*[Handwritten Signature]*  
Anup Singh

Authorized Signatory  
(Chemical)



## Document - 3

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+91 11-45768766, 8527763108

+91 1276-268444

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### TEST REPORT

<b>Test Report No. :</b> ATL2960122018	<b>Sample Received Date :</b> 23/10/2018
<b>Issued To :</b> NATIONAL FERTILIZER LIMITED, (A Govt. of India Undertaking) Sibian Road, Batinda-151003 (Punjab)	<b>Start Date of Analysis :</b> 23/10/2018
	<b>End Date of Analysis :</b> 15/11/2018
	<b>Report Issued Date :</b> 15/11/2018
<b>Sample Description :</b> Carbon Slurry	
<b>Sample Drawn on :</b>	21/10/2018
<b>Sample Quantity :</b>	2 Kg
<b>Location of Sampling point :</b>	<b>Pond No. - 6A</b>
<b>Type of Sampling :</b>	Composite
<b>Environmental Condition :</b>	Normal
<b>Sampling Plan/Procedure :</b>	ATHB/ENV/04
<b>Sampling done by :</b>	Mr. Anup Singh & Mr. Abhishek Shukla (Lab Representative)
<b>Remarks (if any) :</b>	<b>Letter Ref. No. -NFL/LAB/Carbon Slurry/2018 Dated : 18/10/2018</b>

Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
<b>Class A (Schedule-II) Based on leachable Concentration limits [Toxicity Characteristic Leaching Procedure (TCLP)]</b>					
1.	Arsenic	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
2.	Barium	mg/l	BDL(DL-0.02)	100.0 Max.	ICP-OES
3.	Cadmium	mg/l	BDL(DL-0.004)	1.0 Max.	ICP-OES
4.	Total Chromium	mg/l	BDL(DL-0.02)	5.0 Max.	ICP-OES
5.	Lead	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
6.	Manganese	mg/l	BDL(DL-0.02)	10.0 Max.	ICP-OES
7.	Mercury	mg/l	BDL(DL-0.0008)	0.2 Max.	ICP-OES
8.	Selenium	mg/l	BDL(DL-0.004)	1.0 Max.	ICP-OES
9.	Silver	mg/l	BDL(DL-0.004)	5.0 Max.	ICP-OES
10.	Antimony	mg/l	BDL(DL-0.004)	15 Max.	ICP-OES
11.	Beryllium	mg/l	BDL(DL-0.02)	0.75 Max.	ICP-OES
12.	Chromium (VI)	mg/l	BDL(DL-0.02)	5.0 Max.	ICP-OES
13.	Cobalt	mg/l	BDL(DL-0.02)	80.0 Max.	ICP-OES
14.	Copper	mg/l	BDL(DL-0.02)	25.0 Max.	ICP-OES
15.	Molybdenum	mg/l	BDL(DL-0.02)	350 Max.	ICP-OES
16.	Nickel	mg/l	0.012	20.0 Max.	ICP-OES
17.	Zinc	mg/l	BDL(DL-0.02)	250 Max.	ICP-OES
18.	Thallium	mg/l	BDL(DL-0.02)	7.0 Max.	ICP-OES
19.	Vanadium	mg/l	BDL(DL-0.02)	24.0 Max.	ICP-OES
20.	2,4,5-Trichlorophenol	mg/l	0.023	400.0 Max.	GC-MS
21.	Ammonia	mg/l	3.9	50 Max.	APHA 4500 NH <sub>3</sub> (C)
22.	Cyanide	mg/l	BDL(DL-0.01)	20 Max.	APHA 4500 CN-(E)
23.	Nitrate (as Nitrate Nitrogen)	mg/l	5.7	1000.0 Max.	IS:3025(P-34)1988 RA 2014



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E-mail : info@alphatesthouse.com, support@alphatesthouse.com

+91 11-45768766, 8527763108

+91 1276-268444

www.alphatesthouse.com

## TEST REPORT

Test Report No. : <b>ATL2960122018</b>	Sample Description : <b>Carbon Slurry</b>
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Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
24.	Suphide (as H <sub>2</sub> S)	mg/l	1.1	5.0 Max.	APHA 4500 S <sup>2</sup> (D)
25.	Fluoride	mg/l	4.8	180.0 Max.	APHA 4500 F (D)
26.	1,1-Dichloroethylene	mg/l	0.017	0.7 Max.	GC-MS
27.	1,2-Dichloroethane	mg/l	0.003	0.5 Max.	GC-MS
28.	1,4-Dichlorobenzene	mg/l	0.002	7.5 Max.	GC-MS
29.	2,4-Dinitrotoluene	mg/l	0.005	0.13 Max.	GC-MS
30.	Benzene	mg/l	0.006	0.5 Max.	GC
31.	Benzo (a) Pyrene	mg/l	BDL(DL-0.00004)	0.001 Max.	GC-MS
32.	Bromodichloromethane	mg/l	BDL(DL-0.00004)	0.6 Max.	GC
33.	Bromoform	mg/l	BDL(DL-0.00004)	10.0 Max.	GC
34.	Carbon Tetrachloride	mg/l	0.006	0.5 Max.	GC
35.	Chloroform	mg/l	BDL(DL-0.00004)	6.0 Max.	GC
36.	Dibromochloromethane	mg/l	BDL(DL-0.00004)	10.0 Max.	GC
37.	Hexachlorobenzene	mg/l	BDL(DL-0.00008)	0.13 Max.	GC-MS
38.	Hexachlorobutadiene	mg/l	BDL(DL-0.00008)	0.5 Max.	GC-MS
39.	Hexachloroethane	mg/l	BDL(DL-0.00008)	3.0 Max.	GC-MS
40.	Methyl ethyl Ketone	mg/l	BDL(DL-0.00008)	200.0 Max.	GC-MS
41.	2,4,6-Trichlorophenol	mg/l	BDL(DL-0.00008)	2.0 Max.	GC-MS
42.	Nitrobenzene	mg/l	BDL(DL-0.00004)	2.0 Max.	GC-MS
43.	Naphthalene	mg/l	0.194	5.0 Max.	GC-MS
44.	Pyridene	mg/l	BDL(DL-0.00004)	5.0 Max.	GC-MS
45.	Tetrachloroethylene	mg/l	0.001	0.7 Max.	GC-MS
46.	Trichloroethylene	mg/l	BDL(DL-0.00004)	0.5 Max.	GC-MS
47.	Vinyl Chloride	mg/l	BDL(DL-0.000045)	0.2 Max.	GC-MS
48.	2,4-Dichlorophenoxyacetic acid	mg/l	BDL(DL-0.00004)	10.0 Max.	HPLC
49.	Alachlor	mg/l	0.006	2.0 Max.	GC-MS
50.	Alpha HCH	mg/l	BDL(DL-0.00001)	0.001 Max.	GC
51.	Beta HCH	mg/l	BDL(DL-0.00001)	0.004 Max.	GC
52.	Delta HCH	mg/l	BDL(DL-0.00001)	0.004 Max.	GC
53.	Butachlor	mg/l	0.013	12.5 Max.	GC-MS
54.	Chlordane	mg/l	0.005	0.03 Max.	GC-MS
55.	Chlorpyrifos	mg/l	0.263	9.0 Max.	GC-MS
56.	Atrazine	mg/l	0.004	0.2 Max.	GC-MS





# ALPHA TEST HOUSE

(ISO 9001-2008 Certified Testing Laboratory)

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## TEST REPORT

Test Report No. : ATL2960122018

Sample Description : Carbon Slurry

Sr. No.	Test Parameters	Units of Measurements	Results	Requirement as per Schedule-II of HWM Rules-2016	Method Reference
57.	Endosulphan (alpha + beta + sulphate)	mg/l	0.012	0.04 Max.	GC
58.	Endrin	mg/l	BDL(DL-0.00009)	0.02 Max.	GC
59.	Ethion	mg/l	0.006	0.3 Max.	GC-MS
60.	Heptachlor (& its Epoxide)	mg/l	BDL(DL-0.00001)	0.008 Max.	GC
61.	Isoproturon	mg/l	BDL(DL-0.00002)	0.9 Max.	HPLC
62.	Chlorobenzene	mg/l	BDL(DL-0.00002)	100 Max.	GC-MS
63.	Lindane	mg/l	0.004	0.4 Max.	GC
64.	Malathion	mg/l	0.018	19 Max.	GC
65.	Methoxychlor	mg/l	BDL(DL-0.00009)	10 Max.	GC
66.	Methyl parathion	mg/l	0.004	0.7 Max.	GC
67.	Monocrotophos	mg/l	BDL(DL-0.00008)	0.1 Max.	GC
68.	Phorate	mg/l	0.001	0.2 Max.	GC
69.	Aldrin	mg/l	0.01	0.14 Max.	GC
70.	Dichlorodiphenyltrichloroethane	mg/l	BDL(DL-0.00007)	0.1 Max.	GC-MS
71.	Dieldrin	mg/l	0.004	0.8 Max.	GC
72.	Polychlorinated biphenyls	mg/l	0.004	5.0 Max.	GC-MS
73.	Cresol (ortho+meta+para)	mg/l	BDL(DL-0.00007)	200.0 Max.	GC-MS
74.	Pentachlorophenol	mg/l	BDL(DL-0.00012)	100.0 Max.	GC-MS
75.	2,4,5-TP (Silvex)	mg/l	BDL(DL-0.00015)	1.0 Max.	GC-MS
76.	Toxaphene	mg/l	BDL(DL-0.00017)	0.5 Max.	GC-MS
77.	Kepone	mg/l	BDL(DL-0.00008)	2.1 Max.	GC-MS
78.	Mirex	mg/l	BDL(DL-0.00011)	2.1 Max.	GC-MS
79.	Dioxin (2,3,7,8-TCDD)	mg/l	BDL(DL-0.00028)	0.001 Max.	GC-MS

### Class -B (Schedule - II) Based on Total Threshold Limit Concentration (TTLC)

1. Total Petroleum Hydrocarbons					
a.	n-Pentane (C5)	mg/kg	BDL(DL-0.00004)	--	GC
b.	n-Hexane (C6)	mg/kg	BDL(DL-0.00004)	--	GC
c.	Toluene (C7)	mg/kg	BDL(DL-0.00004)	--	GC
d.	Ethylbenzene (C8)	mg/kg	BDL(DL-0.00004)	--	GC
e.	Xylene (C8)	mg/kg	BDL(DL-0.00004)	--	GC

### Class -C (Schedule - II) Based on Hazardous Characteristics

1.	Flammability	--	Non-Flammable	--	ATH-Bahadurgarh/SOP/C/34
2.	Corrosivity	--	Non-Corrosive	--	ATH-Bahadurgarh/SOP/C/35
3.	Reactivity or explosive	--	Non-Reactive or Non-explosive	--	ATH-Bahadurgarh/SOP/C/36
4.	Toxicity	--	Non-Toxic	--	IS:6582-2001

Note:- BDL-Below Detection Limit, DL-Detection Limit

Remarks: The above Carbon Slurry sample is not in Hazardous category as per the notification of MoEF &CC schedule II of Hazardous Waste Rule-2016.





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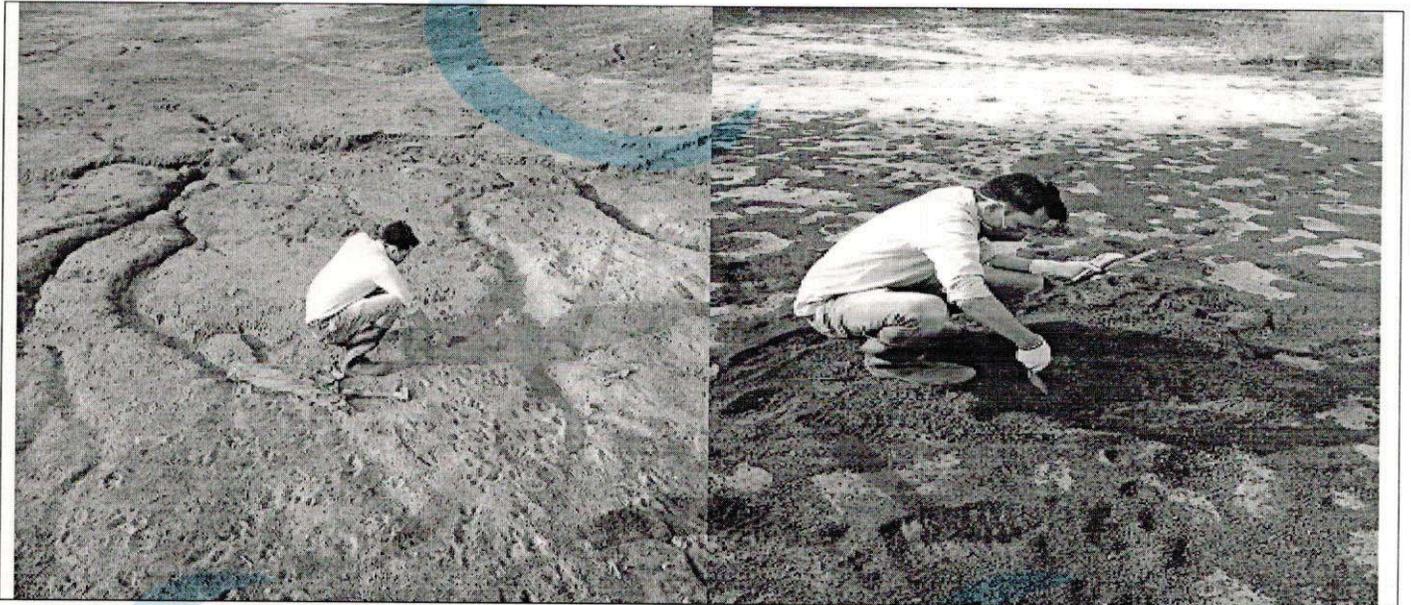
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## TEST REPORT

Test Report No. : **ATL2960122018**

Sample Description : **Carbon Slurry**

### Photographs



**\*\*End of Report\*\***

*A. Mehta*  
A. Mehta

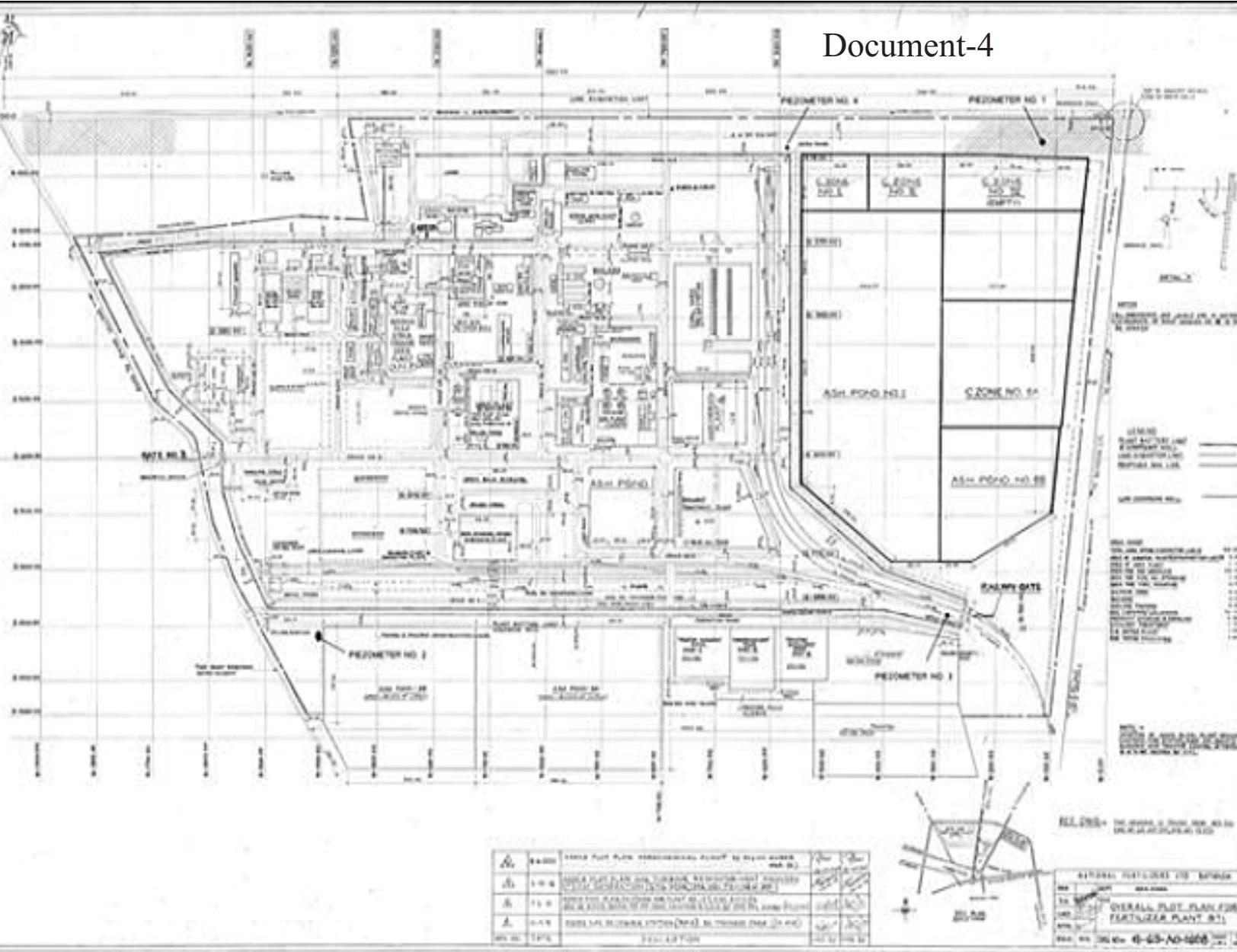
Authorized Signatory  
(Instrumentation)



*Anup Singh*  
Anup Singh

Authorized Signatory  
(Chemical)

Document-4





नेशनल फर्टिलाइजर्स लिमिटेड

(भारत सरकार का उपक्रम)

बठिंडा इकाई : सिबियाँ रोड, बठिंडा - 151003 पंजाब  
दूरभाष : 0164 - 2270220, 2760200  
फैक्स : 0164-2270463

## Document -5



NATIONAL FERTILIZERS LIMITED

(A Govt. of India Undertaking)

Bathinda Unit: Sibian Road, Bathinda - 151003 (Punjab)  
Ph.: 0164-2270220, 2760200  
Fax: 0164-2270463

Date: 01.02.2024

### Analysis Report

Analysis results of Ground Water Samples collected on dated: 12.01.2024

Parameters	Unit	Piezometer-I Near Railway crossing opp. Carbon Pond No. 4	Piezometer-II Near Gate No. 2 Opp. Ash Pond 3A	Piezometer-III Near Coal Handling Yard (Gate No.3)	Piezometer-IV Near Watch Tower opp. Carbon Pond No. 1
pH	-	7.8	7.4	7.8	7.8
TSS	mg/l	ND	ND	ND	ND
TDS	mg/l	566	602	522	536
T.H.	mg/l	256	276	220	240
CaH	mg/l	156	168	132	148
MgH	mg/l	100	108	88	92
NO <sub>3</sub> -N	mg/l	4.8	5.9	4.7	5.0
T.Alkalinity	mg/l	172	184	158	162
CN	mg/l	ND	ND	ND	ND

ND = Not detected

*(Signature)*  
1/2/24

हरमेश लाल थादी

मुख्य प्रबन्धक (प्रयोगशाला)

*(Signature)*  
1/2/24

हरमेश लाल थादी  
HARMESH LAL THADI  
मुख्य प्रबन्धक (लेब.)  
CHIEF MANAGER (LAB.)  
एन.एफ.एल., बठिंडा  
NFL, BATHINDA-151003

कॉर्पोरेट कार्यालय : ए-11, सेक्टर-24, नोएडा - 201301 (उ.प्र.), दूरभाष : 0120-2412383, फैक्स : 0120-2412384  
Corporate Office : A-11, Sector-24, Noida - 201301 (UP), Tel: 0120-2412383, Fax: 0120-2412384

पंजीकृत कार्यालय: स्कोप कॉम्प्लेक्स, कोर - III, 7, इन्स्टिट्यूशनल एरिया, लोधी रोड, नई दिल्ली- 110003, दूरभाष: 011-24361252, फैक्स: 011-24361252

Regd. Office : Scope Complex Core - III, 7, Institutional Area, Lodhi Road, New Delhi - 110003, Tel: 011-24361252, Fax: 011-24361252

CIN : L74899DL1974GO1007417 Website : <http://www.nationalfertilizers.com> @nationalfertilizers



the time of renewals and statutory compliance. We will submit lifting plan before start of lifting of material.

We being a MSME enterprise are covered for non-imposition of penalties and LD's as per Scheme of VIVAD SE VISHWAS of Govt. of India. We humbly request for waiver of all such recoveries.

Thanking You,

Kind regards,  
 For Shubham Sales Co.  
  
 Partner

Nupinder Singh Sivia  
 Partner  
 Shubham Sales Co. Rohtak

For Shubham Sales Co.

Partner