

ENVIRONMENT POLLUTION (PREVENTION & CONTROL) AUTHORITY
for the National Capital Region

Dr Bhure Lal
Chairman

EPCA-R/2017/L-22
April 04 2017

To:

The Registrar General
Hon'ble Supreme Court of India
New Delhi

Sub: Submission of Report on Air pollution in the matter of Writ Petition (C) No 13029 of 1985; M.C. Mehta v/s UOI & others

Dear Sir,

This is with reference to the Hon'ble Supreme Court Order dated March 06, 2017 in W. P. (C) No 13029 of 1985 M. C. Mehta v/s UoI & Others.

I am hereby enclosing the report of the Environment Pollution (Prevention & Control) Authority for the National Capital Region (EPCA), Final Report on Furnace Oil and Pet Coke in NCR.

Kindly arrange to place the report before the Hon'ble Court.



Thanking you,


(Bhure Lal)
Chairman, EPCA

Central Pollution Control Board

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Report No 72

Final Report on Mandating Acceptable Fuels and recommending ban on sale and use of furnace oil and pet coke in NCR in compliance with the order of the Hon'ble Supreme Court dated March 6, 2017

April 4, 2017

Environment Pollution (Control and Prevention) Authority for
NCR (EPCA)

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Final Report on Mandating Acceptable Fuels and ban on sale and use of furnace oil and pet coke in NCR in compliance with the order of the Hon'ble Supreme Court dated March 6, 2017

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Environment Pollution (Control and Prevention) Authority for NCR (EPCA)

1. Background

December 1, 2016 EPCA report on FO and pet-coke: After detailed investigation, EPCA submitted its report to the Hon'ble Supreme Court on "Mandating acceptable fuel to be used in NCR for air pollution control". This report recommended ban on sale and use of furnace oil (FO) and pet coke in NCR because of the high sulfur and toxic metal content. It also recommended that all fuels, which did not have specifications, should not be allowed to be used in NCR.

It noted that in 1996, the Delhi Pollution Control Committee had issued a notification mandating the 'acceptable fuels' that could be used in Delhi under section 19 of Air Act. The list did not include furnace oil or pet coke or other fuels that could have high Sulphur. However, this ban did not extend to NCR and therefore, there was no restriction in the use of extremely polluting fuel at the border of Delhi and in the same air-shed (Annexure 1).

December 2, 2016 Hon'ble Supreme Court order: *"Mr. Harish N. Salve, learned Amicus argues that one of the major causes of pollution in the NCR region happens to be the use of petcoke and furnace oil as fuel generally for industrial purpose and for power generation. He has tendered before us a report which indicates that use of both these types of fuel is highly harmful in view of high Sulphur content in the same. He submits that this Court could direct the Government to ban the use of pet coke and furnace oil as industrial fuel and for generation of electricity in the NCR region.*

Mr. Ranjit Kumar, learned Solicitor General seeks time to examine the issue and to take appropriate steps. In the circumstances, we grant to the Central Government four weeks' time to examine the issue whether pet coke and furnace oil if used as industrial fuel and for generation of electricity are harmful because of high Sulphur content in the same. In case the Government comes to the conclusion that the use of the said fuel is indeed harmful for human beings the Government may consider issuing appropriate directions in terms of Section 3(2)(v) of the Act which empowers the Government to regulate the industries' operations and processes or impose safeguards on such industries' operations and processes. We are of the view that forbidding use of pet coke and furnace oil as industrial fuel and for generation of power will tantamount to safeguards for such operations or processes as may require the use of such fuel."

February 6, 2017 Hon'ble Supreme Court order: *"The learned Solicitor General has also made a submission with regard to use of pet coke and furnace oil in NCR. He says that meetings have been held in this regard but a final decision has yet not been reached since*

some substitute has to be found for pet coke and furnace oil. It is submitted by learned Amicus that natural gas and electricity are viable substitutes. These should be explored by the concerned bodies. We have seen the Report dated 01.02.2017 submitted by Environment Pollution (Prevention & Control) Authority (EPCA). We find that the Sulphur content in pet coke and furnace oil is extremely high and that is a major cause of pollution in Delhi and indeed in NCR. The learned Solicitor General says that a final decision will be taken within 8 weeks. We are of opinion that so much of time 3 cannot be granted given the urgency in the matter."

February 16, 2017 MoEF&CC meeting on use of pet coke and co-processing of waste in fuel in cement kilns: The meeting convened under the chairpersonship of secretary MoEF&CC took the following decisions (Annexure 2):

- i. Pet coke may be allowed only on cement kilns, where there is use of limes and combustion and emissions are controlled.
- ii. Availability of alternate fuels like electricity and natural gas in Delhi-NCR region, be assessed further with inputs from Ministry of Petroleum and Natural Gas.
- iii. The Ministry of Petroleum and Natural Gas should assess the demand and supply of natural gas in NCR and meet the additional requirement.
- iv. Decision on use of pet coke as fuel will be taken only after examination of study being conducted by CPCB on impact of pet coke and FO as fuel in different sectors of industries.

March 3, 2017 affidavit filed by MoEF&CC in compliance with order dated February 6, 2017. The submissions based on the report of CPCB through National Environment Engineering Research Institute (NEERI) were as follows:

1. The report reveals that impact of pet coke and FO in NCR in terms of secondary particulates in Delhi is not evident. It may be noted that pet coke and FO is already prohibited in Delhi.
2. Further studies have to be done to assess impact in other NCR towns due to use of pet coke and FO.
3. The pet coke and FO may be used in cement industries and other industries that have appropriate pollution control systems particularly for controlling SO₂ and NO_x emissions
4. In respect of industries that use pet coke and FO and do not have appropriate SO₂ and NO_x pollution control systems may be given 7 months' time to switch over to natural gas or electricity.

Hon'ble Supreme Court order dated March 6, 2016: *"While finalizing the plan, the Report being filed today by the learned Solicitor General with regard to use of pet coke and furnace oil will also be considered by EPCA in consultation with Governments of Delhi, Haryana, Rajasthan and U.P. and the CPCB and a final report will be filed before us".*

This final report is being filed in compliance with the order of the Hon'ble Supreme Court dated March 6, 2017

2. EPCA's deliberations on pet coke and FO

On March 3, 2017 EPCA sent the draft Comprehensive Action Plan for Air Pollution Control to the states governments for their comments and finalization. On March 14, 2017 EPCA wrote to state governments informing them of the proposed meeting on March 31, 2017 and asking state governments of Delhi, Haryana, Rajasthan and Uttar Pradesh to send views to EPCA and to ensure participation at the senior level to finalize the plan (see Annexure 3 letter of EPCA dated March 14, 2017).

The draft Comprehensive Action Plan included the following short-term priority action (2.7.3): Urgent ban on unacceptable and dirty industrial fuels: These are pet coke and FO that have Sulphur levels as high as 72,000 ppm and 23,000 ppm respectively. SC order of February 6, 2017 directed Central government to examine the EPCA recommendations of banning pet coke and FO that are being widely used by industry in NCR.

On March 31, 2017, EPCA convened a meeting with all NCR state governments to discuss and finalise the Comprehensive Action Plan. In this meeting, representatives of state governments and CPCB made it clear that they were in favour of EPCA's recommendation on the ban of such unacceptable and dirty industrial fuels in NCR. In this meeting, EPCA discussed the ban and recorded the consent of the state governments to the agenda outlined in the Comprehensive Action Plan (see Annexure 4 for minutes of EPCA meeting of March 31, 2017).

CPCB also submitted its comments on the draft comprehensive action plan, which do not include any remarks against the recommended ban on pet coke and FO in NCR (see annexure 5 for CPCB comments).

It was therefore, accepted that the final Comprehensive Action Plan for Air Pollution Control in NCR should include EPCA's recommendation to ban the use of these fuels in the region.

3. Observations and comments on NEERI report on air pollution due to use of petcoke and FO in NCR and Delhi

The MoEF&CC affidavit filed on March 3, 2017 has noted that based on the NEERI report, impact of pet coke and FO in Delhi is not evident and that further studies are needed to assess impact in NCR. It has therefore, recommended that industries with pollution control equipment should be allowed to use FO and pet coke and those that do not have the equipment be given 7 months to move towards alternatives like natural gas and electricity.

This view has the following shortcomings:

- i. **The NEERI report does not dispute that secondary particles are a significant contributor to PM 10 and PM 2.5 concentration in Delhi.** The report cites the IIT-Kanpur report on source apportionment analysis that secondary particles formation in the atmosphere contributed significantly to PM10 and PM 2.5 concentration in Delhi city, which it says may be due to the formation of secondary sulphates and nitrates. It accepts that these secondary sulphates and nitrates could have been

formed because of reactions with ozone, hydroxyl radicle and other reactive molecules.

- ii. **NEERI's contention that FO and pet coke do not contribute to the sulphates and nitrates in Delhi is not borne out of its own findings.** It accepts that IIT-Kanpur report establishes that industrial sector contributes 91 per cent of SO₂ emissions. But it goes on to argue that molecular markers of pet coke and furnace oil were not detected in the speciation results of IIT-Kanpur. This it says is because use is prohibited. However, as EPCA and subsequently DPCC has found large scale but illegal use of FO in Delhi's authorised industrial areas (see section 4), this contention does not hold. Therefore, it is not possible to draw conclusions on the use and contribution of FO and pet coke to Delhi's pollution simply on the basis of desk studies done using the analysis of the chemical speciation of samples collected during the IIT-Kanpur report.
- iii. **The report clearly finds that pet coke emissions, even if grossly under-estimated, are a serious problem.** The report puts the contribution of pet coke to the total SO₂ emissions at 41 per cent. However, this is a gross underestimate, as firstly, the report does not account for the large use of imported pet coke in the region. It also only depends on the data supplied by the state pollution control board on the consent given for use of pet coke as fuel. This is clearly not the accurate way to account for pet coke, which is widely used, without any clearance by industries across the region as a substitute for coal. It however, does accept that it has not included data on use of pet coke in smaller industries. Therefore, there is an under-estimation of the contribution of pet coke.
- iv. **The report also under-estimates the usage of FO in NCR.** The EPCA report had based on data supplied by oil marketing companies, found that 318,000 tonnes of FO had been sold for use in NCR in 2015-16 and 204,000 tonnes from April to October 2016. NEERI report says that 266,000 tonnes of FO is been used in NCR districts annually. It is also not clear if the methodology used by NEERI to estimate the SO₂ emission load from burning of FO does not under-estimate contribution seriously. It does accept that it does not have data on use of FO by smaller industries and in generators and has only used data supplied by pollution control boards. This will suggest that the contribution will be under-estimated.
- v. **Most importantly the report totally miscalculates the contribution of sulphate particulates from the different sources of pollution, namely, coal based power plants, furnace oil and pet coke.** It does this by assuming that coal based power plants in the region work at full capacity and at the same time, it under-estimates the usage of pet coke and FO. As per data available from the power companies, coal power plants are working on an average at a mere 20 per cent of their capacity during the past many months. This is because of the lack of demand, partly because of the availability of FO and pet coke, as cheaper substitutes. Therefore, if this is assumed and the correct sale data for FO is taken then the contribution of different combustion sources to air pollution in NCR changes so *that* instead of pet coke accounting for 41% of the total contribution, it goes up to almost 64%, while coal

based thermal power plant comes down to 26% from 53%, which was estimated by NEERI based on full capacity utilization.

- vi. **Given the above information, it cannot be argued that industries with pollution control equipment should be allowed to use these extremely pollution fuels.** This is given the fact that monitoring of these industries is poor; the capacity of state pollution boards is limited to say the least; standards for Sox do not even exist for most industries and therefore, regulating these is not possible.
- vii. **Most importantly, it is clear that the quality of fuel is a key to determining the control of pollution.** It is for this reason that the Air Act provides for list of 'acceptable fuel' as an important strategy for combatting pollution; Delhi has in 1996 used this provision to list acceptable fuels for polluted areas. It is also for this reason that automobile fuels have been progressively improved so that emission control can be effective. Today, automobile fuel – petrol and diesel – has with the coming of BS IV nationwide only 50 ppm of Sulphur. On the other hand, FO has between 15,000-23,000 ppm and pet coke between 69,000 to 74,000 ppm of Sulphur.

As the above examination shows, there cannot be an alibi for delaying action on this key and deadly source of pollution in NCR. EPCA has recommended that pet coke should be allowed for use only in cement companies or in uses where it is not a fuel. Other uses of FO and pet coke should be banned in NCR.

4. EPCA's investigation into illegal use of FO in Delhi despite ban

On March 7, 2017, Chairman EPCA was informed by a news channel of the existence of furnace oil being openly available in authorized industrial estates of Delhi. This would constitute a gross violation of the notification issued by the DPCC in 1996 mandating acceptable fuels that could be used in Delhi. This list does not include furnace oil or any other such un-regulated oil such as tire oil for use in Delhi.

Concerned by this news, EPCA chairman, DrBhurelal and member Sunita Narain immediately went to the industrial areas on an urgent and surprise visit on the same day itself, without any intimation to other regulatory authorities. On this surprise inspection of the Wazirpur Industrial Area and SMA industrial area in west Delhi EPCA found the following:

- a. Tankers are freely roaming around in the industrial areas with large sales of FO and tire oil.
- b. On enquiry EPCA was told that these contained furnace oil that was sold by dealers in Punjabi Bagh. EPCA was also told by another dealer that any amount of FO could be made available from either Mathura or Panipat refinery or Jamnagar refinery. It also learnt that tyre oil is being sold in large quantities in these industrial estates. Again, this tyre oil is extremely polluting and has no specifications for quality and is not allowed for use in Delhi. A sample of FO has been collected by EPCA from one such industry.

- c. In one case the tankers carrying tire oil was of Indian Oil with the license plate HR 55T 4930. In another case, it was not clear who owned the tanker, which though was labelled to carry MS/HSD was in fact carrying tire oil as seen by EPCA. The tanker no was HR 38 R 9859 (see picture below).



As this fuel is being sold and used in Delhi is in violation of the 1996 notification, EPCA has taken serious note of this non-compliance and has starting its proceedings to look into the matter and to take steps to ensure enforcement and fix accountability for this lapse.

On February 10, 2017 EPCA convened a meeting to discuss this case and to understand from the oil companies, who manufacture this product; and whose dealers and tankers sell and transport this product, how this violation was being allowed. It also sought answers from the enforcement agencies, namely DPCC, about its inaction in controlling this rampant use of illegal fuel in Delhi, which will contribute to the serious air pollution problem of the city.

The meeting discussed the issue with the oil companies, who argued that as these tankers were private they had no jurisdiction over the transport or sale of such fuels. However, this argument was not robust as it would suggest that companies that sold this fuel would have no accountability in the illegal sale in Delhi. It was decided to do the following:

- i. Indian Oil Company would register a case against the dealer/ transporter who was transporting and selling illegal FO/tyre oil in the notified industrial area of Delhi with the brand of Indian Oil on the tanker.
- ii. Oil companies would review the current procedures and recommend to EPCA how to tighten the system so that such polluting oil/pet coke, which is sold by the refineries/oil companies, is governed through regulations and has oversight of the companies. It will also consider how all tankers will have GPS installed on them to track movements and how the import of such fuels will be regulated.
- iii. DPCC would issue public notices to inform dealers/ transporters to strictly comply with the 1996 notification on acceptable fuels in Delhi and that strict action will be taken against dealers/ transporters in case of violation of the directive is observed.
- iv. DPCC would nominate nodal officers for all industrial areas to check enforcement of its 1996 directive and to keep EPCA informed on the violations found and actions taken.

On March 23, 2017, EPCA convened another meeting to discuss the follow up of its directions on FO usage in Delhi.

It was told by Indian Oil that action is being taken against the private oil tanker for using its logo while selling FO in Delhi. It has also issued a public notice to warn tanker owners that using its trademark or logo could invite criminal prosecution.

EPCA stressed on the need to regulate the tankers. It pointed out that the tanker in question was not following the Central Motor Vehicles Rule 129 to 137 for Transportation of Goods of Dangerous and Hazardous Nature to Human life. The table III of the said rules list the hazardous goods, which includes petroleum products, including FO and any other waste or chemical fuel.

These rules clearly provide for safeguards for transportation of such goods, which includes Emergency Information Panel and clear responsibility of both consignor and transporter of such goods. The tanker in question had mislabeled its product and this would jeopardize safety of people in case of an accident.

The CMVR 132 (4) also lays down that the owner of the goods carriage carrying dangerous or hazardous goods, and the consignor of the goods, shall lay down the route of each trip which the drive shall be bound to take unless directed or permitted otherwise by the police authorities. They shall also fix a timetable for each trip to the destination and back with reference to the route so laid down.

EPCA also pointed out that the Oil Industry Transport Discipline Guidelines, which lay down uniform guidelines for transportation of bulk petroleum products, do not anywhere

preclude the industry from regulating the transportation of these refinery products. It did not accept the view that oil industry is only responsible for ensuring strict discipline in the transportation of petrol and diesel and not FO or pet coke.

Based on the above discussions it was agreed that the following would be done immediately:

- i. All oil companies selling FO or pet coke would ensure that CMVR rules are followed by the consignor/transporter, including checking for compliance with Rule 132 (4).
- ii. All oil companies selling FO and pet coke would ensure that the tanker/truck which is being used to transport these good has a functioning GPS to track its movements.
- iii. All oil companies selling FO and pet coke would take a signed affidavit from each customer that the fuel would not be sold/supplied by it or its dealers in Delhi where the product is banned.

In the meantime, MoPNG would discuss how this procedure can be further tightened and how the oil industry Transport Discipline Guidelines can be used for regulating all fuels, not just petrol and diesel. EPCA will convene another meeting to discuss and finalize this.

The oil company representatives also raised the concern that these regulations would not work, unless the free and unrestricted import of FO and pet coke, was checked. It was agreed that MoPNG would take up this matter with the Ministry of Commerce.

Action by DPCC to check illegal use of FO in Delhi

DPCC has informed EPCA that it has inspected 19 units from March 18 2017 to March 29, 2017. It has found that FO being used in 7 units, from which it has also collected samples. These samples are being sent by EPCA for further analysis.

DPCC inspection also found the use of CBFS – Carbon Black Feed Stock – which was also discussed in the EPCA report on Mandating Acceptable Fuels in NCR. It was noted that this fuel, which has a very high black carbon content, is highly polluting and also toxic as it contains high levels of Poly-Aromatic Hydrocarbons. This is clearly very dangerous and toxic and carcinogenic and its use must be stopped (see Annexure 6 for DPCC report of inspection).

DPCC has convened a meeting with industrial associations to inform them of the illegal use of this fuel and has designed five nodal officers for enforcement. This use of illegal fuel has to be stopped in Delhi.

EPCA is of the view that enforcement must be stepped up but will be difficult, unless there is a clear directive that explicitly bans the use of these fuels in Delhi. The oil companies and many small dealers are making use of the loophole in the 1996 notification that does not list these fuels that are banned. Also as the 1996 notification had listed in acceptable fuels, fuel/LDO/LSHS/with low Sulphur defined as 18,000 ppm. This was considered low-sulphur in 1996, as against 10 ppm, which is considered low-sulphur in 2017. But this is now being used as a loophole to sell these fuels in Delhi.

EPCA has therefore, in its report, recommended that not only should FO and pet coke be banned in NCR, but all other refinery and chemical fuels, which do not have specifications laid down by BIS should be banned.

5. Increasing imports of pet coke because of pollution concerns

It is of great concern that imports of pet coke – which is a refinery by-product – are increasing into India. This is primarily happening because countries like US, which manufacture pet coke have restricted or banned its use because of domestic pollution concerns. Both FO and pet coke are currently imported without any restrictions into India.

EPCA's investigations have found the following:

Currently, India produces some 12-13 million metric tonnes of pet coke. But what is most alarming that our imports are soaring – this year till December, we have already imported 11 million metric tonnes, which is more than the total imports of the previous year. At this rate, we could end up with some 30 million metric tonnes of pet coke by year end at this rate, which is roughly equal to what China was using at its peak in 2014.

It is no wonder then that today the India is rivalling China in pollution. The latest Global Burden of Disease (GBD) report points not just to the high levels of air pollution and early deaths in Indian cities – roughly 1 million each year, but also that the total number is matching China. Worse, while China is beginning to bend the curve on pollution, with the number of early deaths linked to pollution slowing down, ours are rising at speed. This is also because China is taking action to control pollution.

China has now set targets for reduction of coal power plants and now has also come down on the use of pet coke. China was the largest importer of pet coke from the US finds the 2015 paper from the Carnegie-Tsinghua Centre for Global Policy. In 2013, US exports to China accounted for 75 per cent of its total and were as high as 7 million metric tonnes. It is also important to note that US, with the world's biggest oil refinery capacity has massive pet coke to dispose of – some 36 million metric tonnes in 2014. This is increasing as the country is now refining more and more heavy oil, like the Canadian tar sands, which produce more pet coke by volume. The country's new President Donald Trump's approval of the Keystone XL pipeline – to bring more tar sands to the US for refining – will only mean even more pet coke will be produced. All this will have to be sold in the global market.

The reason is that the US is using less and less of its domestic manufacture. It has strictly regulated its emissions and even its storage of pet coke. The country's Environment Protection Agency (EPA) has also mandated rules for storage, as it fears contamination from heavy metals and particulates. US, then is moving to cleaner natural or shale gas. And it needs to dump this fuel on the world. Now, with Chinese getting smarter about their air, we are the takers of this fuel.

Today, the bulk of India's imports come from the US – roughly 62 per cent. Another 24 per cent come from Saudi Arabia. We are buying the world's dirtiest fuel as if we have no worries of air pollution of our own (see table).

Summary of Imports of Petroleum Coke into India, 2014-2017

Import Trends	2014-15		2015-16		2016-17 (Till Dec)	
	In Crores (Rs.)	In million tonnes	In Crores (Rs.)	In million tonnes	In Crores (Rs.)	In million tonnes
Petroleum Coke	5063.10	5.81	5632.73	10.04	5651.91	11.13

Source: EXIM database, Ministry of Commerce & Industry

- In 2013, USA was the world's largest producer of petcoke, accounting for 46% of global production. China and India are the two largest consumers, India alone accounting for around 10% of global consumption in 2013.
- In early 2015, China started restricting its use of pet coke because of pollution concerns, causing international prices to drop. Consequently, in India (which should have equal concerns about pollution) petcoke imports grew by 73% in 2015-16.
- This year, in just 9 months up to December, India has already imported some 11.13 million metric tonnes of pet coke, as against 10.04 million tonnes imported in 2015-16.

EPCA would like to stress the need to regulate imports of FO and pet coke. It would recommend that Indian policy should ensure that we use our domestic waste and not end up buying waste products of other countries.

Therefore, the country should have a policy for use of its pet coke in cement industries where it is not used as a fuel. The emissions from the use of pet coke in cement industry's clinker plants can be controlled.

EPCA would also recommend that FO and pet coke must be removed from the OGL list so that imports can be restricted and regulated. In this way, the end users can be held accountable for the use of this fuel and its illegal and widespread use controlled.

6. Availability of alternatives to FO and pet coke

EPCA report on Mandating Acceptable Fuels to be used in NCR for air pollution had provided information on the alternatives available. It had found that the key substitute for FO or pet coke is natural gas or electricity. But the price of FO is kept lower than natural gas so that it stays competitive. Also, governments provide perverse incentives to dirtier fuels over cleaner alternatives, which distorts the market.

The cost of power generated through FO is roughly Rs 5-6 per unit; natural gas Rs 6-7 per unit and the cost of electricity per unit is Rs 6-7. The current tax on natural gas also increases the cost to the customer. There is no tax on FO or pet coke.

Cleaner natural gas availability in NCR: EPCA has also convened meetings with gas distribution companies to determine the availability of their product in NCR (see annexure 7 minutes of meeting dated February 20, 2017). All gas distribution companies – IGL, GAIL,

Adani and Haryana Gas – told EPCA that gas was readily available and pipelines had been laid. They said that the gas pipeline infrastructure had been laid and they were in a position to supply to all industrial areas of NCR. However, they said that demand was low because of the ready availability of cheaper alternatives, namely FO and pet coke (see table).

Availability of natural gas in NCR for use as industrial fuel

Gas Selling Companies	State/City	Region catered
IGL	New Delhi	Delhi
	Uttar Pradesh	Ghaziabad
		GautamBudh Nagar
	Haryana	Rewari (including Dharuhera&Bawal)
Gail India Ltd	Rajasthan	Bhiwadi
		Neemrana
Gail Gas Ltd.	Uttar Pradesh	Meerut
	Haryana	Sonepat
Haryana City Gas Distribution Limited	Haryana	Gurgaon
Adani	Uttar Pradesh	Khurja
	Haryana	Faridabad
		Palwal

Unused capacity of coal and gas plants in NCR: There are 11 coal and gas based power plants located within 200 km radius of Delhi – within NCR. The total installed capacity of these 11 plants adds up to close to 1000 mw – which is sufficient to meet the entire power need of the region. It is also clear that while coal thermal power plants are more polluting than gas bas thermal power plants, this pollution is easier to monitor and control as it is located in 11 spots, as compared to the scattered industrial use of highly polluting fuel.

But these plants are working at mere 21% capacity. In fact, certain thermal power plants like CLP Jhajjar, are lying shut because of lack of demand. Other plants work between 20-25% of their capacity on an average through the year. Clearly, therefore, the lack of electricity is not the problem for supply as fuel (see table).

The problem is two-fold; one that there is no demand because of the availability of cheaper and easier to procure FO and pet coke and other industrial waste fuels. Two, the electricity companies, because of this lack of demand, also supply unreliable and erratic power.

This is leading to a perverse situation, where the cleaner fuels are not being used and the use of dirtier fuels is growing.

Table: Capacity and cost of power of coal based power plants in NCR

Sno	Coal based power plant	installed capacity (MW)	Actual Capacity used (MW)	PLF (%) based upon actual capacity used during 2016	Fixed Cost (Rs/ Unit)	Variable Cost (Rs/ Unit)	Total cost of power (Rs/unit)
1	NTPC AravaliJhajjar	1500	350	23%	1.71	3.12	5.33
2.	CLP Jhajjar	1320	Nil	zero	0.99	3.17	4.66
3-4	NTPC Dadri Stage 1 and 2	1820	500	27%	0.87-1.57	3.23-3.03	4.60-5.10
5	NTPC Badarpur	705	150	21%	0.79	3.66	4.70
6.	PanipatThermal power plant	1360	340	25%	NA	NA	NA
	Total coal based	6705	1295	19%			
7.	Dadri Gas	830	332	40%	0.51	2.50	3.51
8.	Faridabad Gas	430	7	1.6%			
9.	Bawana	1371	250	18%	1.09	2.32	3.66
10.	GT Gas	282	80	28%	0.96	2.37	3.56
11.	Pragati gas	330	150	45%	0.79	2.28	3.32
	Total gas based	3243	819	25%			
	Total in NCR	9948	2114	21%			

7. Recommendations

EPCA has consulted the state governments of Delhi, Haryana, Rajasthan, UP and CPCB during finalization of the Comprehensive Action Plan. Its recommendations on the ban of FO, pet coke have been reviewed and discussed (**section 2**). EPCA has also reviewed the findings of the NEERI report and found these cannot be used as an alibi to delay action on the highly polluting fuels being used in NCR (**section 3**).

EPCA's investigations into the illegal use of FO, pet coke and other such waste fuel in the industrial areas of Delhi point to the urgency of the matter given the coming winter season (**section 4**).

It is also clear that cleaner alternatives exist and that these will not increase costs substantially. The cleaner alternatives, namely natural gas, are more expensive also because of the tax that is imposed on this fuel, as compared to FO and pet coke that are exempt from tax. This is incentivizing dirtier fuels over cleaner fuels (**section 6**).

It is also a matter of concern that large quantities of pet coke – a fuel, which has very high Sulphur levels and toxic heavy metals – and is considered a waste/by product fuel is being imported into the country. Producer countries

like the US, have put restrictions on the use of this fuel because of the pollution potential. Countries like China, who were importing large quantities of pet coke have also restricted these quantities because of concerns of pollution. But India's imports are increasing and currently this fuel can be imported without any restriction under OGL (**section 5**).

Clearly, this large scale and growing use of dirtier fuels, which are cheaper and easily available, is greatly contributing to the pollution in the region. The Sulphur level in pet coke are as high as 72,000 ppm and in FO as high as 23,000 ppm. The fact also is that as India moves to produce cleaner petrol and diesel – BS IV quality and soon BS VI quality fuel – the Sulphur will be increased in the bottom-of-the-barrel fuel, which is FO and pet coke.

It is therefore, clear that we cannot transfer pollution from one side to another – take it out of fuel used in automobiles and transfer it to fuel used in industries. The end result will be toxic pollution.

Given this situation and the urgency of the coming winter pollution, EPCA would recommend the following:

1. **The distribution, sale and use of furnace oil and pet coke would be strictly banned in NCR.** The Air Act and Environment Protection Act provide that such actions can be taken in hot spot – air pollution control areas.
2. **Pet coke should be allowed only in cement plants, where combustion and emissions are controlled or in any other industry, where it is not a combustion fuel.** However, if any cement plant or other industry requires the use of pet coke as non-combustion fuel in NCR, it will have to seek permission from CPCB and EPCA.
3. **All other industrial fuels, from refineries, chemical plants or waste products, which do not have specifications laid down by BIS would be banned for use in NCR.** Any new fuel to be added to the list of acceptable fuels will be done only after consideration of its parameters as laid down by BIS and its fuel test reports by CPCB and EPCA.
4. **The import of pet coke and furnace oil should be restricted and regulated so that its use is monitored.** These products should be removed from the Open General License (OGL) list and taken to the restricted or negative list. The objective should be to utilize domestic by-products or waste products so that it can be reused in industries, and not to import these.

5. **NCR governments should provide fiscal incentives to clean fuel as against polluting fuel** and ensure that electricity supply is assured, reliable and cost-effective for use as power.

Mandating 'acceptable' fuel to be used in NCR for air pollution control**Environment Pollution (Control and Prevention) Authority for NCR (EPCA)**

Report filed in Hon'ble Supreme Court in WP© 13029 of 1985; M C Mehta vs UOI and others

December 02, 2016

Conclusions of EPCA's investigation into quality of fuel being used in NCR; its pollution impact and recommended actions

1. It is well recognized that the quality of fuel used for combustion has a critical role in the quantum of pollution generated. It is for this reason India has moved from petrol/diesel with 10,000 ppm of Sulphur in 1996 to 50 ppm in 2010 (this will be extended nationwide in April 2017). The improvement in fuel quality then allows for effective pollution control devices to be installed. In the case of diesel vehicles, for instance, only when fuel has Sulphur below 10 ppm, can after-treatment pollution devices be effective. The quality of fuel used for industrial production is equally important in terms of its pollution impact.
2. The key contaminant in fuel that is responsible for high levels of pollution is Sulphur – this is emitted in the form of particulates and also in the form of gas, Sulphur Dioxide (SO₂). Depending on the level of moisture in the air, gas gets converted into particles. These 'secondary' particles are a key source of air pollution in Delhi/NCR. According to the IIT-Kanpur report, as much as 25-30 per cent of the winter sources are secondary particles, which are emitted from vehicles, power plants and industries. Any fuel, which is high in Sulphur will also have heavy metals, which will add to contamination of the environment.
3. In 1996, the Delhi Pollution Control Committee issued a notification mandating the 'acceptable fuels' that could be used in Delhi. This notification was issued under section 19 of Air Act. The list did not include furnace oil or pet coke or other fuels that could have high Sulphur. In 1996, it specified that coal with low Sulphur (4000 ppm) could be used in Delhi and also termed fuel oil with 18,000 ppm of Sulphur as low-Sulphur.
4. This notification did not extend to NCR and therefore, there was no restriction in the use of extremely polluting fuel at the border of Delhi and in the same air-shed.
5. Recently, it came to the notice of EPCA that with the crash in international fuel prices, the price of furnace oil (FO) and pet coke has also come down, which was increasing their use as fuel in industry and in generator sets above 1 mw. It was also learnt that other fuels, which were by-products of refineries and petro-chemical processes were also being used for combustion. EPCA also learnt that in most cases there were no specifications for the quality of this fuel.

- 18
6. The only BIS specification that exists is for fuel oil, which is also used for furnace oil (FO), and allows the product to have between 35,000-45,000 ppm of Sulphur. Furnace oil is the last grade produced by refineries and this 'bottom of the barrel' product is therefore, extremely polluting.
 7. Pet coke, a by-product, of refineries, which is even more polluting does not even have any specifications for the Sulphur content that is permissible.
 8. EPCA's investigation has found that large quantities of FO are sold in Delhi and NCR by oil Public Sector Undertakings (PSUs) and Reliance Industries Limited (RIL). This year, in fact, sale is even higher than last year and some 30,000 metric tonnes (mt) has been sold every month in NCR. According to this data, RIL has sold 51,000 mt in Delhi in the past 7 months. However, RIL has informed EPCA that only its point of billing is in Delhi and not its customers. EPCA is unable to verify this but it is clear that even if this fuel is sold in NCR, it adds to the burden of pollution in the region.
 9. There is no information about the quantum of sale of pet coke in NCR as oil companies do not collate this. During its factory visits in NCR, EPCA found that industries were importing pet coke for use. It then found that data from the Ministry of Commerce showed that pet coke imports are up – in 5 months up to August 2016, India had imported 7 million mt as against 10 million mt imported in 2015-16.
 10. EPCA has also learnt that refineries and petro-chemical industries are selling by-products as fuels and that there are no specifications for these in the country.
 11. EPCA has also had the samples of these fuels, namely FO and pet coke, which it collected personally during its visits, analysed to check on the Sulphur content.
 - 11.1 **The analysis of the samples of pet coke done has found that the Sulphur level is between 69,000 ppm (imported) and 74,000 ppm (Indian).**
 - 11.2 **The analysis of the samples of FO has found that Sulphur level is between 15,000 to 20,000 ppm.**
 12. The key substitute for FO is natural gas, which is cleaner and environmentally friendly. EPCA has learnt that pricing of FO is kept lower than gas so that it can be more competitive. Currently, FO sells for Rs 22-24/litre and the cost of power is Rs 5-6/unit; as against natural gas or electricity from the grid, which would cost Rs 6-7 per unit. In other words, substitutes for FO exist and they are competitive. The key substitute for petcoke, which is used in furnaces, would be electricity, natural gas or even low-sulphur coal. All these will be less polluting than pet coke.
 13. However, while governments provide tax exemptions to FO – Uttar Pradesh does not charge VAT on FO – natural gas is taxed. In Uttar Pradesh, cleaner natural gas is charged VAT at 10%. This is the case in other states as well. Therefore, if policy is made to incentivize clean fuel over polluting fuel, it would increase the competitiveness of natural gas.

14. It is also clear that even though Delhi has closed down its industries because of pollution, it has only transferred the problem to its neighbouring states, where these industries using polluting fuel now operate. EPCA visited industries in Ghaziabad, which is in the same air-shed, which were using furnace oil and pet coke and therefore, greatly adding to pollution. Also many industries in Delhi operate in non-authorized colonies (illegal colonies) and so are outside the 'control' of the Delhi Pollution Control Committee (DPCC). It is therefore, necessary to mandate the need for clean fuel, not just in Delhi but across NCR, so that there are clean air benefits.
15. There are no standards for SO₂ and therefore, the pollution from the use of these fuels in industry furnaces and generators is enormous. It is also clear that controlling pollution from such high Sulphur fuels requires huge investment in abatement technologies and this is why it must be restricted. Pet coke, for instance, which is a high calorific by-product of refineries can be used by cement industry, where combustion technology is regulated.
16. There is no doubt that the use of such high Sulphur fuel is greatly contributing to pollution in the region and needs urgent steps to curtail use.

Based on these findings, **EPCA recommends the following:**

- 16.1 The list of 'acceptable fuels' that can be used in NCR (not just Delhi) as per section 19 of the Air Act should be as follows:
 - a. Coal with low-Sulphur (1000 ppm or less) for use in power plants (until these can be switched to natural gas)
 - b. Petrol (BS IV with 50 ppm Sulphur)
 - c. Diesel (BS IV with 50 ppm Sulphur)
 - d. Natural gas/CNG
 - e. LPG
 - f. Kerosene (for domestic use)
 - g. Naptha (for power plants and under strict enforcement for pollution)
 - h. Aviation turbine fuel (for aircraft)
 - i. Firewood(only for domestic use in rural areas and crematorium)
 - j. Biogas
- 16.2 **The use of furnace oil and pet coke would be strictly banned in NCR.** Pet coke will be allowed only in cement plants, where combustion and emissions are controlled. However, if any cement plant requires the use of pet coke in NCR, it will have to seek permission from CPCB and EPCA.
- 16.3 All other fuels, which do not have specifications laid down by BIS would be banned for use in NCR. Any new fuel to be added to the list of acceptable fuels will be done only after consideration of its parameters as laid down by BIS and its fuel test reports by CPCB and EPCA.
- 16.4 Government should finalise specifications for fuels used for industries/generators urgently so as to make sure that only low-Sulphur and clean fuels are available for use in the country.

- 16.5 The use of pet coke should be regulated across the country. All industrial fuels should be included in the list of hazardous waste so that import and use is regulated by the Ministry of Environment and Forests and Climate Change.
- 16.6 The NCR governments should be directed to provide fiscal incentives to clean fuel as against polluting fuel.
- 16.7 The GoI should revise its fiscal policies, which incentivize polluting fuels over cleaner fuels.

A. Furnace oil: high Sulphur fuel

Furnace oil (FO) is the last grade of oil (bottom of the barrel) that a refinery produces and it contains very high levels of sulfur – which is the key pollutant in fuel when burnt. As per the Bureau of Indian Standards (BIS), different grades of fuel oil, which is also the standard used by refineries for furnace oil are allowed between 35,000 to 45,000 ppm of sulfur. Compare this to the BS IV standards, which require that only fuel meeting 50 ppm can be sold in NCR.

Sale in NCR

As per information gathered from oil companies in 2015-16 some 318,000 metric tonnes of furnace oil was sold in Delhi and NCR. This year (April to October 2016), 204,000 metric tonnes of furnace oil has been sold in 7 months in the region. Reliance Industries Limited (RIL) is the key seller in Delhi and Rajasthan, while IOCL, HPCL, BPCL sell in Haryana and Uttar Pradesh regions of NCR.

According to Reliance, they do not sell in Delhi, but sell in NCR and their point of billing is in Delhi. Reliance has given EPCA a list of their customers, which are primarily in Ghaziabad (however, this list does not add up to the entire volume sold). Therefore, it is difficult to say if all the FO is used in NCR or it is used also in the small scale industries found in the unauthorized areas of Delhi. But needless to say, even if it is used only in NCR, it is extremely polluting and given that it is in the same air-shed, it is part of Delhi's problem.

Table: FO sales in Delhi and NCR parts of Haryana, Rajasthan and UP: 2015-16 and 2016 up to October 31, 2016

	Region	2015-16 PSU	2015-16 Reliance	Total	2016-Oct PSU	2016-Oct Reliance	Total (up to Oct)
1	Delhi	17,000	59,000	76,000	18,000	39,000	51,000
2	Haryana	80,500	2,500	83,000	56,000	--	56,000
3	Rajasthan	4,000	56,000	60,000	9,000	20,000	29,000
4	Uttar Pradesh	99,000	--	99,000	68,000	--	68,000
		200,500	117,500	318,000	151,000	59,000	204,000

Price of FO: cheaper than natural gas/diesel

Furnace oil is used by industries because it has a high calorific value – 9000-9500 kcal/gm and it is cheap. The price of furnace oil has fluctuated over the past few years and currently it sells at Rs 22-24/litre. EPCA has learnt that the cost of power generated through FO is

roughly Rs 5-6 per unit; natural gas Rs 6-7 per unit and diesel Rs 13-14 per unit. The other alternative is to use electricity, as this would be also Rs 6-7 per unit, but according to sources power supply is unreliable and unavailable in UP.

The key substitute for furnace oil is natural gas and when the price of FO increased to Rs 50/litre a year ago, customers moved to natural gas. But in the past 8 months the price of FO has seen a steep decline – it has fallen to Rs 16.70/ litre some months ago and now Panipat refinery of IOC sells it at Rs 22.07/litre (burning grade) and Mathura at Rs 24.70/litre (original grade).

It is also ironical that FO does not have value added tax (VAT) imposed on it as against cleaner natural gas. Therefore, another 10 per cent is added on the cost on cleaner natural gas in UP. The situation is the same in other NCR states as well.

It is not clear at what price Reliance sells FO, but industry experts say it is below what is sold by PSUs. The disadvantage is that Reliance customers have to transport the produce from Jamnagar Refinery, which adds to costs for north India. However, as the figures above show, it is selling in Delhi and so it must be competitive.

The price of FO is determined by PSU oil refineries who set the price in relation to the market and the price of its fuel substitute – in other words, price is kept lower than the price of natural gas or diesel, which is the key substitute for FO. There is also an import and export market for FO, which also determines the price in the domestic market.

Customers of FO

FO is used in a variety of industries as energy source and is also used in generator sets – particularly large industrial energy generators. A large number of industries are steel foundries – which are the key source of pollution in most parts of the country.

In most cases, large industrial customers buy directly from refineries in tankers, which are kept till stock is exhausted. During its visit to the factory, EPCA learnt that Moser Baer, which uses FO to run its 34 mw generators has a tank of 2100 tonnes to store FO.

According to IOC, their top customers include the following:

Moser Baer (manufacturer of solar panels); in both units in NCR – (EPCA during its visit found that they have 34 mw of generator sets in which they use FO; demand at full capacity will be 180 tonne per day; currently they use 70 tonne/day).

Hindustan Natural Glass

U-Flex

Bhushan Steel (EPCA found this was used for generator sets)

Asahi India

Nestle India – Samalkha

Hero Motors

Musahi Auto Park

Starware

EPCA visited other industries to understand the usage of FO. It found that in most cases, industries were using FO as a substitute for natural gas (it was slightly cheaper) or electricity from the grid (which was unreliable).

According to IOC top management, they are upgrading their refineries so that there will not be any production of FO. Clearly, this must be done across the country in a time-bound manner and all refineries should be asked to minimize production of high-sulphur fuels. In addition, BIS should specify standards for different fuels that can be used for industrial uses so that pollution impacts are minimized.

B. Petcoke: un-regulated fuel with high calorific value

The sulfur level in petcoke is even higher than FO – some 60,000 ppm. However, there are no BIS or other government agency specified standards for this product, which is a by-product for refineries.

Pet-coke has a higher calorific value than coal -- 8000 kcal/kg as against 3000-4000 kcal/kg of Indian coal. Given its high calorific value, it is preferred by industries as a fuel, even though it is more expensive than coal. Pet coke sells currently at roughly Rs 6000 per metric tonne, while coal price is between 3000-4000 per metric tonne. Also, while the Indian government has imposed a clean energy cess on coal of Rs 400 per tonne, it has spared pet-coke. This makes it even more cost-effective for use for combustion.

Petcoke is also imported – and as China has started restricting its use of pet coke because of pollution, the international price has dropped. Consequently, in India (which should have equal concerns about pollution) imports are up. According to data from the Department of Commerce, this year in just 5 months up to August, India has already imported some 7 million metric tonnes of pet coke, as against 10 million tonnes imported in 2015-16 (see table).

Table 1: Trends in import of Pet coke - 2014-15 to 2016-17 (Till August)

Import Trends	2014-15		2015-16		2016-17 (Till Aug)	
	In Crores (Rs.)	In million tonnes	In Crores (Rs.)	In million tonnes	In Crores (Rs.)	In million tonnes
Petroleum Coke	5063.1	5.8	5632.74	10.04	3064.71	7.03

Source: Export Import Data Bank, Department of Commerce, Govt of India

Not much more is known about the sale of petcoke in Delhi or NCR. There is no data maintained by government of its sale or usage. EPCA also found that in Ghaziabad, as there is no restriction on its usage, industrial units were directly importing pet coke. This can only be stopped if the consumption of pet coke is disallowed in NCR.

C. CBFS, C9 and other fuels

During this investigation, EPCA also learnt that there are other by-product fuels that are being sold by petro-chemical and refineries. Many of these fuels are also imported. There is even less information about these fuels. There are also no specifications for these fuels.

For instance, oil companies sell CBFS -- carbon black feed stock (also called C-10), which has even higher carbon content. CBFS is not included in the category of hazardous waste in the Hazardous Waste Rules, 2008. There are no national specifications for CBFS, but test reports shared by RIL with EPCA shows that CBFS sold by them has Sulphur of 1% -- 10,000 ppm. However, the key pollutant in CBFS is carbon, roughly 90 per cent and this is measured through an index called BMCI -- the blacker the fuel, the better. Therefore, the key pollutant is both carbon (CO₂) and also poly aromatic hydrocarbons -- according to discussions in MoEF sub-committee this could be more than 50 per cent of the content.¹ PAH is highly toxic and carcinogenic. There is no information about the volumes of CBFS sold; imported and consumed in the country

C9 is a petrochemical by-product, which is sold by RIL. This is also used as fuel. But in spite of all efforts to contact RIL, EPCA was not provided any information about the sale or specifications of C9.

D. Regulations on fuel used in Delhi/NCR

In 1996, the Delhi Pollution Control Committee issued a notification (F.25 (258)/SC/LC/DPCC/95/651 under the Air Act to approve fuels that could be used in NCT of Delhi. These were;

1. Coal with low-sulphur (4000 ppm)
2. Fuel/LDO/LSHS/with low Sulphur (18,000 ppm)
3. Motor gasoline (specified by government)
4. Diesel (as specified by government)
5. LPG
6. CNG
7. Kerosene
8. Naptha (for power station)
9. Aviation turbine fuel (for aircraft)
10. Firewood (only for domestic use in rural areas and crematorium)
11. Biogas

This notification, which specifies acceptable fuels, does not include Furnace Oil (FO) for use in Delhi. It is feared that without this explicit restricted/banned list, its use may be happening in Delhi.

There is no such notification for NCR.

It is clear that this notification is out of date and needs to be amended. Current fuel used in NCR, which has such high levels of Sulphur cannot be allowed in this pollution hot spot.

The Air Act of 1980 allows (19.1) state government, after consultation with state board, to declare any area or areas within the state as air pollution control areas or areas for the purpose of this act. Under (19.3) if the state government, after consultation with the state board, is of the opinion that the use of any fuel, other than an approved fuel, in any

¹<http://www.moef.nic.in/sites/default/files/Uploaded%20Final%20minutes%20of%2034%20TRC%20note%20sheet%20.pdf>

pollution control area or part thereof, may cause or is likely to cause air pollution, it may, by notification prohibit the use of such fuel in such area with effect from such date (not less than 3 months from the date of publication). The act also provides that boards can restrict types of industries that can operate in such control areas.

The Air also allows Standards: (depending on local conditions, state/central board can prescribe more stringent standards than those prescribed)

For pet coke Gujarat Pollution Control Board (GPCB) has devised a system, which can be followed. It has set up a committee, under the chairmanship of the board with outside experts, which decides on the use of petcoke by industry. Based on this scrutiny, GPCB allows industry to use 10-25 per cent petcoke in its production and then monitors emissions. It also stipulates the pollution control equipment (which must consist of alkaline wet scrubber – 1 stage or 2 stage -- and lime dosing/FGD). It finds that when it asks for 2 stage operation of the scrubber, companies invariably find the fuel of petcoke not profitable. Pet coke, which is a waste by-product, can be used in cement industry where combustion and emissions are regulated. Therefore, even if its use is allowed, it must be restricted to cement-type industry and pollution control must be enforced.

E. Analysis of Sulphur content in FO and pet coke

EPCA collected samples of pet coke; Indian and imported and these were sent for analysis to the Shriram Institute for Industrial Research. Analysis of the two samples shows that the Sulphur level is even higher than that was originally expected based on industry sources.

1. Sample of Indian pet coke: 7.4% by mass or 74,000 ppm
2. Sample of Imported pet coke: 6.9% by mass or 69,000 ppm

The FO samples were analysed by the Society for Petroleum Laboratory and these were found to be in the range of 15,000 to 20,000 ppm.

F. Pollution potential of this fuel used

Sulphur content is a key determinant of the pollution emitted by vehicles or industry. In the case of vehicles, Sulphur content has been drastically reduced from 10,000 ppm (1%) in mid-1990s to 50 ppm today. The refineries are currently working to produce BS VI grade fuel, which will reduce Sulphur to 10 ppm or less. Only then will the particulate traps work, which will reduce emissions from diesel vehicles. Even with Sulphur levels of 50 ppm diesel vehicles emit high levels of NOx and particulates.

In industry or generator sets, fuel with high Sulphur will produce emissions. When high Sulphur fuel is used, it contributes to emissions of particulates directly and to emissions of SO₂ gas. The high combustion temperatures also produce NOx. Depending on the level of moisture in the air, these gases get converted to particulates. These are called secondary particulates and according to the IIT report, some 20-25 per cent of the pollution in Delhi during winter months is because of secondary particulates.

India does not have standards for SO₂ and NO_x emissions for specific industries. Even in the case of power plants, only in December 2015, new standards have been notified, which include SO₂ and NO_x. But these have still not gone into operation.

The use of FO and pet coke, which has such high levels of Sulphur must be restricted in pollution hot spots. In 1996, when technology was still nascent and pollution levels were also lower, DPCC had mandated that only low-sulphur fuel should be used in Delhi. At that time, fuel available at 50,000 ppm of Sulphur and coal had 10,000 ppm of Sulphur. Low Sulphur fuel mandated for Delhi's use, therefore, was restricted to 18,000 ppm and low-sulphur coal was 4000 ppm.

Today, refineries produce fuel with 350-50 ppm of Sulphur. Delhi and NCR gets 50 ppm of Sulphur in diesel, which can be used for combustion. Therefore, it is critical to mandate the acceptable quality of fuel that can be used in NCR for pollution control.

G. Recommendations of EPCA

Based on the above analysis and the huge pollution caused by these high-Sulphur fuels, urgent steps are required to both list the acceptable fuels that can be used in NCR (not just Delhi) and also explicitly ban the use of FO, pet coke and other non-standard fuels.

The fuels that should be allowed for use in NCR as per section 19 of the Air Act are as follows:

1. The list of 'acceptable fuels' that can be used in NCR (not just Delhi) as per section 19 of the Air Act should be as follows:
 - k. Coal with low-Sulphur (1000 ppm or less) for use in power plants (until these can be switched to natural gas)
 - l. Petrol (BS IV with 50 ppm Sulphur)
 - m. Diesel (BS IV with 50 ppm Sulphur)
 - n. Natural gas/CNG
 - o. LPG
 - p. Kerosene (for domestic use)
 - q. Naptha (for power plants and under strict enforcement for pollution)
 - r. Aviation turbine fuel (for aircraft)
 - s. Firewood(only for domestic use in rural areas and crematorium)
 - t. Biogas
2. The use of furnace oil and pet coke would be strictly banned in NCR. Pet coke will be allowed only in cement plants, where combustion and emissions are controlled. However, if any cement plant requires the use of pet coke in NCR, it will have to seek permission from CPCB and EPCA.
3. All other fuels, which do not have specifications laid down by BIS would be banned. Any new fuel to be added to the list of acceptable fuels will be done only after

consideration of its parameters as laid down by BIS and its fuel test reports by CPCB and EPCA.

4. Government should finalise specifications for fuels used for industries/generators urgently so as to make sure that only low-sulphur and clean fuels are available for use in the country.
5. The use of pet coke should be regulated across the country. All industrial fuels should be included in the list of hazardous waste so that import and use is regulated by the Ministry of Environment and Forests and Climate Change.
6. The NCR governments should be directed to provide fiscal incentives to clean fuel as against polluting fuel.
7. The GoI should revise its fiscal policies, which incentivize polluting fuels over cleaner fuels.

F.No. 22-97/2016-IA.III
Government of India
Ministry of Environment, Forest & Climate Change
(IA-III Section)

Indira Paryavaran Bhawan,
Jor Bagh Road,
New Delhi - 110003.

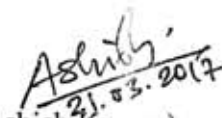
Dated: 21st March, 2017

OFFICE MEMORANDUM

Subject: Minutes of minutes held on 16th February, 2017 under the Chairmanship of Secretary, EF&CC, Indira Paryavaran Bhawan, Jorabagh Road, New Delhi to discuss the issue of use of pet coke, mixture of coal and pet coke and co-processing of waste as fuel in cement kilns - regarding

The undersigned is directed to enclose herewith a copy of minutes of the meeting on use of pet coke, mixture of coal and pet coke and co-processing of waste as fuel in cement kilns held on 16th February, 2017 at Indira Paryavarn Bhawan, Jorbagh Road, New Delhi under the chairmanship of Secretary, EF&CC, for information and necessary action.

Yours faithfully,


(Dr. Ashish Kumar)
Scientist D

Encl: As above.

To,

1. The secretary, Ministry of Coal, A-Wing, Shastri Bhawan, Dr. Rajendra Prasad Road, New Delhi - 110 001; Tel.: 23384884; Fax: 23381678; Email: secy.moc@nic.in
2. The Secretary, Ministry of Petroleum and Natural Gas, Shastri Bhavan, New Delhi - 110 001; Tel.: 23383501, 23383562; Fax: 23075006; and Email: sec.png@nic.in
3. The Secretary (IPP), Department Of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, Udyog Bhawan, New Delhi; Tel.: 23061815, 23061667; Fax: 23061598; Email: secy-ipp@nic.in
4. The CEO, NITI Ayog, Sansad Marg, Sansad Marg Area, New Delhi, Delhi 110001; Tel.: 23096574, Fax: and Email: amitabh.kant@nic.in and CEO-niti@gov.in
5. The chairman, Railway Board, Ministry of Railways, Rail Bhavan, Raisina Road, New Delhi - 110001; Tel.: 23384010; Fax: 23381453; Email: crb@rb.railnet.gov.in
6. Shri A.K. Mehta, Joint Secretary, MoEF&CC, IPB, Jorbagh Road, New Delhi - 110 003.

7. The Chairman, Central Pollution Control Board, arivesh Bhawan, CBD-cum-Office Complex East Arjun Nagar, DELHI - 110 032; Tel.: 22303655; Fax: 22307078; Emails: psms.cpcb@nic.in adaba.cpcb@nic.in
8. Shri N.A. Viswanathan, Secretary General, Cement Manufacturers' Association, CMA Tower, A-2E, Sector 24, Noida - 201 301 (U.P.); Tel.: 0120-2411955, 2411957, 2411958, Fax: 0120-2411956 Email: cmand@cmaindia.org
9. The chairman, Federation of Indian Chambers of Commerce and Industries (FICCI), 1, Federation House, Tansen Marg, New Delhi, Delhi 110 001; Tel.: 2373 8760; Fax: 23320714, 23721504; Email: ficci@ficci.com
10. The Director General, Confederation of Indian Industry (CII)_ The Mantosh Sondhi Centre, 23, Institutional Area, Lodi Road, New Delhi - 110 003 (India); Tel.: 45771000, 24629994-7, Fax: 24626149; and Email: info@cii.in
11. The Director General, Centre for Science and Environment (CSE), 41, Tughlakabad Institutional Area, new Delhi – 110062, Tel.: 29955778, Fax: 29955879; Email: sunita@cseindia.org and cse@cseindia.org

Copy to:

1. PPS to Secretary, EF&CC
2. PPS to SS(RRR)
3. PPS to JS(MKS)
4. PPS to JS(AKM)

Minutes of meeting to discuss the issue of use of pet coke, mixture of coal and pet coke and co-processing of waste as fuel in cement kilns dated 16.02.2017 under the Chairmanship of Secretary, Environment, Forest and Climate Change at Indira Paryavaran Bhawan, Jorbagh Road, New Delhi.

A meeting was held on 16.02.2017 at Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi under the chairmanship of Secretary (E,F&CC) to discuss issues relating to use of petroleum coke (pet coke), mixture of coal and pet coke and co-processing of waste as fuel in the cement kilns. Representatives from Ministry of Coal, Ministry of Petroleum and Natural Gas, NITI Aayog, Central pollution Control Board (CPCB), Centre for Science and Environment, Federation of Indian Chambers of Commerce and Industries (FICCI), Confederation of Indian Industry (CII), Cement Manufacturers' Association (CMA), and Cement Manufacturing units (ACC, Ambuja, Myhome, Dhakmia) participated in the meeting. List of participant is enclosed as Annexure-1.

2. The Secretary (E,F&CC) welcomed the participants and remarked that Supreme Court has directed the Central Government in W.P.(C) No. 13029/1985 in the matter of M. C. Mehta *versus* Union of India to take a decision within four weeks from 06.02.2017 on banning polluting fuels like FO and pet coke used as industrial fuel. He put forward following issues for discussion during the meeting:

- Ban on use of Pet Coke and FO in NCR
- Import Regulation
- Price Intervention
- Long Term policy towards usage in CPP across the country

3. Shri Manoj Kumar Singh, Joint Secretary, MOEF&CC explained in brief the background of the issue. He informed that use of only coal was prescribed as fuel in cement kiln in environmental clearance. However, the Cement Industry had been raising the issue of non-availability of coal and railway wagons to them as per their need/requirement and had applied for amendment in environmental clearance conditions to use pet coke as fuel for cement kiln. Pet coke is a by-product of the petroleum industry and readily available at competitive rates in the country. Hence, it was considered a good alternate of coal as fuel for the cement kiln. Further, the use of pet coke as fuel in cements kilns does not produce excess SO₂ emissions and also helps in increasing the usage of fly ash and slag. This issue was discussed in the Expert Committee wherein, it was recommended to review the provisions of the EIA Notification, 2006.

Accordingly, Ministry published the notification S.O. 3518 dated 23.11.2016 allowing use of pet coke as fuel in cement kilns. However, after publication of notification, Ministry has received representations stating that unauthorized use of different fuels like Furnace Oil (FO) and pet coke is leading to major contributor for air pollution in the National Capital Region (NCR). Also, the Ministry of Coal has submitted that there is sufficient availability of domestic coal for all sectors, but due to extensive use of pet coke, which is a cheaper alternate of coal, Cement Industries are avoiding use of coal.

4. Stating her news on the matter, Ms. Sunita Narain, Director General, CSE, New Delhi said that FO is the last grade fuel produced by refineries and this 'bottom of the barrel' product is therefore, extremely polluting. Pet coke, a by-product of refineries, besides being also polluting, does not have any specifications for the Sulphur content that is permissible. The laboratory reports have established that pet coke and FO are the most polluting forms of fuel and there must be complete ban on their use in NCR. In her view, there were enough viable alternatives available in Delhi and NCR. She said that, at present, there are Power Plants with about 8000 MW of installed capacity in the immediate vicinity of Delhi. Of this, only 20% is being used. She suggested that pet coke should be allowed only in cement kilns, where combustion and emissions are controlled. However, if any cement plant requires the use of pet coke in NCR, it should seek permission.

5. Shri. D.N. Prasad, Adviser, Ministry of Coal informed that sufficient quantity of domestic coal is available to cater to the needs of industrial fuel. He pointed out that pet coke is highly polluting as sulphur content is very high in pet coke as compared to coal. He strongly suggested banning use of pet coke as industrial fuel in view of air pollution issues. He also raised the issue of no cess on pet coke.

6. Shri Sandeep Poundrik, Joint Secretary, Ministry of Petroleum and Natural gas emphasised on imposing environmental cess on such polluting fuel sources instead of banning them. He pointed out that production of pet coke would always take place as a by-product. So, ways need to be found out for its proper utilisation. He mentioned that out of total 26 Million Tonnes of Pet coke demand in the country, only half a million tonne is being used in NCR and it might not be having much impact on environment. He also said that pet coke used in cement kiln does not have any adverse impact on environment. However, he emphasised need of more studies on possible impact of pet coke on environment.

7. Representative of ACC and Ambuja Cements, who were present as part of CII & FICCI's delegations, mentioned that Cement Industry had to meet their demand for desired quantity and quality of the fuel for the cement plants from all possible sources in order to ensure reliable operation and many a times because the coal supply was hampered by the shortage of rail wagons etc. They informed that the domestic coal offered to cement plants has low calorific value with an ash content of 40-55% which is not suitable for the marginal grade limestone (high silica content). They informed that several studies have been conducted and reviewed by various institutions like NCCBM, Expert Appraisal Committee and concluded that usage of pet coke as fuel in Cement Industry has no adverse impact on Environment as emissions generated are well within the prescribed norms. They also suggested that pet coke, not being a mineral / fuel, should not be identified as commodity to be brought under ambit of 'Environment Cess' category and regarded the suggestion of putting pet coke under restricted category for imports as regressive. They informed that Cement kiln will be the ideal and most preferred way to utilise the pet coke as it neutralises the sulphur and it can safely be used in CFBC Boilers as the combustion takes place around 900°C which eliminates thermal NOx generation and neutralize the SO₂ with lime stone dosing system.

8. Secretary General, Cement Manufacturers' Association (CMA) pointed out that the policies of Coal India and Singareni are monopolistic and do not foster competition. It is natural, therefore, that decisions by the Industry are taken on considerations of business viability. He said that unregulated sector Cement Industry has to pay more than the regulatory price of coal. Further, the uncertainty of supply is compounded by shortages of rakes. There are also issues of regular grade slippage of 2-3 grades.

9. Representative of Federation of Indian Chambers of Commerce and Industries (FICCI) suggested promotion of circular economy, where waste created from one industry is utilized by other industries through creation of market for use of alternative fuels. Since pet coke will be generated, it is important to address and encourage solutions for its effective use. The country needs to promote waste utilization and reuse wherever possible, as long as environmental parameters are met. In case of using pet coke and mixture of coal as fuel in cement kilns, adequate pollution control technology such as wet scrubbers can be deployed where sulphur emissions can be contained, treated and reused effectively. India has sulphur deficit soil and it can be enriched when elemental sulphur can be fed back in the soil ecosystem after proper

treatment. If environmental norms are met by the industry then there should be no blanket ban on pet coke and other mixtures of coal anywhere in the country. The proposed idea of using substitutes of pet coke – natural gas and electricity, should be thoroughly studied and researched from the view point of energy security, distribution and technological availability.

10. Representative from Confederation of Indian Industry (CII) mentioned that use of pet coke and FO in industrial operations located in Delhi-NCR is primarily for the purposes of power generation as the power supply is unreliable and this problem leads to the use of fuel oils for power generation through DG sets. Further, he informed that GAIL is supplying natural gas to industries in limited cities across NCR. He suggested considering the economic costs associated with the changeover as this may also lead to Industry located in NCR becoming non-competitive. He suggested that if the Industry is able to meet the mandated emission standards, then regulating the fuel type would only prove uneconomical decision with no substantial benefits on air quality.

11. Shri S.P. Singh Parihar, Chairman, CPCB informed that CPCB was carrying a study on use of petcoke and FO as industrial fuel for different sectors in NCR as directed by the ministry in pursuant to the orders of the Hon'ble Supreme Court in W.P.(C) No. 13029/1985 in the matter of M. C. Mehta *versus* Union of India. The results of the study will be available within a month.

12. Shri A.K. Mehta, Joint Secretary, MoEF&CC stated that pet coke and furnace oil do contain high level of Sulphur and it may be desirable to shift towards use of cleaner fuels for industrial and electricity generation in a phased manner; the extent of use of pet coke and furnace oil in NCR and its impact on pollution levels needs to be studied; pet coke and furnace oil are used in large as well as small scale industries and there are some categories of industries where it can be used safely like cement industry subject to necessary permissions and control measures. Such fuel which do not have specifications laid down by BIS should not be allowed to be used in NCR and any new fuel should be added to the acceptable fuels only after parameters are laid down and fuel test reports are considered by CPCB. Further, he mentioned that issues that require consideration before coming to conclusion regarding ban on pet coke and furnace oil in NCR include Contribution to secondary particulate matter due to use of pet coke and furnace oil; availability of alternate fuels and transition period required; appropriate standards with

respect to some of the alternate fuels and timelines needed for laying down standards; and social and economic aspects of transition.

13. Shri Manoj Kumar Singh, Joint Secretary, MoEF&CC clarified that amendment in environmental clearance is not required for use of pet coke in cement kilns but it would mandatorily be required in case of its use in Captive Power Plants. On ban of import, he suspected that the prices of domestic pet coke may rise abnormally. At present, the price of pet coke is lower than that of other alternate sources including diesel, gas or electricity.
14. Shri R.R. Rashmi, Special Secretary said that while the discussions had helped in clarifying possible approaches to use or ban of pet coke and FO, the questions regarding availability of alternatives were yet to be settled and further information will be needed.
15. Shri Ajay Narayan Jha, Secretary (E,F&CC) enquired about the availability of natural gas in Delhi and NCR from the Joint Secretary, Ministry of Petroleum and Natural Gas who said that information is not readily available with him but promised to provide details later.
16. Based on overall deliberations, following decisions were taken:
 - i. Pet coke may be allowed only in cement kilns, where there is use of limes and combustion and emissions are controlled.
 - ii. Availability of alternate fuels like electricity and natural gas in Delhi-NCR region, be assessed further with inputs from Ministry of Petroleum and Natural Gas.
 - iii. The Ministry of Petroleum and Natural Gas should assess the demand and supply of natural gas in NCR and meet the additional requirement.
 - iv. Decision on use of pet coke as fuel will be taken only after examination of study being conducted by CPCB on impact of pet coke and FO as fuel in different sectors of industries.

The meeting ended with vote of thanks to and from the Chair.

**MEETING TO DISCUSS THE ISSUES RELATING TO USE OF PETCOKE,
MIXTURE OF COAL AND PETCOKE AND CO-PROCESSING OF WASTE AS
FUEL IN THE CEMENT KILNS**


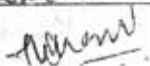
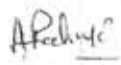



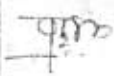
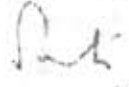
DATE & TIME : 16th February, 2017

VENUE : KAVERI CONFERENCE HALL, INDIRA PARYAVARAN
BHAWAN, JOR BAGH ROAD, NEW DELHI

ATTENDANCE SHEET

S. No.	Name of Participants & Designation	Address	Contact No. & E-mail	Signature
1.	Secretary, MOEF & CC			
2.	S Secretary MOEF & CC			
3.	Sh. Manoj K. Singh JS MOEF & CC			
4.	Sh. A.K. Mehta JS, MOEF & CC			
5.	D N Prasad Advisor (P)	H/O (res) Shakti Bhawan	23386347 advp.mof@nic.in	DN
6.	Sandeep Poudyal JS	MOF NL		SP
7.	Sanjiv Singh Director (Chf)	IDLL	Sanjiv Singh @indianrail.in	SS
8.	S. Savaas Jt President (Strat & BD)	Shree Cement	Savaas @shree cementltd. .com	SS
9.	PRATIMA GUPTA DIRECTOR (E+P) NITI AAYOG	NITI AAYOG	pratima gupta@nic.in	Pratima

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	Name & Designation	Address	Contact No. & E-mail	Signature
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26.	Himani Kulshrestha Asst Director, FICCI	FICCI	9827072223 himani.kulshrestha @ficci.com	
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31.	PRAHANT GARGAVA ADOL DIRECTOR	CIBC	9990870057	
32.	Sumit Narain	CSE	9810064207	
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ENVIRONMENT POLLUTION (PREVENTION & CONTROL) AUTHORITY
For the National Capital Region

Dr Bhure Lal
Chairman

EPCA-R/2017/L-20
March 14, 2017

Dear

EPCA has already sent to you the Draft "Comprehensive Action Plan for Air pollution Control" vide our letter No EPCA-R/2017/L-12, through e-mail dated March 03, 2017. We presume that your concerned field officers and experts have studied the proposals in details and must have formed their views for further improvement.

A final report is to be submitted to Hon'ble Court in the 1st week of April, after incorporating the views of all the stakeholders participants.

EPCA is convening a **meeting on March 31, 2017 (Friday) at 3:00 pm** in the office of Chairman EPCA, Core 6A, 3rd Floor, Indian Habitat Centre, Lodhi Road, New Delhi-110003 to consider the views of all the participants

You are requested to ensure to forward your views to EPCA immediately and also ensure participation at senior level in the meeting on March 31, 2017

Copy of Court order is attached for your perusal

Yours faithfully,

Sd/-

(Bhure Lal)
Chairman, EPCA

To

To

Shri S.P Singh Parihar, IAS,

Chairman

Central Pollution Control Board

Parivesh Bhawan, CBD-cum-Office complex, East Arjun Nagar,
New Delhi 110032

Dr. M. M Kutty, IAS

Chief Secretary, Govt of NCT Delhi

Delhi Secretariat, I.P. Estate

New Delhi -110002

Shri. Depinder Singh Dhesi, IAS

Chief Secretary, Government of Haryana

(Tel: 0172-2740118, Fax: 0172-2740317, 2740526)

Shri Rahul Bhatnagar, IAS

Chief Secretary, Government of Uttar Pradesh

Uttar Pradesh Government Secretariat,

Lucknow - 226001

Shri Shri Om Prakash Meena, IAS

Chief Secretary, Govt of Rajasthan

Govt. Secretariat

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Environment Department: UP, Rajasthan and Haryana

Shri Sanjiv Saran, IAS

Addl. Chief Secretary to Govt. Uttar Pradesh, Environment Department

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Minutes of the Meeting of the reconstituted EPCA for NCR region held under the Chairmanship of Shri Bhure Lal at 3:00 pm on 31.3.2017 in the office of Supreme Court Monitoring Committee, Core 6A, Third Floor, India Habitat Centre

Agenda items: Comprehensive action plan for air pollution control in Delhi-NCR region.

In attendance

Chairman and Members EPCA

1. Dr. Bhure Lal, Chairman, EPCA
2. Ms. Sunita Narain, Member, EPCA
3. Dr. A.K. Bhagi, Member, EPCA
4. Mr. Vishnu Mathur, Member, EPCA
5. A B Akolkar, Member, EPCA

Representatives of concerned agencies

1. S C Yadav, MS, UPPCB
2. MayankJyoti, RTO, Ghaziabad
3. RaghwendraPratap Singh, Jt. Director, Dept. of Horticulture, UP
4. RavindraGodbole, Secy. Ghaziabad Development Authority
5. K. Mohan, Architect-Planner, TCTD, UP
6. Dr. R K Yadav, Ghaziabad Nagar Nigam
7. Dr. Anil Kumar, Director, Dept. of Environment, GNCTD
8. K C Gupta, Rajasthan State Pollution Control Board
9. Prabal Pratap Singh, SP, Traffic, NOIDA
10. S M Ali, Spl. Secy, Environment & Forest, GNCTD
11. Prashant Gargava, Addl. Director, CPCB
12. J P S Deshwal, North Delhi Municipal Corporation
13. K KPohani, Delhi Jal Board
14. Dinesh Kumar Gupta, DCP, Traffic, Delhi Police
15. Balbir Singh, Dept. of Transport, Haryana
16. Vishvajit Sahay, Jt. Secy., Dept. of Heavy Industry, GoI
17. Dr. K KKhanelwal, Addl. Chief Secy. , Dept. of Environment, Haryana
18. S Narayanan, MS, HSPCB
19. Rajiv Kumar Jain, SE, SDMC
20. Dr. ChetnaAnand, Scientist, Dept. of Environment, GNCTD
21. R K Tyagi, SE, EDMC
22. PramodVashisit, North Delhi Municipal Corporation
23. Anjani Kumar Singh, Dept. of Geology & Mining, UP
24. Ashok Prasad, Under Secy. , MoRTH
25. Dr. P K Sharma, NDMC

26. A K Pandey
27. O P Singh
28. PravinaChoudhary
29. Sunil Kumar

Chairman, EPCA said that the draft Comprehensive Action Plan for Delhi NCR for air pollution control prepared in compliance of the Hon' ble Supreme Court order dated 6.2.2017 in W.P. (C) 13029 of 1985: M.C. Mehta vs Uol&Ors.was circulated by EPCA to Govt. of Delhi and three states i.e. Govt. of Haryana, Uttar Pradesh and Rajasthan vide e-mail dated 3.3.2017 to examine/ study and provide comments for modification or addition of new action points in the plan.

This meeting is convened for finalization of the plan based on the inputs of the Government's in compliance of the Hon' ble Supreme Court order dated 6.3.2017. The state-wise responses are as under:

State of Haryana

Chairman, Haryana State Pollution Control Board informed that the draft plan was circulated to all concerned departments for inputs and further Chief Secretary of Haryana convened two meetings to discuss the plan and to finalise implementation schedules for the actions listed in the plan. He informed that there are no comments on the plan.

State of Uttar Pradesh

Member Secretary, Uttar Pradesh Pollution Control Board informed that the draft plan was circulated to all concerned departments for inputs and further Chief Secretary, Uttar Pradesh convened two meetings to discuss the plan. MS, UPPCB informed that there are no comments on the plan except on point 2.1.2 regarding setting up of real time ambient air quality monitoring stations. He informed that the deadline of setting up of real time stations by July 2017 will not be complied due to delay in tendering process because of state elections. But he assured EPCA that the stations would be set up before October 2017 and would provide a schedule to EPCA.

MS, UPPCB further submitted a compliance report on the action points listed in the plan based on the progress cum status received from the concerned departments except for U.P. Traffic Police. U.P. Traffic Police representative provided the progress cum status report to UPPCB during the meeting for forwarding the same to EPCA.

State of Rajasthan

Regional Officer, Bhiwadi, Rajasthan State Pollution Control Board informed that the draft plan was circulated to all concerned departments for inputs and further Chief Secretary, Rajasthan convened one meeting to discuss the plan. R.O., RSPCB informed that there are no comments and further submitted a compliance report on the action points listed in the plan based on the progress cum status received from the concerned departments.

Government of National Capital Territory of Delhi

Member Secretary, Delhi Pollution Control Committee informed that the draft plan was circulated to all concerned departments for inputs and further Hon'ble Lieutenant Governor, Delhi convened a meeting to

discuss the plan and priority actions were finalized for review of compliance within one month. MS, DPCC made the following suggestions:

1. Time lines for implementation of action points given in the plan shall be finalized by EPCA after consultation with the concerned departments.
2. The departments responsible for implementation of action points shall be specified where so ever not specified in the plan.

Comments of Members, EPCA on Draft Comprehensive Action Plan

2.2.1 Registration of BS VI compliant vehicles from April 1, 2020

Mr. Vishnu Mathur, Member, EPCA expressed that registration of BS VI complaint vehicles from April 01, 2020 will require vehicles manufacturers to pre-pone vehicle manufacturing by one year. This is not possible considering the fact that switching over from production of BS IV compliant vehicles to BS VI compliant vehicles is a major leapfrogging and that there are technological challenges involved, hence, this issue needs further discussion before recommending the given timelines to the Hon' ble Court.

Chairman, EPCA responded that the intentions of the Hon' ble Supreme Court are very clear from its order dated 29.3.2017 permitting only improved engine vehicle registration when better quality fuel is available nationwide. Hence, vehicle manufacturers shall be prepared for registration of BS VI compliant vehicles from April 01, 2020 in light of the spirit of the said Court order. EPCA further informed that Ministry of Petroleum and Natural Gas is further expected to achieve BS VI fuel availability nationwide from April 01, 2019 onwards as against April 01, 2020 and in case the same is achieved the vehicle manufacturers shall get prepared accordingly.

Prof. A.K. Bhagi, Member, EPCA also agreed with views of EPCA and further clarified whether views of Mr. Vishnu Mathur will be submitted to Court as views of EPCA or of SIAM. Chairman, EPCA said that his view is not the view of entire EPCA and will be sent in report as views of SIAM in the report to be submitted to the Court.

2.2.2 Action on dieselization

Imposition of EPC (Environment Protection Charge) on diesel vehicles with 2000 cc and above - Mr. Vishnu Mathur expressed that such recommendation to the Court was not fair as the vehicle is meeting the current law and in future the products meeting the current law shall not be recommended for penalty.

EPCA responded that it does not agree with the views of Mr. Vishnu Mathur as such steps are needed to combat rising air pollution levels in Delhi-NCR and in this case due to increasing number of registration of diesel vehicles in the city.

Tax measures are needed to nullify incentives for diesel cars over petrol cars - Mr. Vishnu Mathur, expressed that the said recommendation in the report shall be modified and the following shall be submitted to the Court that "in order to remove the price disparity between petrol and diesel cars, Central Govt. should equalize taxation on fuel".

EPCA agreed to include above recommendation in the report as recommendation of SIAM.

2.2.3 Expand CNG program across NCR

Mr. Vishnu Mathur expressed that expansion of CNG post introduction of BS VI fuel needs to be deliberated by an expert group comprising vehicle manufacturers, vehicle certifying agencies and scientists in the field of vehicular pollution considering the on road emissions expected from both the fuels and based on the expert group view recommendations on fuel use can be given.

Prof. A.K. Bhagi, Member, EPCA agreed with views of Mr. Vishnu Mathur and added that the expert group shall further give its views on formulation of secondary particulates from emissions released by both the fuels and their role in ambient air quality and on health of people.

EPCA requested CPCB to look into the matter.

2.1.5 Research studies including air pollution inventory, source apportionment, health impact studies, exposure impacts and other relevant studies –CPCB representative expressed that two committees have been constituted which will scrutinize and approve the appropriate proposals received on the subject matter and details of such studies being undertaken will be shared with EPCA. It was agreed that the draft plan would be accordingly revised to reflect the fact that CPCB would finalize the research studies with the relevant committees and keep EPCA informed on the outcomes.

2.7.3 The agenda on the ban on unacceptable and dirty fuels was discussed. EPCA raised the issue with the representatives and member asking if they had any comments to offer on this agenda item. It was agreed that this agenda should be included so that these fuels are banned in NCR.

Compliance of the Hon'ble Supreme Court order dated March 29, 2017

During the meeting, EPCA also discussed the matter of compliance of the Hon'ble Supreme Court order dated 29.3.2017 regarding registration of only BS IV compliant vehicles for which proof of sale of vehicle on or before 31.3.2017 is submitted to the registering authorities. EPCA informed that it has been brought to its notice that fake proofs are being submitted for purchase of BS III compliant vehicles before March 31, 2017. EPCA asked state Transport Departments of Delhi, Haryana, Rajasthan and Uttar Pradesh how they would comply with the order of the Hon'ble Supreme Court. Transport Department representatives informed EPCA that the following is to be produced by vehicle owner for considering registration from April 01, 2017:

1. Proof of tax, fees and insurance documents submitted by vehicle dealer to Transport Department on or before March 31, 2017 for registration. Furthermore, they explained that all tax is remitted daily by the dealers to the online portal of the transport department. Therefore, only those vehicles would be registered where the tax, insurance and fees had been paid and this had been forwarded to the respective state transport departments by mid-night of March 31, 2017.
2. This would also be followed in the case of temporary registration certificate, which is issued where vehicle chassis is sold initially and vehicle body is procured at later stage. In this case as

well, only those BS III vehicles would be registered post April 1, 2017 where the tax, fee or insurance had been remitted for temporary registration to the respective transport department.

3. EPCA asked MoRTH representative to ensure compliance of the Hon'ble Supreme Court order by all states and union territories and further ensure submission of above information to EPCA. It was also agreed that EPCA would write to all CS to request them to follow the above procedure as it would ensure compliance with the orders of the Hon'ble Court.

The meeting ended with a vote of thanks to the Chair.

CPCB's Comments on Draft Comprehensive Action Plan for Air Pollution Control in Delhi & NCR

The draft Comprehensive Action Plan submitted by EPCA to Hon'ble Supreme Court on March 02, 2017 for air pollution control for Delhi & NCR has been examined, and comments are as below:

General

1. The action points which are directed by Hon'ble Supreme Court may be grouped together for strict compliance.
2. The actions covered under Graded Response Action Plan (GRAP), which has been annexed, may be deleted from the comprehensive plan to avoid duplication.
3. While the guiding principle mentions toxicity based prioritization of actions, the same is not reflected in the action points. Action points in respect of sources with toxic pollutants/priority sources may be grouped as primary/ pivotal actions. The measures which require progressive continuous actions, and are not priority from health impact point of view may be grouped separately as secondary/ auxiliary actions.
4. Activities for implementation in Delhi, NCR region or both may be clearly identified.
5. The activities with financial implications such as penalty, fare integration, common ticketing, incentive, taxation, etc. needs to be categorized separately and views from concerned ministries sought.

Specific

1. There are 18 real time monitoring stations in operation in Delhi, item 2.1.1 may be corrected accordingly.
2. In U.P. 10 manual and one real time monitoring stations are in operation, and six manual and 10 real time are planned. Item 2.1.2 may be changed accordingly.
3. Item 2.1.5: "Expertise.....research proposals" may be replaced with "Studies using EPC funds may be taken up as per the concept note submitted by CPCB to the Hon'ble Supreme court."

4. Item. 2.2.1: The notification regarding implementation of BS-IV and BS VI emission norms is applicable for vehicles manufactured on or after given dates, and not registration of vehicles.
5. Item 2.2.2: The responsible agency for actions regarding tax measures is not CPCB. Its role is for collection and utilization of EPC funds.
6. Item 2.2.5: It may be informed that CPCB had already issued Directions for installation of stage I & II vapor recovery systems in all the retail outlets with capacity 300 KLM and more, in 46 million plus cities by December 2017.
7. Item 2.2.12: Hydro testing of CNG cylinder may be omitted as it is related to safety aspect.
8. Item 2.3.10: BRTS/ LRTS implementation in high frequency routes may be reconsidered.
9. Item 2.7.5: Information from CEMS are required for enforcement and therefore available to the pollution control authorities and not on open platform. The action point may be reconsidered.
10. Item 2.7.8: Please refer comments line above.
11. The point no. 3 regarding institutional arrangement for implementation: As per the Graded Action Plan, the role of CPCB Task Force is to suggest additional measures in case of emergency or severe plus categories.

Delhi Pollution Control committee

Subject: Illegal use of Furnace Oil, Pet Coke, Tyre Oil, Carbon Black Feed Stock etc. as a fuel by the industrial units and to insist industrial units to use only approved fuel.

As per the notification by Govt. of Delhi on 27.08.1996, following are the approved fuels:

1. Coal with Low sulphur (S = 0.4%)
2. Fuel oil/LDO/LSHS/ with low sulphur (S = 1.8%)
3. Motor gasoline (as per specification given in the notification dated 02-4-96 of the Ministry of Environment and Forests annexed hereto)
4. Diesel (as per specification given in the notification dated 02-4-96 of the Ministry of Environment and Forests annexed hereto)
5. Liquid Petroleum Gas (LPG)
6. Compressed Natural Gas (CNG)
7. Kerosene
8. Naphtha (for Power Plant)
9. Aviation Turbine Fuel (for air craft)
10. Fire wood (only for domestic use in rural areas and crematorium)
11. Bio-gas

FO is not permissible in NCT of Delhi, however during the inspection conducted from 18.3.2017 to till date, 19 units were inspected and the fuel being used by the units have also indicated in the table placed at annexure-1.

DPCC has also collected sample of fuel from 06 units on 23.03.2017 and these samples have been given to EPCA for testing. List of units is placed at Annexure-II.

It is pertinent to mentioned that most the units using fuel which are in dark colour and more viscous, as three units reported and found using FO which is not permissible and one unit using tyre oil which is abstract by condensation of Pyrolysis gas produced during Pyrolysis of Tyres, reported SG 0.93 and Sulphur (S) content is 1.1%, remaining units are reportedly using Carbon Black Feed Stock (CBFS) sold by petro-chemical and refineries, and as per the report titled Mandating 'acceptable' fuel to be used in NCR for air pollution control Environment Pollution (Control and Prevention) Authority for NCR December 02, 2016 Copy placed at Annexure-III.

contd -

As the finding the oil companies selling the CBFS, have sulphur contents 1%-10,000 ppm and key pollutant are Carbon, around 90%, and measured through an index called BMCI i.e. blacker the fuel, the better, thus the key pollutant is carbon black CO₂ and also Poly Aromatic Hydrocarbons and could be more than 50% of the contents. Poly Aromatic Hydrocarbons (PAH) is highly toxic and carcinogenic.

DPCC has designated five Nodal Officers. Name of the Nodal Officers, designations are here under:

1. Sh. DK Singh, SEE (9717593512) - for South, South-East and South-West districts.
2. Sh. Mohd. Arif, SEE (9717593510) - for North- West district
3. Sh. BL Chawla, SEE(9717593516) - for East, North-East and Shahdara districts
4. Sh. PS Pankaj, EE(9717593517) - for West and New Delhi districts.
5. Sh. Satender Kumar, SEE(9717593519)- for North and Central districts.

DPCC has convened a meeting on 29.03.2017 at 3.30 P.M. with Industrial associations of Delhi under the Chairmanship of Secretary (Env.) cum Chairman, DPCC to discuss the issues related to illegal use of Furnace Oil, Pet Coke, Tyre Oil, Carbon Black Feed Stock etc. as a fuel by the industrial units and to insist industrial units to use only approved fuel as per the notification dated 27.08.1996. ~~Meeting is placed at Annexure IV.~~

List of Industrial Units Inspected

Annexur-1

S.I No.	Name of the Unit	Address of the unit	Activity	Date of Inspection	Fuel used during the inspection
1	M/s M.M Enterprises	Khasra No-15/5, New Mandoli Industrial Area, Shahdara, Delhi-110093	Casting of Copper Ingots	18.03.2017	CBFS+HSD
2	M/s Shri Shakti Enterprises	K-47, New Mandoli Industrial Area, Saboli, Shahdara, Delhi-110093	Casting of Copper Ingots(Pit Furnace)	18.03.2017	CBFS+HSD
3	M/s Mahadev industries	L-7, Khasra No-77, New Mandoli Industrial Area, Delhi-110093	Casting of Copper Ingots	18.03.2017	HSD+LDO+ CBFS
4	M/s Vakartund Associate	Khasra No-79-80, Hanuman Gali, New Mandoli Industrial Area, Shahdara, Delhi-110093	Re-Rolling of Copper Ingots	18.03.2017	HSD+LDO+ CBFS
5	M/s Shivam Metals	L-6, New Mandoli Industrial Area, Saboli, Delhi-110093.	Casting of Copper Ingots	18.03.2017	HSD+LDO+ CBFS
6	M/s S.G Manufacturing Co. Delhi(P) LTD.	B-5, Jhilmil Industrial Area, Delhi-110095	Manufacturing of Copper Wire Rods with Hot Re-Rolling	18.03.2017	Tyre oil & HSD+CBFS
7	M/s Kay Cee Electricals	B-7, Jhilmil Industrial Area, Shahdara, Delhi-110095	Re-Rolling of Copper Ingots	18.03.2017	HSD+CBFS+ Furnace Oil
8	M/s Bhartiya Tar Udyog	B-21, Jhilmil Industrial Area, Delhi-110095	Re-Rolling of Copper Ingots	18.03.2017	HSD+CBFS+ Furnace Oil
9	M/s LD Copper Pvt. Ltd	26/3, Balaji Gali, New Mandoli Industrial Area, Saboli, Delhi-110093	Re-Rolling of Copper Ingots	20.03.2017	HSD+CBFS+ Furnace Oil
10	M/s Khandelwal Sales Corporation	M-6 & M-19, Vishnu gali, New Mandoli Industrial Area, Saboli, Delhi-110093	Copper Ingots Casting	20.03.2017	CBFS, LDO, HSD
11	M/s Lala Ram Rolling mill	E-8, Arjun Gali, New Mandoli Industrial Area, Saboli, Delhi-110093	Aluminium Ingot Casting	20.03.2017	CBFS, HSD
12	M/s M.S Metal Co.	458/466, No-8 gali, Friends Colony, Industrial Area, Shahdara, Delhi-110095	Copper Ingot Casting	20.03.2017	CBFS, HSD, LDO
13	M/s Pushpanjali Enterprises (P) Ltd.	Gali No-1, friends Colony, Industrial Area	Aluminium Wire Rod & Wire	20.03.2017	PNG, LDO, HSD, CBFS,

List of Industries inspected

S.I No.	Name of the Unit	Address of the unit	Activity	Date of Inspection	Fuel used during the inspection
14	M/s V.S. Industries	D-20, SMA Industrial area, GTK Road	Hot Re-rolling	23.03.2017	Furnace Oil
15	M/s Navkar Industries	D-46, SMA Industrial Area, GTK Road, Delhi-110033	Hot Re-rolling	23.03.2017	Furnace Oil
16	M/s Pawan Steel Industries	E-23, SMA Industrial Area, GTK Road, Delhi-110033	Hot Re-rolling	23.03.2017	Furnace Oil
17	M/s Shri Dina Nath Industries	E-29, SMA Industrial Area, GTK Road, Delhi-110033	Hot Re-rolling	23.03.2017	Furnace Oil
18	M/s Metal Fabricator	A-85/3, Wazirpur Industrial area.	Annealing	23.03.2017	
19	M/s Manish	A-84/2, Wazirpur Industrial area.	Hot Re-Rolling	23.03.2017	

List of Industries whose sample has been collected.

S.I No.	Name of the Unit	Address of the unit	Activity	Date of Inspection	Fuel used during the inspection
1	M/s V.S. Industries	D-20, SMA Industrial area, GTK Road	Hot Re-rolling	23.03.2017	Furnace Oil
2	M/s Navkar Industries	D-46, SMA Industrial Area, GTK Road, Delhi-110033	Hot Re-rolling	23.03.2017	Furnace Oil
3	M/s Pawan Steel Industries	E-23, SMA Industrial Area, GTK Road, Delhi-110033	Hot Re-rolling	23.03.2017	Furnace Oil
4	M/s Shri Dina Nath Industries	E-29, SMA Industrial Area, GTK Road, Delhi-110033	Hot Re-rolling	23.03.2017	Furnace Oil
5	M/s Metal Fabricator	A-85/3, Wazirpur Industrial area.	Annealing	23.03.2017	-
6	M/s Manish	A-84/2, Wazirpur Industrial area.	Hot Re-Rolling	23.03.2017	-

Annexure 7
(51)

**ENVIRONMENT POLLUTION (PREVENTION & CONTROL) AUTHORITY
for the National Capital Region**

EPCA-R/Minutes/2017/ 23438-440 Speed Post

February 21, 2017

To:

Secretary, Ministry of Petroleum and Natural Gas
Shastri Bhawan, New Delhi - 110001

Managing Director, Gail (India) Limited
GAIL Bhawan, 16, Bhikaji Cama Place,
New Delhi - 110066

Chairman, Gail Gas Limited
13th & 14th floor, Gail Jubilee Tower,
B-35 & 36 Sector- I,
Noida- 201301.

Managing Director, Indraprastha Gas Limited,
IGL Bhawan, Plot No. 4, Community Centre,
Sector 9, R.K. Puram, New Delhi - 110022

Managing Director, Haryana City Gas Distribution Limited
A-107, Sushant Lok-I, Gurugram, Haryana, 122002

Senior Vice President, Adani Gas Limited
Institutional Plot No. 18, Sector 20 B,
Faridabad 121001,
Haryana

Sub: Minutes of EPCA meeting held on February 20, 2017 (Monday) at 3.00 pm to discuss availability of Piped Natural Gas (PNG) in NCR.

Sir,

I am directed to send herewith the minutes of meeting of the 'Environment Pollution (Prevention and Control) Authority for the National Capital Region' held on February 20, 2017 (Monday) at 3.00 pm for necessary action/ perusal

Yours faithfully


21/2/17

(Ankush Tewani)

Environmental Engineer, CPCB

c/c

Copy to:

Shri. Bhure Lal, Chairman, EPCA
67 Lodi Estates, Delhi 110003

Advisor (CP),
Ministry of Environment, Forests & Climate Change,
Govt. of India


Member Secretary, CPCB


21/2/17
(Ankush Tewani)

c/c

Central Pollution Control Board

Parivesh Bhawan, East Arjun Nagar, Near Karkardooma Courts, Shahdara, Delhi 110032
Tel: 43102444 (CPCB), Tel: 24623060 (R)-Dr. Bhure Lal, Chairman


दिनांक 22/02/17

**Minutes of the Meeting of the reconstituted EPCA for NCR region held under the Chairmanship of
Shri Bhure Lal at 3:00 pm on 20.2.2017 in the office of
Supreme Court Monitoring Committee, Core 6A, Third Floor, India Habitat Centre**

Agenda items: Availability of Piped Natural Gas (PNG) in NCR.

In attendance:

1. Dr. Bhure Lal, Chairman, EPCA
2. Ms. Sunita Narain, Member, EPCA
3. Ms. Kiran Vasudeva, Deputy Secretary, MoPNG
4. Mr. Mohit Sehrawat, Manager, MoPNG
5. Mr. Arvind Kumar, Addl. Advisor, PNGRB
6. Mr. S. K. Agrawal, OSD, PNGRB
7. Mr. Sinha, Ch. Manager, Gail Gas Ltd.
8. Mr. Sunit Verma, DGM, Gail Gas Ltd.
9. Mr. Rajeev Sahai, GAIL
10. Mr. Gitya Shankar, DGM (Mktg.), GAIL
11. Mr. Alok Kumar, CM, GAIL
12. Mr. Ashim Batra, Sr. Vice President, Indraprastha Gas Ltd.
13. Mr. Dilip Kapoor, Chief Manager, Indraprastha Gas Ltd.
14. Mr. Vishal Bhatia, DGM (M), Indraprastha Gas Ltd.
15. Mr. Vikas Bansal, AGM
16. Mr. Bhashit Dholakia, Sr. Vice President, Adani Gas Ltd.
17. Mr. Rajeev Sharma, CEO, Adani Gas Ltd.
18. Mr. Arun Srivastava, Advisor, Haryana City Gas Dis. Ltd.
19. Mr. Ankush Tewani, Environmental Engineer, CPCB

EPCA said this meeting is convened to know about the position of gas supply companies to supply natural gas for industrial operations in NCR region in case the use of furnace oil is banned as recommended by EPCA to Hon' ble Supreme Court.

EPCA took the status from gas supply companies about the areas being served in NCR region as given below:

Gas Selling Companies	State/ City	Region catered
IGL	New Delhi	Delhi
	Uttar Pradesh	Ghaziabad Gautambudh Nagar
	Haryana	Rewari (including Dharuhera and Bawal)
Gail India Ltd.	Rajasthan	Bhiwadi Neemrana
Gail Gas Ltd.	Uttar Pradesh	Meerut
	Haryana	Sonepat
Haryana City Gas Distribution Limited	Haryana	Gurgaon
Adani	Uttar Pradesh	Khurja
	Haryana	Faridabad Palwal (including Hodal)

All gas supply companies said that the infrastructure for gas supply exists in the industrial areas in the NCR region and gas supply for industrial operations is not a problem.

EPCA asked all gas supply companies to submit maps presenting gas supply distribution network.
