

ETS Baseline Survey Summary

The ETS baseline survey is designed to assess industries' current situations with regard to finances, equipment specifications, and emissions.

Because the number, type, and combination of stack and emissions abatement equipment are different for each industry, this baseline survey has been designed to accommodate these complexities.

Each surveyor will "build" his/her own survey for every industry, adding specific attachments as they are applicable to that specific industry. To ensure proper data collection, surveyors must understand the entire survey structure so that all necessary components are included.

Section 1 : General Financial information and products used	A: General instructions B: Certifications C: Industry Description D1: Raw Material (Inputs) D2: Product Outputs E: Industry Fuel Consumption F: Ambient Air Monitoring G: DG Sets
Section 2 : Technical Detailed analysis of stacks and stack-related equipment	I: Collective Stack Information J: Individual Stack Details <i>[Attach relevant stack attachments sheets at this point]</i>
Stack Attachment Sheets Individual sheets covering all potential types and quantities of stack attachments, to be added to survey by surveyor	L1: Boiler L2: Furnace L3: Thermopack M1: Gravity Settling Chamber M2: Cyclone M3: ESP M4: Bag Filter M5: Scrubber N: ID Fan P: CEMS Device Q: Ringelmann's section
Section 3 : Sampling Collected data at the stack and APCD inlet	3.1 : Stack Sampling 3.2 : Inlet Sampling
Section 4 : Back-Check Summary document to be used by auditor to review survey	-
Section 5 : Follow-up Summary document to track status of survey completion	5.1: Industry-wise 5.2 Stack-wise

**Emissions Trading Scheme Baseline Survey:
I. General Section
To be filled by the Field Monitor**

OFFICE USE ONLY			
SPCB ID	|_|_|_|_|_|_|_|	Industry ID	|_|_|_|_|_|_|_|
Reviewer name		Reviewer ID	|_|_|_|_|
Date of questionnaire reviewing (DD/MM/YY)	|_|_|_| / |_|_|_| / |_|_|_|	Number of mistakes found	|_|_|_|_|
Is Follow-up needed?	Yes / No		

General Instructions
<i>The General Section should be filled ENTIRELY by the Field Monitor.</i>
<i>Everything in the questionnaire should be written NEATLY and in UPPER CASE. Use <u>blue ball pen</u>.</i>
<p><i>Do not leave blanks without justification:</i></p> <ul style="list-style-type: none"> - Write "NOT APPLICABLE (NA)" if the question does not apply to this industry Note in comments why question is not applicable. - Write "DATA NOT FOUND (DNF)" if data is absolutely not available at the industry. Note in comments why data is not available. <p><i>If required, explain further in corresponding comments section at the bottom of each page.</i></p> <p><i>In the questionnaire: "Last 12 months" refers to THE MOST RECENT financial year that has passed. For this survey, it means Fiscal year 2013-2014 i.e. 1st April 2013- 31st March 2014.</i></p> <p><i>In case, good data is not available for this period, take data for latest 12 month period that the industry can provide good data for, and specify these months clearly in comments.</i></p> <p><i>Do not write outside the boxes given. Comments, exceptions can be written in the "Comments" field on each page or on the "Additional Comments Page" at the end of the general section.</i></p> <p><i>Write <u>two digits</u> after any number with a decimal point, for example, "21.56302" should be written as "21.56".</i></p> <p><i>When writing numbers, insert commas at appropriate points. For example: "1,00,000" or "1,00,00,000".</i></p> <p><i>In case of financial data, wherever Rs. / Lakh / Crore is mentioned, Circle one which is applicable. When writing financial data, write "-" at the end of the number. For example: "1,00,000 -"</i></p> <p><i>Write the Industry ID at the foot of EVERY page.</i></p> <p><i>Always write down the unit of measurement.</i></p> <p><i>In cases where different options for units of measurement are available, clearly tick the used option.</i></p> <p><i>Do not use thumb rules, personal abbreviations, or short-hand writing.</i></p> <p><i>All questions that must be observed or measured by the surveyor start with "**". Any other question require responses from the industry. If an entire section is marked "**", every question requires the surveyor to conduct his own measurements or observations.</i></p>

Comments p2:

Industry ID:

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Note: The Surveyor/Environmental Lab present is conducting this survey on behalf of the Central Pollution Control Board. The purpose of the survey is to study industrial pollution emissions and measures taken to abate these emissions. The survey information will be used by the Central Pollution Control Board to design future programmes and will be kept confidential.

Comments p3:

Industry ID:

Page 3

Section A: Survey Background					
A1.	**Time (24-hour format)	Enter: |__|_|hrs|__|_|mins Leave: |__|_|hrs|__|_|mins			
A2.	**Date (DD/MM/YYYY)	|__|_| / |__|_| / 20|__|_|			
A3.	**Environmental Lab				
A4.	Industry Name and Address (as on industry records)				
A5.	District		State		Pin code |__|_|_|_|_|
A6.	Telephone number(s)			Email Address(es)	
A7.	**GPS Coordinates (mark GPS waypoint and record details at factory gate)	1. Latitude: N|__|_|°|__|_|.|__|_|_|_|_| 2. Longitude: E|__|_|°|__|_|.|__|_|_|_|_| 3. Elevation (if available): _____			

Comments p4:

Industry ID:

Page 4

**Section B: Certifications					
B1.	Survey team members	Name		Designation	
		1.			
		2.			
		3.			
		4.			
		5.			
		6.			
B2.	Surveyor Certification	As representative of _____ (Environmental lab), I certify that the information collected is reported accurately.			
		Name of signatory			
		Designation of signatory		Text	
		Signature			
B3.	Field Monitor	As a Field Monitor , I certify that the information collected is reported accurately.			
		Name: ID:			
		Signature: Date (DD/MM/YYYY): | | / | | / 20 | |			
B4.	Industry respondents (Persons who answered questions)	Name		Designation	Contact Number
B5.	Industry Certification	As representative of _____ (Industry Name), I certify that the information provided herein is true and correct.			
		Name of signatory			
		Signature of signatory			
		Company stamp			

Comments p5:

Industry ID:

Section C: Industry Description

Instructions: Whenever possible, check documents to verify responses.

C1.	Is the industry operating and in normal production at the time of visit?	<div style="display: flex; justify-content: space-between;"> <div> 1. <input type="checkbox"/> Yes → <u>skip to C3 and continue survey</u> 2. <input type="checkbox"/> No: power outage / power cycling 3. <input type="checkbox"/> No: seasonal closure / monsoon 4. <input type="checkbox"/> No: industry permanently closed 5. <input type="checkbox"/> No: SPCB closure 6. <input type="checkbox"/> No: not in normal production due to 7. <input type="checkbox"/> No: not in production due to 8. <input type="checkbox"/> No: other (specify): </div> <div style="font-size: 3em; line-height: 1; padding: 0 10px;">}</div> <div style="font-size: 0.8em;"> <u>Complete entire survey, do NOT take samples (do NOT fill section 3.1)</u> </div> </div>
C2.	When is the industry expected to start operating and producing normally?	1. <input type="checkbox"/> Expected Date: |__|/|__|/20|__| (DD/MM/YYYY) 2. <input type="checkbox"/> Industry closed permanently
C3.	Are there other industrial units in this state owned by the same owner/parent group as this industry?	1. <input type="checkbox"/> Yes Common Owner 1..... Common Owner 2..... OR Parent Group 1 Parent Group 2 2. <input type="checkbox"/> No
C4.	Corporate Identification Number (CIN#): (Example: U27200MH1973PTC016448)	
C5.	Is this industry public or private sector?	1. <input type="checkbox"/> Public sector (government-owned) 2. <input type="checkbox"/> Private sector (privately-owned) 3. <input type="checkbox"/> Public-private partnership

Comments p6:

Industry ID:

Page 6

C6.	Primary sector of the Industry <i>(as recorded on the environmental consent)</i> <u>Fill in the NIC code AND tick one box</u>	NIC code (if available): | | | | | | | 1. <input type="checkbox"/> Cement 2. <input type="checkbox"/> Chemicals 3. <input type="checkbox"/> Distilleries 4. <input type="checkbox"/> Dye manufacturing 5. <input type="checkbox"/> Engineering 6. <input type="checkbox"/> Food and Breweries 7. <input type="checkbox"/> Foundries 8. <input type="checkbox"/> Iron and Steel 9. <input type="checkbox"/> Mineral Processing 10. <input type="checkbox"/> Paper 11. <input type="checkbox"/> Petrochemicals 12. <input type="checkbox"/> Pharmaceuticals 13. <input type="checkbox"/> Power 14. <input type="checkbox"/> Refinery 15. <input type="checkbox"/> Rolling Mill 16. <input type="checkbox"/> Textiles (dyeing and/or printing) 17. <input type="checkbox"/> Other (specify) _____
C7.	Pollution Category <i>(as recorded on the environmental consent)</i>	1. <input type="checkbox"/> Red 2. <input type="checkbox"/> Ultra Red 3. <input type="checkbox"/> Orange 4. <input type="checkbox"/> Green
C8.	Size <i>(as recorded on the environmental consent)</i>	1. <input type="checkbox"/> Small-scale 2. <input type="checkbox"/> Medium-scale 3. <input type="checkbox"/> Large-scale
C9.	First year of industry operation?	| | | | |
C10.	Number of shifts in the Plant <i>(Please fill using 24-hour time)</i>	No of shifts: | | | Timing: 1. [] [] : [] [] to [] [] : [] [] 2. [] [] : [] [] to [] [] : [] [] 3. [] [] : [] [] to [] [] : [] [] 4. [] [] : [] [] to [] [] : [] [] 5. [] [] : [] [] to [] [] : [] []
C11.	Number of work days per year	| | | | |

Comments p7:

Industry ID:

C12.	Is industry ISO 9001 certified?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No	
C13.	Is industry ISO 14001 certified?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No	
C14.	Land Area of the industry (<i>specify units</i>)		Units:

C15.	Months during which industry was not in production, over the last financial year	1. <input type="checkbox"/> Closed for |__|__| months in the last financial year. Months closed are (ex. Jul 2012, Jan 2013): 2. <input type="checkbox"/> Not closed during any month	
How many staff did industry employ directly, on average, over the last financial year? <i>(Fill in average employment and total pay by category, INCLUDING wages, bonus and welfare expenses)</i>			
C16.	Staff type	Number of staff	Total annual payments
	Management (at unit)		..... Rs./ Lakh / Crore
	Technical or supervisory		..... Rs./ Lakh / Crore
	Workers (labourers at shop floor)		..... Rs./ Lakh / Crore
C17.	Total industry investment in plant & machinery & building, <u>excluding land</u>? <i>(Fill in data from the most recent date (format: DD/MM/YYYY) possible)</i>	BOOK VALUE of fixed assets (excluding land): Rs./Lakh/Crore As of date: |__|__|/|__|__|/|__|__|__|__|__| BEFORE total depreciation (GROSS BLOCK): Rs./Lakh/Crore AFTER total depreciation (NET BLOCK): Rs./Lakh/Crore	
C18.	Gross sales revenue (i.e. turnover) in the last three financial years?	1. Financial year 13-14: Rs./Lakh/Crore 2. Financial year 12-13: Rs./Lakh/Crore 3. Financial year 11-12: Rs./Lakh/Crore	

Comments p8:

Industry ID:

Page 8

Section D1: Raw Material (Inputs)

D1.0	Total Number of RAW MATERIALS:	|_|_|_|		
	Raw Material quantity used annually in last 3 years. <i>Note 1: If there are more than 3 raw materials, ONLY LIST the top three raw materials in terms of annual consumption cost.</i>			
		Raw Material 1	Raw Material 2	Raw Material 3
D1.1	Raw Material name			
D1.2	Units for measuring this Raw Material			
D1.3	Quantity of Annual Consumption of Raw Materials in last 3 financial years			
D1.3a	2013-2014 <i>(numeric value only)</i>			
D1.3b	2012-2013 <i>(numeric value only)</i>			
D1.3c	2011-2012 <i>(numeric value only)</i>			
D1.4	Total expense on raw materials in the last three financial years	1. Financial year 13-14: Rs./ Lakh / Crore 2. Financial year 12-13: Rs./ Lakh / Crore 3. Financial year 11-12: Rs./ Lakh / Crore		

Comments p10:

Industry ID:

Section D2: Product (Outputs)

D2.	Total number of PRODUCTS	|_|_|_|		
Monthly Production quantity in the last financial year <i>Note: If there are more than 3 products, ONLY LIST the three products with the largest average annual sales values.</i> <i>Note: Fill figures for the latest financial year i.e from April 2013 to March 2014</i>				
D2.		Product 1	Product 2	Product 3
D2.1	Product Name			
D2.2.	Units of Quantity for Measuring this Product			
D2.3a	Production in Month 1 (|_|_|_|/|<u>1</u>|_|_|)			
D2.3b	Production in Month 2 (|_|_|_|/|<u>1</u>|_|_|)			
D2.3c	Production in Month 3 (|_|_|_|/|<u>1</u>|_|_|)			
D2.3d	Production in Month 4 (|_|_|_|/|<u>1</u>|_|_|)			
D2.3e	Production in Month 5 (|_|_|_|/|<u>1</u>|_|_|)			
D2.3f	Production in Month 6 (|_|_|_|/|<u>1</u>|_|_|)			

Comments p11:

Industry ID:

D2.3g	Production in Month 7 (|_|_|_|/|_1_|_|)			
D2.3h	Production in Month 8 (|_|_|_|/|_1_|_|)			
D2.3i	Production in Month 9 (|_|_|_|/|_1_|_|)			
D2.3j	Production in Month 10 (|_|_|_|/|_1_|_|)			
D2.3k	Production in Month 11 (|_|_|_|/|_1_|_|)			
D2.3l	Production in Month 12 (|_|_|_|/|_1_|_|)			
D4	Quantity of Annual Production in <u>last 3 Financial Years</u>			
		Product 1	Product 2	Product 3
D2.4	Units of Quantity for Measuring this Product			
D2.5a	2013-2014 (numeric value only)			
D2.5b	2012-2013 (numeric value only)			
D2.5c	2011-2012 (numeric value only)			

Comments p12:

Industry ID:

Section E: Industry Fuel Consumption

E1.	<p>Fuels burnt by this industry in the last 12 months</p> <p><i>(tick ALL that apply)</i></p> <p><i>(if imported from more than 1 country, list all countries in comments section below)</i></p>	<ol style="list-style-type: none"> 1. <input type="checkbox"/> Coal (Indian); Specify Grade _____ 2. <input type="checkbox"/> Coal (Imported); Specify Country _____ 3. <input type="checkbox"/> Coke 4. <input type="checkbox"/> Lignite 5. <input type="checkbox"/> Pet Coke 6. <input type="checkbox"/> Other Solid Fuel (specify): _____ 7. <input type="checkbox"/> Wood 8. <input type="checkbox"/> Bagasse 9. <input type="checkbox"/> Rice Husk 10. <input type="checkbox"/> Other Biomass (specify): _____ 11. <input type="checkbox"/> Crude Oil 12. <input type="checkbox"/> LDO (Light Diesel Oil) 13. <input type="checkbox"/> Fuel Oil (Residual Fuel Oil) 14. <input type="checkbox"/> Furnace Oil 15. <input type="checkbox"/> Diesel (Diesel/High Speed Diesel) 16. <input type="checkbox"/> LSHS (Low Sulphur Heavy Stock) 17. <input type="checkbox"/> Other Liquid Fuel (specify): _____ 18. <input type="checkbox"/> Gaseous Fuels (specify): _____
<p><i>If there are more than three fuels, please fill out and attach copies of the Section E Extension, available in the General Section Extension.</i></p>		

Comments p13:

Industry ID:

Page 13

E2.1	Fuel _____ (1, 2, 3, etc.) out of _____ (total number of fuels)									
a.	<p>Which fuel is covered in this table?</p> <p><i>(if coal is from more than 1 country, list all countries in comments section below)</i></p>	<ol style="list-style-type: none"> 1. <input type="checkbox"/> No fuel → Skip to Section F 2. <input type="checkbox"/> Coal (Indian); Specify Grade _____ 3. <input type="checkbox"/> Coal (Imported); Specify Country _____ 4. <input type="checkbox"/> Coke 5. <input type="checkbox"/> Lignite 6. <input type="checkbox"/> Pet Coke 7. <input type="checkbox"/> Other Solid Fuel (<i>specify</i>): _____ 8. <input type="checkbox"/> Wood 9. <input type="checkbox"/> Bagasse 10. <input type="checkbox"/> Rice Husk 11. <input type="checkbox"/> Other Biomass (<i>specify</i>): _____ 12. <input type="checkbox"/> Crude Oil 13. <input type="checkbox"/> LDO (Light Diesel Oil) 14. <input type="checkbox"/> Fuel Oil (Residual Fuel Oil) 15. <input type="checkbox"/> Furnace Oil 16. <input type="checkbox"/> Diesel (Diesel/High Speed Diesel) 17. <input type="checkbox"/> LSHS (Low Sulphur Heavy Stock) 18. <input type="checkbox"/> Other Liquid Fuel (<i>specify</i>): _____ 19. <input type="checkbox"/> Gaseous Fuels (<i>specify</i>): _____ 								
b.	<p>Which supplier(s) do you purchase this fuel from?</p> <p><i>(list the three main suppliers only)</i></p>	<table border="1"> <thead> <tr> <th>Name</th> <th>Address</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td></td> </tr> <tr> <td>2.</td> <td></td> </tr> <tr> <td>3.</td> <td></td> </tr> </tbody> </table>	Name	Address	1.		2.		3.	
Name	Address									
1.										
2.										
3.										
c.	Is the latest fuel analysis report available?	<ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → skip to E2.1e 								
d.	Is a fuel analysis report attached to the survey?	<ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 								
e.	GCV of the fuel		Units: _____							
f.	NCV of the fuel		Units: _____							

Comments p14:

g.	Is separate consumption/purchase data for this fuel available?		1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → skip to Section E3	
h.	Monthly Fuel consumption for last financial year			
	Instructions: Fill in fuel consumption. If not available, fill in purchase information (e.g. Fuel Bills in Rs.)			
	Month/Year	Consumption/Purchase (only numeric values)		Unit of Measurement
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	i.	ANNUAL fuel consumption and purchase for the last three financial years (note in comments any unusual events that might account for fluctuation, such as months closed)		
Year		Consumption	Unit of Measurement (same units as E2.1h)	Total Cost
2013-2014				..... Rs./Lakh/Crore
2012-2013				..... Rs./Lakh/Crore
2011-2012				..... Rs./Lakh/Crore

Comments p15:

E2.2	Fuel ____ (1, 2, 3, etc.) out of ____ (total number of fuels)									
a.	<p>Which fuel is covered in this table?</p> <p><i>(if coal is from more than 1 country, list all countries in comments section below)</i></p>	<ol style="list-style-type: none"> 1. <input type="checkbox"/> No fuel → <u>Skip to Section F</u> 2. <input type="checkbox"/> Coal (Indian); Specify Grade _____ 3. <input type="checkbox"/> Coal (Imported); Specify Country _____ 4. <input type="checkbox"/> Coke 5. <input type="checkbox"/> Lignite 6. <input type="checkbox"/> Pet Coke 7. <input type="checkbox"/> Other Solid Fuel (<i>specify</i>): _____ 8. <input type="checkbox"/> Wood 9. <input type="checkbox"/> Bagasse 10. <input type="checkbox"/> Rice Husk 11. <input type="checkbox"/> Other Biomass (<i>specify</i>): _____ 12. <input type="checkbox"/> Crude Oil 13. <input type="checkbox"/> LDO (Light Diesel Oil) 14. <input type="checkbox"/> Fuel Oil (Residual Fuel Oil) 15. <input type="checkbox"/> Furnace Oil 16. <input type="checkbox"/> Diesel (Diesel/High Speed Diesel) 17. <input type="checkbox"/> LSHS (Low Sulphur Heavy Stock) 18. <input type="checkbox"/> Other Liquid Fuel (<i>specify</i>): _____ 19. <input type="checkbox"/> Gaseous Fuels (<i>specify</i>): _____ 								
b.	<p>Which supplier(s) do you purchase this fuel from?</p> <p><i>(list the three main suppliers only)</i></p>	<table border="1"> <thead> <tr> <th>Name</th> <th>Address</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td></td> </tr> <tr> <td>2.</td> <td></td> </tr> <tr> <td>3.</td> <td></td> </tr> </tbody> </table>	Name	Address	1.		2.		3.	
Name	Address									
1.										
2.										
3.										
c.	<p>Is the latest fuel analysis report available?</p>	<ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → <u>skip to E2.2e</u> 								
d.	<p>Is a fuel analysis report attached to the survey?</p>	<ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 								
e.	GCV of the fuel		<table border="1"> <tr> <td>Units:</td> <td></td> </tr> </table>	Units:						
Units:										
f.	NCV of the fuel		<table border="1"> <tr> <td>Units:</td> <td></td> </tr> </table>	Units:						
Units:										

Comments p16:

g.	Is separate consumption/purchase data for this fuel available?		1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → Skip to Section E3	
h.	Fuel Consumption for the last 12 months			
	Instructions: Fill in fuel consumption. If not available, fill in purchase information (e.g. Fuel Bills in Rs.)			
	Month/Year	Consumption/Purchase (only numeric values)		Unit of Measurement
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	(|_|_|_|/|1|_|_|)			
	i.	ANNUAL fuel consumption and purchase for the last three financial years (note in comments any unusual events that might account for fluctuation, such as months closed)		
Year		Consumption	Unit of Measurement (same units as E2.2h)	Total Cost
2013-2014				..... Rs./Lakh/Crore
2012-2013				..... Rs./Lakh/Crore
2011-2012				..... Rs./Lakh/Crore

Comments p17:

E2.3	Fuel _____ (1, 2, 3, etc.) out of _____ (total number of fuels)										
a.	<p>Which fuel is covered in this table?</p> <p><i>(if coal is from more than 1 country, list all countries in comments section below)</i></p>	<ol style="list-style-type: none"> 1. <input type="checkbox"/> No fuel → <u>Skip to Section F</u> 2. <input type="checkbox"/> Coal (Indian); Specify Grade _____ 3. <input type="checkbox"/> Coal (Imported); Specify Country _____ 4. <input type="checkbox"/> Coke 5. <input type="checkbox"/> Lignite 6. <input type="checkbox"/> Pet Coke 7. <input type="checkbox"/> Other Solid Fuel (specify): _____ 8. <input type="checkbox"/> Wood 9. <input type="checkbox"/> Bagasse 10. <input type="checkbox"/> Rice Husk 11. <input type="checkbox"/> Other Biomass (specify): _____ 12. <input type="checkbox"/> Crude Oil 13. <input type="checkbox"/> LDO (Light Diesel Oil) 14. <input type="checkbox"/> Fuel Oil (Residual Fuel Oil) 15. <input type="checkbox"/> Furnace Oil 16. <input type="checkbox"/> Diesel (Diesel/High Speed Diesel) 17. <input type="checkbox"/> LSHS (Low Sulphur Heavy Stock) 18. <input type="checkbox"/> Other Liquid Fuel (specify): _____ 19. <input type="checkbox"/> Gaseous Fuels (specify): _____ 									
b.	<p>Which supplier(s) do you purchase this fuel from?</p> <p><i>(list the three main suppliers only)</i></p>	<table border="1"> <thead> <tr> <th>Name</th> <th>Address</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td></td> </tr> <tr> <td>2.</td> <td></td> </tr> <tr> <td>3.</td> <td></td> </tr> </tbody> </table>	Name	Address	1.		2.		3.		
Name	Address										
1.											
2.											
3.											
c.	Is the latest fuel analysis report available?	<ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → <u>skip to E2.3e</u> 									
d.	Is a fuel analysis report attached to the survey?	<ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 									
e.	GCV of the fuel		Units: _____								
f.	NCV of the fuel		Units: _____								

Comments p18:

g.	Is separate consumption/purchase data for this fuel available?		1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → Skip to Section E3	
h.	Fuel Consumption for the last 12 months			
	Instructions: Fill in fuel consumption. If not available, fill in purchase information (e.g. Fuel Bills in Rs.)			
	Month/Year	Consumption/Purchase (only numeric values)	Unit of Measurement	
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
	(_ _ _ / _ _)			
g.	ANNUAL fuel consumption and purchase for the last three financial years (note in comments any unusual events that might account for fluctuation, such as months closed)			
	Year	Consumption	Unit of Measurement (Same units as E2.3h)	Total Cost
	2013-2014			..... Rs./Lakh/Crore
	2012-2013			..... Rs./Lakh/Crore
	2011-2012			..... Rs./Lakh/Crore

Comments p19:

Section E3: Purchase/Consumption data for multiple fuels*Note: Fill this section ONLY if separate data for each fuel is not available*

g.	What fuels do the data below represent?	No of fuels: | | |		
		1. <input type="checkbox"/> Number: | | | Name:		
		2. <input type="checkbox"/> Number: | | | Name:		
		3. <input type="checkbox"/> Number: | | | Name:		
		4. <input type="checkbox"/> Number: | | | Name:		
h.	Fuel Consumption and purchase for the last 12 months			
	Month/Year	Consumption <i>(only numeric values)</i>	Unit of Measurement	Total cost
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
	(| | | / | 1 | | )			..... Rs./ Lakh/ Crore
g.	ANNUAL fuel consumption and purchase for the last three financial years <i>(note in comments any unusual events that might account for fluctuation, such as months closed)</i>			
	Year	Consumption	Unit of Measurement <i>(same units as E3.h)</i>	Total Cost
	2013-2014			..... Rs./ Lakh/ Crore
	2012-2013			..... Rs./ Lakh/ Crore
	2011-2012			..... Rs./ Lakh/ Crore

Comments p20:

If there are more than three fuels, please fill out and attach copies of the **Section E Extension**, available in the **General Section Extension**

Comments p21:

Industry ID:

Section F: Ambient Air Monitoring

Note values as recorded by the industry in most recent ambient air monitoring report. If an industry has not recorded a particular variable, write "Not Available"

F1.	Number of Ambient Monitoring Locations (include both <u>permanent stations</u> and <u>one-time readings</u>)	1. |__| |__|	2. <input type="checkbox"/> Zero → <u>Skip to Section G</u>		
Fill most recent data for every Ambient Air Monitoring location in the industry.					
		Location 1	Location 2	Location 3	Location 4
F2	Ambient Air Location Identifier (if any):				
F3	Permanent monitoring station?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No
F4	Date of monitoring	|__| |__| / |__| |__| / 20|__| |__|	|__| |__| / |__| |__| / 20|__| |__|	|__| |__| / |__| |__| / 20|__| |__|	|__| |__| / |__| |__| / 20|__| |__|
F5	Time of monitoring (24-hour time format)	|__| |__| hrs |__| |__| mins	|__| |__| hrs |__| |__| mins	|__| |__| hrs |__| |__| mins	|__| |__| hrs |__| |__| mins
F6	Total SPM conc. ($\mu\text{g}/\text{m}^3$)				
F7	PM 10 concentration ($\mu\text{g}/\text{m}^3$)				
F8	PM 2.5 concentration ($\mu\text{g}/\text{m}^3$)				
F9	SO₂ concentration ($\mu\text{g}/\text{m}^3$)				
F10	NO concentration ($\mu\text{g}/\text{m}^3$)				
F11	NO₂ concentration ($\mu\text{g}/\text{m}^3$)				
F12	CO concentration (ppm)				
If there are more than four monitoring locations, fill out and attach copies of the Section F Extension , available in the General Section Extension.					

Comments p22:

Industry ID:

Section G: DG Sets						
G1	Number of DG sets	1. |__| |__| 2. <input type="checkbox"/> Zero → Skip to Section I				
		DG set 1	DG set 2	DG set 3	Unit of Measurement	Preferred Unit
G2	DG set stack height					meter
G3	DG set stack diameter					Inches
G4	DG Set capacity					KVA or KW rating
G5	DG Set fuel				N/A	Fuel Name
G6	DG Set fuel feed rate					kg/hr
G7	Sulphur % in fuel	|__| |__| %	|__| |__| %	|__| |__| %	%	%
G8	Year of Installation	|__| |__| |__| |__|	|__| |__| |__| |__|	|__| |__| |__| |__|	Year	Year
G9	Bharat rating of DG Set				N/A	(ex. Bharat I, Bharat IV)
G10	Average hours per month this DG set operates				Hours/month	Hours/month
(Instructions: For G11 and G12, fill for last financial year (March 2013-April 2014). If data is not available for last financial year, use most recent data available and NOTE YEAR USED in comments)						
G11	Fuel consumption					Kg/year
G12	DG energy production					KW-h/year
If there are more than 3 DG sets, please fill out and attach copies of the Section G Extension , available in the General Section Extension.						

Comments p23:

Industry ID:

Additional Page for Comments:

(Specify question number and/or respondent name where applicable)

Comments p24:

Industry ID:

Comments p25:

Industry ID:

EMISSIONS TRADING SCHEME BASELINE SURVEY: SECTION II - TECHNICAL SECTION

OFFICE USE ONLY			
SPCB ID			
Industry ID		Reviewers ID and Name	
Date of questionnaire reviewing (DD/MM/2014)		Number of mistakes found	

General instructions

The Technical Section should be filled ENTIRELY by the Surveyors. It should be reviewed by the Field Monitor BEFORE LEAVING THE INDUSTRY.

Everything in the questionnaire should be written NEATLY and in UPPER CASE. Use BLUE BALL PEN.

Do not leave blanks without justification. Write down only following justification with PENCIL.

- Write “DATA NOT FOUND (DNF)” if data is absolutely not available at the industry. Note in comments why data is not available.
- Write “NOT APPLICABLE (NA)” if the question does not apply to this industry Note in comments why question is not applicable.

In case needed, explain further in corresponding comments section at the bottom of each page.

Do not write outside the boxes given. Comments, exceptions can be written in the "Comments" field on each page or on the "Additional Comments Page" at the end of the general section.

Write down the Industry ID and Stack ID on the foot of EVERY page.

Always write down the unit of measurement. In cases where different unit options are available, clearly tick the used option.

Do not use thumb rules, personal abbreviations, or short-hand writing.

Refer to the codebook given at the back of Ringlemann Sheet for filling the Technical Section

Comments p26:

Industry ID:

Section I & J: Technical Details

I1.	Total Number of Stacks in the Industry	|__| |__|		I2.	Number of PM consent Stacks in the Industry, excluding the DG set stacks.	|__| |__|	
I3.	For each stack in the industry counted in I2 (i.e. stacks with PM Consent minus the DG set stacks) list the following:						
	Stack ID	Stack Name (industry given)	Stack Height (meters)	Stack Diameter (inches or meters)	No. of sampling ports	Type of Stack	Fuel type burnt in the stack (tick all that apply)
I3.1	S |0|1			<div>_____ <input type="checkbox"/> Inches</div> <div>_____ <input type="checkbox"/> Meters</div>		1. <input type="checkbox"/> Process 2. <input type="checkbox"/> Combustion (Flue)	1. <input type="checkbox"/> Solid Fuel 2. <input type="checkbox"/> Liquid Fuel 3. <input type="checkbox"/> Gaseous Fuel 4. <input type="checkbox"/> N.A.
I3.2	S |0|2			<div>_____ <input type="checkbox"/> Inches</div> <div>_____ <input type="checkbox"/> Meters</div>		1. <input type="checkbox"/> Process 2. <input type="checkbox"/> Combustion (Flue)	1. <input type="checkbox"/> Solid Fuel 2. <input type="checkbox"/> Liquid Fuel 3. <input type="checkbox"/> Gaseous Fuel 4. <input type="checkbox"/> N.A.
I3.3	S |0|3			<div>_____ <input type="checkbox"/> Inches</div> <div>_____ <input type="checkbox"/> Meters</div>		1. <input type="checkbox"/> Process 2. <input type="checkbox"/> Combustion (Flue)	1. <input type="checkbox"/> Solid Fuel 2. <input type="checkbox"/> Liquid Fuel 3. <input type="checkbox"/> Gaseous Fuel 4. <input type="checkbox"/> N.A.
I3.4	S |0|4			<div>_____ <input type="checkbox"/> Inches</div> <div>_____ <input type="checkbox"/> Meters</div>		1. <input type="checkbox"/> Process 2. <input type="checkbox"/> Combustion (Flue)	1. <input type="checkbox"/> Solid Fuel 2. <input type="checkbox"/> Liquid Fuel 3. <input type="checkbox"/> Gaseous Fuel 4. <input type="checkbox"/> N.A.
I3.5	S |0|5			<div>_____ <input type="checkbox"/> Inches</div> <div>_____ <input type="checkbox"/> Meters</div>		1. <input type="checkbox"/> Process 2. <input type="checkbox"/> Combustion (Flue)	1. <input type="checkbox"/> Solid Fuel 2. <input type="checkbox"/> Liquid Fuel 3. <input type="checkbox"/> Gaseous Fuel 4. <input type="checkbox"/> N.A.
If there are more than 5 PM consent stacks (excluding the DG set stacks), please fill out and attach Extension: Technical Section							

Comments p27:

Industry ID:

J1.1	Detailed Information on Stack no. _____ (1, 2, 3, etc.) out of _____ (total no. of stacks listed in I3) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)				
J1.2	Stack ID	S |_____|			
J1.3	Stack Name				
J1.4	No. of Parallel Chain(s)	|_____|			
J1.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : |_____|		1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.	
		Maintenance cost only : |_____|		1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.	
J1.6	Emissions Source			Air Pollution Control Device	
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>	
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>	
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>	

STACK

Comments p28:

Industry ID:

Stack ID:

J2.1	Detailed Information on Stack no. _____ (1, 2, 3, etc.) out of _____ (total no. of stacks listed in I3) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)									
J2.2	Stack ID	S |_____|								
J2.3	Stack Name									
J2.4	No. of Parallel Chain(s)	|_____|								
J2.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : |_____||					1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.			
		Maintenance cost only : |_____||					1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.			
J2.6	Emissions Sources			Air Pollution Control Devices						
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>	<div>STACK</div>		
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>			
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>			

Comments p29:

Industry ID:

Stack ID:

J3.1	Detailed Information on Stack no. ____ (1, 2, 3, etc.) out of ____ (total no. of stacks listed in I3). (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)										
J3.2	Stack ID	S | ____ |									
J3.3	Stack Name										
J3.4	No. of Parallel Chain	| ____ |									
J3.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : | _____ |					1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.				
		Maintenance cost only : | _____ |					1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.				
J3.6	Emission Source			Air Pollution Control Devices							
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>				<div>STACK</div>			
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>							
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>							

Comments p30:

Industry ID:

Stack ID:

J4.1	Detailed Information on Stack no. _____ (1, 2, 3, etc.) out of _____ (total no. of stacks listed in I3) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)										
J4.2	Stack ID	S |_____|									
J4.3	Stack Name										
J4.4	No. of Parallel Chain(s)	|_____|									
J4.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : |_____|					1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.				
		Maintenance cost only : |_____|					1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.				
J4.6	Emission Source			Air Pollution Control Devices							
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>	<div>STACK</div>			
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>				
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>				

Comments p31:

J5.1	Detailed Information on Stack no. _____ (1, 2, 3, etc.) out of _____ (total no. of stacks listed in I3) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)							
J5.2	Stack ID	S |_____|						
J5.3	Stack Name							
J5.4	No. of Parallel Chain(s)	|_____|						
J5.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : |_____|				1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.		
		Maintenance cost only : |_____|				1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.		
J5.6	Emission Source			Air Pollution Control Devices				
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>	<div>STACK</div>
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>	
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>	

Comments p32:

Industry ID:

Stack ID:

Now, take the attachment sheets corresponding to the equipments that you have marked in Section J. Fill those attachment sheets and in the increasing order of stack no, i.e. S01, then S02, attach them after this page.

In case of one stack only, conduct stack monitoring for that particular stack and fill the Section 3.1: Stack sampling sheet.

In case of more than one stack, go to the field monitor for directions on the stack to be sampled. Only one stack in each Industry will be monitored via Isokinetic Sampling.

However, Ringlemann's test: Section Q needs to be conducted for all the stacks in the Industry.

Comments p33:

****Section 3.1: Monitoring Data from Stack sampling**

To be filled by the environmental laboratory.

*Instructions: Stack sampling to be done at only ONE stack. **Field Monitors will identify the stack to be sampled.****Fill Table 3.1 for that stack, based on the complete stack monitoring. Also attach the sampling report, which should be clearly labeled "Section 3.1- After All APCDs".*

K1.1	Stack ID	S|_____|		
K1.2	Is there a sampling port at this location?	1. <input type="checkbox"/> Yes → <u>complete Section 3.1</u> 2. <input type="checkbox"/> No → <u>skip Section 3.1</u>		
K1.3	Sample number	1. <input type="checkbox"/> One 2. <input type="checkbox"/> Two		
K1.4	Is complete sampling report attached?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No (Specify Why ?) _____		
K1.5	Date of Sampling (DD/MM/2014)	|__| / |__| / 2014		
K1.6	Time of Sampling (24-hour format)	Start Time |__| |__| hrs |__| |__| mins End Time |__| |__| hrs |__| |__| mins		
K1.7	Shape of duct cross-section	1. <input type="checkbox"/> Round 2. <input type="checkbox"/> Rectangular → Skip to K1.8b		
			Unit of Measurement	Preferred Unit
K1.8a	Duct cross-section internal dimensions (round)	Diameter: |_____|		Meters
K1.8b	Duct cross-section internal dimensions (rectangular)	Length: |_____|		Meters
		Breadth: |_____|		
K1.9	Location of Sampling Port	Distance from nearest upstream bend: |_____|		Meters
		Distance from nearest downstream bend: |_____|		
K1.10	Diameter of the port			Meters
K1.11	Collar length at the port			Meters

Comments p34:

			Unit of Measurement	Preferred Unit
K1.12	Average CO ₂ %			%
K1.13	Average O ₂ %			%
K1.14	Average CO concentration			PPM
K1.15	Average Moisture content			%
K1.16	Average Flue Gas Temperature			Deg Celsius
K1.17	Gas Molecular Weight			mg
K1.18	Static Pressure			mmwc
K1.19	Average Velocity Measurement			m/sec
K1.20	Average PM Concentration			mg/Nm ³
K1.21	Average Gas Flow			Nm ³ /hr
K1.22	Isokineticity			%
K1.23	Dust Loading			kg/hr

Comments p35:

Comments p36:

Industry ID:

Stack ID:

Page 36

**Section 3.2: Monitoring Data from sampling at Inlet

Instructions: Inlet sampling will only take place if instructed by the Project Associate two days in advance.

Field Monitors will identify the location on Inlet Sampling. Based on monitoring at that location, fill Section 3.2 and attach complete sampling report labeled as "Section 3.2- Before All APCDs".

K2.1	Stack ID	S|_|_|		
K2.2.	Parallel chain number	|_|_| (copy corresponding entry from section J)		
K2.3	Is there a sampling port at this location?	3. <input type="checkbox"/> Yes → <u>complete Section 3.2</u> 4. <input type="checkbox"/> No → <u>Skip Section 3.2</u>		
K2.4	Sample Number	1. <input type="checkbox"/> One 2. <input type="checkbox"/> Two		
K2.5.	Is the complete sampling report attached?	2. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No (Specify Why) _____		
K2.6.	Date of Sampling (DD/MM/2014)	|_|_| / |_|_| / 2014		
K2.7.	Time of Sampling (24-hour format)	Start Time |_|_|hrs|_|_|mins End Time |_|_|hrs|_|_|mins		
		Unit of Measurement	Preferred Unit	
K2.8.	Shape of duct cross-section	3. <input type="checkbox"/> Round 4. <input type="checkbox"/> Rectangular → <u>Skip to K2.9b</u>		
K2.9a	Duct cross-section internal dimensions (round)	Diameter: |_|_|_|		Meters
K2.9b	Duct cross-section internal dimensions (rectangular)	Length: |_|_|_|		Meters
		Breadth: |_|_|_|		
K2.10	Location of Sampling Port	Distance from nearest upstream bend: |_|_|_|		Meters
		Distance from nearest downstream bend: |_|_|_|		
K2.11	Diameter of the port			Meters
K2.12	Collar length at the port			Meters

Comments p37:

			Unit of Measurement	Preferred Unit
K2.13	Average CO ₂ %			%
K2.14	Average O ₂ %			%
K2.15	Average CO concentration			ppm
K2.16	Average Moisture content			%
K2.17	Average Flue Gas Temperature			Deg Celsius
K2.18	Gas Molecular Weight			mg
K2.19	Static Pressure			mmwc
K2.20	Average Velocity Measurement			m/sec
K2.21	Average PM Concentration			mg/Nm ³
K2.22	Average Gas Flow			Nm ³ /hr
K2.23.	Dust Loading			kg/hr

Comments p38:

Comments p39:

Industry ID:

Stack ID:

Page 39

Section 4: Stack wise Back-check Sheet

Instruction: Fill one back-check sheet for every stack

Stack ID			S|_|_|_|					
Parallel Chain 1			Parallel chain 2			Parallel chain 3		
Equipment	Count	Attachment	Equipment	Count	Attachment	Equipment	Count	Attachment
Emission Source			Emission Source			Emission Source		
<input type="checkbox"/> Boiler		L1	<input type="checkbox"/> Boiler		L1	<input type="checkbox"/> Boiler		L1
<input type="checkbox"/> Thermopack		L2	<input type="checkbox"/> Thermopack		L2	<input type="checkbox"/> Thermopack		L2
<input type="checkbox"/> Furnace/Kiln		L3	<input type="checkbox"/> Furnace/Kiln		L3	<input type="checkbox"/> Furnace/Kiln		L3
APCD/ID fan			APCD/ID fan			APCD/ID fan		
<input type="checkbox"/> Gravity Settling Chamber		M1	<input type="checkbox"/> Gravity Settling Chamber		M1	<input type="checkbox"/> Gravity Settling Chamber		M1
<input type="checkbox"/> Cyclone		M2	<input type="checkbox"/> Cyclone		M2	<input type="checkbox"/> Cyclone		M2
<input type="checkbox"/> ESP		M3	<input type="checkbox"/> ESP		M3	<input type="checkbox"/> ESP		M3
<input type="checkbox"/> Bag Filter		M4	<input type="checkbox"/> Bag Filter		M4	<input type="checkbox"/> Bag Filter		M4
<input type="checkbox"/> Scrubber		M5	<input type="checkbox"/> Scrubber		M5	<input type="checkbox"/> Scrubber		M5
<input type="checkbox"/> ID fan		N	<input type="checkbox"/> ID fan		N	<input type="checkbox"/> ID fan		N
<input type="checkbox"/> PM CEMS Device		P	<input type="checkbox"/> PM CEMS Device		P	<input type="checkbox"/> PM CEMS Device		P
<input type="checkbox"/> Ringlemann Test		Q	<input type="checkbox"/> Ringlemann Test		Q	<input type="checkbox"/> Ringlemann Test		Q
Total Attachment Sheets for Parallel Chain 1			Total Attachment Sheets for Parallel Chain 2			Total Attachment Sheets for Parallel Chain 3		

Comments p40:

Industry ID:

Stack ID:

Page 40

Section 5.1 - Industry-wise Follow-Up			
Instructions: Fill one sheet for each Industry			
	First Visit	Second Visit	Third Visit
Date of the visit (DD-MM-YY)	____ / ____ / ____	____ / ____ / ____	____ / ____ / ____
Date fixed for next visit (DD-MM-YY)	____ / ____ / ____	____ / ____ / ____	____ / ____ / ____
Section I: General Details	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete
Section I: General Details (remarks)			
Section II: Technical Details (Section I & J)	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete
Section II: Technical Details (Section I & J) (remarks)			

Section 5.2- Stack-Wise Follow-Up				
Instructions: See Back-check Sheet for which sections apply. Fill one sheet for each stack in an Industry				
Stack ID		S|_|_|_|		
		First Visit	Second Visit	Third Visit
Parallel Chain 1	Section L1, L2, L3: Details of Emission Sources	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete
	REMARKS: Section L1, L2, L3: Details of the Emission Sources			
	Section M1, M2, M3, M4, M5, N, P: Details of APCDs	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete
	REMARKS: Section M1, M2, M3, M4, M5, N, P : Details of APCDs			
Parallel Chain 2	Section L1, L2, L3: Details of Emission Sources	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete
	REMARKS: Section L1, L2, L3: Details of the Emission Sources			
	Section M1, M2, M3, M4, M5, N, P: Details of APCDs	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete
	REMARKS: Section M1, M2, M3, M4, M5, N, P : Details of APCDs			
Parallel Chain 3	Section L1, L2, L3: Details of Emission Sources	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete
	REMARKS: Section L1, L2, L3: Details of the Emission Sources			
	Section M1, M2, M3, M4, M5, N, P: Details of APCDs	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete	<input type="checkbox"/> Fully Complete <input type="checkbox"/> Partially Complete
	REMARKS: Section M1, M2, M3, M4, M5, N, P : Details of APCDs			

Attachment L1: Boilers

L1.1	Stack ID	S|__ __|		
L1.2	Parallel Chain	|__| (copy corresponding entry from Section J)		
L1.3	Emissions Source number	|__| (copy corresponding entry from Section J)		
L1.4	Manufacturer & Model Name:			
L1.5	Type of Boiler			
L1.6	Type of Control	1. <input type="checkbox"/> Manual Control 2. <input type="checkbox"/> Automatic Control		
		(numeric values only)	Unit of Measurement	Preferred Unit
L1.7	Steam generating capacity			TPH
L1.8	Designed Steam Pressure			kPa
L1.9	Designed steam Temperature			Degree Celsius
L1.10	Rated efficiency of boiler			%
L1.11	Year boiler was installed	|_____|	Year	Year
L1.12	Annual Operating and Maintenance cost of the boiler (Do NOT include fuel costs)	Operating cost only |_____|	1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
		Maintenance cost only |_____|	1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
L1.13	Number of Days this boiler operates	|_____|	1. <input type="checkbox"/> Days/ year 2. <input type="checkbox"/> Days/ Month	
L1.14	Has this Boiler ever undergone major modifications?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → Skip to L1.17		
L1.15	Which year did the latest modifications take place?	|_____|		
L1.16	How much did the modifications cost?	|_____|	1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
L1.17	Fuels in use (tick all that apply)	1. <input type="checkbox"/> Coal (Indian) 2. <input type="checkbox"/> Coal (imported) 3. <input type="checkbox"/> Lignite 4. <input type="checkbox"/> Biomass/Husk 5. <input type="checkbox"/> Other (specify): _____		

Comments p44:

			Unit of Measurement	Preferred Unit
L1.18	% blend of this fuel	1. <input type="checkbox"/> ___ __ 2. <input type="checkbox"/> Not Blended	%	%
		Primary fuel: _____ Secondary fuel: _____		
L1.19	Fuel Processing method	1. <input type="checkbox"/> None 2. <input type="checkbox"/> Grinding 3. <input type="checkbox"/> Pulverization 4. <input type="checkbox"/> Others (<i>specify</i>): _____		
L1.20	Type of Fuel Firing	1. <input type="checkbox"/> Manual 2. <input type="checkbox"/> Fluidized 3. <input type="checkbox"/> Burner 4. <input type="checkbox"/> Other (<i>specify</i>): _____		
L1.21	Fuel feed rate			kg/hour
L1.22	**Load on the boiler at the time of Monitoring	|_____|%	%	%
L1.23	Is the feed water treated? (write type of treatment in comments)	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No		
L1.24	Operating Steam Pressure			kg/cm2
L1.25	What Waste Heat Recovery device is installed? (tick all that apply)	1. <input type="checkbox"/> Economizer 2. <input type="checkbox"/> Air pre-heater 3. <input type="checkbox"/> None 4. <input type="checkbox"/> Other (<i>specify</i>): _____		
<i>Instructions: Observe these readings from control/display panel at the time of surveying</i>				
L1.26	**Efficiency display reading	|___ __|		%
L1.27	**Oxygen monitoring reading	|___ __|		%
L1.28	**CO₂ monitoring reading	___ __		%

Comments p45:

Comments p46:

Industry ID:

Stack ID:

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Attachment L2: Thermopacks/Thermic Fluid Heaters				
L2.1	Stack ID	S ___		
L2.2	Parallel Chain number	___ (copy corresponding entry from Section J)		
L2.3	Emission Source Number	|___| (copy corresponding entry from Section J)		
L2.4	Manufacturer & Model Name			
L2.5	Type of control	1. <input type="checkbox"/> Manual Control 2. <input type="checkbox"/> Automatic Control		
		(numeric values only)	Unit of Measurement	Preferred Unit
L2.6	Thermopack Capacity			mKcal
L2.7	Rated efficiency of Thermopack	|___|		%
L2.8	Year this thermopack was installed	|___|	Year	
L2.9	Annual Operating and Maintenance cost of the Thermopack (do NOT include fuel costs)	Operating cost only |_____|	1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
		Maintenance cost only |_____|	1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
L2.10	Number of days thermopack operates	|___|	1. <input type="checkbox"/> Days/ year 2. <input type="checkbox"/> Days/ Month	
L2.11	Has this thermopack ever undergone major modifications?	3. <input type="checkbox"/> Yes 4. <input type="checkbox"/> No →Skip to L2.14		
L2.12	Which year did the latest modifications take place?	|___|	Year	
L2.13	How much did the modifications cost?	Maintenance cost only |_____|	1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
L2.14	Fuels in use (tick all that apply)	1. <input type="checkbox"/> Coal (Indian) 2. <input type="checkbox"/> Coal (imported) 3. <input type="checkbox"/> Lignite 4. <input type="checkbox"/> Biomass/Husk 5. <input type="checkbox"/> Others (specify): _____		

Comments p47:

			Unit of Measurement	Preferred Unit
L2.15	% blend of this fuel	1. <input type="checkbox"/> ____ 2. <input type="checkbox"/> Not Blended	%	%
		Primary fuel: _____ Secondary Fuel: _____		
L2.16	Fuel feed rate	| ____ |		kg/hr
L2.17	What Waste Heat Recovery device is installed? <i>(tick all that apply)</i>	1. <input type="checkbox"/> Economizer 2. <input type="checkbox"/> Air pre-heater 3. <input type="checkbox"/> None 4. <input type="checkbox"/> Other (specify): _____		
<i>Instruction: Observe these readings from control/display panel at the time of surveying</i>				
L2.18	**Efficiency display reading	| ____ |	%	%
L2.19	**Oxygen monitoring reading	| ____ |	%	%
L2.20	**CO₂ monitoring reading	____	%	%

Comments p48:

Comments p49:

Industry ID:

Stack ID:

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Attachment L3: Furnaces/ Kilns

L3.1	Stack ID	S _____		
L3.2	Parallel Chain Number	__ __ (copy corresponding entry from Section J)		
L3.3	Emission Source Number	|__ __| (copy corresponding entry from Section J)		
L2.4	Manufacturer & Model Name:			
L2.5	Type of Furnace/Kiln			
			Unit of Measurement	Preferred Units
L3.6	Capacity of Furnace/Kiln			Tons/melt
L3.7	Furnace Cycle Time	|_____|		hour/melt
L3.8	Rated efficiency of Furnace	|_____|	%	%
L3.9	Annual Operating and Maintenance cost of the Furnace (Do NOT include fuel costs)	Operating cost only _____	2. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
		Maintenance cost only _____	2. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
L3.10	Number of days this furnace operates	|__ __ __|	1. <input type="checkbox"/> Days/ year 2. <input type="checkbox"/> Days/ Month	
L3.11	Has this equipment ever undergone major modifications?	5. <input type="checkbox"/> Yes 6. <input type="checkbox"/> No → Skip to L3.14		
L3.12	Which year did this modifications take place?	|_____|		
L3.13	How much did the modifications cost?	_____	<input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
L3.14	Fuels in use (tick all that apply)	1. <input type="checkbox"/> Electricity 2. <input type="checkbox"/> Fuel Oil 3. <input type="checkbox"/> LPG 4. <input type="checkbox"/> Other (specify): _____		
L3.15	Burning Losses	__ __ __	%	%

Comments p50:

Industry ID:

Stack ID:

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L3.16	Is the furnace cylindrical or rectangular?	1. <input type="checkbox"/> Cylindrical →Skip to L3.17(b) 2. <input type="checkbox"/> Rectangular		
			Unit of Measurement	Preferred Units
L3.17 (a)	Furnace/Kiln dimensions (Rectangular Furnace)	Length : _____		Metres
		Breadth: _____		Metres
		Height: _____		Metres
L3.17 (b)	Furnace/Kiln dimensions (Cylindrical Furnace)	Diameter: _____		Metres
		Height/Length: _____		Metres
L3.18	Hood Dimensions	Length: _____		Meters
		Breadth: _____		
L3.19	Height of hood from Furnace			Meters
L3.20	**Do you see fugitive emissions from the furnace? <i>(this should be observed by the surveyor)</i>	3. <input type="checkbox"/> Yes 4. <input type="checkbox"/> No	N/A	N/A
Instructions: Observe these readings from control/display panel at the time of surveying				
L3.21	**Efficiency display reading	_____	%	%
L3.22	**Oxygen monitoring reading	_____	%	%

Comments p51:

Industry ID:

Stack ID:

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Comments p52:

Industry ID:

Stack ID:

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Attachment M1: Gravity Settling Chamber				
M1.1	Stack ID	S _____		
M1.2	Parallel Chain Number	____ (copy corresponding entry from Section J)		
M1.3	APCD ID number	|____| (copy corresponding entry from Section J)		
M1.4	Manufacturer & Model Name:			
M1.5	Rated Efficiency of the APCD	|_____|%		
M1.6	Year of equipment purchase	|_____|		
M1.7	Cost of Installation and Commissioning		1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
M1.8	Annual Operating and Maintenance cost of this Gravity Settling Chamber	Operating cost only _____	3. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
		Maintenance cost only _____	1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
M1.9	Has this equipment ever undergone major modifications?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → Skip to M1.12		
M1.10	Which year did the most recent modifications take place?	|_____|		
M1.11	How much did the modifications cost?		1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
			Units of Measurement	Preferred Unit
M1.12	Dimensions of Gravity Settling Chamber	Length : _____		Meters
		Breadth : _____		
		Height : _____		
M1.13	Method of Dust Removal from Gravity Settling Chamber	1. <input type="checkbox"/> Manual 2. <input type="checkbox"/> Continuous → Skip to M1.15 3. <input type="checkbox"/> Other (specify): _____		
M1.14	Frequency of Dust Collection			No of times/month
M1.15	Average Quantity of Dust Collected per day		kg/day	kg/day

Comments p53:

Comments p54:

Industry ID:

Stack ID:

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Attachment M2: Cyclone

M2.1	Stack ID	S __ __				
M2.2	Parallel Chain number	__ (copy corresponding entry from Section J)				
M2.3	APCD ID number	|__| (copy corresponding entry from Section J)				
M2.4	Manufacturer & Model Name:					
M2.5	Rated Efficiency of the APCD	|__ __|%				
M2.6	Year of equipment purchase	|_____|				
M2.7	Cost of Installation and Commissioning			1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs		
M2.8	Annual Operating and Maintenance cost of the APCD	Operating cost only _____		4. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs		
		Maintenance cost only _____		1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs		
M2.9	Has this equipment ever undergone major modifications?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → Skip to M2.12				
M2.10	Which year did the recent modifications take place?	|_____|				
M2.11	How much did the modifications cost?			1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs.		
M2.12	Details of Cyclones (Report the no. of cyclones and their dimensions in this question)	No.	Height	Unit (preferred: meter)	Diameter	Unit (preferred: meter)
					Unit of Measurement	Preferred Unit
M2.13	Method of Dust Removal from Cyclone	4. <input type="checkbox"/> Manual 5. <input type="checkbox"/> Continuous → Skip to M2.15 6. <input type="checkbox"/> Other (specify): _____				N/A
M2.14	Frequency of Dust Collection					No of times/month
M2.15	Average Quantity of Dust Collected per day				kg/day	kg/day

Comments p55:

Comments p56:

Industry ID:

Stack ID:

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Section M3: ESP

M3.1	Stack ID	S _____		
M3.2	Parallel chain number	_ (copy corresponding entry from Section J)		
M3.3	APCD ID number	|_| (copy corresponding entry from Section J)		
M3.4	Manufacturer & Model Name:			
M3.5	Type of ESP (Tick more than one option if necessary)	1. <input type="checkbox"/> Plate & Wire 2. <input type="checkbox"/> Tabular ESP 3. <input type="checkbox"/> Wet ESP 4. <input type="checkbox"/> Two Stage Precipitator 5. <input type="checkbox"/> Hot Stage Precipitator 6. <input type="checkbox"/> Cold Stage Precipitator 7. <input type="checkbox"/> Other (specify): _____		
M3.6	Rated Efficiency of ESP	|_____|%		
M3.7	Year of equipment purchase	|_____		
M3.8	Cost of Installation and Commissioning		1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
M3.9	Annual Operating and Maintenance cost of this ESP (INCLUDE power consumption costs)	Operating cost only _____	5. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
		Maintenance cost only _____	2. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
M3.10	Has this equipment ever undergone major modifications?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → Skip to M3.13		
M3.11	Which year did the most recent modifications take place?	|_____		
M3.12	How much did the modifications cost?		1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
			Unit of Measurement	Preferred Unit
M3.13	ESP Dimensions	Width: |_____		Meters
		Breadth: |_____		
		Height (above hopper): |_____		

Comments p57:

		(numeric values only)	Unit of Measurement	Preferred Unit
M3.14	No. of fields		Nos.	Nos.
M3.15	**No. of fields in operation (at the time of survey)		Nos.	Nos.
M3.16	Plate Collection Area			Sq. meter
M3.17.	Method of Dust Removal from ESP	1. <input type="checkbox"/> Manual 2. <input type="checkbox"/> Continuous → Skip to M3.19 3. <input type="checkbox"/> Other (Specify) _____		
M3.18	Frequency of Dust Collection			No of times/month
M3.19.	Average quantity of Dust collected per day			kg/day
M3.20	Days per year this ESP is in operation		days/year	days/year
M3.21	Rated Power consumption of the ESP			KW
M3.22	**Actual Power consumption of the ESP (measure with portable power analyzer)			KW
For questions below: <u>Refer to maintenance register/records if available</u>				
M3.23	Inspection/Maintenance frequency	|_|_|_| times per year		
M3.24	Last Inspection/Maintenance Date	1. <input type="checkbox"/> Month : _ _ Year : _ _ _ _ 2. <input type="checkbox"/> No maintenance record		

Comments p58:

Comments p59:

Industry ID:

Stack ID:

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Attachment M4: Bag Filter		
M4.1	Stack ID	S _____
M4.2	Parallel Chain number	_ _ (copy corresponding entry from Section J)
M4.3	APCD ID number	|_|_| (copy corresponding entry from Section J)
M4.4	Manufacturer & Model Name:	
M4.5	Type of Bag filter	1. <input type="checkbox"/> Reverse air type Fabric Filter 2. <input type="checkbox"/> Pulse Jet Bag filter → Goto Question M4.6, else skip M4.6) 3. <input type="checkbox"/> Shaker type Bag filter 4. <input type="checkbox"/> Other (specify): _____
M4.6	If this is a pulsejet filter, how many pulses per minute?	|_|_|_|
M4.7	Rated Efficiency of this Bag Filter	|_|_|_|%
M4.8	Year of equipment purchase	|_|_|_|
M4.9	Cost of Installation and Commissioning	<div>1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/>Crore Rs</div>
M4.10	Annual operating and maintenance cost of this bag filter <i>(INCLUDE compressor and bag replacement costs)</i>	<div>Operating cost only _____</div> <div>6. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/>Crore Rs</div>
		<div>Maintenance cost only _____</div> <div>3. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/>Crore Rs</div>
M4.11	Has this equipment ever undergone major modifications?	7. <input type="checkbox"/> Yes 8. <input type="checkbox"/> No →Skip to M4.14
M4.12	Which year did the most recent modifications take place?	|_|_|_|
M4.13	How much did the modifications cost?	<div>1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/>Crore Rs</div>
M4.14	Filter Cloth Material	1. <input type="checkbox"/> Cotton 2. <input type="checkbox"/> Polyester 3. <input type="checkbox"/> Other (specify): _____
M4.15	Total no. of Filter Bags fitted inside bag house	Nos.
M4.16	Number of replacement bags purchased last year	Nos.

Comments p60:

			Unit of Measurement	Preferred Unit
M4.17	Filter Bag Dimensions:	Diameter:		Meter
		Length:		Meter
M4.18	Designed Total Filtration Area			m2
M4.19	Designed Inlet Gas Flow Quantity			m3/hour
M4.20	Designed Inlet Dust Loading			kg/hour
M4.21	No. of hoppers			Nos.
M4.22	Hopper Dimensions	Tapered Length :		Meters
		Vertical Height :		
		Bottom opening size:		
M4.23	Method of Dust Removal from Hopper	4. <input type="checkbox"/> Manual 5. <input type="checkbox"/> Continuous → <u>Skip to Question M4.25</u> 6. <input type="checkbox"/> Other (Specify) _____		
M4.24	Frequency of Dust Collection			No of times/month
M4.25	Average Quantity of Dust Collected per day			kg/day
M4.26	Rated Power Consumption of Compressor (If type is Pulsejet Bag filter and there is a dedicated Compressor for the Bag Filter)			KW
For Questions below : <u>Refer to the maintenance register/ records if it is available</u>				
M4.27	Inspection/Maintenance Schedule:	|_|_|_| times per year		
M4.28	Last Inspection/ Maintenance Date	1. <input type="checkbox"/> Month : |_|_| Year : |_|_|_|_| 2. <input type="checkbox"/> Not Available in Maintenance Register		
M4.29	When were the bags in the bag filter last replaced?	1. <input type="checkbox"/> Month : _ _ Year : _ _ _ _ 2. <input type="checkbox"/> Not available in records		

Comments p61:

Comments p62:

Industry ID:

Stack ID:

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Attachment M5: Scrubber

M5.1	Stack ID	S _____	
M5.2	Parallel chain number	_ _ (copy corresponding entry from Section J)	
M5.3	APCD ID number	|_|_| (copy corresponding entry from Section J)	
M5.4	Manufacturer & Model Name:		
M5.5	Type of Scrubber (tick more than one if necessary)	1. <input type="checkbox"/> Simple 2. <input type="checkbox"/> Spray 3. <input type="checkbox"/> Packed Bed 4. <input type="checkbox"/> Impingement 5. <input type="checkbox"/> Venturi 6. <input type="checkbox"/> Dry 7. <input type="checkbox"/> Other (specify): _____	
M5.6	Rated Efficiency of the Scrubber	|_|_|_|%	
M5.7	Year of purchase of this scrubber	|_|_|_|_|	
M5.8	Cost of Installation and Commissioning		2. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs
M5.9	Annual Operating and Maintenance of this Scrubber	Operating cost only _____	7. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs
		Maintenance cost only _____	4. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs
M5.10	Has this scrubber ever undergone major modifications?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → Skip to M5.13	
M5.11	Which year did the most recent modifications take place?	|_|_|_|_|	
M5.12	How much did the modifications cost?		1. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs
M5.13	Is the scrubber cylindrical or rectangular?	3. <input type="checkbox"/> Cylindrical → Skip to M5.14(b) 4. <input type="checkbox"/> Rectangular	

Comments p63:

		(numerical values only)	Unit of Measurement	Preferred Unit
M5.14(a)	Scrubber dimensions (rectangular)	Length: _____		Meters
Breadth: _____				
Height: _____				
M5.14(b)	Scrubber dimensions (cylindrical)	Diameter: _____		Meters
Height: _____				
M5.15	Water requirement (ex. freshwater or caustic solution required per hour)			m ³ /hr
M5.16	Designed Delta pressure for this scrubber			Change in mmwc
M5.17	Pump Size (rated power consumption of the pump)			HP
M5.18	Pump Pressure			kg/cm ²
M5.19	Designed Pump Flow			m ³ /hr
M5.20	What Water Treatment system(s) is/are installed? (tick all that apply)	5. <input type="checkbox"/> Neutralization System 6. <input type="checkbox"/> Moisture Separator 7. <input type="checkbox"/> None 8. <input type="checkbox"/> Other (specify): _____		
M5.21	Quantity of Waste water discharge from Scrubber			m ³ /day
M5.22	Quantity of Dust Collected per day (in the form of cake)			kg/day
M5.23	Sludge settling arrangement provided	1. <input type="checkbox"/> Yes (specify): _____ 2. <input type="checkbox"/> No		
M5.24	Days/year the scrubber is in operation		Days/year	Days/year
For questions below: <u>Refer to maintenance register/records if available</u>				
M5.25	Inspection/ Maintenance frequency	|_|_| times per year		
M5.26	Last Inspection/ Maintenance Date	1. <input type="checkbox"/> Month : _ _ Year : _ _ _ _ _ _ 2. <input type="checkbox"/> No maintenance record		

Comments p64:

Comments p65:

Industry ID:

Stack ID:

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Attachment N: ID Fans				
N1	Stack ID	S __ __		
N2	Parallel chain number	__		
N3	Location of ID fan	1. <input type="checkbox"/> Before the first APCD 2. <input type="checkbox"/> Between first and second APCDs 3. <input type="checkbox"/> Between second and third APCDs 4. <input type="checkbox"/> Between third and fourth APCDs 5. <input type="checkbox"/> After all APCDs 6. <input type="checkbox"/> Other (specify): _____		
N4	Manufacturer & Model Name:			
		(numeric values only)	Unit of Measurement	Preferred Unit
N5	Rated power consumption of ID fan			HP
N6	Designed RPM of the ID fan (RPM at max power output)		RPM	RPM
N7	Is there a Variable Frequency Drive (VFD) installed for this ID fan?	1. <input type="checkbox"/> Yes, current frequency is |_____|% of the designed RPM (as reported in N6) 2. <input type="checkbox"/> No		
N8	**Measured Power consumption of the ID fan (measure with portable power analyzer)			KW

Comments p66:

Comments p67:

Industry ID:

Stack ID:

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Attachment P: Continuous Emissions Monitoring System

P1	Stack ID:	S _____	
P2	What existing continuous emissions monitoring system(s) is/are in place in the stack? <i>(tick all that apply)</i>	1. <input type="checkbox"/> None 2. <input type="checkbox"/> CEMS for PM → Continue to P3, else Skip to Section Q 3. <input type="checkbox"/> CEMS for NOX 4. <input type="checkbox"/> CEMS for NO2 5. <input type="checkbox"/> CEMS for SOx 6. <input type="checkbox"/> CEMS for SO2 7. <input type="checkbox"/> CEMS for CO 8. <input type="checkbox"/> CEMS for CO2 9. <input type="checkbox"/> CEMS for Other Gases <i>(specify pollutants monitored):</i> _____	
P3	Manufacturer and Model of the PM CEMS:		
P4	Measurement Principle of the PM CEMS?	1. <input type="checkbox"/> DC Triboelectric 2. <input type="checkbox"/> AC Triboelectric 3. <input type="checkbox"/> Electrodynamic 4. <input type="checkbox"/> Single Pass Opacity 5. <input type="checkbox"/> Double Pass Opacity 6. <input type="checkbox"/> Dual Beam Opacity 7. <input type="checkbox"/> Dynamic Opacity 8. <input type="checkbox"/> Forward Light Scattering 9. <input type="checkbox"/> Backward Light Scattering 10. <input type="checkbox"/> Light Scattering (Extractive) for Wet Gas 11. <input type="checkbox"/> Others <i>(specify)</i> : _____	
P5	Which year was this PM CEMS installed?	|_|_|_|_|	
P6	What was the installation cost for this PM CEMS?		1. <input type="checkbox"/> Rupees 2. <input type="checkbox"/> Lakhs 3. <input type="checkbox"/> Crores
P7	Annual Operating and Maintenance cost of this PM CEMS Device		1. <input type="checkbox"/> Rupees 2. <input type="checkbox"/> Lakhs 3. <input type="checkbox"/> Crores
P8	Annual Maintenance Contract (AMC) Signed	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No → Skip to P10	
P9	Cost of Annual maintenance contract (AMC)		1. <input type="checkbox"/> Rupees 2. <input type="checkbox"/> Lakhs 3. <input type="checkbox"/> Crores
For questions below: <u>Refer to maintenance register/records if available</u>			

Comments p68:

Industry ID:

Stack ID:

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P10	Inspection/Maintenance frequency	_ _ _ times per year
P11	When was the instrument calibrated last?	1. <input type="checkbox"/> [] [] - [] [] - [] [] [] [] 2. <input type="checkbox"/> Month : _ _ Year : _ _ _ _ 3. <input type="checkbox"/> Doesn't need calibration 4. <input type="checkbox"/> Do not remember
P12	When was the instrument inspected last?	1. <input type="checkbox"/> [] [] - [] [] - [] [] [] [] 2. <input type="checkbox"/> Month : _ _ Year : _ _ _ _ 3. <input type="checkbox"/> Doesn't need inspection/maintenance 4. <input type="checkbox"/> Do not remember

Comments p69:

Industry ID:

Stack ID:

Comments p70:

Industry ID:

Stack ID:

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** Attachment Q: Ringelmann's Measurement

The purpose of the Ringelmann's procedure is to compare the colour of smoke from a stack to an established scale of greyness.

Steps:

- 1) Stand in the line between the stack and the sun. The sun should be behind you and the stack directly in front of you.
- 2) Hold the Ringelmann Chart on a level with your eye and in line with the top of the stack. Request assistance if needed.
- 3) Look at the smoke and identify which slice of the Ringelmann chart is the most similar shade of grey.
- 4) Each slice has a number from 0-5, note the number of the matching slice in Q4 below
- 5) Take ONE observation every THREE minutes over 30 minute period, for a total of TEN observations.

Q1	Stack ID	S|_|_|	
Q2	Date (DD/MM/YY)	|_|_|_| / |_|_|_| / 2014	
Q3	Position of the sun relative to you and stack <i>(consider you are at the centre of a clock dial and the stack is at position of 12 o'clock)</i>	|_|_| o'clock	
Q4	Measurement Number	Time of observation: (24-hour format)	Observed Ringelmann Number:
	1	|_|_|_|hrs|_|_|_|mins	
	2	|_|_|_|hrs|_|_|_|mins	
	3	|_|_|_|hrs|_|_|_|mins	
	4	|_|_|_|hrs|_|_|_|mins	
	5	|_|_|_|hrs|_|_|_|mins	
	6	|_|_|_|hrs|_|_|_|mins	
	7	|_|_|_|hrs|_|_|_|mins	
	8	|_|_|_|hrs|_|_|_|mins	
	9	|_|_|_|hrs|_|_|_|mins	
	10	|_|_|_|hrs|_|_|_|mins	
Q5	Sum of observed Ringelmann Numbers:	|_|_|_|	
Q6	Average Ringelmann Number (sum/10)	|_|_|	
Q7	What is the weather today?	1. <input type="checkbox"/> Sunny 2. <input type="checkbox"/> Cloudy 3. <input type="checkbox"/> Raining	

Comments p1:

Comments p1:

Section E: Industry Fuel Consumption

Section E: Industry Fuel Consumption															
E2.x	Information on Fuel _____ (1, 2, 3, etc.) out of _____ (total number of fuels)														
a.	Which fuel is covered in this table?	<div style="margin-bottom: 10px;"> 19. <input type="checkbox"/> No fuel → Skip to Section F </div> <div style="margin-bottom: 10px;"> 20. <input type="checkbox"/> Coal (Indian); Specify Grade _____ </div> <div style="margin-bottom: 10px;"> 21. <input type="checkbox"/> Coal (Imported); Specify Country _____ <i>(if coal is from more than 1 country, list all countries in comments section below)</i> </div> <div style="margin-bottom: 10px;">22. <input type="checkbox"/> Coke</div> <div style="margin-bottom: 10px;">23. <input type="checkbox"/> Lignite</div> <div style="margin-bottom: 10px;">24. <input type="checkbox"/> Pet Coke</div> <div style="margin-bottom: 10px;">25. <input type="checkbox"/> Wood</div> <div style="margin-bottom: 10px;">26. <input type="checkbox"/> Bagasse</div> <div style="margin-bottom: 10px;">27. <input type="checkbox"/> Rice Husk</div> <div style="margin-bottom: 10px;">28. <input type="checkbox"/> Other Biomass (specify): _____</div> <div style="margin-bottom: 10px;">29. <input type="checkbox"/> Other Solid Fuel (specify): _____</div> <div style="margin-bottom: 10px;">30. <input type="checkbox"/> Crude Oil</div> <div style="margin-bottom: 10px;">31. <input type="checkbox"/> LDO (Light Diesel Oil)</div> <div style="margin-bottom: 10px;">32. <input type="checkbox"/> Fuel Oil (Residual Fuel Oil)</div> <div style="margin-bottom: 10px;">33. <input type="checkbox"/> Furnace Oil</div> <div style="margin-bottom: 10px;">34. <input type="checkbox"/> Diesel (Diesel/High Speed Diesel)</div> <div style="margin-bottom: 10px;">35. <input type="checkbox"/> LSHS (Low Sulphur Heavy Stock)</div> <div style="margin-bottom: 10px;">36. <input type="checkbox"/> Other Liquid Fuel (specify): _____</div> <div style="margin-bottom: 10px;">37. <input type="checkbox"/> Gaseous Fuels (specify): _____</div>													
b.	Which suppliers do you purchase this fuel from? <i>(list the three main suppliers only)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 45%; text-align: center;">Name</th> <th style="width: 45%; text-align: center;">Address</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2.</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3.</td> <td></td> <td></td> </tr> </tbody> </table>			Name	Address	1.			2.			3.		
	Name	Address													
1.															
2.															
3.															
c.	Is the latest fuel analysis report available?	2. <input type="checkbox"/> Yes 3. <input type="checkbox"/> No → Skip to D2.xe													
d.	Is a fuel analysis report attached to the survey?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No													
e.	What is the GCV of the fuel?														
f.	What is the NCV of the fuel?														

Industry ID:

Comments p1

g.	Is separate consumption/purchase data for this fuel available?		3. <input type="checkbox"/> Yes 4. <input type="checkbox"/> No → <u>Fill consumption/ purchase details in Section E3</u>	
h.	Monthly Fuel consumption for last financial year			
	Instructions: Fill in fuel consumption. If not available, fill in purchase information (e.g. Fuel Bills in Rs.)			
	Month/Year	Consumption/Purchase (only numeric values)	Unit of Measurement	
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
	(|_|_|_|/|1|_|)			
i.	ANNUAL fuel consumption and purchase for the last three financial years (note in comments any unusual events that might account for fluctuation, such as months closed)			
	Financial Year	Consumption	Unit of Measurement (same units as E2.h)	Total Cost
	2013-2014			..... Rs./Lakh/Crore
	2012-2013			..... Rs./Lakh/Crore
	2011-2012			..... Rs./Lakh/Crore

Industry ID:

Comments p74

Section F: Ambient Air Monitoring

Note values as recorded by the industry in most recent ambient air monitoring report. If an industry has not recorded a particular variable, write "Not Available"

Fill most recent data for every Ambient Air Monitoring location in the industry.

		Location 5	Location 6	Location 7	Location 8	Location 9
F2	Ambient Air Location Identifier (if any):					
F3	Permanent monitoring station?	2. <input type="checkbox"/> Yes 3. <input type="checkbox"/> No	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No
F4	Date of monitoring	|_|_| / |_|_| / 20_|	|_|_| / |_|_| / 20_|	|_|_| / |_|_| / 20_|	|_|_| / |_|_| / 20_|	|_|_| / |_|_| / 20_|
F5	Time of monitoring (24-hour time format)	|_|_| hrs |_|_| mins	|_|_| hrs |_|_| mins	|_|_| hrs |_|_| mins	|_|_| hrs |_|_| mins	|_|_| hrs |_|_| mins
F6	Total SPM conc. ($\mu\text{g}/\text{nm}^3$)					
F7	PM 10 conc. ($\mu\text{g}/\text{nm}^3$)					
F8	PM 2.5 conc. ($\mu\text{g}/\text{nm}^3$)					
F9	SO ₂ conc. ($\mu\text{g}/\text{nm}^3$)					
F10	NO conc. ($\mu\text{g}/\text{nm}^3$)					
F11	NO ₂ conc. ($\mu\text{g}/\text{nm}^3$)					
F12	CO conc. (ppm)					

Comments p75:

Industry ID:

Section G: DG Sets							
		DG set 4	DG set 5	DG set 6	DG set 7	Unit of Measurement	Preferred Unit
G1	DG set stack height						Meter
G2	DG set stack diameter						inches
G3	DG Set Capacity						KVA or KW rating
G4	DG Set Fuel					Not Applicable	
G5	DG Set fuel feed rate						kg/hr
G6	Sulphur % in fuel	|_|_|%	|_|_|%	|_|_|%	|_|_|%	%	
G7	Average hours per month this DG set operates					Hours/month	
G8	Year of installation	|_|_|_|_|	|_|_|_|_|	|_|_|_|_|	|_|_|_|_|	Year	
G9	Bharat rating of this DG Set					(ex. Bharat I, Bharat IV)	
(Instructions: For G11 and G12, fill for last financial year (March 2013-April 2014). If data is not available for last financial year, use most recent data available and NOTE YEAR USED in comments)							
G10	Fuel consumption						Kg/year
G11	DG energy production						KW-h/year

Comments p76:

Industry ID:

Comments p77:

Industry ID:

Extension I: Technical Details

11.	Number of Stacks in the Industry		Total = |__|__|		12.	Number of Stacks in the Industry with PM consent		PM Consent: |__|__|
13.	For each stack in the industry counted in 12 (i.e. stacks with PM Consent) please list the following:							
	Stack ID	Stack Name (Industry Given)	Stack Height (in meters)	Stack Diameter (in inch or meters)	No. of sampling ports	Type of Stack	Type of Fuel Burnt in the Stack	
13.1	S |0 __			<div>_____</div> <input type="checkbox"/> Inches <input type="checkbox"/> Meters		3. <input type="checkbox"/> Process 4. <input type="checkbox"/> Combustion(Flue)	5. <input type="checkbox"/> Solid Fuel 6. <input type="checkbox"/> Liquid Fuel 7. <input type="checkbox"/> Gaseous Fuel 8. <input type="checkbox"/> N.A.	
13.2	S |0 __			<div>_____</div> <input type="checkbox"/> Inches <input type="checkbox"/> Meters		3. <input type="checkbox"/> Process 4. <input type="checkbox"/> Combustion(Flue)	5. <input type="checkbox"/> Solid Fuel 6. <input type="checkbox"/> Liquid Fuel 7. <input type="checkbox"/> Gaseous Fuel 8. <input type="checkbox"/> N.A.	
13.3	S |0 __			<div>_____</div> <input type="checkbox"/> Inches <input type="checkbox"/> Meters		3. <input type="checkbox"/> Process 4. <input type="checkbox"/> Combustion(Flue)	5. <input type="checkbox"/> Solid Fuel 6. <input type="checkbox"/> Liquid Fuel 7. <input type="checkbox"/> Gaseous Fuel 8. <input type="checkbox"/> N.A.	
13.4	S |0 __			<div>_____</div> <input type="checkbox"/> Inches <input type="checkbox"/> Meters		3. <input type="checkbox"/> Process 4. <input type="checkbox"/> Combustion(Flue)	5. <input type="checkbox"/> Solid Fuel 6. <input type="checkbox"/> Liquid Fuel 7. <input type="checkbox"/> Gaseous Fuel 8. <input type="checkbox"/> N.A.	
13.5	S |1 __			<div>_____</div> <input type="checkbox"/> Inches <input type="checkbox"/> Meters		3. <input type="checkbox"/> Process 4. <input type="checkbox"/> Combustion(Flue)	5. <input type="checkbox"/> Solid Fuel 6. <input type="checkbox"/> Liquid Fuel 7. <input type="checkbox"/> Gaseous Fuel 8. <input type="checkbox"/> N.A.	
If there are more than 10 stacks , please fill out and attach another Extension: Technical Section								

Comments p78:

Industry ID:

Stack ID:

J1.1	Detailed Information on Stack no. ____ out of ____ (total no. of stacks) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)									
J1.2	Stack ID	S|____|								
J1.3	Stack Name									
J1.4	No. of Parallel Chain	|____|								
J1.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : |_____|				2. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs				
		Maintenance cost only : |_____|				2. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs				
	Emission Source			Air Pollution Control Devices						
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>				<div>STACK</div>		
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>						
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>						

Comments p79:

Industry ID:

Stack ID:

J2.1	Detailed Information on Stack no. _____ out of _____ (total no. of stacks) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)							
J2.2	Stack ID	S|_____|						
J2.3	Stack Name							
J2.4	No. of Parallel Chain	|_____|						
J2.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : |_____|				3. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs		
		Maintenance cost only : |_____|				3. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs		
	Emission Source			Air Pollution Control Devices				
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>	STACK
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>	
Parallel Chain ____	<div>ES1</div>	<div>ES2</div>	<div>ES3</div>	<div>APCD1</div>	<div>APCD2</div>	<div>APCD3</div>	<div>APCD4</div>	

Comments p80:

Industry ID:

Stack ID:

J3.1	Detailed Information on Stack no. ____ out of ____ (total no. of stacks) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)						
J3.2	Stack ID	S|____|					
J3.3	Stack Name						
J3.4	No. of Parallel Chain	|____|					
J3.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : _____		4. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs			
		Maintenance cost only : _____		4. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs			
	Emission Source		Air Pollution Control Devices				
Parallel Chain ____	ES1	ES2	ES3	APCD1	APCD2	APCD3	APCD4
Parallel Chain ____	ES1	ES2	ES3	APCD1	APCD2	APCD3	APCD4
Parallel Chain ____	ES1	ES2	ES3	APCD1	APCD2	APCD3	APCD4

STACK

Comments p81:

Industry ID:

Stack ID:

J4.1	Detailed Information on Stack no. ____ out of ____ (total no. of stacks) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)				
J4.2	Stack ID	S|____|			
J4.3	Stack Name				
J4.4	No. of Parallel Chain	|____|			
J4.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : _____		5. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
		Maintenance cost only : _____		5. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs	
	Emission Source			Air Pollution Control Devices	
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>	
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>	
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>	

STACK

Comments p82:

Industry ID:

Stack ID:

J5.1	Detailed Information on Stack no. ____ out of ____ (total no. of stacks) (Instruction: Refer to the codebook at the back of Ringlemann Diagram to fill this section. Write "Not Applicable" as necessary. Draw and Label the ID fans)						
J5.2	Stack ID	S|____|					
J5.3	Stack Name						
J5.4	No. of Parallel Chain	|____|					
J5.5	Annual Operating and Maintenance Cost of all the equipment of this stack	Operating cost only : _____		6. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs			
		Maintenance cost only : _____		6. <input type="checkbox"/> Rs. 2. <input type="checkbox"/> Lakh Rs. 3. <input type="checkbox"/> Crore Rs			
	Emission Source			Air Pollution Control Devices			
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>			<div>STACK</div>
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>			
Parallel Chain ____	<div>ES1</div> <div>ES2</div> <div>ES3</div>			<div>APCD1</div> <div>APCD2</div> <div>APCD3</div> <div>APCD4</div>			

Comments p83:

Industry ID:

Stack ID:

Comments p84:

Industry ID:

Stack ID:

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