

“Environmental Impact Assessment of Thermal Power Plant in Singrauli”

Gaurish Kumar Dubey¹, Rajesh Kumar Kaushal², Praveen Patel³.

[M.Tech. Industrial Safety Engineering, Department of Fire Technology and Safety Engineering, Institute of Engineering & Science IPS Academy, Indore,(M.P)]

ABSTRACT:-

It has been realized that thermal power plant has several primary as well as secondary environmental impacts on Singrauli for which assessment studies are necessary for mitigating the possible future impacts that a project might have on the environment. These studies enable the decision maker from the organization or government agencies to consider environmental impact due existing & upcoming project to take necessary steps to prevent adverse environmental impacts of existing and upcoming project.

Keywords: - coalmine, powerplant, environmental impact assessment (EIA),spm, rspm.

INTRODUCTION: Singrauli area consists of north east part of Singrauli district of Madhya Pradesh & southern part of Sonebhadra district of Uttar Pradesh. It is the 50th district of Madhya Pradesh which is disintegrated from Sidhi district on 24th May 2008. It is an emerging power hub of India due to availability of coal & water. N.C.L has ten working open cast coal mines which produced 70.021 million tonnes of coal during 2012-2013. N.C.L. has planned to reach 80 million tonnes by the year 2016-2017. Water Rihand dam has reservoir capacity of 129 million cubic meter & catchment are 5148km². Dam & spill way. Dam height is 91meter & length 934meter. Because of these two factor that is availability of coal and water. Electricity is generated in the minimum cost.

Power Generating capacity of India is 211766.22 MW that is 100%, out of which 141713.6 MW that is 66.91% from thermal, 121610.88MW that 57.42% from coal based thermal power plant, 13732 MW from singrauli approximately 12 % of coal based thermal power plant. Near about 10000 MW under construction. Due to this much of power Generation in singrauli Lot of Air pollution occurs in the singrauli the main pollution content are SO₂, NO_x, PM₁₀(RPM) & PM_{2.5} which are in very high Quantity and their chances to exceed beyond allowable limit .

1.

2. PROPOSED MONITORING METHOD

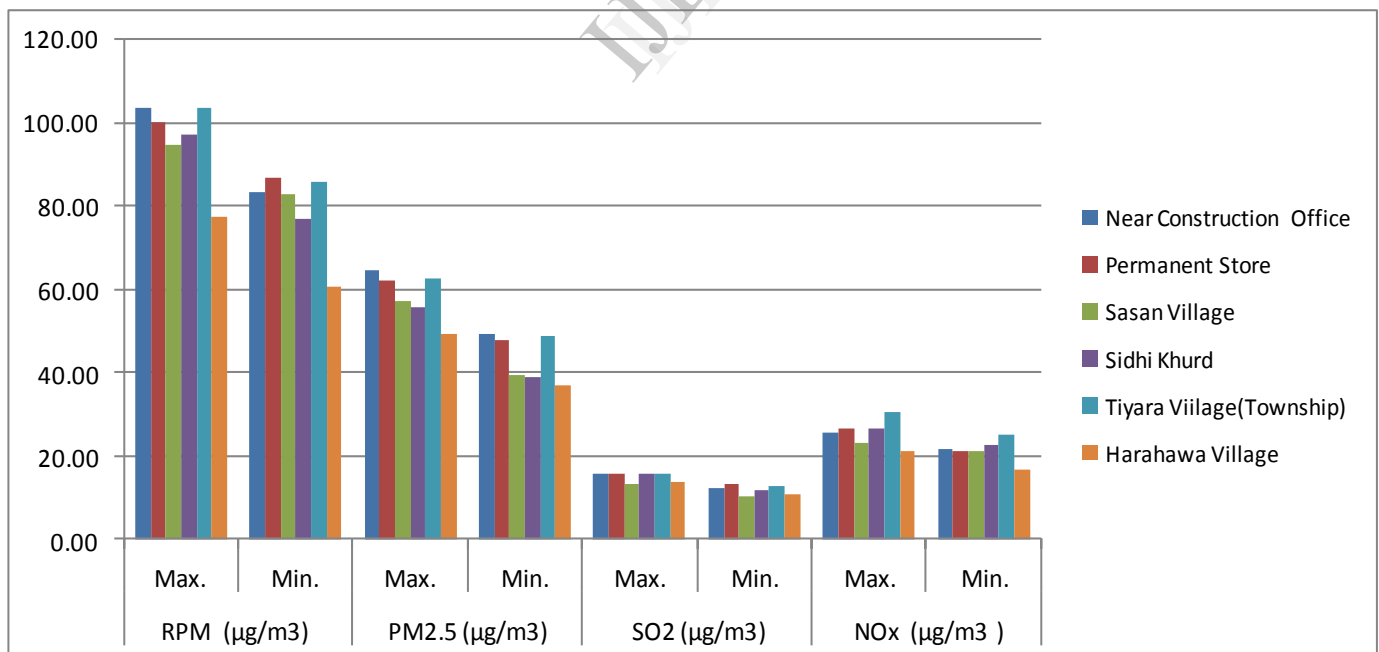
The focus in this study is to find out the ambient air quality in singrauli district at different location so we are able to

identify actual pollution content in the Singrauli Region due to thermal power plant. The study mainly focus on content SO₂, NO_x, PM₁₀(RPM) & PM_{2.5} while studying air pollution two more things mainly come into the picture that is mercury and ozone but we have not considered this in our study scope, environmental impact assessment due to thermal power plant in singrauli at 6 different location in Singrauli. The data presented in this paper were compiled as a part of a research project. Pollution that occurred at different stages in thermal power plant in the power generating industry at the industrial site. This statistics may serve as an important feedback instrument to monitor pollution extent in singrauli. Following are the method adopted to find out content of this four air pollution content and instrument used to find out the same also mention in the table given below.

Sr. No.	Parameter	Method	Instrument to be used
1	PM _{2.5}	Gravimetric Method	PM2.5 Sampler Model No. AAS 127(Make Ecotech)
2	PM ₁₀ (RPM)	Gravimetric Method	PM10 Sampler Model No. AAS 127(Make Ecotech)/RDS)
3	SO ₂	IS 5182	Impinger Box attached with RDS/PM10 Sampler)
4	NO _x	IS 5182	Impinger Box attached with RDS/PM10 Sampler)

Parameter Location	RPM ($\mu\text{g}/\text{m}^3$)		PM _{2.5} ($\mu\text{g}/\text{m}^3$)		SO ₂ ($\mu\text{g}/\text{m}^3$)		NO _x ($\mu\text{g}/\text{m}^3$)	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Near Construction Office	103.40	83.20	64.74	49.20	15.65	12.10	25.70	21.81
Permanent Store	99.95	86.72	62.34	47.70	15.68	13.40	26.76	20.95
Sasan Village	94.90	82.67	57.00	39.25	13.25	10.50	23.10	21.34
Sidhi Khurd	97.23	76.89	55.62	39.10	15.63	12.00	26.38	22.58
Tiyara Viilage(Township)	103.41	86.06	62.44	48.93	15.61	12.93	30.41	25.00
Harahawa Village	77.50	60.70	49.20	36.80	13.59	10.70	21.30	16.80

3. ANALYSIS/CALCULATION



Ambient Air Quality Standards as per Notification published on 18th November, 2009

S.No	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecology Sensitive Area (Notified by Central Govt.)	Method of Measurement
1	Sulphur Dioxide (SO ₂), (µg/m ³)	Annual 24 Hours	50 80	20 80	-Improved West and Geek -Ultraviolet fluoresce
2	Nitrogen Dioxide (NO ₂), (µg/m ³)	Annual 24 Hours	40 80	30 80	-Modified Jacob & Hochheiser (Na Arsenite) Chemiluminescence
3	Particulate Matter (PM ₁₀) RPM, (µg/m ³)	Annual 24 Hours	60 100	60 100	Gravimetric TOEM Beta Attention
4	Particulate Matter (PM _{2.5}), (µg/m ³)	Annual 24 Hours	40 60	40 60	Gravimetric TOEM Beta Attention

4. CONCLUSION

This are the parameter which are fluctuating as the reading are taken when pollution control measures has been taken max SO_2 is $16 \text{ } (\mu\text{g}/\text{m}^3)$ While max allowable is $80 \text{ } (\mu\text{g}/\text{m}^3)$. SO_2 is very less than allowable limit. Max NO_x is $31 \text{ } (\mu\text{g}/\text{m}^3)$ while max allowable is $80 \text{ } (\mu\text{g}/\text{m}^3)$. Particulate Matter Max ($\text{PM}_{2.5}$) is $65 \text{ } (\mu\text{g}/\text{m}^3)$ which is more than max allowable limit that is $60 \text{ } (\mu\text{g}/\text{m}^3)$. Particulate Matter (PM_{10}) Max RPM 103 ($\mu\text{g}/\text{m}^3$) which is also more than maximum allowable limit that is $100 \text{ } (\mu\text{g}/\text{m}^3)$. As all the reading are taken away from the emission point of power plant .this show that emission is somehow more than allowable limit . when all the power plant which are in construction phase when they start their operation then this limit is easily exceeded. So we should take care of all such factors as well as take necessary preventive action to control this emission level .so as to minimize health problem due to this particles to human being nearby Singrauli.

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