

**HALF YEARLY COMPLIANCE REPORT OF CONSENT FOR ESTABLISHMENT (CFE)  
OF 30 MW CPP OF M/s DURGA CEMENT WORKS, A UNIT OF ANDHRA CEMENTS  
LIMITED, GAMALAPADU (P) ,DURGA PURAM (V) DACHEPALLI(M) , GUNTUR –  
DISTRICT (AP) FOR THE PERIOD OF APRIL 2014 TO SEPTEMBER 2014**

**Consent Order No.335/PCB/CFE/RO-GNT/HO/2013,3133 Dt.08.08.2013**

<b>SCHEDULE-A</b>		
<b>S.N</b>	<b>STIPULATED CONDITION</b>	<b>COMPLIANCE STATUS</b>
1	Progress on implementation of the project shall be reported to the concerned regional office, A.P Pollution Control Board once in six months.	Being complied. Progress on implementation of CPP with photographs attached as per <b>Annexure-1</b>
2	Separate energy meters shall be provided for Effluent Treatment Plant (ETP) and Air pollution control equipments to record energy consumption.	Energy meters shall be installed during the commissioning of ETP and Air pollution control equipments.
3	The proponent shall obtain Consent for Operation (CFO) from APPCB, as required Under Sec.25/26 of the Water (P&C of P) Act, 1974 and under sce.21/22 of the Air (P&C of P) Act, 1981, before commencement of activity.	CFO will be obtained before commencement of commissioning activity of CPP under Air & Water act.
4	Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power Under Sec.27(2) of Water (Prevention and Control of Pollution)Act,1974 and Under Sec 21(4) of Air (prevention and control of Pollution) Act,1981 to review any or all the conditions imposed herein and to make such alternation as deemed fit and stipulated any additional conditions by the Board	Agreed.
5	The consent of the Board shall be exhibited in the factory premises at a conspicuous place for the information of the inspecting officers of different departments	Complied. CFE of CPP 30 MW exhibited at the Notice Board of the Company for Public information. Photographs are attached as per <b>Annexure-2</b>
6.	Compensation is to be paid for any environmental damage caused by it, as fixed by the Collector and District Magistrate as civil Liability.	Agreed
7.	Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas. The industry shall maintain a good housekeeping. All pipe values, sewers, drains shall be leak proof. Dyke walls shall be constructed around storage of chemicals.	Shall be complied. The Industry shall maintain good house keeping in all surrounding area. All pipes values, sewers; drainage shall be made leak proof during CPP establishment phase. Dyke walls shall be constructed for storage of chemicals.
8.	Rain Water Harvesting (RWH) structure(s) shall be established on the plant site. The proponent shall be ensure that effluent shall not enter the Rain Water Harvesting structure.	RWH structure shall be established.The effluent shall not enter the rain water harvesting structure.
9.	The rules and regulations notified by Ministry of Law and Justice, GOI regarding the Public Liability	Agreed

	Insurance Act,1991 shall be followed	
10.	This order is valid for period of 5 years from the date of issue	Agreed

**SCHEDULE -B**

**Water**

1.	The source of water is Rain water from Mines Pit and the maximum permitted water consumption is 550 KLD.		Agreed. The water consumption of CPP will be within the limits as mentioned.	
	<b>Sl. No</b>	<b>Purpose</b>		<b>Quantity</b>
	1.	Process/Boiler makeup		449.4 KLD
	2.	Ventilation system		6.1 KLD
	3.	Potable water in plant		17.6 KLD
	4.	Washing & Sanitation		20.9 KLD
	5.	Gardening & Landscaping		14.3 KLD
	6.	Water Treatment losses		31.9 KLD
	7.	Clarifier Sludge		9.8 KLD
		<b>TOTAL</b>	<b>550 KLD</b>	
2.	The Maximum waste water generation (KLD) shall not exceed the following		The waste water generation will be within the tolerance limits as mentioned.	
	<b>Sl. No</b>	<b>Purpose</b>		<b>Quantity</b>
	1.	Process/Boiler Blowdown		233.4 KLD
	2.	Ventilation system		1.2 KLD
	3.	Potable water in plant		14.2 KLD
	4.	Washing & Sanitation		16.8 KLD
	5.	Gardening & Landscaping		-
	6.	Water Treatment losses/Clarifier sludge		9.8 KLD
		<b>Total</b>	<b>275.4 KLD</b>	
	<b>Treatment &amp; Disposal</b>			All waste water shall be treated and disposed as mentioned.STP of capacity 300 KLD have constructed for the domestic waste water treatment and treated water is being used in green belt development and dust suppression on the roads. Treated water of STP well within the norms of AP Pollution Control Board.STP photographs of 300 KLD and analysis test results attached as per <b>Annexure:3</b>
	Source of Effluent	Treatment Facility	Mode of final disposal	
	Process water	ETP	Proposed to be used in coal handling plant (CHP),Ash handling system, CPP makeup and dust suppression	
	Domestic	STP	Proposed to be used for plantation, ash conditioning and gardening purpose within their premises.	
3.	The Effluent Treatment Plant (ETP) shall be constructed and commissioned along with the commissioning of the activity. All the units of the ETP shall be impervious to prevent ground water pollution.		Agreed	
4.	The effluents shall be treated to the on land for		Waste water shall be treated and treated water	

	irrigation standards as stipulated under Schedule VI of Environment (Protection) Rules,1986,notified by Ministry of Environment and Forests, Government of India Vide,G.S.R.422(E)dt.19.05.1993 and its amendments there of	will conform as mentioned in irrigation Standard of Environment (Protection) Rules, 1986 notified by MoEF of GOI and its amendments thereof.																					
5.	Separate magnetic flow meters with totalisers to necessary pipe-line shall be provided for assessing the quantity of water used for each of the purposes mentioned below. a. Industrial cooling, boiler feed b. Domestic purpose c. Processing, whereby water gets polluted and pollutants are easily biodegradable d. Processing whereby water gets polluted and the pollutants are not easily bio-degradable	Separate magnetic flow meters shall be installed in pipe lines for Industrial and domestic use for accessing water consumption during establishment phase of CPP.																					
<b>Air:</b>																							
6	The Air pollution Control equipment shall be installed along with the commissioning of the activity and shall comply with the following for controlling air pollution	Air pollution control equipments shall be installed.																					
	<table border="1"> <thead> <tr> <th>S.N</th> <th>Details of Stack</th> <th>Stack1</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>Attached to</td> <td>boiler</td> </tr> <tr> <td>b</td> <td>Capacity</td> <td>132 TPH</td> </tr> <tr> <td>c</td> <td>Fuel quantity</td> <td>Coal-575.34 TPD</td> </tr> <tr> <td>d</td> <td>Stack height</td> <td>77 m</td> </tr> <tr> <td>e</td> <td>Control equipment</td> <td>Electro Static Precipitator</td> </tr> <tr> <td>f</td> <td>Conc. of Particulate matter</td> <td>&lt;50 mg/Nm<sup>3</sup></td> </tr> </tbody> </table>	S.N	Details of Stack	Stack1	a	Attached to	boiler	b	Capacity	132 TPH	c	Fuel quantity	Coal-575.34 TPD	d	Stack height	77 m	e	Control equipment	Electro Static Precipitator	f	Conc. of Particulate matter	<50 mg/Nm <sup>3</sup>	
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7	The Industry shall provide adequate space for installation of flue gas desulphurization (FGO), if required at later stage, as stipulated by MoEF, GoI	Provision shall be made for the installation of flue gas desulphurization (FGO) unit, if required.																					
8	Regular monitoring of ground level concentration of SO <sub>2</sub> , NO <sub>x</sub> ,HG,PM <sub>10</sub> &PM <sub>2.5</sub> shall be carried out in the impact and buffer Zone and records shall be maintained. If at any stage these levels are found to exceed the prescribed limits, requisite restorative measures shall be fixed in consultation with the Regional Officer of the Board. Consolidated daily reports shall be submitted to te concerned Regional Office on monthly basis	Complied. Regular monitoring is being done and monitoring report is being regularly submitted to APPCB regional office Guntur & APPCB Hyderabad on monthly basis. Half yearly AAQM monitoring report attached as per <b>Annexure-4</b>																					
9	On Line stack monitoring shall be provided for the boiler stack and the data shall be connected to Board website. Two Continuous Ambient air quality monitoring (CAAQM) stations (UP wind and down wind directions)shall be installed and data shall be connected to Board website.	On Line stack monitor shall be installed. 2 nos. Online CAAQMS already installed in Up wind & Down wind direction. Regular CAAQM data is being transmitted to APPCB server.																					
10	The proponent shall ensure compliance of the National Ambient Air Quality standards notified by MoEF,Goi	Ambient air quality shall be maintained as per Standards Notification of MoEF, GoI Vide																					

	vide notification No.GSR 826 (E),dated 16.11.2009 during construction and regular operational phase of the project	notification No GSR 826 (E) dated 16.11.2009 during construction phase of CPP as well as operation of CPP.
11	Adequate dust extraction system such as cyclones /Bag filters and water spray system in dusty areas such as surroundings of coal stacking area, coal crushing, transfer lines and other coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	Air pollution control equipments such as cyclone /Bag filters, water spray system shall be installed at all transfer points and other dust generating areas during CPP establishment phase.
12	Raw materials shall be transported in covered trucks. Raw material shall be stored under sheds. All the belt conveyors shall be covered with G.I sheets. Appropriate dust suppressions system shall be provided all around the stockpiles and conveyors system. All the roads in the plant area shall be asphalted/concreted and water shall be sprinkled to suppress the dust.	CPP Civil & Mechanical work construction work is under progress. Raw material storage sheds shall be constructed with GI sheets. Dust suppression system and bag filter will be installed. All belt conveyors will be covered with GI sheets for the control of pollution.
13	The industry shall take following mitigation measures to control fugitive emissions during construction and operational state: <ul style="list-style-type: none"> <li>• Vehicles shall be managed to avoid traffic congestions and shall provide parking facilities.</li> <li>• Automated mechanical water sprinkling shall be provided on roads and at dusty construction material storage areas, for suppression of dust</li> <li>• Mechanized handling equipment shall be used for loading &amp; unloading operations</li> <li>• Vehicles shall comply with emission standards shall have valid PUC certification.</li> </ul>	All the mitigation measures will be followed as suggested during CPP establishment phase as well as in CPP operation for the control of fugitive emission.
14	A sampling port with removable dummy of not less than 15 cm diameter shall be provided in the stack at a distance of 8 times the diameter of the stack from the nearest constraints such as bends etc. A Plate form with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform.	All arrangement shall be made during stack construction for the purpose of stack monitoring and CEMS installation.
15	The generator shall be installed in a closed area with a silencer and suitable noise absorption system. The ambient noise level shall not exceed 75 dB (A during day time and 70 dB(A) during night time.	Shall be complied. Ambient noise level shall not exceed the norms at any time. Noise level report as per <b>Annexure 5</b>

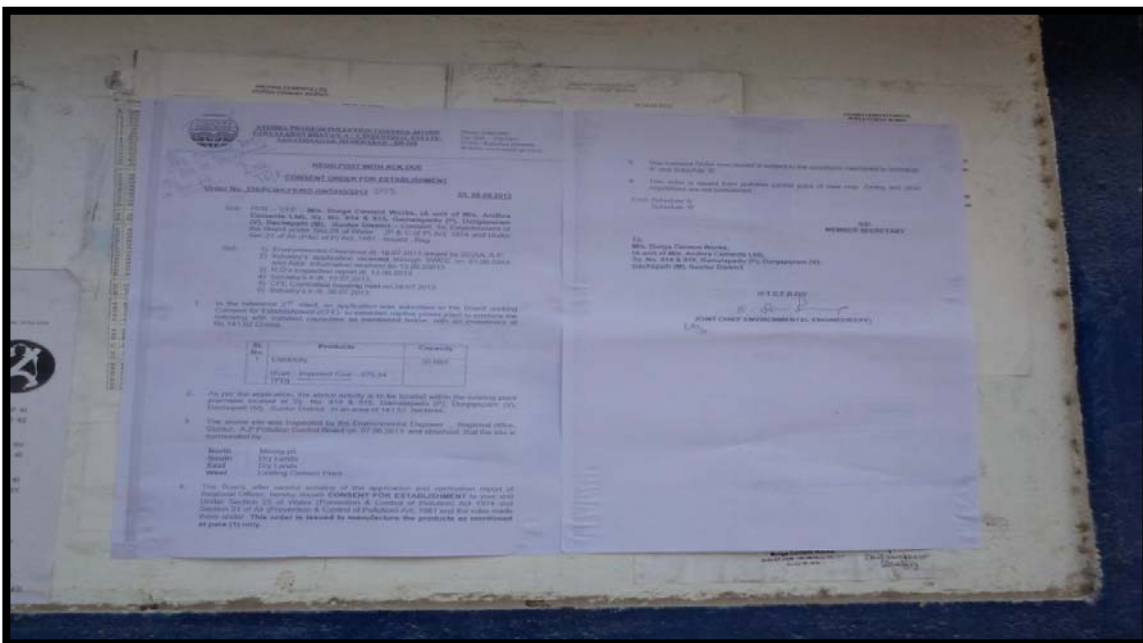
<b>SOLID WASTE</b>					
16	The proponent shall comply with the following				Shall be complied during operation of CPP. All the fly ash generated in CPP will be consumed in cement manufacturing process.
	S.N	Solid waste generation	Quantity	Method of Disposal	
	1	Bottom Ash	51.78 TPA	Used for their own Cement manufacturing i.e. Portland Pozzolona cement(PPC)	
	2	Fly Ash	207.12 TPA	Used as manure	
	3	ETP Sludge	30 TPA		
17	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. 100% fly ash utilization shall be ensured from 4 <sup>th</sup> year onwards.				Shall be complied. Fly ash storage facility will be provided. All the fly ash generated in CPP shall be consumed in Cement manufacturing process in our cement plant.
18	Adequate safety measures shall be provided in the plant area to check minimize spontaneous fires in coal yard, especially during summer season.				All the safety norms are being strictly followed. PPEs are provided to workers. Fire Fighting systems are being installed in coal storage areas.
19	Storage facilities for auxiliary liquid fuel such as LDO/HFO/LSHS shall be made in the plant area where risk is minimum to the storage facilities. Disaster Management plan shall be prepared to meet any eventuality in case of an accident taking place. Mock drills shall be conducted regularly and based on the same, modifications required; if any shall be incorporated in the Disaster Management Plan. Sulphur content in the liquid fuel shall not exceed 0.5%.				Shall be complied Disaster management plan already prepared as per <b>Annexure 6</b> Mock drills are being conducted during Construction stage of CPP. Moke drill report and photograph attached as per <b>Annexure: 7</b>
20	The following rules and regulations notified by the MoE&F, GoI shall be implemented. <ul style="list-style-type: none"> <li>a. Hazardous Waste (Management, Handling and Transboundary Movement Rules,2008)</li> <li>b. Manufacture, storage and import of Hazardous Chemicals Rules 1989</li> <li>c. Fly ash notification S.O.2804 (E),dt.3.11.2009</li> <li>d. Batteries (Management &amp;Handling )Rule,2010</li> <li>e. E-waste (Management &amp;Handling )Rule,2012</li> </ul>				All the rules and regulation notified by MoE&F, GOI shall be followed and implemented.
<b>OTHER CONDITION</b>					
21	The proponent shall allocate a minimum of 1.0%of its project cost of Rs.141.02 crores towards CSR activities during construction period and 0.20% of the project cost per year during operational period for 10 years				CSR measures being taken in surrounding villages. Expenditure during year 2014-15 is attached as <b>Annexure-8.</b>
22	Green belt of adequate width and density with minimum area of 33% of total area shall be developed along the boundary of the industry green belt development shall be started along with the construction.				Green belt development already being started at the boundary location. Tree plantation report attached as per <b>Annexure -9.</b>

23	The proponent shall achieve 100% disposal of fly ash and bottom ash as per Fly Ash notification issued by MoE&F, GOI vide S.O 2804 (E), dated 3.11.2009	All the fly ash generated in CCP as a waste material shall be consumed in cement manufacturing process in our cement plant.
24	The proponent shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board.	No process technology shall be changed without the permission of AP Pollution Control Board.
25	The proponent shall comply with all the directions issued by the Board from time to time.	All the directions of APPCB shall be followed and implement from time to time.
26	Concealing the factual data or submission of false information/fabricated data and failure to comply with any of the conditions mentioned in this order and attract action under the provisions of relevant pollution control Acts.	Agreed.
27	The Board reserves its right to modify above conditions or stipulated new/ additional conditions and to take action including revoke of this order in the interest of environment protection.	Agreed.
28	The Board reserves its right to modify above conditions or stipulate any additional conditions including revocation of this order in the interest of environment protection.	Agreed.
29	Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.	Agreed.

**CPP CONSTRUCTION WORK IS UNDER PROGRESS**



CFE of CPP 30 MW Exhibited at the Notice Board of the Company





STP OF 300 KLD INSTTALED AT DCW COLONY



# STP WATER TESTING REPORT



**Sree Mahendra**  
ANALYTICAL SERVICES  
*Genuine Quality Assurance*  
A.P Govt Regd No 591/12  
ISO 9001 : 2008 Certified Laboratory

REGD. Off :  
1-7 292, Chaitanyapur,  
Opp: Geetha Hospital, Dilsukhnagar,  
Hyderabad-500035  
Ph : 040 64609596, Cell: 9866609596  
E mail : [mail@smasquality@gmail.com](mailto:mail@smasquality@gmail.com)  
Web site : [www.smaslabs.com](http://www.smaslabs.com)

## CERTIFICATE OF ANALYSIS

Test Report  
Report Ref: SMAS/W/33-49-029/14

In accordance with the order of M/s. Revolve Engineers Pvt.Ltd, Hyderabad. We carried out the following analysis for the given sample.

SAMPLE DETAILS:	
Single lab code	: 1807
Name of the Site	: Andhra cements
Date of Receipt	: 29.09.2014
Job Ref No	: SMAS/W/33-49-029/14
Date of Issue	: 06.10.2014
Sample Particulars	: COLLECTION WATER (Code No:367), FINAL WATER (Code No:369)
Sampling	: By Client
Tests Required	: As per mail
Analysis Started on	: 29.09.2014
Analysis Completion Date	: 06.10.2014
Sample Condition	: Irms

SAMPLE ANALYSED AS RECEIVED BASIS

### TEST RESULTS

The above sample was analysed by us and the results are as follows:

S.No	TEST PARAMETERS	UNITS	RESULTS		APPCB STANDARDS
			In let-367	Our let-369	
1.	pH	--	7.22	7.80	> 6.5 - 8.5
2.	Total Dissolved Solids ( @ 180°C )	ppm	1516	1042	< 2100
3.	Total Suspended Solids ( @ 105°C )	ppm	38	02	< 200
4.	Chemical oxygen demand	ppm	190	04	< 250
5.	Biological oxygen demand ( 5 day @ 27°C )	ppm	26	Nil	< 100
6.	Chlorides as Cl	ppm	369.2	284.0	< 600
7.	Sulphates as SO <sub>4</sub>	ppm	44.1	102.0	< 1000
8.	Oil & Grease	ppm	< 1.00	< 1.00	< 10.0
9.	Total hardness as CaCO <sub>3</sub>	ppm	488	384	Not Specified
10.	Calcium as Ca	ppm	144.0	138.4	Not Specified
11.	Total Alkalinity as CaCO <sub>3</sub>	ppm	446.0	270.0	Not Specified
12.	Nitrates as NO <sub>3</sub>	ppm	2.86	0.01	Not Specified
13.	Color	--	Colorless	Colorless	Not Specified
14.	Odour	--	Agreeable	Agreeable	Not Specified
15.	Turbidity	NTU	22.1	1.10	Not Specified
<b>MICROBIOLOGICAL PARAMETERS</b>					
16.	Coliform Bacteria	cfu/ 100ml	36	Nil	500MPN/100ml
17.	E.coli	cfu/ 100ml	Absent	Absent	Not Specified

Note: 1. The sample is analyzed as per APHA & CPCB method.  
2. The certificate relates only to the sample for which it is issued.



*M. Mahesh*  
Authorized Signatory

### TESTING SERVICES

Water, Food Materials, Oils, Cakes, Rice Bran, Poultry & Animal Feed  
Soil, Chemicals, Metals, Ores, Industrial effluents  
[www.smaslabs.com](http://www.smaslabs.com)

**Annexure -4****DURGA CEMENT WORKS**

A Unit of Andhra Cements Limited  
 Gamalapadu(V), Dechepalli(M), Dist- Guntur  
 Andhra Pradesh

**AMBIENT AIR QUALITY MONITORING REPORT**  
**APRIL 2014 TO SEPTEMBER 2014**

**LOCATION -1 NEAR MINE PIT-1, (CROSS WIND)**

S.N		PM-2.5 $\mu\text{g}/\text{m}^3$	PM-10 $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$
1	MAX.	32.25	62.09	8.83	15.45
2	MIN.	12.72	41.5	3.19	4.93
3	AVG.	23.08	50.32	6.43	10.31
4	STD DEV.	3.85	4.83	1.21	1.83
5	COFF. OF VARIATION	0.17	0.10	0.19	0.18
6	98 PERCENTILE	31.77	59.83	8.48	14.97

**LOCATION -2 NEAR NAGULERU RIVER PUMP HOUSE, (CROSS WIND)**

S.N		PM-2.5 $\mu\text{g}/\text{m}^3$	PM-10 $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$
1	MAX.	27.85	49.64	8.22	14.44
2	MIN.	10.27	34.62	2.96	5.39
3	AVG.	19.64	42.34	5.59	9.07
4	STD DEV.	3.66	3.63	1.49	2.12
5	COFF. OF VARIATION	0.19	0.09	0.27	0.23
6	98 PERCENTILE	27.01	49.06	8.11	13.48

**LOCATION -3 NEAR CPP (TOWARDS GAMALAPADU VILLAGE), (UP WIND)**

S.N		PM-2.5 $\mu\text{g}/\text{m}^3$	PM-10 $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$
1	MAX.	34.69	64.96	8.86	14.89
2	MIN.	17.80	40.23	4.01	6.71
3	AVG.	25.40	52.10	6.57	10.62
4	STD DEV.	3.63	4.59	1.28	1.98
5	COFF. OF VARIATION	0.14	0.09	0.19	0.19
6	98 PERCENTILE	33.18	60.92	8.69	14.48

**LOCATION -4 COLONY AREA (TOWARDS SRI NAGAR VILLAGE),(DOWN WIND)**

S.N		PM-2.5 $\mu\text{g}/\text{m}^3$	PM-10 $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$
1	MAX.	28.49	47.94	8.90	14.98
2	MIN.	12.97	33.25	2.96	5.66
3	AVG.	19.29	41.73	5.36	8.72
4	STD DEV.	3.19	3.89	1.74	2.30
5	COFF. OF VARIATION	0.17	0.09	0.32	0.26
6	98 PERCENTILE	24.81	47.74	8.69	14.48

<b>DURGA CEMENTS WORKS</b>		
A Unit of Andhra Cements Limited Durgapuram,P.O- Srinagar, Dachepalli (M), dist- Guntur,(A.P)		
<b>NOISE LEVEL REPORT</b> (April-2014 to September 2014)		
<b>1. Colony area</b>		
	Day Time dBA	Night Time dBA
MAX	45.6	43.6
MIN	41.50	40.50
AVG	43.48	42.28
STD DEV.	1.19	0.94
COFF. OF VARIATION	0.03	0.02
98 PERCENTILE	45.6	43.6
<b>2.Near Time Office</b>		
	Day Time dBA	Night Time dBA
MAX	55.3	53.7
MIN	45.60	44.80
AVG	51.55	49.87
STD DEV.	2.46	2.26
COFF. OF VARIATION	0.05	0.05
98 PERCENTILE	55.02	53.22
<b>3.Near Mine Office</b>		
	Day Time dBA	Night Time dBA
MAX	55.8	53.8
MIN	44.50	42.10
AVG	52.43	50.53
STD DEV.	2.32	3.15
COFF. OF VARIATION	0.04	0.06
98 PERCENTILE	55.4	53.7
<b>4.Near CPP</b>		
	Day Time dBA	Night Time dBA
MAX	54.6	51.8
MIN	44.20	42.10
AVG	48.64	46.23
STD DEV.	3.44	3.16
COFF. OF VARIATION	0.07	0.07
98 PERCENTILE	54.2	51.6

## **Disaster Management Plan**

### **Introduction**

Disaster Management Plan for an industrial unit is necessarily a combination of various actions which are to be taken in a very short time but in a pre-set sequence to deal effectively and efficiently with any disaster, emergency or major accident with an aim to keep the loss of men, material, plant/machinery etc., to the minimum.

Creation and establishment of a cell within the industrial unit is a pre-requisite for an effective implementation of any disaster management plan. The main functions of the Disaster Management Cell are to prepare a detailed disaster management plan, which includes : —

- ❖ Identification of various types of expected disasters depending upon the type of the industrial unit;
- ❖ Identification of various groups, agencies, departments etc. necessary for dealing with a specific disaster effectively;
- ❖ Preparation - by intensive training - of relevant teams/groups within the organization to deal with a specific disaster and keep them in readiness;
- ❖ Establishment of an early detection system for the disasters;
- ❖ Development of a reliable instant information/communication system; and
- ❖ Organization and mobilization of all the concerned departments/ organizations/ groups and agencies instantly when needed.

Major disaster that can occur in this Cement Plant / CPP may be due to fire. In the existing cement plant already having a good and well-maintained

### **Emergency Planning For Disaster due to Fire**

Coal storage, cable rooms, transformer unit, auxiliary transformers, oil tanks, coal bunkers including all conveyor lines etc., within the plant are the likely areas for which plan is outlined to deal with any eventuality of fire. Stores, workshop, canteen and administration building have also been included.

#### **CLASSES OF FIRE**

<b>Class</b>	<b>Explanation</b>	<b>Method of Fire</b>	<b>Fire Fighting</b>
<b>A</b>	Solid- Carbonaceous inflammable material	Fire involving wood, paper, coal, cloth and other material	Water
<b>B</b>	Liquid	Fire involving oil, kerosene etc.	Foam of dry chemical power extinguisher
<b>C</b>	Special	Electrical Fire	DCP or CO <sub>2</sub>

			Extinguisher
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### **Equipment System Dealing with Coal Handling**

The whole system dealing with coal handling can be summarized as follows : —

- ❖ A wagon tripper for unloading transported coal from the racks/trucks;
- ❖ Coal is unloaded into ground level hopper(s) from where it is transported to pre-blending stock pile through belt conveyors;
- ❖ Coal is reclaimed for the above stock pile and is transported to the raw coal hopper for vertical mill by a set of belt conveyors;
- ❖ For collection of the pulverized fuel as well as venting the mill, a high efficiency bag filters will be provided; and
- ❖ The fine coal from the hoppers will be sent to kiln firing by a set of pumps.

Water sprinklers will be provided for the stockpile at the unloading point to prevent fire. Pull cords and emergency switches will be provided all along the conveyor belt to avoid the spreading of fire.

### **Need for a Fire Fighting Group**

A small spark of fire may result into loss of machines and conveyors and the damage by fire may be of the order of few crores of Rupees. This type of losses can be avoided by preventing and controlling the fire instantly for which firefighting group shall be established.

### **Fire Fighting with Water**

Adequate and reliable arrangement is required for fighting the fire with water such as:

- ❖ Identification of source of water and equipping with pumps,
- ❖ Arrangement of pipe lines along and around all vulnerable areas,
- ❖ Alternative water supply arrangements to divert the water from one set of pipe lines (connected to another source) or to connect to other source,
- ❖ Provisions of valves at appropriate points to enable supply of water at the required place/area or divert the same to another direction/pipe line, and
- ❖ Each source of water shall be equipped with one standby diesel driven pump to serve in case of power failure.
- ❖ Water Line Arrangement

Water lines shall be provided at coal handling area along the conveyors and around the stockyards, transformers, oil tanks, coal crusher house etc. Water lines shall also be provided around other infrastructures in the plant like administration building, canteen, stores and other plant equipment. The system shall be designed in conformity with the recommendations of the

NFPA of Insurance Association of India. A reserve water level shall be maintained in the sump as per NFPA requirements.

Hydrant system feed pressurized water to hydrant valves shall be located throughout the plant and also at strategic locations. The water pressure shall be maintained at 6 to 8 kg/cm<sup>2</sup> in these lines. By operating a few of the valves water pressure can be increased at one particular place. There are two types of valves. Non-return valves shall be provided to allow only unidirectional flow of water. Gate valves shall be provided for closing or opening the water supply. An adequate number of gate valves shall be provided at appropriate points to tap water to deal with fire if it breaks out at any point of the plant.

### **Fire Fighting with Fire Extinguishers**

To deal with fires - other than carbonaceous fires, which can be dealt with by water - suitable fire extinguishers are required to do the job effectively. Adequate number of 'Fire stations' are to be established with the following types of equipment and arrangements: —

- ❖ Soda Acid Fire Extinguishers;
- ❖ CO<sub>2</sub> Extinguishers;
- ❖ Dry Powder Chemical Extinguishers;
- ❖ Foam Extinguishers;
- ❖ Fire buckets; and
- ❖ 50-mm spray hoses up to 150-m length.

Appropriate types of fire extinguishers shall also be provided at conveyor drive heads, crusher house, control rooms, in machines like stacker and reclaimer, electrical yard, sub-station and other infrastructure facilities within the premises. In the transformer yard, automatic fire detecting and quenching system shall be provided for each transformer. This system comes into operation whenever the temperature of surrounding air exceeds 80°C and sprays water over the transformer to prevent spreading of fire and quenches the same. In order to avoid fire in cable galleries, all the power and control cables of FRLS type (Fire Resistant Low Smoke) shall be used. In addition, fire detecting and Fire Alarm Systems shall be installed in the cable galleries.

### **Inspection**

- ❖ Fire alarm panel (electrical) shall cover the entire plant. Fire Extinguishers in Fire Stations and machines and other places shall be periodically inspected by the inspection group;
- ❖ The temperature of the coal stack shall be regularly measured and recorded. If the temperature exceeds 80°C, water quenching shall be carried out;
- ❖ Emergency telephone numbers shall be displayed at vital points by the groups; and
- ❖ General inspection for fire shall be regularly carried out by the group.

## **Procedure for Extinguishing Fire**

The following steps shall be taken during a Fire Accident in the system : —

- ❖ As soon as the message is received about fire, one of the spray groups in the system shall be diverted to the place of the fire accident along with a staff member;
- ❖ Simultaneously plant Fire Station shall be informed by phone, walkie-talkie for fire brigades;
- ❖ Fire stations nearby also be informed by phone to be in readiness;
- ❖ In the meanwhile, the pipe system shall be operated to obtain maximum pressure and output;
- ❖ In case cables are within the reach of fire, power supply shall be tripped and the cables shifted;
- ❖ Further, other spray groups from the system shall be diverted to the spot;
- ❖ In case of fire in the belt, belt shall be cut near the burning portion, to save the remaining parts; and
- ❖ After extinguishing the fire, the area shall be well prepared for re-use.

## **Specific Emergencies Anticipated**

Fire consequences can be disastrous, since they involve huge quantities of fuel either stored or in dynamic inventory in pipe lines or in nearby areas. Toxic releases can affect persons working around. Preliminary hazard Analysis has provided a basis for consequence estimation. Estimation can be made by using various pool fires, tank fire consequence calculations. During the study of Risk Assessment, the nature of damages is worked out and probability of occurrence of such hazards is also drawn up.



## **EMERGENCY ACTION PLAN**

The emergency action plan consists of: —

- ❖ First information,
- ❖ Responsibilities of Work Incident Controller,
- ❖ Responsibilities of Chief Incident Controller,
- ❖ Responsibilities for Declaration of Emergency,
- ❖ Responsibilities for Emergency Communication Officer,
- ❖ Responsibilities of key personnel,
- ❖ Responsibilities and action to be taken by essential staff and various teams during emergency and
- ❖ Responsibilities for All Clear Signal.

### **First Information**

The first person who observes/identifies the emergencies shall inform by shouting and by telephone to the Shift Engineer and Fire Station about the hazard. The Shift Engineer will inform to Works Incident Controller, Chief Incident Controller and also telephone operator, who shall communicate it to all key personnel.

### **Responsibilities of Work Incident Controller (WIC)**

The Work Incident Controller on knowing about an emergency immediately will rush to the incident site and take overall charge and inform the same to Chief Incident Controller (CIC). On arrival, he will assess the extent of emergency and decide if major emergency exists and inform the communication officer accordingly.

### **Responsibilities of Chief Incident Controller (CIC)**

The Additional General Manager, who is also the Chief Incident Controller, will assume overall responsibilities for the factory/storage site and its personnel in case of any emergency. His responsibilities are to :—

1. Assess the magnitude of the situation and decide if staff needs to be evacuated from their assembly point to identified safer places. Declare onsite/offsite emergency;
2. Exercise direct operational control over areas other than those affected;
3. Undertake a continuous review of possible developments and assess in consultation with key personnel as to whether shutting down of the plant or any section of the plant and evacuation of personnel are required;
4. Liaison with senior officials of Police, Fire Brigade, Medical and Factories Inspectorate and provide advice on possible effects on areas outside the factory premises;
5. Look after rehabilitation of affected persons on discontinuation of emergency; and

6. Issue authorized statements to news media, and ensures that evidence is preserved for enquiries to be conducted by the statutory authorities.

### **Responsibilities for Declaration of Major Emergency**

It is important to make the emergencies known to every one in the plant. The major emergency will be made known to every one inside the plant by sounding the alarm. Separate alarms to warn different types of major emergencies such as fire and explosion or toxic gas escape are provided. Public address system is also available throughout the plant.

Announcement will be made by the concerned official/interpreter in local language. Similarly, announcement for termination of the emergency will also be announced.

### **Responsibilities of Emergency Communication Officer (ECO)**

On hearing the emergency alarm he will proceed to Emergency Control Center.

He will Report to Chief Incident Controller and Work Incident Controller and maintain contact with them;

1. On information received from the WIC of the situation, recommending if necessary, evacuate the staff from the assembly points;
2. Identify suitable staff to act as runners or messengers who are listed in the
3. Essential staff, between him and the Works Incident Controller if the telephone and other system of communication fail due to any reason;
4. Maintain inventory of items in the emergency control center;
5. Contact local meteorological office to receive early notification of changes in weather condition in case of gas leak and prolonged action;
6. Maintain a log of incidents;
7. Keep in constant touch with happenings at the emergency site and with WIC;
8. Liaise with neighbor fire brigade, hospital, civil and police authorities on advice from CIC.

### **Key Personnel**

Apart from Works Incident Controller and Chief Incident Controller, other works personnel will have key role to play in providing advice and in implementing the decisions made by the Chief Incident Controller. The key personnel include : —

A. Sr. Superintendents/Engineer-in-charge responsible for : —

- ❖ Operation;
- ❖ Electrical Maintenance;
- ❖ Mechanical maintenance;
- ❖ C&I; and
- ❖ Chemical.

B. Head of Personnel and Officers connected with IR and Labour Welfare

C. Head (Technical Service)

## **Responsibilities of Key Personnel**

### **Department Heads**

The departmental heads will provide assistance as required by the WIC. They will decide which members of their departments are required at the incident site.

### **Chief Personnel Manager**

He will have following responsibilities : —

- a) Report to Work Incident Controller;
- b) Ensure that all non-essential workers in the affected areas are evacuated to assembly points in consultation with the Chief Incident Controller;
- c) Receive reports from nominated persons from assembly points, and pass on the absence information services;
- d) Keep liaison with other coordinators to meet the requirements of services such as materials, security management, transportation, medical, canteen facilities etc. as required during emergency;
- e) Be in constant touch with the Chief Incident Controller and feed him correct information of the situation;
- f) Give information to press, public and authorities concerned on instructions from the CIC/WIC;
- g) Ensure that casualties receive adequate attention at medical center and arrange required additional help and inform relatives of the injured;
- h) Arrange to inform public on Radio and TV about evacuation etc.; and
- i) Arrange TV coverage on handling emergency.

### **In-Charge (TS)**

On knowing about an emergency, he will report to CIC and assist him in all activities. He will also liaison with all teams.

### **Medical Officer**

Medical Officer will render medical treatment to the injured and if necessary will shift the injured to nearby Hospitals. He will mobilize extra medical help from outside if necessary.

### **Head of Safety**

On hearing the emergency alarm, he will proceed to the site. He will : —

- a) Make sure that all safety equipment are made available to the emergency teams;
- b) Participate in rescue operations;
- c) Co-ordinate to transfer the injured persons to medical center and arrange for first aid; and
- d) Keep in contact with ECO and the WIC and advice them on the condition of injured persons

### **Security Officer**

On hearing the Emergency alarm, he will proceed to main entrance/main gate. He will

- a) Arrange to control the traffic at the gate and the incident area;
- b) Direct the security staff to the incident site to take part in emergency operations under his guidance and supervision;
- c) Evacuate the persons in the plant or in the nearby areas as advised by WIC after arranging the transport through the Transport in-charge;
- d) Allow only those people who are associated with handling emergency;
- e) Maintain law and order in the area, if necessary seek the help of police; and
- f) Maintain communication with CIC/WIC and ECO.

### **Fire Officer**

On hearing the emergency, he will reach the fire station and arrange to sound the alarm as per the type of emergency in consultation with WIC, He will : —

- a) Guide the fire fighting crew i.e. firemen and trained plant personnel and shift the fire fighting facilities to the emergency site. Adequate facilities will be made available;
- b) Take guidance of the WIC for fire fighting as well as assessing the requirement of outside help; and
- c) Maintain communication with WIC, CIC and ECO.

### **Transport Engineer-in-Charge**

On hearing the emergency alarm, he will immediately report to Work Incident Controller. He will : —

- a) Ensure availability of auto base vehicles for evacuation or other duties, when asked for; and
- b) Make all arrangements regarding transportation.

### **General Responsibilities of Employees during an Emergency**

During an emergency, it becomes more enhanced and pronounced when an emergency warning is raised, the workers if they are in charge of process equipment shall adopt safe and emergency shut down and attend any prescribed duty as essential employee. If no such responsibility is assigned, he shall adopt a safe course to assembly point and await instructions. He shall not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of DMP.

## **EMERGENCY FACILITIES**

### **EMERGENCY CONTROL CENTER (ECC)**

For the time being Office Block is identified as Emergency Control Center. It would have external Telephone, Fax, Telex facility. All the Site Controller/ Incident Controller Officers, Senior Personnel would be located here. Also, it would be an elevated place. The following information and equipment are to be provided at the Emergency Control Center (ECC).

- ❖ Intercom, telephone;
- ❖ P and T telephone;
- ❖ Safe contained breathing apparatus;
- ❖ Fire suit/gas tight goggles/gloves/helmets;
- ❖ Hand tools, wind direction/velocities indications;
- ❖ Public address megaphone, hand bell, telephone directories;
- ❖ (internal, P and T) factory layout, site plan;
- ❖ Emergency lamp/torch light/batteries;
- ❖ Plan indicating locations of hazard inventories, plant control room, sources of safety equipment, work road plan, assembly points, rescue location vulnerable zones, escape routes;
- ❖ Hazard chart;
- ❖ Emergency shut-down procedures;
- ❖ Nominal roll of employees;
- ❖ List of key personnel, list of essential employees, list of Emergency Coordinators;
- ❖ Duties of key personnel;
- ❖ Address with telephone numbers and key personnel, emergency coordinator, essential employees; and
- ❖ Important address and telephone numbers including Government agencies, neighboring industries and sources of help, out side experts, chemical fact sheets population details around the factory.

### **Assembly Point**

Number of assembly depending upon the plant location would be identified wherein employees who are not directly connected with the disaster management would be assembled for safety and rescue. Emergency breathing apparatus, minimum facilities like water etc. would be organized. In view of the size of plant, different locations are ear marked as assembly points. Depending upon the location of hazard, the assembly points are to be used.

### **Emergency Power Supply**

Plant facilities would be connected to Emergency Power supply units and would be placed in auto mode. Thus water pumps, plants lighting and emergency control center. Administrative building and other auxiliary services are connected to emergency power supply. In all the blocks, flame proof type emergency lamps would be provided.

## **Fire Fighting Facilities**

First Aid Fire fighting equipment suitable for emergency shall be maintained in each section in the plant. This would be as per statutory requirements as well as per NFPA Regulations. However, fire hydrant line covering major areas would be laid. It would be maintained as 6 kg/sq.cm pressure. Fire alarms would be located in the bulk storage areas. On the top of the Administration block, top of each production blocks, wind socks would be installed to indicate direction of wind for emergency escape.

## **Emergency Medical Facilities**

Stretchers, gas masks and general first aid materials for dealing with chemical burns, fire burns etc. would be maintained in the medical center as well as in the emergency control room. Private medical practitioners help would be sought. Government hospital would be approached for emergency help. Breathing apparatus and other emergency medical equipment would be provided and maintained. The help of near by industrial management's in this regard would taken on mutual support basis. An ambulance with driver availability in all the shifts, emergency shift vehicle would be ensured and maintained to transport injured or affected persons. Number of persons would be trained in first aid so that, in every shift first aid personnel would be available.

## **EMERGENCY ACTIONS**

### **Emergency Warning**

Communication of emergency would be made familiar to the personnel inside the plant and people outside. An emergency warning system would be established.

### **Emergency Shutdown**

There are number of facilities which can be provided to help deal with hazardous conditions, fire breaks out. Under this situation the supply of the fuel will be disconnected immediately. Whether a given method is appropriate depends on the particular case. Cessation of agitation may be the best action in some instances but not in others. Stopping of the feed may require the provision of by pass arrangements. Methods of removing additional heat include removal through the normal cooling arrangements or use of an emergency cooling system. Cooling facilities, which use vapouring liquid, may be particularly effective, since a large increase in vaporization can be obtained by dropping pressure.

### **Evacuation of Personnel**

There could be more number of persons in the storage area and other areas in the vicinity. The area would have adequate number of exits, stair cases. In the event of an emergency, unconnected personnel have to escape to assembly point. Operators have to take emergency shutdown procedure and escape. Time Office maintains a copy of deployment of employees in each shift, at ECC. If necessary, persons can be evacuated by rescue teams.

Also, at the end of an emergency, after discussing with Incident Controllers and Emergency Coordinators, the Site Controller orders an all clear signal. When it becomes essential, the Site Controller communicates to the District Emergency Authority, Police, and Fire Service personnel regarding help required or development of the situation into an Off-Site Emergency.

## **GENERAL**

### **Employee Information**

During an emergency, employees would be warned by raising siren in specific pattern. Employees would be given training of escape routes, taking shelter, protecting from toxic effects. Employees would be provided with information related to fire hazards, antidotes and first aid measures. Those who would be designated as key personnel and essential employees shall be given training to emergency response.

### **Public Information and Warning**

The industrial disaster effects related to this plant may mostly be confined to the plant area. The detailed risk analysis has indicated that the effects would not be felt outside. However, as an abundant precaution, the information related to chemicals in use would be furnished to

District Emergency Authority for necessary dissemination to general public and for any use during an off site emergency.

### **Co-ordination with Local Authorities**

Keeping in view of the nature of emergency, two levels of coordination are proposed. In the case of an On Site Emergency, resources within the organization would be mobilized and in the event of extreme emergency local authorities help shall be sought. In the event of an emergency developing into an off site emergency, local authority and District Emergency Authority (normally the Collector) would be appraised and under his supervision, the Off Site Disaster Management Plan would be exercised. For this purpose, the facilities that are available locally, i.e. medical, transport, personnel, rescue accommodation, voluntary organizations etc. would be mustered. Necessary rehearsals and training in the form of mock drills shall be organized. Mutual aid in the form of technical personnel, runners, helpers, special protective equipment, transport vehicles, communication facility etc. shall be sought from the neighboring industrial management.

### **Mock Drills**

Emergency preparedness is an important aspect in the planning of Industrial Disaster Management. Personnel would be trained suitably and prepared mentally and physically in emergency response through carefully planned, simulated procedures. Similarly, the key personnel and essential personnel shall be trained in the operations.

### **Important Information**

Once the plant goes into stream, important information such names and addresses of key personnel, essential employees, medical personnel, out side the plant, transporters address, address of those connected with Off Site Emergency such as Police, Local Authorities, Fire Services, District Emergency Authority shall be prepared and maintained.



**Durga Cement Works**  
(A Unit of Jaiprakash Associates Limited)

**MOCK DRILL REPORT**

**Date And Time of Drill:** 11-07-2014 at 11:00 AM,

**Area :** DCW CPP Area,

**Date of report :** 12-07-2014,

**Scenario :** Fire on waste oil and clothes,

**Summary :**

Maintenance work was carried out in CPP Area where oil was spilled on floor and many oil / grease soaked clothes were also kept nearby. A scenario was depicted in the oil and cloth.

1. Scenario was created at 11 AM by igniting fire in a pile of waste oil and cloth and smoke spread to other areas.
2. 2 persons working nearby spotted the fire and informed the Site Engineer. 1 Foam type fire extinguisher also used.
3. Immediate information was sent to Fire & Safety Department. Fire and Security personnel moved to the incident site.
4. Persons in the area started reaching the assembly point.
5. Meanwhile identification and head count done at assembly point. 1 person was found missing.
6. Fire Tender Reached at 11:03 AM. Ambulance also reached at 11:03 AM.
7. Fire Fighting started and meanwhile 1 person was rescued.
8. Plant Incharge and other officials also reached the place.
9. Rescued person was taken to hospital where after formal inspection he was declared out of danger
10. All of the employees were gathered and briefed upon safety and emergency response and fire fighting.

**11. Emergency called off declared on 11: 15 AM.**



**Observations:**

1. Employees to be regularly briefed the importance of housekeeping and fire prevention.
2. Fire fighting and assembly points to be briefed in tool box talks also.
3. People shall not panic in times of emergency.

## Annexure-8

### SUMMARISED CSR ACTIVITIES & EXPENSES PLANNED FOR 2014-15 & 2015-16

S.No.	Item	Amount (Rs.in Lakhs)
1	Provided R.O.Plant at Srinagar village under NTR SUJALA PATHAKAM, inaugurated by Shri Yarapathineni Srinivasa Rao, MLA on 02-10-2014	2.70
2	Extension of water pipe line in one of wards in Srinagar Village	4.00
3	a) Drinking water supply scheme b) Pump house repairs are to be carried out as the pipeline system was introduced in 1995 and rusted	2.40 4.00
4	Dandivagu Lift Irrigation Scheme	1.60
5	Improving Health & Hygiene in surrounding villages	10.00
6	Aggregate chips for filling pit holes of the Road connecting Ramapuram village to State High way – 2.5 Kms	11.00
7	a) Repairs to the construction of School compound wall in Gamalapadu village – 350 Mtrs with main gate. b) Grampanchayat Office compound wall repairing (collapsed wall) and gate	6.00 2.50
8	Financial assistance for maintenance religious places in surrounding villages	1.00
9	Construction of Kalyana Mandapam in Ramapuram Village	10.00
10	Laboratory and Library renovation in Durga Public School	5.00
11	White-washing & colouring of Siva Temple in Ramapuram in connection with Mahasivaratri	0.10
12	Cutting & Cleaning bushes in Srinagar village	0.60
13	Road repair work / Cementing of road work in Ramapuram & Gamalapadu villages together = 500 Metres	15.00
14	Compassionate grounds subsidized / free education to poor / suffering / deserved people	3.00
15	Providing medical check ups to all students at DPS with free medical help and energy food to lower class (weekly twice)	1.50
16	Providing free R.O. water (including supply of regular water in times of power/water supply failure), emergency medical services and ambulance and fire services	4.00
17	Providing Free Medical facilities, Ambulance and Fire services in Emergencies to the neighbouring villages.	2.50
	<b>TOTAL EXPENDITURE</b>	<b>Rs.86.90 Lac</b>

## DCW CSR ACTIVITIES



RO Water Plant provided in Srinagar village



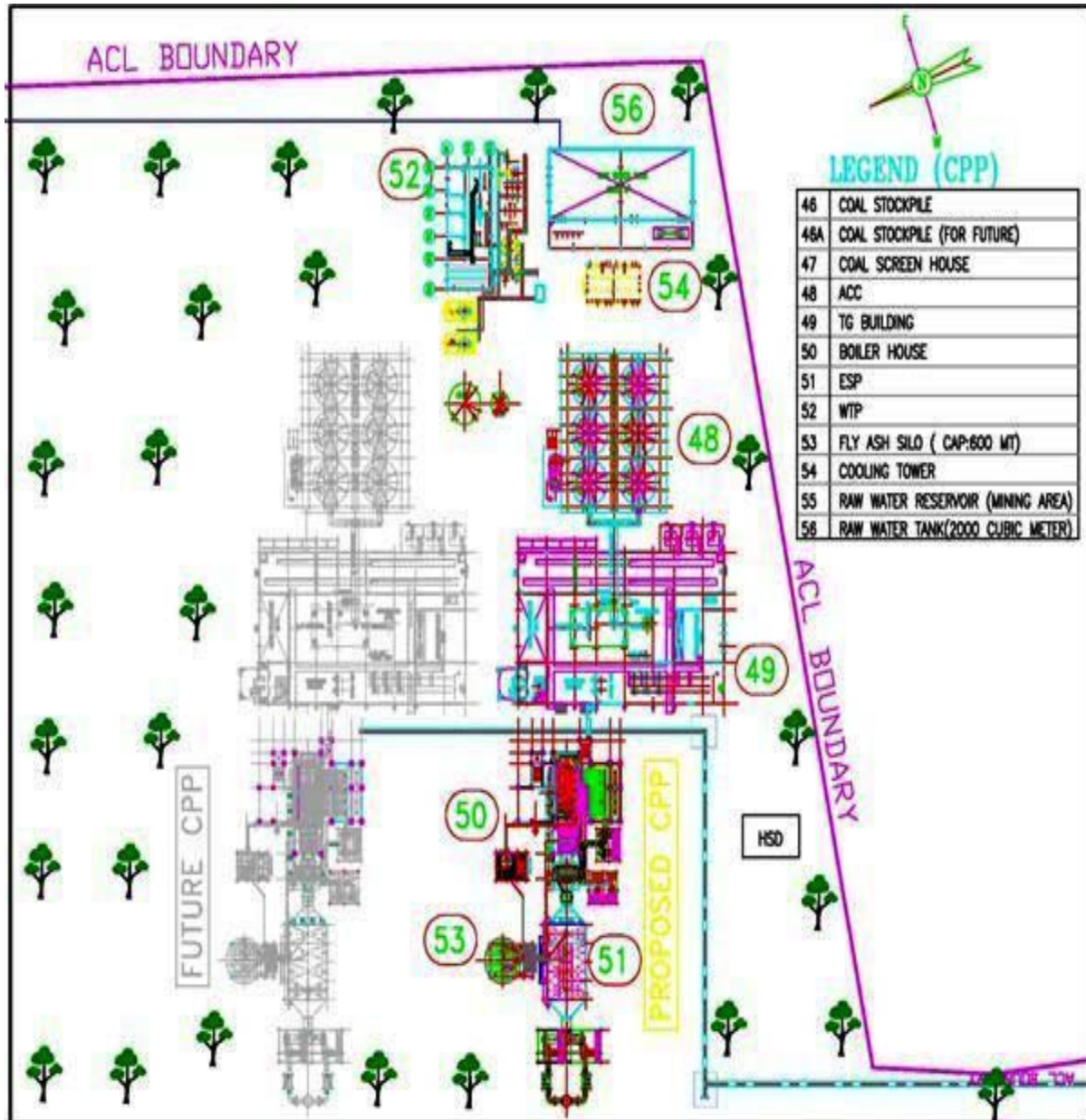
Street light & Water supply pipe line provided in nearby village



## Annexure-9

### CPP Green belt development Status

Total CPP area:	- 3 Ha.
Proposed green belt development in five years	- 33%
Green Belt development April 2014 to September 2014	- 0.1 Ha
Total area of Tree plantation up to September 2014	- 0.6 Ha
Name of tree planted	- Neem,
No. of trees planted	- 100 No.





Neem Trees plantation done near CPP



Tree Plantation in Boundary