



नेशनल थर्मल पावर कारपोरेशन लिमिटेड  
(भारत सरकार का उद्यम)  
**National Thermal Power Corporation Ltd.**  
(A Government of India Enterprise)

बाढ़  
BARH

संदर्भ संख्या / Ref.No.:

दिनांक / Date:

Ref: 4400/Barh/EMG/18/

Date: 26.10.2018

To

The Regional Officer,  
Ministry of Environment, Forest and Climate Change,  
Regional Office (ECZ)  
Bungalow No.A-2, Shyamali Colony  
Ranchi-834002  
Jharkhand.

Kind Attn: Dr. T.H. Mahato

**Sub: Half yearly Compliance report of Environment Clearance for the period  
Apr.2018 to Sept. 2018 Accorded by MoEF, to Barh STPP.**

Dear Sir,

Please find enclosed herewith the half yearly compliance report for the period ending Sept.2018 of Environment Clearance (Stage-I & Stage-II) pertaining to NTPC Barh for your kind perusal.  
Thanking You.

Yours Faithfully,

(V Ghosh)  
AGM(EMG)  
NTPC-Barh.

Encl: Compliance report of stage I&II, Barh STPP

Copy to:

1. **The Member Secretary**

BIHAR STATE POLLUTION CONTROL BOARD PRIVESH BHAVAN,  
PLOT NO.-NS-B/2 PATLIPUTRA INDUSTRIAL AREA,PATLIPUTRA  
PATNA-800023  
BIHAR.

2. **AGM(Environment Engg.Deptt.)**

NTPC Corporate Centre,EOC,Sec-24,Noida-201301(UP)-for info. please  
FAX-0120-2410047

बाढ़ सुपर थर्मल पावर प्रोजेक्ट, पोस्ट: बाढ़, जिला: पटना- 803213 (बिहार) दूरभाष: 06132-243810, 243805 फैक्स: 06132-243699, 243808  
Barh Super Thermal Power Project, Post: Barh, Distt.: Patna- 803213 (Bihar) Phone: 06132-243810, 243805 Fax :06132-243699, 243808

संपर्क कार्यालय: संजू रवि निवास (कृष्ण कुंज अपार्टमेंट के पीछे), सहदेव महतो मार्ग, दक्षिणी श्री कृष्णा पुरी बोरिंग रोड, पटना-800 001

Liaison Office: Sanju Ravi Niwas (Behind Krishna Kunj Apartment), Sahdeo Mahto Marg, South Sri Krishna puri, Patna-800 001

पंजीकृत कार्यालय: एनटीपीसी भवन, स्कोप कॉम्प्लेक्स, 7 इन्स्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली-3/ Regd. Off.: NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi-3

# Half Yearly Compliance Report of Environmental Clearance Conditions for Barh STPP Stage-I (3x660 MW) (April-2018 – September- 2018)

## A. Compliance Status of Environmental Clearance Conditions for Stage-I (3x660 MW)

S. No.	Stipulation	Status of Implementation (As on 30.09.2018)
I.	The acquisition of land near Barh town should be restricted to 2564 acres with following break-up <div style="margin-left: 40px;"> Plant area            625 acres  Township            250 acres  Ash disposal        1250 acres  Greenbelt            225 acres  Total                   2564 acres </div>	The land requirements for Phase-I (3X660 MW) & Phase-II (2X660 MW) has been restricted to 3200 Acres By MOEF vide their EC of Phase-II. The total land acquisition for Phase I & II is within 3200 acres.
II	Two stacks of height 275 m (one with two flues and another with single flue) should be installed with continuous on line monitoring system at the suction side of ID Fan for smooth functioning. The exit velocity should be maintained as 24m/sec along with exit temperature of 125° C.	Two stacks of 275 m (one with two flues and another with single flue) have already been constructed. The online continuous monitoring system is provisioned & shall be installed before commissioning of units. Flue gas parameters as stipulated shall be complied with.
III	Electrostatic Precipitator having efficiency of not less than 99.8% should be installed and it should be ensured that particulate emission would not exceed the prescribed limit of 100 mg/Nm <sup>3</sup> . Space should be provided for installation of FGD plant, if required in future.	ESP with 99.9 % efficiency shall be installed to limit particulate emissions to 100 mg/Nm <sup>3</sup> . Space provision has been kept for FGD plant.
IV	Make up water for the project should be drawn from river Ganga @ 9185 m <sup>3</sup> /hr. The intake point should be in the downstream of the treated effluent discharge point in the river. The intake point should be selected in consultation with CWPRS. While designing the intake structure it should be ensured that proper care is taken to avoid trapping of dolphins and other important aquatic fauna.	Make up water requirement of 9185 m <sup>3</sup> /hr for phase- I (3X660 MW) shall be drawn from the river Ganga. The intake point has been selected in the downstream of proposed effluents discharge location in consultation with CWPRS. The intake structures have been designed to avoid trapping of aquatic life including Dolphins.
V	All effluents generated in various plant activities should be collected in the Central Effluent Plant/ Central Monitoring Basin and treated to ensure adherence to specified standards of usage.	Effluents generated in various plant activities shall be treated at respective treatment facility under Liquid Waste treatment System and thereafter will be led to Central Monitoring Basin for specific standard for usage & discharge.

  
20/10/18


VI	<p>Coal for the project from Amrapali Block of North Karanpura Coal fields should be used at 35136 IPD having gross calorific value in the range of 3230-5430 Cal/kg and sulphur content not exceeding 0.54%.</p> <p>Fuel should be transported through railways over a distance of 250 km upto Barh Railway Station.</p>	<p>Shall be complied with.</p> <p>The Railway Board vide letter dated 09.01.2001 has accorded clearance for coal movement from North Karanpura area of CCL to Barh STPP via Barakakhana - Sitarampur - Barh. This route is approx. 450 km. Railway track in shorter route (approx. 330 km) i.e. Hazaribagh - Kokaram - Tiliya - Rajgir - Barh is under construction by Indian Railway.</p>
VII	<p>Use of borrow earth for the project should be restricted to about 11 million cum for achieving the formation level of RL 46.2m for the plant area. The source of borrow earth in the river bed should be carefully identified for avoiding damage to habitats of aquatic fauna. Necessary permission for excavation of the fill material should be obtained from State Government as per legislation in vogue.</p>	<p>Borrowed earth has been restricted with the stipulated limit. Permission have been obtained from the State Govt.</p>
VIII	<p>As the transportation of borrow earth will necessitate plying of large number of trucks to and from the project site, necessary transportation schedule should be drawn for avoiding traffic congestion on NH 31.</p>	<p>No traffic congestion has been observed on NH-31 during transportation of earth.</p>
IX	<p>Noise level should be limited to 75 dB(A) and regular maintenance of equipment be undertaken. For people working in the area of generator halls and other high noise areas of the plant personal protective equipment should be provided.</p>	<p>Ambient Noise level of 75 dB(A) shall be achieved at plant boundary through regular maintenance of equipment. People working in high noise areas shall be provided personal protective equipment.</p>
X	<p>For controlling fugitive dust, regular sprinkling of water in coal handling and other vulnerable areas of the plant should be ensured.</p>	<p>Regular sprinkling is being done through water tanker to control fugitive dust generated due to construction activities. Dust Suppression &amp; Extraction System has been provisioned in coal handling area for controlling Fugitive emission.</p>
XI	<p>With 45% average ash content in coal and at 80% PLF annual ash production should not exceed 4.5 million cum.</p> <p>As per MoEF Notification of September 1999, 100% ash utilization should be ensured within 9 years of commissioning of the plant.</p> <p>The use of ash disposal area accordingly should be restricted to only 1250 acres including 250 acres required for stocking.</p>	<p>This stipulation is based upon inputs furnished by NTPC and shall be complied with.</p> <p>All out efforts shall be made to ensure 100% ash utilization as per MoEF Notification.</p> <p>Shall be complied with.</p>

*[Signature]*

XII	The ash disposal area is proposed in Tal belt which has predominant agricultural activities. The fly ash management plan, therefore, should be so drawn as to avoid increase in fugitive dust and contamination of ground water by lining.	The fugitive emission from ash dyke shall be restricted by maintaining water cover in ash dyke. As per findings of geo-technical investigation of the ash disposal area, the possibility of ground water contamination is remote. The contamination of ground water has also been taken care in design aspect of ash dyke & additionally ground water around the ash dyke is being monitored periodically for its contamination if any.
XIII	Detailed socio-economic survey should be undertaken for the area proposed to be acquired for the project for preparation of Rehabilitation Plan. The plan should be got approved from District Collector and submitted to the Ministry within one year. As submitted in the EIA Report, there should be no displacement of people due to the acquisition of land.	A detailed socio-economic survey has been conducted through Xavier Institute of Social Sciences, Ranchi. Based upon the report, a detailed R&R Plan has been drawn in consultation with State Govt. and VDAC. The approved RAP has been submitted to MOEF vide letter dated 23 <sup>rd</sup> June, 2005. There is no displacement of people due to acquisition of land.
XIV	An area of 214 acres should be earmarked for creation of greenbelt of average width of 100 m along the plant boundary. In addition, extensive afforestation should be undertaken in vacant places available in other plant area, township and along ash pond. A norm of 1500-2000 trees per ha should be followed for afforestation programme. As discussed in the Expert Committee meeting, the green belt and the drainage channel should not be combined. A revised layout plan, therefore, should be submitted indicating separately the drainage and greenbelt. Financial requirement for afforestation activity should be worked out and included in the cost for the project. Detailed proposal in this regard should be submitted to the Ministry within 3 months.	Revised layout plan indicating the green belt and drainage separately and Greenbelt and Afforestation Plan has been submitted to MOEF vide letter no. CC:ESE:9558:2000:GEN: 01B dated 11.12.2000. Financial provision for afforestation has been made in FR.
XV	A detailed Area Drainage Plan based on findings of the study undertaken by CWPRS, Pune should be prepared and submitted to the Ministry within 3 months. Special thrust should be given to avoid further flooding of Tal area due to construction of ash dyke over 1250 acres of land.  Adequate financial provisions should be made for implementation of measures such as providing additional drainage, widening of existing drains, plant area protection etc.	Area Drainage Plan based on the study undertaken by CWPRS has been submitted to MOEF on 11.12.2001.  Financial provision has been made in FR for implementation.



XVI	The sensitive areas should be avoided for borrow earth and a detailed scheme of work including transportation component should be worked out and submitted to the Ministry before actually initiating excavation of borrow earth. The conditions of environmental clearance should be reflected in contractual negotiations and should be strictly monitored during the entire period.	MOEF has granted permission for excavation of earth from ash pond area. This activity has already been completed.
XVII	NTPC should confirm after in depth study of Tal area in consultation with recognized institutions, that it will not destroy the micro-habitat of migratory birds.	A study report on migratory birds in Tal area carried by Salim Ali Center of Ornithology has been submitted to MOEF on 11 <sup>th</sup> Sep., 2003.
XVIII	The turbidity in river Ganga should not increase above the existing level due to discharge of treated effluents from the project and that NTPC should adhere to stipulated standards of treated waste water discharge for Thermal Power Plants.	The treated effluents from the project will conform to the waste water discharge standards for thermal power plants.
XIX	NTPC should establish special Environmental Cell at site for this project for consultation on day to day basis during project planning and implementation of the project.	An Environmental Cell is in existence at the site.
XX	Regular monitoring for SPM, SO <sub>2</sub> and NO <sub>x</sub> around the power plant may be carried out and records maintained. Monitoring Stations should be established in consultation with the State Pollution Control Board.	The SPCB, Bihar has given their suggestion regarding locations of 3 nos Ambient Air Quality Monitoring Stations vide their letter ref. no. T-530 dated 08.01.2011. Central Monitoring Station will be located inside the project. The monitoring will be undertaken after commissioning of the project.
XXI	The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board / Committee and may also be seen at Website of the Ministry of Environment & Forests at <a href="http://www.envfor.nic.in">http://www.envfor.nic.in</a> . The advertisement should be made within 7 days from the date of issue of the clearance letter and a copy of the same should be forwarded to the Region Office.	Advertisement as per the requirement has been published.



XXII	A monitoring committee should be constituted for reviewing the compliance of various safeguard measures by involving recognized local NGOs, Pollution Control Board, Institutions, Experts etc.	A monitoring committee has been constituted by State Pollution Control Board.
XXIII	The Project Authorities should inform the Region Office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work	Final approval of the project & date of start of land development work has been intimated to Regional office & Ministry.
XXIV	Full cooperation should be extended to the Scientists / Officers from the Regional Office of the Ministry at Bhubaneswar the CPCB / the SPCB who would be monitoring the compliance of environmental status. Complete set of impact assessment report and the Management Plans should be forwarded to the Regional Office for their use during monitoring.	Shall always be complied with.
XXV	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.	
XXVI	In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the conditions imposed and to add additional environmental protection measures, if any.	Shall be complied with.
XXVII	The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management and Handling) Rules, 1989, the Public Liability Insurance Act, 1991, the Impact Assessment Notification of January, 1994 and its amendments.	



**B. Compliance with the Conditions Stipulated in Environmental Clearance for Stage-II (2x660 MW)**

S. No.	Stipulations	Status of Implementation (As on 30.09.2018)
(i)	The Land requirement for Phase-I & Phase-II put together shall be restricted to 3200 acres. No additional land shall be acquired for the project or any utilities/facilities relating to the project.	Total land requirement for the project has been restricted to 3200 acres & complied
(ii)	Coal with ash content not exceeding 42% and sulphur content not exceeding 0.5% shall be used.	Being complied with.
(iii)	Space provision shall be made for installation of FGD of requisite efficiency of removal of SO <sub>2</sub> , if required at a later stage.	Space provision has been kept for FGD plant & complied
(iv)	A bi-flue stack of 275 m height with exit velocity of at least 23 m/s shall be provided with continuous online monitoring system.	A bi-flue stack of 275 m has been constructed and the online continuous stack monitoring system has been commissioned. The exit velocity is being maintained at 23m/sec & complied
(v)	High efficiency Electrostatic Precipitator (ESPs) shall be installed so as to ensure that particulate emissions do not exceed 100 mg/Nm <sup>3</sup> .	ESP with 99.9% efficiency has been commissioned to limit particulate emissions to 100 mg/Nm <sup>3</sup> & complied.
(vi)	Closed Cycle Cooling system with cooling towers shall be provided. COC of at least 4 shall be adopted.	Closed Cycle Cooling system has been commissioned & COC of at least 4 is being maintained & complied.
(vii)	Treated effluents conforming to the prescribed standards shall only be discharged in to the Ganga river.	All effluents generated in various plant activities are being individually treated and being reused through Central Monitoring Basin to ensure adherence to specified standards of usage & complied
(viii)	Rain water harvesting should be adopted. Central Ground Water Authority/ Board shall be consulted for finalization of appropriate rain water harvesting technology within a period of three months from the date of clearance.	Rain water harvesting is not being done since the water table in the area is high.
(ix)	100% Fly ash shall be collected in dry form and its full utilization shall be achieved within 9 years in accordance with the notification on fly ash utilization SO 763 (E) dated 14 <sup>th</sup> September, 1999 and the amendments made therein from time to time.	All out efforts are being made to ensure 100% ash utilization as per notification of MoEF.
(x)	The ash dyke shall be so designed and constructed so as to ensure that breaching of ash dyke does not take place.	The aspect has been taken care in design aspect of ash dyke.



(xi)	A disaster management plan shall be prepared to meet any eventuality of ash dyke getting breached. A copy of the same shall be submitted to the Ministry and its Regional Office at Bhubaneswar.	Disaster management plan of NTPC, Barh has been prepared and is already sent in the earlier report. Information regarding ash dyke safety and its maintenance has already been submitted along with the earlier report dated 08.04.09.
(xii)	Regular monitoring of groundwater around the ash pond shall be carried out. The location of the monitoring network and size of piezometer shall be decided in consultation with Central Ground Water Authority / State Ground Water Board.	Regular monitoring of groundwater around the ash pond is being carried out. Piezometers are installed & commissioned.
(xiii)	Noise levels shall be limited to 75 dBA. For people working in the high noise area, protective devices such as earplugs etc. shall be provided.	Ambient Noise level of 75 dB(A) is achieved at plant boundary through regular maintenance of equipment. People working in high noise areas are provided personal protective equipment.
(xiv)	A green belt of at least 100 m width all around the periphery of the project shall be developed. Besides this, the green belt in the north-east side of the plant area, around the coal stock yard, shall be at least 180 m in width so as to contain the fugitive emission from reaching the neighboring villages.	Green belt as stipulated is being developed around the project.
(xv)	Regular monitoring of the air quality shall be carried out in and around the power plant and records shall be maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with State Pollution Control Board. Six monthly reports shall be submitted to this Ministry.	The SPCB, Bihar has given their suggestion regarding locations of 3 nos Ambient Air Quality Monitoring Stations vide their letter ref. no. T-530 dated 08.01.2011.  Complied. Central Monitoring Station is located inside the project. The AAQM at 04 locations for the current period is enclosed at Annexure I.
(xvi)	For controlling fugitive dust, regular sprinkling of water in vulnerable areas on the plant shall be ensured.	Regular sprinkling is being done through water tanker to control fugitive dust generation due to construction activities. Dust Suppression & Extraction System has been provisioned in coal handling area for controlling Fugitive emission.
(xvii)	The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned within seven days of issue of this letter, informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board/Committee and may also be seen in the website of the	Complied



	ministry of Environment and Forests in the <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	
(xviii)	A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.	An Environmental Cell has been established at the site.
(xix)	Half yearly report on the status of implementation of the conditions and environmental safeguards should be submitted stipulated to this Ministry, the Regional Office, CPCB and SPCB,	Being complied
(xx)	Regional Office of the Ministry of Environment & Forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. A complete set of document including Environmental Impact Assessment Report, Environment Management Plan and the additional information/clarifications submitted subsequently of the Ministry shall be forwarded to the Regional Office for their use during monitoring.	Copies of EIA report incorporating EMP, Feasibility Report of the project have already been submitted along with the earlier report dated 08.04.09.
(xxi)	Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. These cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposed and year-wise expenditure should be reported to the Ministry.	Complied.
(xxii)	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.	
(xxiii)	The environmental clearance accorded shall be valid for a period of 5 years from the start of production operations by the power plant.	
(xxiv)	In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.	Shall be complied with
(xxv)	The above stipulations would be enforce among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act 1986 and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.	

### C. Implementation of Environmental Management & Monitoring Plan (Construction Phase)

Project Activity/ Issue	Mitigation Measures	Status (As on 30.09.2018)
Air Pollution	Water sprinkling in vulnerable areas	Water sprinkling in vulnerable areas is being done regularly.  Biweekly monitoring of PM <sub>10</sub> and PM <sub>2.5</sub> is being done at 4 locations.
	Construction materials prone to fugitive emissions to be transported in covered/ wet condition	α) Soil/Sand being transported in moist & covered condition.  β) Cement contained in plastic bags is transported at site in covered condition.
Water Pollution	Provision of washing and bathing facilities in labour colony	A labour colony with housing of about 2000 population is in place. In order to provide bathing and washing facilities to the population adequate bore-wells, tanks, and washing platforms have been provided.
	Disposal of sewage in soak pits or by any other suitable means in labour colony	Adequate toilets and soak-pits have been provided and disposal system is functioning properly.
	Channelization of run-off water	Storm water drain has been provided for channelizing run-off water.
Hygiene	Ensure availability of drinking water and drainage facilities in labour colony	Bore-well /Hand pumps have been provided for availability of drinking water.  Drainage has also been provided.
Safety and occupational noise	<ul style="list-style-type: none"> <li>Ensure use of Helmets and safety belts by all personnel in construction areas</li> <li>Provision of earmuffs/ earplugs to the workers in high noise areas and enforcement of its use</li> </ul>	Required Personal Protective Equipments (PPEs) have been provided to NTPC employees by NTPC and to construction workers by the concerned contracting agencies. Enforcement of its use is monitored & implemented by Safety Department at site.
Noise	Avoid use of machinery generating high noise in night in the vicinity of villages located near the plant boundary	No High noise machines are running in night. Noise at plant boundary level is being maintained within 75 dB(A) .
Site Rehabilitation	Progressive landscaping and re-vegetation	Progressive landscaping and re-vegetation is being carried out as per plan.
Disposal of Construction Solid Waste	Disposal of surplus earth and construction debris	Location for disposal of debris & concrete piles has been identified at lay down area. The metal scraps are kept at identified scrap yard and are being disposed through MMTC. Excavated soil is used for land filling of Township area / back filling of plant area.

**BARH STPP****AMBIENT AIR QUALITY MONITORING REPORT**  
(Period April to Sept.-2018)

	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
Months	Range of 24 Hourly Average Values Observed ( $\mu\text{g}/\text{m}^3$ ) at DM Water Plant			
Apr.' -18	76-86	42-37	9.2-10.5	15.6-17.8
May	78-90	38-44	9.5-11.5	16.5-19.8
Jun.	78-88	38-43	9.5-11.5	18.2-22.4
Jul.	44-68	20-32	4.5-7.8	9.2-12.2
Aug.	48-60	23-28	5.0-6.8	9.5-12.8
Sep.'-18	48-60	24-29	4.8-6.5	9.2-11.8

Months	Range of 24 Hourly Average Values Observed ( $\mu\text{g}/\text{m}^3$ ) at Coal Handling Plant (CHP)			
Apr.' -18	88-98	54-59	11.8-13.8	19.2-22.4
May	88-98	54-58	11.2-14.2	20.4-24.8
Jun.	88-98	54-58	11.5-13.5	19.8-25.2
Jul.	58-86	26-42	7.2-9.5	12.8-15.8
Aug.	58-68	27-32	7.2-8.2	11.5-12.8
Sep.'-18	56-74	27-35	6.5-8.8	10.8-13.2

Months	Range of 24 Hourly Average Values Observed ( $\mu\text{g}/\text{m}^3$ ) at Material Gate			
Apr.' -18	76-86	36-42	9.5-10.8	17.2-18.8
May	76-88	37-43	9.2-11.5	15.2-19.2
Jun.	78-90	38-44	9.0-11.5	19.5-21.4
Jul.	44-65	20-30	4.0-6.8	9.0-14.2
Aug.	46-56	22-26	4.0-5.5	9.0-10.8
Sep.'-18	48-60	22-28	4.0-6.2	9.0-11.5

Months	Range of 24 Hourly Average Values Observed ( $\mu\text{g}/\text{m}^3$ ) at Township			
Apr.' -18	72-82	35-40	7.5-9.2	14.5-17.2
May	74-84	35-40	7.5-9.5	14.6-18.2
Jun.	74-84	36-41	8.5-9.2	15.8-19.2
Jul.	42-58	20-27	4.0-5.8	9.0-10.8
Aug.	46-56	22-26	4.0	9.0-10.2
Sep.'-18	44-58	20-28	4.0-5.2	9.0-10.2

