DPM

Bannari Amman Sugars Limited,
Unit-II, Nanjangud.
Phone: 08221 – 24707
Fax: 08221 – 24777

Fax Message

From:	Dy. General Manager – Tech.	For the Attention of	Mr S MANALINGAM Dy G M-PROJECTS
Ref.No	BAS / K / Engg /5064/2000	Company:	BHEL-PSSR,CHENNAI
Date:	28.11.2000	Fax No:	044 – 4323757
Ref:	Your Fax message ref:		

Subject:1 X 16 MW STG

Dear Sir,

WHILE THE SET IS OPERATED AT HIGHER LOADS, THE FOLLOWING PROBLEMS ARE OBSERVED.

1.HP WHEEL CHAMBER PRESSURE:
AT 80 TPH INLET STEAM FLOW TO TURBINE, THE HP WHEEL CHAMBER PRESSURE WAS FOUND TO BE GOING UP TO 43 KG/CM^2 AS AGAINST THE DESIGNED PRESSURE OF 35 KG/CM^2.THIS WAS OBSERVED ON 27.11.2000.WE ARE FORCED TO REDUCE THE LOAD AND THE SET IS OPERATED AT 12-13 MW ONLY.

2.LOADING TO 16 MW:
AT 80 TPH INLET STEAM FLOW AND WITH BOTH EXTRACTION FLOWS BELOW THE DESIGNED VALUES, THE LOAD ON TG SET IS NOT GOING BEYOND 13.5 MW.

WE ARE ENCLOSING THE LOG SHEETS OF 27.11.2000 FOR YOUR READY REFERENCE.

PLEASE ARRANGE TO DEPUTE YOUR SERVICE /COMMISSIONING ENGINEERS TO SITE IMMEDIATELY TO STUDY THE PROBLEM AND TO RECTIFY THE SAME.

Thanking You,

Yours Faithfully,
For **Bannari Amman Sugars Ltd.,**

Dy. General Manager – Tech.

Copy to: Sr.Vice President, Unit-II
Dy. General Manager – Purchase.
Mr. P N Reddy, GM (CM), BHEL,HYD (FAX 040-3020215)
Mr. Thiruvegadam, AGM-COMMISSIONING, BHEL-PSSR. (FAX 044-4323757)
Mr. Ashok Varma, Dy GM- PPE ,BHEL-HYD (FAX 040-3021930)
Mr. PN Krishna, Site Incharge,BHEL-PSSR

भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)

Bharat Heavy Electricals Limited
(A Govt. of India Undertaking)
Power Sector - Southern Region
474, Anna Salai, Nandanam, Chennai-600 035.
Phone : 4330015 (10 lines)
Telex : 041-23089 Grams : BHELPOWER

BHE:TSX:SR:BASL-201
Dt: 11.12.2000

DGM/Technical
Bannari Amman Sugars Ltd.,
Alaganchi Village
Nanjangud Taluk,
Karnataka-571119

Sir,

Sub : 1x16 MW Bannari Amman Sugars Ltd.
Load limitation experienced

Our Engineer, Shri K. Raghuraman visited your power plant on 4th & 5th December in connection with the complaint made by you. The study has revealed that the rise in first stage pressure is due to the salting of flow path of the turbine as a consequence of abnormala water chemistry.

To overcome this problem, it requires steam washing and if required to open the machine and go in for sand blasting for removing the deposition of salts.

At present there is a provision available for steam washing as illustrated in O&M Manual. You may kindly make this arrangement in consultation with BHEL/Hyderabad.

Thanking you and assuring of our best services at all times.

(P.K. Thiruvengadam)
AGM/TSX

FAX MESSAGE
044-4323757

BANNARI AMMAN SUGARS LIMITED

P.B No: 27, Nanjangud – 571 301
Factory: Alaganchi Village, Nanjangud Taluk
Phone: 08221 – 24707, Fax: 08221 - 24777
E-mail: basngd@eth.net

BAS / K / Engg /5233 / 2000

December 31, 2000

BHARATH HEAVY ELECTRICALS LIMITED
PSSR, CHENNAI

KIND ATTN: Mr. Mahalingam, Dy. G.M

Dear Sir,

Sub: 1x16 MW STG – Bannari Amman Sugars Limited., Gear Box Hi-Speed shaft Bearing

Please refer to our earlier message regarding the GBHS Bearing Hi-Temperature Dt: 26.12.2000.

On 26.12.2000 at 4.00 PM, the bearing temperature shot up to 104°C with 2.0 MW load on T.G., then the Turbine was tripped by us.

M/s. WIL Engineer arrived at site at 10.00 AM on 29.12.2000, for the inspection of the Gear Box. At 4.00 PM, we have opened the Gear Box, and the GBHS bearing (Turbine side) was found damaged (White metal got wiped off) The bearing was replaced with anew one brought by M/s. WIL. without decoupling and without disturbing the alignment, as suggested by M/s. BHEL Hyderabad.

On 30.12.2000, the Set was re-started at 9.00 AM. While rolling, it was observed that the temperature was within limits (<90°C) But, above 4500 RPM, the shaft vibration was found to be high at this bearing and all other vibrations were found normal. It was also found that during and loading from 0-4.0 MW, the vibration of this bearing (at RHS viewed from Turbine end) was found to be very high and causing the turbine Trip.

Again the turbine was rolled and kept in running by crossing the 4.0 MW at faster rate. After that the Set was kept in running at 7.0 MW load constantly for further observation. The shaft vibration at this bearing was found to be 90-100 u. But when the Generator breaker was opened at 6.30 PM, due to the problem in the Boiler, again the turbine got tripped due to high vibration. The turbine was again re-started at 8.30 PM, and is running at 7.0 MW load up to 11.30 AM on 31.12.2000. But the vibration is 90 to 100 u only.

The load has been increased to 10.00 MW at 11.30 AM for further observation of the vibration. At this load, the vibration has slightly come down (86 to 89 u) The Graphics showing the vibrations and the temperatures of all the bearings at this load are enclosed for your ready reference.

Though the temperatures and vibrations are within allowable limits, at lower loads the vibration of this bearing is shooting up. As there is every chance of Unit coming to islanding mode due to the disturbances on Grid side, the Unit tends to trip on High vibrations, owing to the low load on islanding operation.

Hence we request you to depute your commissioning / service engineers to the site immediately to study the problem and for necessary rectification. M/s. WIL engineers are also available at site.

MATTER MOST URGENT

Thanking You,

Yours Faithfully,

31/12

Dy. General Manager-Tech

Copy to:
Vice-Chairman- Bangalore, for kind information please
Sr. Vice-President, Unit-II
Dy. General Manager (Purchase)
Mr.PN. Krishna, Site In-Charge, BASL Site.
Mr.M.Bangia,DGM-IBD-BI, BHEL, New Delhi. (Fax: 011-4616345)
Mr. Thiru Vengadam, AGM-Commissioning, PSSR, Chennai (Fax: 044-4343513)
Mr. PS. Som, DGM, Commercial, BHEL., Hyderabad (Fax: 040-3021994, 3020037)
Mr. Godbole, AGM – Design, BHEL, Hyderabad (Fax: 040-3021930)
Mr. PN. Reddy, GM, Commercial, BHEL, Hyderabad (Fax: 040-3020214)
Mr. B. Ranga Reddy, GM-Services, BHEL, Hyderabad (Fax: 040-3021920)

Encl: as above

→DPM

FAX MESSAGE

From: B.V.Ramanjaneyulu
Dy. Manager/ES
Camp: Bannari Amman Sugars

To: Sri T.Adiseshan
D G M / ES
BHEL, R.C.Puram
Hyderabad - 502032

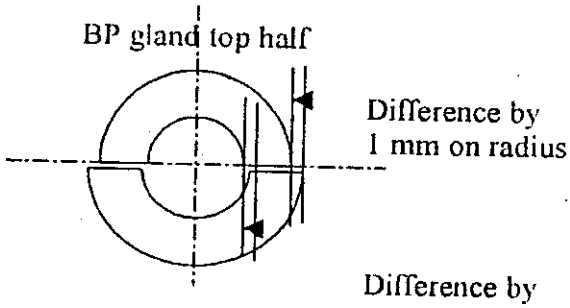
Ref: BHEL/ES/BASL/01
Date: 25-01-2001

FAX No: 040-3021911 / 3020214 / 3021920

Sub: Status of desalting of 16 MW Turbine – reg.

1. The Turbine was completely dismantled on 18-01-2001 (As Bolt heat equipment was not available with the customer, it was arranged by BHEL, Hyd on 20-01-2001) and all internals were cleaned by fine sand and broken rice blasting.

2. The re-assembly work is in progress. During assembly the top half of Balance Piston Gland at parting plane dia closed by 2 mm. All the internals except BP Gland are assembled and tack welded. We are not able assemble the BP Gland in distortion condition. Regarding this matter customer discussed with Sri Aravind Gupta and he suggested to send BP gland to our Hyderabad works for rectification.



BP gland bottom half

3. We are held up for the final assembly. Please advise the course of action..

With regards.

25/01/01
(B.V.RAMANJANEYULU)

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MOM held between BHEL and Bannari Amman Sugars Ltd. on 13 Feb 2001 after descaling of Turbine Blading and restart of 1 x 16 MW Steam Turbine.

M/s. BHEL

Shri. K.Raghuraman

M/s. BASL

1. Sh. Era. Tharumarasan
2. Sh. BA Ram
3. Sh. BS Chamarthy

The Steam Turbine was rolled and synchronized on Feb 11, 2001 early morning after completing the necessary protections and governing checks.. The Turbine & Generator overhaul was carried out under the supervision of BHEL Hyderabad (External Service), (Mr. B.V. Ramanjaneyulu & Mr. K.S.N. Raju). The Gear box works were supervised by M/s. WIL team. The jobs undertaken during the shut down for cleaning the salt deposits are as below:

1. Oil leakages from Gear Box sump and LS output shaft were arrested.
2. 1 No. GBHS bearing on turbine coupling side which was replaced on 29 Dec 2000 was reused. Other three were replaced during this shut down with new one.
3. Generator rear bearing oil gland leakage – exciter side was arrested.
4. New MW meter supplied was installed and found working satisfactorily.
5. Exciter pedestal was adjusted to correct the misalignment in the stator rotor assembly observed during realignment of the rotor system. The pedestal was dowelled after final alignment. Air gap values after corrections are recorded in the Annexure – I.
6. PMG was aligned with the exciter rotor and dowelled. 4 nos. coupling bushes were replaced with new ones.
7. Gear Box was dowelled after replacement of all bearings and alignment .
8. Bearing inspection of steam turbine (all bearings) and generator front bearing was done. All these bearings were found normal.
9. During reassembly, after removing salt deposits from the blades on the turbine, the Balancing Piston gland top half was observed to be not fitting on rotor. This was taken to BHEL Hyderabad works and rectified and fitted back in position.
10. The alignment readings are annexed in Annexure I.

After restart of the turbine on 11 Feb 2001 the turbine has been running on load and the performance has been under observation on different loads. The turbine was run continuously at 14-16 MW on 12/13 Feb 2001. The parameters and performance data are annexed for information (Annexure II).

It is observed that:

1. Wheel Chamber pressure is now as per design at different loads .
2. The repaired Frequency meter is still behaving erratically and needs to be repaired / replaced.
3. Gear Box HS side bearing is maintaining around 92 deg.C at 16 MW load. At lower loads the value is observed to reduce to about 89 deg.C .
4. Gear Box HS & LS vibrations are within limits during steady load but HS side vibrations are observed to rise above alarm values during rapid load reductions and islanding. At steady loads the values again come within limits.

All parameters are observed to be normal except for the GBHS bearing (on turning gear motor side) which is more than 90 deg.C.
BASL requested BHEL to thoroughly analyse and find a permanent solution to this bearing problem at the earliest.

BHEL and BASL feel that the turbine is now ready for PG test. BHEL is to plan for undertaking PG test after taking their decision on the above request of BASL regarding GBHS bearing temperature..

Since there was abnormal delay in opening of the PP studs BASL requested BHEL to supply bolt heating equipment and insulated washers for future use.

BHEL **BASL**

K. Raghuraman

13/2/01

Bharat Aluminium Company Limited
ALAGANCHI VILLAGE
Nanjangud Taluk
Pin – 571 119

ENCL. NO. III

MINUTES OF MEETING HELD AT BASL, UNIT – II, NANJANGUD, BETWEEN M/s BASL & M/s BHEL HYDERABAD, PSSR ON 02.11.04

Members present.

M/s BASL	M/s BHEL PSSR	M/s BHEL, Hyd.
Mr. R. Ram Gopal	Mr. PN. Krishna	Mr. S. Sundara Rao
Mr. AM. Sengottaiyyan.	Mr. RS. Nair	(Up to 19.10.04)
	Mr. AS.Raghavendrachar	Mr. Md. Babu.
Mr. M.Jayadhara Rao	(27.10.04 to 30.10.04)	Mr. K. Kesavalu
Mr. KB. Ranga Swamy		
Mr. RN. Swamy		
Mr. CV Hari Prasad		

1. M/s BHEL Hyderabad engineers reached site on 05.10.04 and taken up the 20 MW turbine steam leakage job.
2. In the process the following jobs were carried out.
   a) Total turbine opened.
   b) Scrapping on parting plane carried out and blue matching done. Got contact surface up to 90%. With out tightening of parting plane bolts checked with feeler gauge and 0.03mm size could not be inserted.
   c) Rotor centering work carried out. Readings enclosed.
   d) After through inspection and cleaning of bottom, top casing and rotor turbine Boxed up.
   e) After turbine box up, turbine aligned with gear box. Alignment readings enclosed.
   f) Both the balancing pipes cut , re welded and assembled with new gaskets.
   g) Control oil supply flexible hose pipe of LP servomotor replaced with new one.
   h) Front oil gland aluminum fins replaced.
   i) Oil flushing carried out for 24 hrs.
   j) Turbine rolled on 27.10.04
3. TG rolled and tried to load up to 20 MW. As the steam flow was not going beyond 90 TPH, throttle valve adjusted locally and loaded up to 19.4MW.
4. TG rear bearing temperature observed going up to 90deg.
5. Leakages checked and found leakages at the following places.
   a) Turbine rear, right side from guide pin hole and from jack bolts.

b) Turbine rear, left side from the hole of the parting plane tightening bolt.

c) Turbine front, left side from the studs

d) Turbine middle, right side from the parting plane.

6. Load through of test carried out on 29.10.04. During this TG tripped on over speed (6149rpm), with trip oil pressure very low indication.
7. On 01.11.04 casing bolts re tightened. Leakages on turbine rear side attended by putting plug for guide pin bolt, and the hole in the stud is seal welded.
8. Regarding the TG tripping during load throw test BHEL site incharge had takenup the matter with their HO at chennai. As per the suggessions settings in wood wards governor changed.
9. TG rolled on 01.11.04 loaded up to 19.3 MW and load throw test carried out. TG tripped with HP actuator fault.
10. Steam leakages checked and found minor leakages at the following places.
    a) Turbine front, left side from the studs
    b) Turbine middle, right side from the parting plane.
11. It was observed a minor droplets of oil leak @ 1 drop / min near front oil gland.
12. M/s BHEL Hyderabad engineers are leaving site on 02.11.04. They informed that they will furnish an action plan for rectifying the persisting steam leak after consulting their engineering department.
13. M/s BHEL informed that TG set can be run continuously up to 14 MW of load with temporary insulation at present condition.
14. M/s BHEL site incharge confirmed, regarding the governor adjustment, matter will be taken up with their HO at chennai and the same will be resolved at the earliest.

02/11/04

02/11/04