



नैशनल हाइड्रोइलेक्ट्रिक पावर कारपोरेशन लिमिटेड  
(भारत सरकार का उद्यम)  
आई एस ओ-६००१ और १४००१ प्रमाणित कम्पनी  
**National Hydroelectric Power Corporation Ltd.**  
(A GOVT. OF INDIA ENTERPRISE)  
ISO-9001 & 14001 Certified Company

No.NH/R&D/212/109-117

(9)

Telefax-0129-2278419

DL 27.02.2006

To,

All Power Stations

Sub:- Energy Efficiency Technology- Fitch Fuel Catalyst (FFC).

MOP has a sent a proposal of M/s. Advance Energy System, New Delhi which is marketing Fitch Fuel Catalysts for evaluation by NHPC. The Fitch Fuel Catalyst invented by Advanced Power System Inc. USA and is stated to result in the following

- Improvement Horsepower
- Reduced harmful emissions
- Reduced maintenance
- Reduced operating costs of all diesel engines.
- Extended engine life
- Better fuel structure without becoming part of the fuel
- It is a permanent fuel treatment and is easily installed in line between the fuel tank and engine.
- Continuous treatment of tank after tank of fuel of 5 years / 250000 miles / 5000 hours.

The field trials were got conducted on different type of FFC attachment on various power station on different equipments. A brief report on the field trials conducted by NHPC is enclosed as Appendix 'A' which is self explanatory.

The supplier has been recommending different type of model of FFC attachment for different equipment depending upon its capacity etc. The trials were conducted at various locations under varying working and operating conditions on equipments. As is clear from the report, no consistent results were obtained on all different trials, as standard operating conditions were not possible to be maintained during the field trials at power stations due to varying



local working / operating conditions due to changes in load conditions/ speed **and other** parameters. Some positive results were reported at power stations i.e. CHEP-I, CHEP-II, Tanakpur & Dhauliganga (during retest)

Keeping in view the reported improved fuel saving on some of the trials, competent authority has advised that we may circulate the performance results of these successful trials indicating successful combination of FFC & equipment, along with a guiding table to enable the power station to evaluate equipment of similar nature requiring similar type of FFC attachment (which have proved successful) to be utilized for efficacy of fuel saving after establishing that equipment is likely to be used / run to the extent which will not only recover the cost of FFC but will accrue the savings of the Power Station.

Thanking you,

Yours faithfully,

*o/c*  
  
(M.D. Sharma)  
General Manager (R&D)

- Encl : 1. Letter No.NH/R&D/212/126 dated 27.02.06  
addressed to M/s Advance Energy Systems = 2 pages  
2. Brief report on Field trials = 2 pages  
3. Chamera Power Station - I report = 2 pages  
4. Chamera Power Station -II report = 2 pages  
5. Tanakpur Power Station report = 6 pages  
6. Dhauliganga Power Station report = 4 pages  
7. Salal Power Station report = 1 page



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संदर्भ सं./Ref. No. \_\_\_\_\_

फोन/TEL. \_\_\_\_\_

फरीदाबाद/Faridabad \_\_\_\_\_

No. NH/R&D/ 212/5९४

03.11.2004

M/s. Advance Energy System  
92, Shaheed Bhagat Singh Palace,  
Gole Market  
New Delhi - 110 001

**Sub:- Test Report on Fitch Fuel Catalyst ( F-1000 Series )**

Dear Sir,

Please refer your Fax Message No. AES/NHPC/172/04-05 dated 18<sup>th</sup> Nov., 2004 addressed to ED (R&D), NHPC Ltd, NHPC Office Complex, Faridabad requesting for a copy of test report of the Fitch Fuel Catalyst ( F-1000 Series). As desired, the copy of test report is enclosed.

However, since the tests could not be carried out on load at Faridabad Office Complex, arrangements are being worked out for getting the Fitch Fuel Catalyst tested under actual load conditions at one of the NHPC sites on one or two different categories of equipment for which your co-operation in providing the Fitch Fuel Catalyst for the said test shall be required as has been extended for conducting the tests at Faridabad Office Complex.

Thanking you,

Yours faithfully

*S. Razdan*  
( S. Razdan ) ३५

Chief Engineer (R&D)

Encl : As above

पंजीकृत कार्यालय : एन.एच.पी.सी. कार्यालय परिसर, सेक्टर - 33, फरीदाबाद - 121003 (हरियाणा)  
Regd. Office : N.H.P.C. OFFICE COMPLEX, SECTOR-33, FARIDABAD-121003 (HARYANA)  
केबल/CABLE : "HYDROCORP" टैलेक्स / TELEX : 343-311 NHPC IN फैक्स / FAX : 2277941



**TEST REPORT OF FITCH FUEL CATALYST (F 1000)  
- 312.5 KVA DG SET, CORPORATE OFFICE NHPC,  
SEC-33, FARIDABAD,**

**Introduction :**

The intent of the testing is to establish that fuel saved with the installation of Fitch Fuel Catalyst (FFC-1000) as claimed by M/s Advance energy System, New Delhi representative M/s Advance Power System Inc.USA

**Description of Engine:**

312.5 KVA DG Set-IV, Engine Sr. No. 26143721 of M/s Kirloskar Cummins Ltd. model No. KT-1150G, 6cylinder vertical type, 4 strokes is water cooled with radiator arrangement.

**Type of Fitch Fuel Catalyst used:** F 1000

**Procedure adopted:**

As per the instruction of the representative of Fitch Fuel Catalysts the Machine has to run more than 20 hrs for the activation of catalyst. The DG Set was run at no load. The details of the testing of the DG Set is as follows :

**Without Fitch Fuel Catalyst**

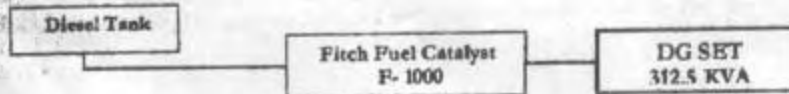
1 <sup>st</sup> 5 Hrs at no load, consumption	<u>57.5</u>	Ltr
2 <sup>nd</sup> 5 Hrs at no load, consumption	<u>56</u>	Ltr
3 <sup>rd</sup> 0.75 Hrs under load consumption	<u>30</u>	Ltr
4 <sup>th</sup> 5 Hrs at no load, consumption	<u>56</u>	Ltr
5 <sup>th</sup> & 6 <sup>th</sup> 5 Hrs 20 min the DG Set was run under load		

The DG Set was run more than 20 hours for activation of the Fitch Fuel Catalyst. The average of the fuel consumption at no load is 11.2 liters/hr

**After activation of Fitch Fuel Catalyst**

1 <sup>st</sup> 4 Hrs at no load, consumption	<u>43.4</u>	Ltr
2 <sup>nd</sup> 5 Hrs at no load, consumption	<u>52.5</u>	Ltr
3 <sup>rd</sup> 1 Hr at no load, consumption	<u>10.25</u>	Ltr
4 <sup>th</sup> 2 Hrs at no load, consumption	<u>19.5</u>	Ltr

**Installation Graph:**



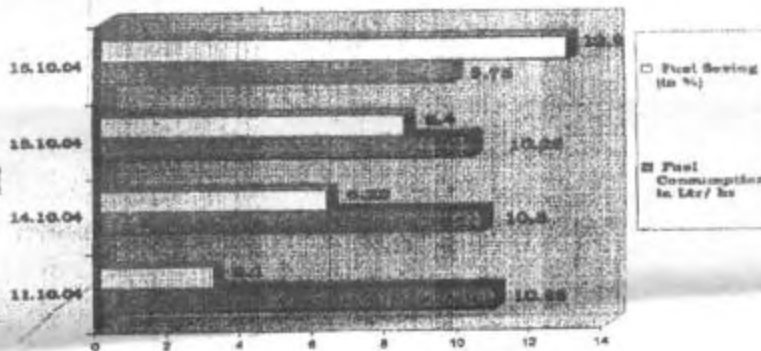
**Demonstration/ Observation:**

Hrs	Date	Calibration in the tank / Consumption in Ltrs	Average (in Ltrs) Per Hrs	Fuel Saving
<b>Without FFC</b>				
12AM-5 PM (No Load)	06.10.04	57.5 (No Load)	11.5	
11.30 AM-4.30. PM (No Load)	07.10.04	56 (No Load)	11.2	
At Night (with Load) (45 min.)	07.10.04	30 (45 min.) (Load)	40 (Load)	
10.30-3.30 PM (No Load)	08.10.04	56 (No Load)	11.2	
At Night (with Load) (5 Hrs & 20 min)	9th 10.10.04			
<b>Average Fuel consumption at no Load is 11.2 Ltr/hr</b>				
<b>With FFC</b>				
11.35-3.35 PM (No Load)	11.10.04	43.4	10.85	3.1%
12.00-5.00 PM (No Load)	14.10.04	52.5	10.5	6.25%
10.36-11.36 AM (No Load)	15.10.04	10.25	10.25	8.4%
2.16- 4.16 PM (No Load)	15.10.04	19.5	9.75	12.9%

N.B.: Fuel saving at no load condition is considered to be 7.66% (Considering the average of 3.1, 6.25, 8.4 & 12.9)

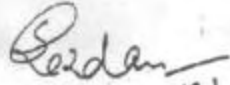
**Fuel Consumption Chart:**

DATEWISE CONSUMPTION & SAVING OF FUEL DURING OBSERVATIONS W.R.T. FITCH FUEL CATALYST, F-1000

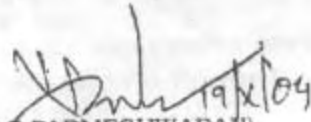


**Conclusion :**

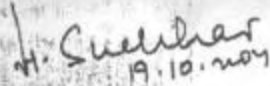
Consumption of fuel with FFC was tested at no load condition. The saving of fuel with the installation of Fitch Fuel Catalyst (F1000) at no load is 7.66%. The saving during load condition can not be predicted because we have not tested at load condition on the DG Set.



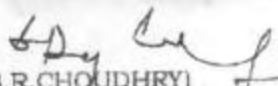
(S. RAZDAN) 19/10  
CHIEF ENGINEER(E)(R&D DIV)



(N.S.PARMESHWARAN) 19/10/04  
CHIEF ENGINEER(M),(O&M DIV.)



(HIMANSHU SEKHAR) 19.10.2004  
S.M.(E), (SERVICES DIV.)



(S.R.CHOUHRY) 19/10/04  
MANAGER (M), (CEP DIV.)



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AES/NHPC/R&D/212/108

14/03/06

M/S Advance Energy System  
3-H, Gopala Tower  
25, Rajindera Place  
New Delhi – 110008  
Phone: 011-55929289

Kind Atten :- Shri Prakash Chander

Subject: Energy Efficiency Technology Fitch Fuel Catalyst (FFC)

Ref:- Your letter No AES/127/GOI/04-05 dt – 0505-03-04 Through Ministry of Power letter Ni 6-4-04. EM Dt 07-06-04

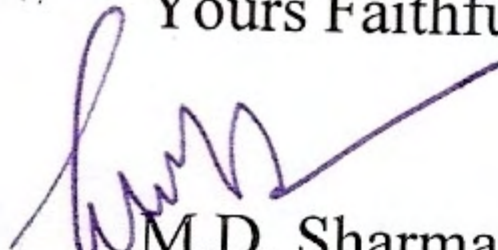
Dear Sir

As you are aware NHPC had got-Conducted the field Trails of some of the equipment at various Power Stations with Specific type of FFC models recommended by you.

We have circulated the results, to our various Power Station recommending the use of FFC for fuel saving.

You are advised to contact then for further action from the Power Stations.

Thanking you  
Yours Faithfully

  
M.D. Sharma  
General Manager (R&D)

Copy of Office of the Executive Director Region 1, 2, 3, 4, 5.

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