

**26<sup>TH</sup> MEETING**

**HELD AT**

**CENTRE FOR HIGH TECHNOLOGY  
NEW DELHI**

**ON**

**SEPTEMBER 14 - 15, 1992**

No. J-13012/12/89-Gen.  
Government of India  
Ministry of Petroleum & Natural Gas

---

New Delhi, dated the 13th Nov. 1992

To

1. All members of Scientific Advisory Committee (by name)
2. Participants as at Annexure
3. CMDs of BPCL, HPCL, MRL, CRL, BRPL, LIL, IOC & GAIL

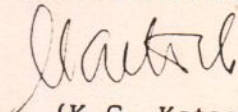
Sub: Minutes of the 26th Meeting of the Scientific Advisory Committee held at Centre for High Technology, New Delhi on 14-15th Sept. 1992

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Sir,

I am directed to forward herewith a copy of the minutes of the Scientific Advisory Committee meeting held at CHT, New Delhi on 14-15th Sept. 1992.

Yours faithfully,



(K.C. Katoch)

Under Secretary to the Govt. of India  
T.No. 384376

Copy alongwith copy of minutes to :

1. Adv.(R) / Adv.(E)
2. JS(C&A) / JS(E) / JS(R) / JS(M) / FA
3. PS to Secretary (P)
4. FA & CAO, OIDB, New Delhi.

original

MINUTES OF THE 26TH MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE OF THE DEPARTMENT OF PETROLEUM & NATURAL GAS HELD AT CHT, NEW DELHI ON 14TH & 15TH SEPTEMBER, 1992

Participants : List is enclosed (Annexure 1)  
Shri Lovraj Kumar, Chairman, SAC presided.

A) POINTS PERTAINING TO LAST MOM

26.1 IOC, CRL & BPCL Reports on Maximisation of Benzene Production :

The status of benzene production at the refineries was noted. Both CRL and BPCL have proposals for augmentation of benzene production facilities; CRL's proposal is to erect a new catalytic reformer and a hydro-dealkylation plant unit for conversion of toluene to benzene; BPCL plans to revamp its reformer for use of bimetallic catalyst with dense bed loading and provision of a naphtha pretreater; and IOC, Gujarat revamp of its extraction unit for change to tetraethylene glycol is expected to be completed by first week of November, 1992.

26.2 Report on EIL, R&D Centre and R&D Programmes :

26.2.1 A detailed presentation was made by Dr. S.J. Chopra of EIL (R&D) on the various activities of the EIL (R&D Centre) and also a statement of expenditure on R&D. The SAC agreed that the projects identified were of high importance. It requested EIL (R&D) to circulate details of the second phase of its R&D centre for consideration of SAC.

26.2.2 For the second phase of its R&D centre and the long term R&D programme, EIL should consult Prof. M.M. Sharma and Dr. P.K. Mukhopadhyay for their comments and suggestions. Also some potential users need to be identified for this programme.

26.2.3 SAC commended EIL for undertaking the development of catalyst for the LO-CAT process and suggested that EIL should check if any patent violation problem can arise; a note on this should be circulated to SAC.

26.2.4 Regarding structured packing development, EIL indicated that simulation studies w.r.t. Barauni Refinery have been completed. Commercial trials are planned to be completed by March, 1993. EIL should quickly prepare a paper for circulation to all companies regarding this and potential benefits.

26.3 Note from IOCL on Thin Film Short Path Distillation Development Unit at Digboi :

In view of the very high estimated cost of Rs.29 crores (as on Sept.'92) compared to the initial cost estimate of Rs.7.59 crores (as on June'88 prices) and following the presentations made by IOC(R&P) and Director RRL, Jorhat, the Chairman advised that the proposal needs to be reviewed again with Prof. M.M. Sharma, Dr. S. Varadarajan, ED(CHT) and himself.

IOC should circulate a detailed analysis of this quickly.

26.4 IOC(R&D) Note on Technology Development for Hydrocracking :

IOC (R&D) presented the programme (Annexure-2) of action for setting up Hydrocracker Pilot Plants for which EIL is preparing a Feasibility Report. IOC (R&D) explained the reasons for delay in taking up this project. IOC (R&D) is now ready to undertake work on development of hydrocracking.

SAC recommended that fundamental work on hydrocracker catalyst development should be also initiated and requested IIP to prepare a note for SAC for consideration at its next meeting.

26.5 IOC(R&D) Report on Master Plan for FCC Technology Development :

SAC agreed that it is necessary to establish capability for testing of catalysts, development of catalysts, development of hardware and Resid Cracking Process. Additional facilities required for this should be identified rapidly.

(It was also stressed by the Chairman that the scope for putting up additional cracking capacity in refineries including resid cracking should be studied; Resid cracking is being adopted rapidly all over the world. Chairman desired that Technical Directors of all companies along with IOC (R&D), IIP, NCL etc. should discuss the development of FCC technology and bring out an action plan quickly).

26.6 CHT's note on use of Low SO<sub>x</sub> Catalyst :

CHT should identify research institutes that can undertake development of SO<sub>x</sub> catalyst taking into account their expertise and the facilities available.

26.7 IIP's Note on Catalyst Development for Resid Cracking :

IIP in consultation with IOC (R&D) should organise a meeting with BPC and HPC regarding the development of catalyst that can be used for resid and VGO cracking; a note on this should be circulated for consideration of SAC.

26.8 CHT's note on Hydrovisbreaking :

CHT indicated that after consideration it has been established that the existing facility at IIP cannot be used for hydrovisbreaking study. Therefore, SAC decided that this project need not be pursued further unless MRL indicates its interest based on studies of potential cost efficiency.

26.9 CHT's Note on Hydrogenation of Coker Distillates :

IIP has screened the commercially available catalysts. IIP, EIL and IOC (R&D) should immediately review all aspects of catalyst and process development and formulate an integrated R&D proposal.

26.10 CHT's Note on Wax Crystal Morphology Studies :

Progress in this was noted.

CHT's proposal of integrating the studies on effects of dewaxing-aid on filtrability / crystal morphology was recommended.

26.11 Quality of Gasoline to Ensure Engine Intake System Cleanliness:

Chairman enquired if the expenditure of Rs.16 lakhs proposed to be incurred by IIP for establishing facilities for gasoline testing could be shared by non-IOC refineries and the SAC was happy to note the ready response of HPCL, BPCL, CRL and MRL who agreed to this. ( IOC(R&D) will do the work for IOC refineries and BRPL ).

In view of the increased cost estimate of the project to develop anti-knock lead substitutes, the Chairman desired that this should be discussed by Advisor (R); Director, IOC(R&D); and Director, IIP keeping future scenarios on MS quality in view. A note on this should be circulated to SAC.

26.12 IOC(R&D)'s Paper on Research in Pipeline Transportation :

SAC noted IOC (R&D) plan to convene a meeting on 16th October, 1992 for discussion with all pipeline owners / operators, BARC and others. IOC (R&D) invited suggestions from all those present so that these could be considered in the meeting.

26.13 IOC(R&D) / CHT's Note on Advance Education & Training :

Courses conducted so far were noted. Chairman desired that courses on different topics need to be conducted atleast once a quarter and repeated so that all scientists, technologists and engineers working in refineries, design and R&D centres become fully aware of technological and scientific advances in refining.

FCC is one of the major secondary processes for maximising distillates' production in a refinery. For undertaking any developmental work in this area, fundamentals of fluidization and its practical applications need to be understood clearly. In this regard, Director (R&D), IOC has proposed to organise a continuing education programme on Fluid Bed Technology in Jan.'93 to be conducted by faculty from American Institute of Chemical Engineers. The programme is intended to be held in two places in India viz. Delhi and Bombay. The total participation is expected to be 60 in the above two programmes. The estimated cost of this programme is around Rs.4.5 lakhs including a foreign exchange component of about \$ 10,500.

SAC strongly recommended this proposal for implementation.

26.14 CHT's Note on New Technologies & Development Needs :

Chairman commended CHT for preparing this note. He will discuss this separately with CHT after which a detailed note will be circulated for consideration of SAC.

26.15 Catalytic Dewaxing :

The project proposal at a cost of Rs.15.75 lakhs was recommended for approval. SAC also recommended that development of dewaxing catalysts to treat different types of lube base stocks needs to be added to the present scope of work.

B) NEW ITEMS

26.16 Plan for Further Development of Indigenous Bimetallic Reforming Catalyst :

Work on reforming catalyst in IPCL R&D and IIP has to be pursued. Fundamental research has to be accelerated.

SAC recommended for approval IIP's proposal involving an expenditure of Rs.82 lakhs.

26.17 Indigenous Bimetallic Catalyst for Reformer - Performance at MRL and Plans for Further Improvement :

IPCL presented the performance of the IPCL-IIP catalyst at MRL. The second cycle ended prematurely within three months because of loss of catalyst activity probably due to sulphur / moisture slippage.

SAC stressed that for reformer feed, impurities level should be contained within the maximum limits stipulated and in this regard proper design and operation of pretreater stripper is critical.

SAC also stressed that all agencies concerned in the trial of indigenous catalyst at MRL must work together for success. Procedures must be written down in detail and have to be followed scrupulously. Operating personnel must be clearly explained the detailed procedures involved.

A detailed note on the trial run must be prepared jointly by IPCL, IIP and MRL alongwith procedures that must be mandatory.

26.18 Development of Process Package for Reformer Including Hydrotreater :

Shri S.C. Gupta presented EIL's activities and programme; EIL will complete its own design for axial flow reformer

reactor within another four months. Reactor design is a grey area at present. EIL indicated that pretreater reactor design is not a problem when minimum catalyst related data are made available (by IIP). IIP agreed to expedite the provision of these data. EIL agreed to study the requirement of distributors and other internals of the reactor.

Director, IOC(R&D) suggested and the SAC agreed that cold stand model study should be undertaken.

26.19 EIL's Note on Vapour-Liquid Distributors for Distillation Application :

EIL's presentation highlighted the requirements and significance of proper liquid and vapour distributors. At IPCL, EIL has taken up the study of optimising the performance of two distillation columns.

SAC recommended for approval the proposal of EIL involving an expenditure of Rs.24.8 lakhs.

Chairman advised EIL to have a discussions with each refinery to determine the areas in which this could be supplied with benefit.

26.20 Gas / Liquid Separators :

The proposal of EIL was discussed. SAC requested EIL to analyse the comparative performance of the existing ONGC and OIL separators to identify areas for improvement and to review its proposals accordingly for consideration of the SAC.

26.21 Furnace Efficiency Studies :

The proposal of using its test rig for the study of AUI furnace of Gujarat Refinery spreading over a period of two years, was recommended for approval.

SAC suggested that EIL should look into the data on various furnaces in the refineries (to be provided by each refinery) and identify the areas of improvement. EIL should also circulate to refineries a paper covering all significant aspects of design, operation, testing and scope of R&D activities on furnaces, and have detailed discussions with refineries regarding furnace efficiency improvement studies. SAC also emphasized that furnace efficiency improvement studies should include the quality of fuel fired including its sulphur content, type and efficiency of sub-assemblies like burners, soot blowers, dampers etc.

Chairman suggested that refineries should immediately consider the possibility of acquiring simpler test rigs for their use to assist in improvement of furnaces.

EIL's proposal for study of one furnace of Gujarat Refinery with the help of a mobile rig for a period of two years at a cost of Rs.24 lakhs was recommended for approval.

26.22 IIP's Request for OI DB Support for Better Analytical Facilities and Augmenting Capability in the Catalyst Evaluation Area :

OI DB had advised IIP to seek the approval of its proposal from SAC for upgradation of its facilities. Accordingly, the itemwise requirements of IIP were reviewed first by CHT, IOC (R&D) and thereafter by SAC (Chairman, IOC presiding). The recommendations of SAC are set out in Annexure-III.

SAC impressed on IIP that it is essential to ensure that proper and adequate infrastructure facilities, utilities, trained manpower for operation and maintenance and spares are also available for making proper use of these facilities.

26.23 Separation of Alpha Olefins from Coker Kerosine Fraction :

CHT's note on this project was considered and SAC agreed that a full proposal including scope of work, hardware

requirement, time schedule, cost, etc. should be formulated by IIP in consultation with EIL and Director, IOC(R&D) and submitted to it at its next meeting.

26.24 Yield and Energy Optimisation :

SAC agreed that the recommendations made in the paper must be pursued vigorously. It noted that IIP, EIL & IOC (R&D) had agreed to provide expert assistance for this programme in each refinery. SAC also emphasized that mathematical models must be extensively used in refineries in this area and industry members have to be actively involved in this; the models are mostly knowledge-based and require modest investment. Dedicated groups of persons must be set-up in each refinery for yield and energy optimisation. Every refining company agreed to set-up these groups and undertake this in a comprehensive manner. Several refining companies offered post-doctoral fellowship to centres of higher learning to assist in developing capabilities to undertake mathematical modeling and simulation and CHT will pursue this.

26.25 Presentation on Advanced Controls and Optimisation in Refineries :

Shri C.N. Vasudevan of MRL presented the salient features indicating MRL's capabilities and the jobs they have undertaken in other refineries. SAC members suggested that MRL should share knowledge and expertise with other refineries and also MRL should bring down the time of implementation of the projects undertaken.

Director, IOC(R&D) suggested that industry along with selected academic institutions can undertake developmental programmes for the next generation of advanced instrumentation. SAC recognised the importance of this and noted that IOC (R&D) and EIL plan to set-up a Centre for Advanced Control Studies at IIT(K) and a proposal in this regard is awaited from IIT(K).

26.26 Development of Multi-purpose Dynamic Simulator :

Prof. Madhavan of IIT, Bombay explained that with the help of dynamic simulator, plant data can be validated and cost benefit of advanced controls can be checked; abnormal situations like leak etc. can be simulated and the effects can be studied. IIT(B) and EIL have initiated joint work on developing this simulator. At present, only distillation process units are being considered. SAC considered that this project is of high importance and so recommended approval of EIL's proposal involving a total cost of Rs.40 lakhs.

The Chairman advised BPCL and HPCL to interact with IIT(B) and to identify what individual models need to be developed by them and inform the SAC.

26.27 New Process on Re-refining of Used Lube Oils - Presentation by M/s. Balmer Lawrie

SAC noted that the new process developed by M/s. Balmer Lawrie was patented last year. (It involves treatment steps of filtration, flocculation, vacuum heating, filtration, neutralization and short path distillation. The residue left is only 3% and the filter cake produced can have commercial value).

M/s. Balmer Lawrie indicated that based on the success at lab. level, a pilot plant installation and trial at a total cost of Rs. 100.5 lakhs is being envisaged.

Director, IOC(R&D) indicated that schemes used abroad involve the finishing step of clay treatment or hydrofinishing. The process of M/s. Balmer Lawrie might not take care of oxidation stability aspect which may fail in this case.

Chairman advised M/s. Balmer Lawrie that their lab. data needs to be reviewed by other laboratories like IOC (R&D). Also, engineering data and scale up factor for pilot plant

need to be critically looked into by an engineering organisation like EIL. The capital cost for pilot plant needs to be fairly estimated. Therefore, while commending this work, the Chairman advised and SAC agreed that a team from EIL & IOC(R&D) should visit Balmer Lawrie's lab. facilities, study the data generated, look into the cost estimates and submit its recommendations quickly. M/s. Balmer Lawrie can then submit a final note to CHT and the Chairman who were authorised by the SAC to take a decision.

26.28 Lubricants Formulation in India :

Dr. Mallick of LIL briefed the SAC on the work done by LIL.

Dr. Joshi of IIP pointed out that additive response is limited to base oils quality. He was requested to prepare a paper on the cost effectiveness of upgrading of base oils during processing vis-a-vis additive approach and also the additional properties which need to be looked into to improve base oils' quality.

26.29 Hydrocarbon Evaporation Loss :

Chairman pointed out that evaporation loss in storage tanks, tank wagons / trucks, at distribution and marketing installations and at service stations need to be looked into from air pollution as well as hydrocarbon loss point of view and a technology development plan be formulated.

Director (Production), HPCL indicated that HPCL will circulate a paper on this for discussion in the next meeting.

26.30 Chairman desired that suitable advanced maintenance techniques to improve equipment reliability and reduce down time should be identified and implemented by refineries for better performance. Technology development programme should be also formulated.

- 26.31 Adoption of advanced safety techniques including of risk analysis methodologies should be also identified and adopted by oil companies considering human and plant safety aspects. Hence the technology gaps should be identified and development programme formulated.
- 26.32 Chairman desired that in the next meeting each refinery should present its R&D effort and programme. Dr. Mishra's IOC(R&D) report on his China visit is also to be discussed at that time.
- 26.33 Secretary, Deptt. of Petroleum & Natural Gas, who was briefly present during the first day of deliberations, stressed that technology upgradation is vital for the survival of the industry; SAC should have frequent deliberations in this regard. Support of Chief Executives and technical experts of various organisations are required for speedy implementation of projects identified.
- 26.34 Dr. S. Varadarajan who was briefly present indicated that some of the Russian processes are worth studying, for example, process for direct conversion of SO<sub>2</sub> to sulphur and zero-residue process. He added that he would send the Russian papers, presented during a recent seminar in USSR which he had attended, to the Chairman, SAC.
- 26.35 Chairman desired that Chief Executives of all oil companies should make it convenient to attend SAC meetings.
- 26.36 The next meeting of SAC will be held at HPCL (Bombay). ✓
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Annexure 126TH MEETING OF SAC HELD AT CHT ON 14TH & 15TH  
SEPTEMBER, 1992 : LIST OF PARTICIPANTS

## I. CHAIRMAN

1. Shri Lovraj Kumar

## II. MEMBERS

2. Shri K. Vasudeva, IIT(D)
3. Dr. T.S.R. Prasad Rao, IIP
4. Dr. P.K. Mukhopadhyay, IOC(R&D)
5. Smt. Lalitha B. Singh, MOP&NG
6. Dr.S.Vardarajan, Ex-Consultant, Planning Commission (Partly)
7. Dr. A.C. Ghosh, RRL, Jorhat
8. Dr. I.S. Bhardwaj, IPCL
9. Shri T.S. Krishnamurthi, CHT
10. Shri J.K. Das, PCRA
11. Shri M.B. Lal, MOP&NG
12. Dr. R.S. Venkatraman, EIL
13. Shri M.P. Singh, Adv.(Chemicals), DGTD
14. Prof. K. Madhavan, IIT(B)

## III. INVITEES

MOP&NG

15. Shri T.N.R. Rao (Partly)
16. Shri S.R. Shah (Partly)
17. Shri K.C. Katoch (Partly)

Indian Oil Corporation

18. Shri K.N. Venkatasubramanian (Partly)
19. Shri A.P. Chaudhri, IOC(R&P) (Partly)
20. Shri H.J. Dave, IOC(R&P) (Partly)
21. Shri N.V. Krishnamohan, IOC(R&P)
22. Shri B.N. Bankapur, IOC(R&P)
23. Dr. R.P. Verma, IOC (R&D)
24. Dr. Sobhan Ghosh, IOC(R&D)
25. Shri A.N. Das, AOD
26. Shri B.K. Sarma, AOD

BPCL

27. Shri R.K. Sukhdev Sinhji
28. Shri S. Viswanathan

HPCL

29. Shri S.N. Mathur

CRL

30. Shri M.A. Siddiqui
31. Shri B.V. Pappa Rao

- 2 -

MRL

32. Shri A. Varadarajan  
33. Shri C.N. Vasudevan

BRPL

34. Shri J.M. Baruah (Partly)  
35. Shri R.M. Hazarika

Balmer Lawrie

36. Shri C.V. Chandrasekharan  
37. Shri V.N. Varma  
38. Shri V.N. Sharma

LIL

39. Dr. K.L. Mallik

GAIL

40. Shri Sham Sunder

EIL

41. Shri S.C. Gupta  
42. Shri S.J. Chopra  
43. Shri G.C. Tewari  
44. Shri B.S. Gill  
45. Shri S. Banik

IPCL

46. Dr. A.B. Halgeri

IIP

47. Dr. G.C. Joshi  
48. Shri R.P. Mehrotra  
49. Dr. K.S. Jauhri  
50. Dr. A.K. Saxena

RRL, Jorhat

51. Dr. I. Suryanarayana

CHT

52. Shri A.M. Prasad  
53. Dr. S.K. Ghosh  
54. Shri S. Venkatraman  
55. Dr. G.P. Rai  
56. Shri H.P. Singh

STATUS REPORT ON SETTING-UP OF  
HYDROCRACKER LAB. AT IOC R&D

For implementation of Hydrocracker Laboratory project, an approach was conceived which is outlined in Attachment-1. In brief it comprises of 8 steps with input from IOC R&D, EIL, Akzo, Chevron and Sinopec to prepare a DPR for the project.

Accordingly the job has been taken up by EIL for the preparation of the DPR. The kick-off meeting between EIL and IOC took place on August 7, 1992. In the meeting a report entitled "Basic Process Requirements - Hydrocracker Laboratory Project" was handed over to EIL. The preparation of the DPR is expected to be completed in a period of 9 months i.e. by May '93. Subsequently after establishing the cost of the facilities etc., the approval of IOC Board will be sought and the project will be taken up for its implementation.

Encl: Attachment-1

PKM/  
IOC R&D  
26.8.92

Attachment-1STEPS FOR IMPLEMENTING HYDROCRACKER  
LABORATORY PROJECT

<u>Step</u>	<u>Title</u>	<u>Action by</u>
1.	Basic Process Requirements	IOC R&D
2.	Firming up of basic process requirements and preparation of a bid document	EIL & IOC R&D
3.	Obtaining data/information for designing auxilliary facilities	EIL & IOC R&D
4.	Engineering Design of auxilliary facilities	EIL
5.	Review of auxilliary facilities	IOC R&D/ EIL R&D
6.	Modifications and cost estimates	EIL
7.	Review by Akzo, Chevron and Sinopec	TEAM OF IOC & EIL
8.	Preparation of final DPR	EIL

PKM/  
IOC R&D  
26.8.92

The proposal of Indian Institute of Petroleum, Dehradun, submitted to OADB was discussed in the SAC meeting of Ministry of Petroleum and Natural Gas held on 14-15 September 1992 at Delhi.

The following items were approved and recommended for procurement with the OADB funding.

**I. UPGADATION OF ANALYTICAL FACILITIES FOR CRUDES, ITS PRODUCTS, NATURAL GAS AND SPECIALITY CHEMICALS**

	Cost (Rs. in lakh)
1. Capillary GC with FID multiple temp temperature programming with data processor alongwith CRT display	10.4
2. Dual packed column GC with back flushing arrangements, differential flow controller, temperature programming microprocessor based with flame ionisation detector	5.3
3. GC system with RON/MON determination interface and programme	38.3
4. Semi preparative HPLC	48.2
5. Prefractionator with megabore capillary system	28.6
6. Refinery Gas and Inorganic gases analyser	30.8
7. Equipments for Crudes & Products Evaluation	
7.1 Automatic distillation apparatus D-1160	16.6
7.2 Automatic freezing point apparatus	11.2
7.3 Cold filter plugging poing apparatus (CFPP)	11.5
7.4 Jet fuel oxidation and thermal stability	17.0
7.5 Automatic pour point apparatus	7.3
7.6 Simulated distillation apparatus for high boiling range	8.7
7.7 X-ray flourescene (XRF) for sulphur content	12.28

7.B	Viscosity measurements apparatus	16.5
8.	Trace metal analyser	63.2
9.	UV-Visible-NIR spectrophotometer	33.9
		359.78

11. UPGRADING FACILITIES FOR CATALYSTS AND CATALYTIC PROCESS FOR HYDROPROCESSING, FCC AND RESID CRACKING

Equipment	Cost (Rs. in lakh)
1. Micro reactor	55.4
2. High Pressure bench scale unit	75.36
3. Pilot plant for FCC	100.00
4. X-ray spectrometer with softwares	116.00
5. Adsorption/desorption unit	38.26
6. Particle size analyzer	19.20
7. High resolution CP Mas NMR*	154.00
Total of II	558.22
Grand Total of I & II	918.00

NOTE :

- (1) Items 3, 4, 7.2, 7.3, 7.4, 7.5 & 7.8 are in conformity with the modified versions recommended by SAC during the meeting on 14th September 1992. IIP invited quotations and costs of the same are indicated as above. For items 7.2, 7.3, 7.4, 7.5 & 7.8 hybrid systems are not available. So the automatic equipment have to be procured.
- (2) IIP, on the advice of SAC, checked with National Chemical Laboratory, Pune and Indian Institute of Science, Bangalore, regarding the availability of the CP Mas NMR unit for IIP work. Their letter of regret have been received. They are attached as enclosures.
- (3) Costs given above are as per the exchange rates prevailing in November 1992 and inclusive those of infrastructural facilities and contingency.



निदेशक

र.अ. माशेलकर

Director

R.A. Mashelkar

राष्ट्रीय रासायनिक प्रयोगशाला, पुणे  
NATIONAL CHEMICAL LABORATORY  
PUNE 411 008.

10 October 1992

Dr. T.S.R. Prasada Rao  
Director  
Indian Institute of Petroleum  
Dehradun 248 005

Dear Dr. Prasada Rao,

Thank you very much for your letter dated 29th September concerning use of MAS-NMR facility.

We do have a solid state NMR facility, but we find that due to a very heavy demand from organic chemistry, polymer science & engineering, catalysis groups and the physical chemistry division, we are not able to manage our own requirements. In fact scientists handling NMR work up to midnight to manage the present work! I therefore regret that it will not be possible to offer the kind of help that you have requested in the letter of 29th September on a routine basis.

I do regret to have to be negative, but I hope you will appreciate our difficulties.

With kind regards,

Yours sincerely,

R.A. Mashelkar

Telephone : Office : 336151  
Residence : 333417

e-mail: ram@ncl.ernet.in

Gram : CHEMISTRY  
Telex : 0145-586, 266 & 653  
Fax : (0212) 330233/334761



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BANGALORE-560 012 INDIA



Prof. C. L. KHETRAPAL

SIF/GL-17/536

Oct. 8, 1992

Dr. T.S.R. Prasada Rao  
Director  
Indian Institute of Petroleum  
DEHRADUN 248 005

Dear Dr. Prasad Rao,

Thank you very much for your letter dated Sept. 19, 1992 enquiring about the availability of our MSL-300 NMR spectrometer for your work on a regular basis.

As you know ours is a National Facility and the instrument is over 8 years old. It is normally fully utilized even though we try to work 24-hours-a-day and 7-days-a-week. Furthermore, many of the parts of the spectrometer have started going bad and hence the efficiency is gradually reducing. We are asking for money to replace at least those components which go bad more frequently. We are awaiting the DST-decision on it. Also, as you know this is the only Solid State NMR Facility available to all the scientists of the country.

Though we will be glad to undertake your work but it may not be possible to make a commitment that we will be able to give specific amount of time on a regular basis. Normally, the work is undertaken on first come - first served basis for any specific experiment.

From your letter, it appears that you have so much work load that you may need an instrument of your own. Perhaps you should take up some of our load also. That will be very helpful to reduce the waiting period of many users. There is certainly a justification for your own instrument.

I can assure you once again, that we will do our best to undertake your work.

With best regards,

Yours sincerely,

*C. L. Khetrapal*

**SCIENTIFIC ADVISORY COMMITTEE MEETING HELD ON 14TH &  
15TH SEPT. '92 - CHECK LIST OF ACTION POINTS**

<u>S.No.</u>	<u>Item No.</u>	<u>Topic</u>	<u>Action By</u>
1.	26.2.1	EIL R&D Centre - Circulation of details of second phase.	EIL(R&D)
2.	26.2.2	EIL R&D Centre - Second phase of development & long term R&D programme	EIL(R&D)
3.	26.2.3	Note On LQ-CAT catalyst / process development.	EIL(R&D)
4.	26.2.4	Structured Packing Development - Preparation of a Paper	EIL
5.	26.3	Detailed Analysis of Short Path Distillation Development	IOC(R&P)
6.	26.4	Note on Hydrotreater Catalyst Development.	IIP
7.	26.5	Development of catalyst and process technology for FCC	IOC(R&D), IIP, NCL, Technical Directors of all oil companies
8.	26.6	FCC SO <sub>x</sub> Catalyst Development - Identification of Research Institutes	CHT
9.	26.7	Development of Catalyst for Resid Cracking	IIP, IOC(R&D), BPC, HPC
10.	26.9	Catalyst and Process Development for Hydrogenation of Coker Distillates	IIP, EIL, IOC(R&D)
11.	26.10	Inclusion of the studies on effects of dewaxing aids in wax crystal morphology studies.	CHT, IIP
12.	26.11	Facilities for gasoline testing - Sharing of cost	IIP, BPCL, CRL, MRL, HPCL
13.	26.12	Note on Development of Antiknock lead substitutes	Adv(R), Dir.(R&D), IOC; Dir.; IIP
14.	26.13	Advance Education & Training	CHT
15.	26.13	Programme on Fluid Bed Technology	IOC(R&D)
16.	26.14	New Technologies and Development Needs	CHT
17.	26.15	Catalytic Dewaxing for different types of lube base stocks	CHT, NCL, MRL, EIL
18.	26.16	Further Development of Indigenous reformer bimetallic catalyst	CHT, IIP

<u>S.No.</u>	<u>Item No.</u>	<u>Topic</u>	<u>Action By</u>
19.	26.17	Trial run of IPR-2001 at MRL	IPCL, IIP, MRL
20.	26.18	Development of Process Package for Reformer including Pretreater	EIL, IIP
21.	26.19	Vapour-Liquid Distributors for Distillation Application	EIL, CHT
22.	26.20	Gas/Liquid Separators - Proposal of EIL	EIL
23.	26.21	Furnace Efficiency Studies	EIL, CHT, All Refineries
24.	26.22	IIP's proposal to OI DB for better analytical facilities.	IIP
25.	26.23	Separation of Alpha olefins from coker kerosine fraction	IIP, EIL Dir.(R&D), IOC
26.	26.24	Yield and Energy Optimisation	Refineries, EIL, IOC(R&D), IIP, CHT
27.	26.25	Advanced Controls and Optimization in Refineries	All Refineries, IOC(R&D), EIL
28.	26.26	Development of Multi-Purpose Dynamic Simulator	CHT, EIL, IIT(B), BPCL, HPCL
29.	26.27	New Process on Rerefining of used lube oils	M/s. Balmer Lawrie IOC(R&D), EIL, CHT
30.	26.28	Paper on Formulation/ Additive Response/ Upgrading of lube base oils	IIP
31.	26.29	Hydrocarbon Evaporation loss	HPCL
32.	26.30	Advanced Maintenance-Techniques	Refineries
33.	26.31	Advanced Safety Techniques	Refineries
34.	26.32	Presentation on R&D efforts of Refineries.	Refineries