45TH MEETING

HELD AT

CENTRE FOR HIGH TECHNOLOGY,
SCOPE CONVENTION CENTRE,
SCOPE COMPLEX, NEW DELHI

ON

MAY 25 - 26, 1999

उच्च प्रौद्योगिकी केन्द्र

(पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय)
पांचवा तल, कोर 6, स्कोप कॉम्पलैक्स 7, इन्स्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली- 110 003

Centre for High Technology

(Ministry of Petroleum & Natural Gas, Govt. of India)
5th Floor, Core 6, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi-110 003
Telegram : CENTHITECH, Fax : 4362879, 4697350 Phone :
e-mail : Cht@giasdl01.vsnl.net.in

उ.प्रौ.के./एस.ए.सी./1025
CHT/SAC/

जून 4, 1999
June 4, 1999

सेवा में,
TO,

1. पेट्रोलियम और प्राकृतिक गैस मंत्रालय की वैज्ञानिक सलाहकार समिति के सभी सदस्यों को ।
1. All Members of the Scientific Advisory Committee on Hydrocarbons of the Ministry of Petroleum & Natural Gas.

2. सभी तेल कंपनियों के मुख्य कार्यकारियों को ।
2. Chief Executives of all Oil Companies.

विषय : पेट्रोलियमऔर प्राकृतिक गैस मंत्रालय की हाइड्रोकार्बन्स पर 45वीं वैज्ञानिक सलाहकार समिति के कार्यवृत्त का परिचालन ।

Sub.: 45th Meeting of the Scientific Advisory Committee on Hydrocarbons of the Ministry of Petroleum & Natural Gas - Circulation of Minutes.

महोदय,
Dear Sir,

पेट्रोलियम और प्राकृतिक गैस मंत्रालय की हाइड्रोकार्बन्स पर 25 और 26 मई, 1999 को स्कोप कन्वेन्शन सेन्टर, लोधी रोड़, नई दिल्ली में हुई वैज्ञानिक सलाहकार समिति की 45वीं बैठक के कार्यवृत्त की प्रति आपकी सूचना एवं आवश्यक कार्रवाई हेतु संलग्न है ।

Enclosed, please find a copy of the minutes of the 45th Meeting of the Scientific Advisory Committee on Hydrocarbons of the Ministry of Petroleum and Natural Gas held at SCOPE Convention Centre, Lodhi Road, New Delhi on 25 & 26 May, 1999, for your information and necessary action.

धन्यवाद !
Thanking you,

भवदीय,
Yours faithfully,

के. रविकुमार/2

(के. रविकुमार)
कार्यकारी निदेशक
(K. Ravikumar)
Executive Director

संलग्न : यथोक्त
Encl.: As above.

प्रतिलिपि : प्रो. एम.एम. शर्मा,
502, सौरभ,
प्लॉट नं. 39, कुन्दुर मार्ग,
स्वास्तिक पार्क, चैम्बूर,
मुम्बई - 400 071.

Copy to : Prof. M.M. Sharma,
502, Saurabh,
Plot No. 39, Kundur Marg,
Swastik Park, Chembur,
Mumbai - 400 071.

1. सलाहकार (आर) / सलाहकार (इ) / संयुक्त सचिव (आर)/संयुक्त सचिव(इ) / सहायक सचिव (एम) / उप सचिव (सी.सी.)
1. Adviser(R) / Adviser (E) / JS (R) / JS (E) / AS (M)/ DS (CC)
2. एफ.ए. एवं सी.ए.ओ., ओ.आई.डी.बी.
2. FA & CAO, OIDB
3. पेट्रोलियम और प्राकृतिक गैस मंत्रालय के सचिव के निजी सचिव को ।
3. PPS to Secretary, MOP&NG

Minutes of the 45th Meeting of the Scientific Advisory Committee on Hydrocarbons of the Ministry of Petroleum & Natural Gas held on 25 and 26 May, 1999 at New Delhi

List of participants is attached.

Shri K. Ravikumar, ED, CHT extended a warm welcome to the Chairman, Scientific Advisory Committee (SAC), other distinguished members of the SAC and all the representatives from the oil companies.

Prof. M.M. Sharma, Chairman SAC thanked CHT for organising the meeting. He highlighted the major changes witnessed by the oil industry in the recent past viz. with respect to the increase in the prices of crude oil and petroleum products. He said that this change has further increased the importance of conversion of the bottom of the barrel. He also highlighted the change the country would be seeing with the commissioning of the 27 MMTPA Reliance refinery at Jamnagar. He further added that refineries now were moving in the direction of being energy companies with increased support from Government for installation of power generating units. The global scene is changing rapidly with mergers of dominant companies.

Ms. Gita Dutta, Jt. Dir., CHT made a presentation giving an overview of the contribution made by SAC in the last five years and also the thrust areas for consideration in the future. Her presentation was acclaimed by all the members.

While reviewing the activities of CHT, Prof. Sharma recalled the constitution of SAC under the then Ministry of Petroleum and Chemicals, contributions made by the committee and the need for continuous self-audit of the activities to further improve its functioning. He made the following observations :

i) The deliberations of the SAC are always of a very high standard, focused and progressive and this SAC on Hydrocarbons is quoted as an example by the different wings of the Government of India. He thanked all the members of SAC, CHT, Oil companies, Research organisations for effective functioning of SAC.

ii) SAC has always acted as a think tank and made sincere efforts for proactive manoeuvres in various areas such as,

-Product quality improvements for production of designer fuels,

-Valorisation of petroleum products - the idea of using C2, C3 from natural gas as petrochemical feed stock was an initiative from SAC

-Production of Food Grade Hexane, Middle distillates optimisation studies in Cat Crackers,

- Process and Engineering oriented studies such as Cooling Tower Design, Distillation column internals,

- Fugitive Emissions of hydrocarbons from the refineries etc.

Prof. Sharma also added that SAC has provided a high level open forum for exchange of ideas, expertise and sharing of experiences with oil companies in the area of petroleum refining.

All the representatives of the oil companies and R&D institutes acknowledged the significant contributions made by the SAC and stressed on the tangible as well as the intangible benefits accrued to them. Following points were further made by the members of SAC and representatives of the oil companies and R&D institutes:

i) the contribution of SAC was attributable to the vision of Chairman, SAC, his exemplary leadership in directing and guiding the functioning of SAC,

ii) There is a large pool of expertise available in the National Research Laboratories, R&D Institutions, Universities/ Academia in the country which should be recognised and fully exploited,

iii) There is a need for further enhancing the association between R&D and industry to pursue technological developments and improvements. Development of indigenous technology should be given maximum support,

iv) SAC has acted as a nucleation centre. Many thoughts and ideas have crystallised in SAC, debated and ultimately resulted in projects,

v) EIL and IIP have been the largest beneficiaries of SAC recommendations. Sponsoring of projects to other CSIR laboratories and non-government organisations may be of national interest.

vi) SAC may think of having meetings dedicated to certain specialised areas like safety and process integration, corrosion, information technology, Advance process controls, etc.

vii) Analyse the patents coming in and see the direction of research in other countries,

viii) Time taken for project clearance subsequent to SAC recommendation to be reduced,

ix) There is a need for commercialisation of the indigenous technology developed and setting up of demonstration units specially for use of indigenously developed catalysts for subsequent use in commercial units,

x) SAC to develop a system for monitoring of ongoing projects on a regular basis so as to give a thrust to timely implementation of projects.

xi) CHT to try and compile, in a booklet, minutes of all the meetings since inception of SAC.

The Agenda items were then taken up for discussion.

45.1 **Proposal on "Development of a Biocatalyst for Desulphurisation of Diesel in Near Non-aqueous System" by IOCL-R&D**

The project will be jointly carried out by IOCL-R&D, IIP and IIT-Delhi.

Dr. D.K Tuli, SRM, IOCL-R&D informed that realising the future importance of BDS, IOCL -R&D has already drawn up a program under its ongoing expansion plan and necessary resources have been committed. He further informed that Energy Bio System Corporation (EBS) of USA had done a lot of work on Biodesulphurisation of diesel and a comprehensive proposal will be put up in the next SAC meeting after discussions with EBC and other partners viz. IIP and IIT- Delhi.

Chairman SAC and other members felt that the BDS process has merit for super refining of diesel for reduction in sulphur level to very low values, since operating cost of HDS process is high and increases drastically with reduction in sulphur levels below 0.25% wt. However, since diesel is a blend of many streams, it will be worthwhile trying to desulphurise a specific stream, which is difficult to desulphurise by other methods.

45.2 **Proposal on "Establishing a New Mechanism of Boundary Lubrication"**

As advised by Chairman and other members of SAC during the 44th meeting held in Febreuary 1999 at GAIL UPPC Complex at Pata, Dr. A.K. Dutta, Dy. Dir., IIP informed that IIP had since held meetings with IOC-R&D and DRDO for their participation in the project and both IOC-R&D and DRDO have shown interest in the project.

Chairman, SAC and other members emphasised that financial participation by the above organisations was a must and IIP may take up with them in this matter.

45.3 **Proposals for Pipelines Capacity Enhancement**

Pipelines are an important mode of transport for crude and petroleum products and with the increase in demand for petroleum products, construction of new pipelines becomes a necessity apart from increasing the throughput of the existing pipelines through innovative methods. Taking into consideration, the high investment costs required for construction of new pipelines, SAC had recommended development of projects in the area for optimum utilisation of existing capacities of the pipelines and also enhancing capacity of existing pipelines by use of better quality drag reducers, better maintenance techniques or other methodologies. As a sequel to the above and brainstorming meetings at CSIR, HQ, a number of projects on optimum utilisation of pipelines and enhancing capacity of existing pipelines were formulated and developed. The proposals were presented by nodal agencies as under :

45.3.1 **Proposal of EIL on "Study on Optimisation of Transportation Costs in a Network of Pipelines"**

Dr. Ved Prakash of EIL (ITS) made presentation on the above proposal, which considers study and development of national pipeline grid which will include existing and planned pipelines for crude and petroleum products.

Chairman, SAC said that involvement of OCC and IOCL in the above project was very essential. He advised ED, CHT and Adviser (R), MOP&NG to take up with OCC and IOCL for participation in the project.

EIL will formulate a more composite and a defined proposal, after discussion with IOCL and OCC, detailing the financial cost and contribution by the user companies, and put up in the next meeting.

45.3.2 **Proposal of IOCL-R&D on "Standards and Evaluation Techniques for Additives"**

The above project is a collaborative effort of IOCL-R&D, IIP, ONGC and OIL. Dr. S.Makhija, DGM, IOCL-R&D, informed that a lot of work has been done by the above organisations in the areas of development of PPDs, drag reducers, wax morphology and wax deposition studies etc. However gaps have been identified for taking up further work in areas of Rheology, drag reduction and wax deposition/ dispersion.

45.3.3 **Proposal on "Corrosion Inhibitors for Transportation Pipelines"**

Participating organisations in the above project are IIP,IOCL-PPL, IOCL-R&D, ONGC, CECRI and NML.

Dr. A. Jayaraman of IIP, Dehradun made a presentation on the above proposal., covering details of the possible reasons of corrosion in the pipelines, various corrosion control measures and limitations in the coatings and non-metallic materials as compared to corrosion inhibitors for corrosion

control. The action plan for development of corrosion inhibitor formulation responsibilities of the various organisations etc. was also covered in the presentation.

45.3.4 **Proposal on Pipeline Coatings by IIT - Bombay.**

The proposal will be undertaken jointly by IIT-Bombay, CECRI, Karaikudi, ONGC and EIL. Prof. A.S.Khanna of IIT Bombay made the above presentation. The presentation covered details of external corrosion of pipelines, development of materials for pipeline coating, refurbishment and repair of damaged coatings etc. Following five projects have been identified by the participating organisations for carrying out further work:

i) Study on Microbial Corrosion of Underground pipelines
ii) Deterioration of Plastic reinforced composites by Micro organisms
iii) Permeability of external coatings
iv) Comparative Evaluation of various pipeline external coatings and
iv) Formulation of new coatings and modification of existing coatings

45.3.5 **Proposal of IIP on "Development of Additives and Chemicals for Enhancing Flow in Pipelines"**

IIP-Dehradun, IOCL -PPL, IOCL -R&D, ONGC and RRL, Jorhat will participate in the above project. Dr. A.K. Chatterjee of IIP -Dehradun made the presentation on the proposal which considers development of flow improver additives viz. pour point depressants and wax dispersants for crude oil transportation and study of wax deposition problems in crude oil pipelines. Also, development of drag reducers for crude oil and product pipelines has been considered.

Chairman, SAC and other members felt that all the above projects (from 45.3.2 to 45.3.5) in the areas of Enhancement of Pipelines capacity merit consideration. However, the proposals were of a very general nature and more defined proposals with detailed financial costs have to be developed by the nodal agencies. Also, financial participation by the user organisations viz. ONGC and IOCL, upto a minimum of 25 % of the total project cost is a pre requisite for approval of the projects. The nodal agencies will take up with IOC and ONGC for meaningful participation in the above projects and put up revised proposal to SAC.

45.4 **Proposal on "Development of Polymer Modified Bituminous Binder" by IIP-Dehradun /CRRI / CRL**

IIP informed that CRL Board has approved the proposal for bearing 25 % of the total cost of the project. IIP shall forward to CHT the detailed break up of the revised cost estimate of Rs. 46 lakhs along with the confirmation letter from CRL.

45.5 **Proposal on "Identification and Estimation of Polynuclear Aromatic Hydrocarbons in Fuel and Engine Exhaust Emissions" by IIP-Dehradun**

SAC had approved the above project during its 44th meeting. Dr. A.K. Bhatnagar, Dir. (R&D), IOCL had stated in the Advisory Committee Meeting of CHT that the technique for measurement of PAH in diesel through use of SFC was a failure and being withdrawn from world over.
In response to the above, IIP have re-examined the available literature on SFC and also contacted the ASTM committee for the latest position on the method. They have confirmed that the SFC method for analysis of PAH is very much in use and has also been approved by ASTM in their last meeting in April 1999

45.6 **Proposal on "Catalyst and Technology Development for Isomerisation of Naphtha" by IIP-Dehradun.**

During the last meeting, Chairman SAC suggested that IIP may consider merging of this proposal with the proposal on "Development of Zeolite based Catalytic Reforming Catalyst" as an add-on to take care of the isomerisation part.

Dr. S.K Kapoor of IIP informed that since the proposal on Development of Zeolite based Catalytic Reforming Catalyst was for maximisation of Aromatics production, it was not feasible to merge the proposals. Hence IIP will put up a separate proposal for "Catalyst and Technology Development for Isomerisation of Naphtha" with revised lower cost estimates.

Chairman, SAC and the other members advised IIP to interact with the oil companies for financial participation in the project before putting up the revised proposal.

45.7 Chairman, SAC and other members desired that EIL and IIP should make a presentation on the status of the various ongoing R&D projects sponsored to them by CHT in the next meeting.

45.8 It was decided that the 46th SAC meeting will be held at MRL, Chennai on 19-20 August, 1999.

45th

Annexure - I

44th Meeting of the Scientific Advisory Committee on Hydrocarbons of Ministry of Petroleum & Natural Gas

List of Participants

Members

S/Shri

1. Prof. M.M. Sharma, Chairman, SAC
2. Dr. S. Vardarajan, President, INSA
3. K.P. Shahi, Adviser (R), MOP&NG
4. Dr. S.J.Chopra, Director (Tech.), EIL
5. Prof. K.Vasudeva
6. Prof. A.P. Kudchadker
7. S.N. Sharma, Scientist, CSIR
8. K. Ravikumar, ED, CHT, New Delhi

Others

9. Dr. S.Ghosh, ED, IOCL-R&D
10. S. Makhija, DGM, IOCL-R&D
11. Dr. G.K. Sharma, CRM, IOCL-R&D
12. Dr. D.K. Tuli,SRM, IOCL-R&D
13. R.K. Sabharwal, ed (Ops), IOCL
14. S.C. Tandon, GM, IOCL
15. S.K. Phull, ED, BPCL
16. P.A. Dandekar, DGM, BPCL
17. A. Soni, ED,EIL (R&D)
18. Dr. B.S.Gill, DGM, EIL(R&D)
19. Dr. S. Banik, AGM, EIL (R&D)
20. Dr. K.C. Koshel, GM (Chem.), ONGC
21. P.F. Pinto, GM (C&M), ONGC
22. G.G. Rajan, DGM (R&D), CRL
23. N.S.J. Rao, CM (T), HPCL
24 Dr. A. Datta, Sc. G, IIP, Dehradun
25. Dr. K.S. Jauhri, Dy. Dir., IIP, Dehradun
26. V.K. Kapoor,Dy. Dir IIP, Dehradun
27. Dr.A.K. Chatterjee, Sc. E-I, IIP, Dehradun
28. A. Jayaraman, Sc.E-II, IIP, Dehradun
29. V.S. Saini, Sc. E-II, IIP, Dehradun
30. Mohd. Anwar, Sc. F, IIP, Dehradun
31. M.M. Baishya, Mgr, BRPL
32. A. Gupta, Mgr (QC), BRPL
33. Dr. K.S. Balaraman, DGM (R&D), MRL
34. V.K. Kaul, DGM (Plg.), IBP
35. Dr. U.S. Rao, DGM (R&D), Lubrizol India Ltd.
36. I.P.Baruah, CQCM, IOC - Digboi
37. Baruah, OIL, New Delhi
38. S.D.Baruah, RRL, Jorhat
39. A.P. Ram, Director, CHT
40. S.K. Sil, Director, CHT
41. S.K. Bahal, Jt. Director, CHT
42. Ms. Gita Dutta, Joint Director, CHT, New Delhi