28H MEETING

HELD AT

CENTRE FOR HIGH TECHNOLOGY, SCOPE COMPLEX, NEW DELHI

ON

NOVEMBER 3 - 4, 1993

Shri Venkatappa

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

New Delhi, dated the 19th Jan. 1994

To

1. All members of Scientific Advisory Committee (by name)

2. Participants as at Annexure

3. CMDs of BPCL, BRPL, CRL, GAIL, HPCL, IOC, LIL & MRL.

Sub: Minutes of the 28th Meeting of the Scientific Advisory Committee Meeting held at Scope Complex, New Delhi on 3-4th Nov. 1993

Sir,

I am directed to forward herewith a copy of the Minutes of the Scientific Advisory Committee Meeting held at Scope Complex on 3-4th Nov. 1993.

Yours faithfully,

(K.C. Katoch)
Under secretary to the Govt. of India
Tel. No. 384376

Copy along with a 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.

MINUTES OF THE 28TH MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE OF THE MINISTRY OF PETROLEUM & NATURAL GAS HELD AT SCOPE COMPLEX, NEW DELHI ON NOV. 3 & 4, 1993

Participants : As per list attached.

28.1 Shri Lovraj Kumar, Chairman, SAC welcomed all the participants. Items pertaining to last MOM and also a few additional items were discussed.

28.2 EIL's proposal on 'Studies on application of modern packings in liq-liq extraction service':

The proposal involving a cost of Rs. 22 lakhs was recommended for approval. A reduction in the time of implementation of two years appears feasible and should be worked out in consultation with CHT. EIL should also work out with MRL and HPCL the use of their pilot plants and should also study with all refineries as to how improvements in liq-liq extraction can be applied to their operating plants.EIL should also present the Phase II of their R&D activity as soon as possible.

28.3 IIP's proposal on 'Diesel fuel quality: Requirements for meeting future emission standards-dilution tunnel':

The proposal involving a cost of Rs 95.50 lakhs with a time frame of two years was recommended for approval with the modification that the range of diesel engines should be enlarged so as to cover the main types in use in the country.Cost and time frame should be reviewed in consultation with CHT.

Separately, IIP should work out the approach to diesel fuel quality specifications and manufacture and, in this regard, consult engine manufacturers,ARAI,NCL,CHT and the Ministry of Petroleum. A note on this should be considered by CHT in due course . It was also recognised that contribution of lube oils to particulate emission should also be studied.

28.4 IIP's proposal on 'Characterization, scale-up studies and commercialization of catalyst (WS) for liq-liq sweetening process':

The proposal of IIP involving a cost of Rs 9.65 lakhs with a time frame of 15 months was recommended for approval. IIP should discuss with BPCL who offered to fund the project and also with M/s. Lona Chemicals, near Thane for the manufacture of the catalyst ultimately. IIP should settle these matters quickly and report in the next SAC meeting.

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28.5 IIP's proposal on 'Etherification, of FCC gasoline and diesel fractions by alcohol':

A preliminary techno-economic feasibility study needs to be carried out first to get to provide quick commercial viability . IIP and EIL should carry out this within the next 15 days and send it to the Chairman, SAC. The main focus of the work should be on gasoline using methanol for etherification.

28.6 EIL's proposal on 'Heat transfer enhancement by tube inserts':

The proposal involving a cost of Rs 70 lakhs with a time frame of three years was recommended for approval. EIL should work initially on one or two sizes of tubes commonly used in industry and later, on other sizes. EIL should also study other techniques to improve heat transfer in exchangers.SAC also suggested that one or two refineries should procure inserts from overseas for using in some of the exchangers and then to determine their performance.

28.7 IIP's proposal on 'Microbial desludging of crude oil tanks'

The proposal,along with the similar projects undertaken by NEERI, should be discussed in a group of biotechnologists with respect to various aspects of development of strains, their toxicity, cost of carbon source and nutrients , corrosion , quantity of surfactant that may be required for handling a specific amount of sludge etc. CHT should request the Secretary, Dept. of Biotechnology for assistance in convening the group.

28.8 IIP's proposal on 'Energy efficient solvent deasphalting process using super critical solvent recovery':

IIP , together with EIL, should analyse various energy saving solvent extraction processes and their potential use in refining and circulate a note to SAC members for facilitating consideration of this proposal.

28.9 IIP/EIL's proposal on `Development of co-solvents for aromatics extractions':

EIL should discuss with IOC and proceed with the proposal if, IOC is interested.

BPCL has already sponsored a study at IIP for developing cosolvent for sulpholane. IIP should ensure that the total process package is developed ultimately. A MOU

with EIL needs to be arrived at in this regard. BPCL also should discuss this aspect with IIP and EIL. Separately IIP should consider a more comprehensive study of cosolvents.

28.10 IIP's proposal on 'Utilization of Jatropha Curcas Oil as diesel fuel':

IIP should study and find out what are the highest value-added products that can be produced using curcas oil and report to SAC within a week's time including a broad techno-economic analysis for the consideration of SAC.

28.11 Report on 'The trial of structured packings developed by EIL at AU III Distillation Unit of Barauni Refinery':

EIL presented the data of the trial run and reported a two percentage point improvement in the yield of HSD with corresponding reduction in RCO.

SAC commended the success of the trial run and advised EIL to vigorously pursue the marketing of the packings with the refineries. EIL should have a specific group for such marketing efforts. EIL should also compare these data with those of the similar packings from overseas. EIL should make presentation to refineries on the performance of the packings.

28.12 EIL's proposal in 'Development of sheet metal structured packing - PARLPAK Phase II':

The proposal involving a cost of Rs. 24.0 lakhs with the time frame of 18 months was recommended for approval.

28.13 NCL's brief on 'Enhancing propylene-butene yields in FCC':
The exploratory work of NCL was commended by SAC and NCL was requested to approach SAC, if any help was required.

28.14 EIL (R&D)'s proposal on 'Performance Testing and Development of Burners'

EIL presented their proposal for creation of facilities for evaluation of industrial burners. The facilities are for burner gun performance evaluation, burner performance under hot condition and air flow modeling. EIL indicated that they were seeking the support of IIT(M) for modeling aspects.

The proposal involving a cost of Rs. 273 lakhs with the time frame of 16 months was recommended for approval.

28.15 Presentation on 'Laboratory work carried out by EIL/GNFC on gas sweetening catalyst':

Dr. (Mrs.) Ayyer of GNFC made a presentation on the development and evaluation of catalyst developed by GNFC/EIL. Evaluation of catalyst used by ONGC vis-a-vis catalyst developed at GNFC has been carried out. Test results are comparable and in some aspects, better than those of the imported catalyst used in ONGC. Dialogue has been initiated to test both the catalysts at Hazira with ONGC feedstock.

Since CRL and HPCL(V) are going in for this type of process technology for gas sweetening, EIL should start a dialogue with them, for eventual use of indigenous catalyst.
GNFC indicated that they would study the treatment of sulphur plants' tail gas treatment also.

28.16 IIP's proposal on 'Utilization of alpha olefins from coker distillates':

IIP should discuss with IPCL as to what derivatives of alpha olefins have attractive market potential and recast their proposal correspondingly.

28.17 IOC'S presentation on their proposal for setting up a pilot plant for separating O:P mixture from coker kerosene using urea adduction process:

IOC(R&D) indicated that the proposal to set up 4T/D pilot plant at Barauni Refinery awaits IOC Board approval. IOC(R&D) will send samples to IPCL for testing in their laboratory.
SAC commended the IOC proposal and requested that it be kept informed of its progress.

28.18 IIP's proposal on 'Process development for the production of naphthalene:

Chairman SAC advised IIP to first discuss this proposal with IPCL. Subsequently it can be put up in IIP's RC meeting and SAC, Petrochemicals.

28.19 CRL's proposal on' Augmentation of research facilities for FCC - Establishment of bench scale reactor Unit':

SAC commended the proposal. It advised CRL to augment the analytical facilities suitably.A proper data bank should be developed. Necessary mathematical models should be obtained and transformation models should be subsequently developed. It will be useful for CRL to also discuss the details of the pilot plant design with IOC as also the FCC modeling.

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28.20 EIL's presentation on 'Hardware development for FCC subsystems':

EIL made a presentation on the various FCC hardware subsystems which together constitute FCC technology and efforts that should be made to develop them. SAC agreed that FCC hardware subsystems need to be developed as outlined by EIL. The following actions need to be initiated :

(i) EIL and IOC should become members of Particulate Solid Research Institute (PSRI), Chicago individually to share their knowledge in the design and performance evaluation of large cyclones, computer software and design manuals, data, research reports/briefs etc. Participation in the seminars organised by PSRI will be of great value.

(ii) Cold flow model studies for spent catalyst stripping initiated at IIT(KGP) by IOC(R&D) should be pursued.
EIL should discuss with IIT(KGP) for studies in other areas also.

(iii) Cold stand facilities need to be established. Service of consultants from abroad can be utilized as required.

HPCL offered to share the cost of development.

28.21 IOC(R&D)'s presentation on' Catalyst (manufacturing) Pilot Plant':

IOC(R&D) stressed the need to have a small (2 TPD) catalyst production facility to produce development quantity of catalysts/additives for solving scale- up problems and producing catalysts for plant trials. The commercial plants of HLL and IPCL are too big for production of low volume catalysts/additives.

It was decided that ED, CHT should discuss with HLL, IPCL and UCIL to determine the extent of assistance that will be available from the catalyst manufacturers and so what facilities will need to be set up elsewhere.

28.22 Cooperative research to improve FCC operations in the country:

ED, CHT will convene a meeting of industry and R&D Centres for further discussion and finalization of a comprehensive action plan.

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28.23 IOC(R&D)'s proposal to set up Hydrocracker Pilot Plant:

IOC(R&D) indicated that detailed feasibility report has been already completed by IOC/EIL and has been submitted to IOC Board for approval .

28.24 CRL's presentation on their proposed project for experimental study on the use of rubberized bitumen as road pavement material:
This was noted.

28.25 Chairman indicated that in the next meeting of SAC, the following particular topics/items should be discussed :

(i) Mathematical modeling

(ii) Advanced controls and instrumentation

(iii) Agenda items not covered in this meeting

28.26 Chairman stressed the need to look at what is ahead ten years from now and orient our research programmes accordingly. He desired that EIL, IOC(R&D) and Dr. P.K. Mukhopadhyay prepare a paper on technological advancements that have been taking place elsewhere and the areas to be covered by us.

28.27 In view of the large no. of proposals put forward to SAC for consideration , it was agreed that proposals with financial implication of less than Rs.ten lakhs will be studied and cleared by a Sub-Committee comprising Chairman,SAC; Prof. Vasudeva of IIT(D); Dr. P.K. Mukhopadhyay; Shri M.B. Lal, Advisor (R);and ED,CHT. Action by the Sub Committee will be reported to SAC regularly.

28 It is stressed that all papers/proposal be made available to CHT atleast 15 days before the SAC meetings. CHT must ensure, subsequently, that the papers/proposals are sent to SAC members at least ten days in advance.

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Annexur

28th meeting of SAC held at Scope Complex, New Delhi on November 3-4, 1993

I. Chairman: Shri Lovraj Kumar

II. Members

1. Shri M.B. Lal, Adviser(R), MOP&NG
2. Smt. Lalita B. Singh, Adviser (PC)
3. Prof. A.P. Kudchadker, IIT, Bombay
4. Shri K. Vasudeva, IIT, Delhi
5. Dr. R.S. Venkataraman, EIL, Delhi
6. Dr. P. Ratnaswamy, NCL, Pune
7. Dr. A.C. Ghosh, RRL, Jorhat
8. Dr. S. Varadarajan, Ex-consultant, Planning Commission
9. Shri T.S. Krishnamurthi, CHT

III. Invitees

1. Shri B.K. Bakhshi, Chairman I/C, IOC
2. Shri R.K. Narang, CMD, IBP
3. Shri K.L. Kumar, CMD, CRL
4. Shri J.M.B. Baruah, CMD, BRPL
5. Dr. P.K. Mukhopadhyay, Former Director(R&D), IOC
6. Shri S. Ramalingam, CMD, MRL
7. Shri P.K. Rudra, CMD, EIL

HPCL
Shri S.N. Mathur

CRL
Dr. M.A. Siddiqui

BRPL
Shri R.M. Hazarika

MRL
Shri K. Ravikumar
Shri K.S. Balaraman

BPCL
Shri R.P. Garg
Shri S. Viswanathan

IOC)R&D)
Shri A.M. Uplenchwar
Dr. S. Ghosh
Dr. R.P. Verma
Dr. S.P. Srivastava

LIL
Dr. A.S. Sarma

IIP
Dr. A.K. Gupta
Dr. Himmat Singh
Shri R.P. Malhotra
Dr. B.P. Pundir
Dr. V.K. Bhatia
Dr. B.S. Rawat
Shri G.N. Kulsreshta
Shri D.K. Adhikari
Dr. B.B. Agarwal
Shri K.G. Mittal
Dr. K.K. Bhattacharya

EIL
Shri S.C. Gupta
Dr. S.J. Chopra
Shri M.K. Joshi
Dr. P.K. Sen
Dr. B.S. Gill
Dr. M.O. Garg
Dr. S. Banik

IBP
Shri Sumit Roy
Shri D. Chakravarty

DGTD
Shri A.K. Agarwal

OISD
Shri V.M. Ranalkar

IOC(R&P)
Shri A.P. Chaudhri
Shri G.R. Sampath
Shri R.A. Shanbag

IPCL
Dr. A.B. Halgeri

GNFC
Shri M.M. Bhat
Dr.(Mrs.) J. Ayyer

MOP&NG
K.C.Katoch

CHT
A.M.Prasad
Maj. S.C.Agarwal
S.K.Jain
S.Venkatraman
M.Kannan
Sanjiv Singh

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LIST OF ACTION POINTS
(28th SAC Meeting)

S.NO.	ITEM NO.	SUBJECT/ACTION	ACTION BY
1.	28.2	Application of modern packing in liq-liq extraction service	
		i) Reduction in implementation time	EIL
		ii) Usage of pilot plant	EIL/MRL/HPCL
		iii) Phase-II of R&D Work	EIL
2.	28.3	Diesel fuel quality requirements to meet future emission standards-dilution tunnel	
		i) Review of cost implication/time frame	IIP/CHT
		ii) Preparation of approach paper	IIP
		iii) Contributions of lube oil to particulate emission.	IIP
3.	28.4	Characterization, scale up and commercialization of catalyst (WS) for liq-liq sweetening process.	
		i) Progress on funding & catalyst manufacturing - Reporting in next SAC meeting.	IIP/BPC
4.	28.5	Etherification of FCC gasoline & diesel fraction by alcohol.	
		i) Techno-economic feasibility report in 15 days to the Chairman, SAC	IIP/EIL
5.	28.6	Heat transfer enhancement by tube inserts:	
		i) Initial work on one or two common sizes of tubes and later other sizes.	EIL
		ii) Other techniques to improve heat transfer coefficient - Study	EIL
		iii) Refineries to try the performance of imported inserts by using in heat exchangers.	Refineries
6.	28.7	Microbial desludging of crude oil tanks:	
		i) Discussion on the proposals of IIP/NEERI in a group of biotechnologists - Convening of a meeting.	CHT/IIP NEERI
7.	28.8	Energy efficient solvent deasphalting process using super critical solvent recovery :	

		i) Note on various energy saving solvent extraction process for refining industry	IIP/ EIL
8.	28.9	Development of Co-solvents for aromatics extractions :	
		i) To proceed with the proposal of EIL	EIL/IOC
		ii) Development of total process package for extraction by sulpholane with cosolvent.	IIP/EIL/ BPCL
	28.10	Utilization of Jatropha curcas oil as diesel fuel :	
		i) Study on highest value added products with techno-economic feasibility	IIP
10.	28.11	Structured packings developed by EIL :	
		i) Marketing of packing developed to industry	EIL
		ii) Comparison of actual performance with the similar packing from overseas	EIL
11.	28.15	Laboratory work carried out on gas sweetening catalyst :	
		i) Possible use of the catalyst at CRL & HPCL(V) on the basis of successful lab test.	EIL/CRL/ HPCL(V)
12.	28.16	Alpha olefins from coker distillates :	
		i) Recasting of proposal on the basis of market potential for alpha-olefin derivatives.	IIP/ IPCL
13.	28.17	Separation of O:P mixture from coker kero using urea adduction process :	
		i) To report the progress of work to SAC periodically.	IOC(R&D)
14.	28.18	Production of naphthalene	
		i) Discussion with IPCL	IIP
15.	28.20	Hardware development for FCC subsystem	
		i) Membership of PSRI	EIL/IOC(R&D)
		ii) Cold flow model studies for spent catalyst stripping at IIT(KGP) to be pursued.	IOC(R&D)

16.	28.21	Catalyst manufacturing pilot plant	
		i) Discussion with HLL, IPCL & UCIL	CHT
17.	28.22	Cooperative research to improve FCC operations in the ~~country~~	
		i) Preparation of comprehensive action plan.	Industry/ R&D Centres/ CHT
18.	28.26	Paper on ways to orient our research programmes based on technological advancements taking place elsewhere.	EIL/IOC(R&D)/ Dr.P.K.Mukhopadhyay

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