31ST MEETING

HELD AT

BPCL REFINERY, BOMBAY

ON

OCTOBER 6, 1994

NO.J-13012/1/92-Gen
Government of India
Ministry of Petroleum & Natural Gas

New Delhi, the 27th Octoberer, 1994

To

1. Members of the Scientific Advisory Committee on Hydrocarbons of the Ministry of Petroleum & Natural Gas (By name)

2. Chief Executive of Oil Companies

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

Sirs,

I am directed to forward herewith a copy of the minutes of the meeting of the Scientific Advisory Committee on Hydrocarbons of this Ministry, held in Bombay on 6th October, 1994 for information and necessary action.

Yours faithfully,

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

Copy to :

Prof.M.M.Sharma,Professor of Chemical Engineering and Director of Chemical Technology,University of Bombay,Matunga,Bombay-400 019

Copy also to:-

1. JS(E) /JS(R) /JS(M) /Adv.(E) /OSD(R) - (Shri K.P.Sahi) /DS(CC)
2. ED, CHT, New Delhi
3. FA&CAO, OIDB, New Delhi
4. P.S.to Secretary (P&NG)

(K.C.Katoch)
Under Secretary to the Govt.of India

Minutes of the 31st meeting of Scientific Advisory Committee (SAC) of the Ministry of Petroleum and Natural Gas held at BPCL Refinery, Bombay on 6th October, 1994.

List of participants is attached.

Shri R.P.Garg, Director (R), BPCL extended a warm welcome to the Chairman of SAC and other distinguished members and invitees.

Prof.M.M.Sharma, Chairman of SAC thanked Shri R.P.Garg and BPCL for hosting the meeting at such short notice and initiated the proceedings of the meeting.

A. The Minutes of the 30th meeting were approved by the Committee.

B. The Agenda items of the 30th meeting which could not be taken up during that meeting were taken up for discussions.

31.1 Item 28.26

EIL made a presentation on "Technological Advancements in refinery - Gap areas to be covered" .The various technologies available world wide, the trend in processing schemes and the approach in India were discussed in detail.

31.1.1 The Committee desired to know as to how the refineries which are installing catalytic reformers using full range naphtha as feed stock are going to meet the likely stipulation on benzene content in MS (either 1% or 5% max). In this context the following observations were made:

a) A naphtha splitter could be installed to remove the 60-90°C cut from the reformer feed.This option will reduce the MS production unless the 60-90°C cut is also processed to improve its octane number by an alternate route.

b) Removal of benzene from the reformate by extraction will also reduce the MS production, but Benzene will be a higher value product. However, it has to be seen whether it could be an optimal route of producing benzene.

c) The reformate can be alkylated to convert benzene. In this case MS production will not be affected.

NCL, Pune was requested to study the implications of alkylation of the reformate. IOCL agreed to send 25 liters of reformate from Haldia refinery to NCL, Pune for carrying out the study.

31.1.2 OSD(R) informed the Committee that MOP&NG has asked the refineries to prepare plans and cost estimates for meeting the likely stipulation for benzene content in MS for both 1% and 5% limit. SAC will be kept informed of the plans in this regard.

31.1.3 C5 Unsaturates.

Refineries were requested to analyse the FCC naphtha for C-5 unsaturates and send a report to CHT for preparing a consolidated note.

31.1.4 Emerging scene for diesel quality w.r.t. reduction in 'S' and aromatic content was discussed in great detail. Chairman mentioned about the pilot plant studies conducted at HPCL, Bombay for reducing the aromatic content in ATF. He was of the opinion that the feasibility of using this pilot plant for the development of technology for dearomatisation of diesel should be seen and then used. It was also mentioned that commercially proven technology is avilable for reducing the sulphur content as well as aromatic content in a two stage hydrogenation process. Chairman handed over a copy of a paper on 2 stage hydrogenation of diesel to reduce the aromatic content to less than 10%,for circulation.

It was also pointed out that production of naphthalene from diesel should be considered which will not only help in reducing the aromatic content in diesel but also reduce the dependence on the imported naphthalene (India is importing around 30,000 TPA of naphthelene).

31.2 Item No.29.1

IOCL(R&D) made a presentation on 'Identification of programmes on additives development'. It emerged that test methods for new grades of lubricants need to be developed under Indian conditions. The Committee was of the opinion that an autonomous body could be set up for formulating these test methods and testing & certifying different grades of lubricants. It was decided that IIP, Dehradun should prepare a note covering various aspects like facilities required , work plan etc. for such a body. This could be done in collaboration with AARI.

31.3 Item 29.8 & 29.8 - Development of specific package for revamping of different sections of FCC Units.

EIL made a presentation on their project proposal for Cold flow model studies on pilot plant. This involves engaging a consultant who will provide EIL with model sizing, instrumentation and data collection techniques, and measurement of key solid and liquid properties and will also assist in the design of models. The pilot plant will be constructed and set up with with indigenous vendors. The data collected from various studies will be analysed at EIL and if required the assistance from foreign consultants will be availed.

EIL indicated the cost towards services of the consultant and travel of EIL personnel as Rs.25.2 lakhs. The cost for other elements were not available as these can be estimated after preliminary studies by the consultant.

Dr.S.Varadarajan suggested that sufficient instrumentation and measurement devices should be incorporated in the pilot plant to gather all relevant data for the purpose of modelling, model verification and its further use in actual plant.

CHT observed that EIL should give total cost of the project in the revised proposal so that necessary approvals can be obtained from competent authorities.

The Committee approved the project proposal in principle and observed that the pilot plant should have necessary instrumentation and measurement devices as suggested by Dr. S.Varadarajan and EIL should give the total cost of the project after discussing with CHT so that necessary approvals can be obtained.

31.4 Item 29.15 Mathematical Models related to safety.

EIL made a presentation on the developments made in the vapour cloud dispersion models world over. It was mentioned that models for the heavy gas dispersion in unconfined open area have been validated in the field trials conducted at USA & UK and fine tuned. However the work on the validation of models for heavy gas dispersion in open area with obstructions, confined area etc are still in progress.

EIL uses a simple model for dispersion of heavy gases in open unobstructed area.

The following mitigating methods are normally used in the case of heavy gas vapour cloud.

a) Reducing the incident of vapour cloud release through improved engineering design.

b) Improved HAZOP management systems

c) Installation of improved systems for the dispersion of vapour cloud.

In our country OISD has been doing pioneering job in the first two areas which are comparable to the ones in developed countries in the world.

For the dispersion of the vapour cloud ,water curtains and steam curtains are installed in strategic locations. The design of nozzles play a very important role. OISD has already funded a project to EIL for developing suitable designs for the nozzles based on model studies.

EIL is also developing a model for Maharashtra Gas Cracker Corp (MGCC) to show graphically the propagation of a vapour cloud in their plant if released from any equipment. However, this model can not be a rigorous one considering the fact that all relevant data will not be available at a short notice when a vapour cloud is released.

C. New Proposals.

31.5 RRL, Jorhat's proposal on 'Technology development for the production of high quality micro-crystalline waxes using short path distillation technology'.

RRL,Jorhat made a presentation on their project proposal for the establishment of a Pilot plant at Digboi Refinery for this purpose.

BPCL informed that they have plans to produce paraffin wax and MCW in a JVC with an investment of over Rs.200 Crores. The feed for this unit will be vac.gas oil from Bombay High crude. BPCL further stated that they will be interested in using the new technology when developed in Numaligarh Refinery.

After detailed deliberations, it was decided that a Sub-Committee should be formed with the objective of selecting a suitable technology for the production of Micro-crysttaline Wax from Assam Crude followed by preparation of a project proposal for pilot plant studies.

The scope of Sub-Committee would be as under:

a) Study the alternate routes available for the production of MCW(i.e.short path vac.dist,deep cut vac.dist. etc) and select the appropriate one.

b) The capacity of the pilot plant shall be around 2000 Kg/Hr. of feed.

c) The time schedule for the project shall be 2 years.

d) The pilot plant shall be used for testing the residue from other crudes also.

e) The pilot plant can be used for commercial production when testing is not carried out.

f) The pilot plant may be considered as a testing facility of National Importance and funded accordingly.

It was decided by SAC that Dr. A.C.Ghosh, Director,RRL,Jorhat shall be the Convener of this Sub-Committee with members drawn from IOCL, (HQ), IOCL(R&D), IOC (AOD),BPCL, and EIL.

It was further decided that the Sub-Committee should finalise its report by 15th of November,1994 and submit the same to CHT.

The report shall be circulated to the Members of SAC well before the next SAC meeting scheduled to be held at RRL,Jorhat on 19-20 January, 1995.

31.6 RRL, Jorhat's proposal on 'Development of CFPP/PPD additives for diesel fuel'.

RRL,Jorhat made a presentation on their project proposal. The Committee cleared the proposal in principle. However, RRL was asked to submit a revised proposal in collaboration with any one of the refineries in the North - East. The Committee advised that RRL,Jorhat should carefully look into similar studies carried out by other institutions. It was suggested that instead of following a single theory, at least 2-3 scientific hypothesis should be formulated and pursued. Revised proposal will be submitted by RRL, Jorhat in the next SAC meeting.

31.7 RRL, Jorhat's proposal on 'Production of microbial biosurfactants useful in petroleum industry'.

The Committee advised that this proposal should be coordinated by Director, IIP,Dehradun alongwith the proposals from IIP & NEERI.

D. Other Points

31.8 Pipeline Network

The Chairman desired that a Note on 'agumenting the capacity of existing pipelines without additional hardware' should be prepared by IOCL (R&D) and presented in the next meeting. The Note should cover transportation of Crude oil, petroleum products, gas & LPG.

31.9 Fugitive Emissions of hydrocarbons from the refineries.

It was decided that an approach paper will be prepared and presented by MRL in the next meeting based on the loss survey conducted by BP,UK at MRL.

3.10 The Committee desired that on other action points where only the status has to be given, the same should be circulated to the members before the meeting. As regards this meeting the status on various points will be circulated alongwith this Minutes.

3.11 The Committee decided that the next meeting shall be held at RRL,Jorhat on 19-20 January, 1995.

ANNEXURE

31st meeting of SAC held at BPCL Refinery, Bombay on October 6, 1994. - List of participants.

I **Chairman:** Prof. M.M. Sharma

II **Members**

Dr. S. Varadarajan, Ex-Consultant, Planning Commission
Shri K. Vasudeva, IIT, Delhi
Dr. A.C. Ghosh, RRL, Jorhat
Dr. A.P. Kudchadker, Retd. Prof. IIT, Bombay
Dr. P. Ratnasamy, NCL, Pune
Mrs. Lalitha B. Singh, Adv (Pet. Chem)
Shri K.P. Shahi , OSD (R)

III **Invitees**

BPCL
Shri R.P.Garg
Shri S.K.Phull
Shri V.K.Agrawal
Dr. G.P. Rai

IOCL (R&D)
Dr. A.K. Bhatnagar
Dr. G.K. Sharma
Dr. A.K. Misra

IOCL (R&P)
Shri B.N. Bankapur
Shri Sanjib Kumar

IOCL (AOD)
Shri A.N. Das

BRPL
Shri M. Sagar Mathews

RRL, Jorhat
Shri I. Suryanarayana
Dr. S.A.A. Rizvi
Dr. K.R. Pillai
Dr. K.V. Rao

EIL
Shri P.K. Rudra
Dr. S.J. Chopra
Shri S.N. Mitra

CRL
Shri P.M. Mani
Dr. M.A. Siddiqui

LIL
Shri D.R. Teredesai
Shri N.C. Joshi
Dr. U.S. Rao
Dr. A.S. Sarma

MRL
Dr. K.S. Balaraman

HPCL
Shri Ganesh Gandham

OISD
Shri J.N. Mathur

CHT
Shri A.M. Prasad
Shri M. Kannan

List of Action Points
(31st SAC Meeting)

Sl. No	Item No	Subject / Action	Action by
1	31.1.1	Study the implication of alkylation of reformate from a full range naphtha reformer wrt benzene content	IOCL(HQ), NCL, Pune
2	31.1.3	Analysis of FCC naphtha for C5 unsaturates and preparation of consolidated note.	CRL, MRL, BPCL, GUJ, HPCL(V), HPCL(B), MATHURA & CHT.
3	31.1.4	Study the feasibility of using the pilot plant at HPCL(B) for the development of technology for dearomatisation of diesel . Study the feasibility of producing naphthalene from diesel.	EIL
4	31.2	Note on the formation of an autonomous body for formulating test methods and testing & certifying new grades of lubricants under Indian conditions.	IIP
5	31.3	Project proposal for cold flow model studies. Total cost to be given to CHT	EIL
6	31.5	Technology development for the production of high quality MCW from Assam crude	Dr.A.C.Ghosh Dir, RRL, Jorhat
7	31.6	Submission of revised project proposal for 'Development of CFPP / PPD additives for diesel fuel'.	RRL, Jorhat
8	31.7	Project proposal on ' Production of microbial biosurfactants useful in petroleum industry'	RRL, Jorhat, Dir. IIP
9	31.8	Preparation of a note and presentation on 'Agumenting the capacity of existing pipelines without additional hardware'.	IOCL (R&D)
10	31.9	Preparation of approach paper and presentation on 'Fugitive emissions of hydrocarbons from the refineries'.	MRL