

Keynote Address

Seminar on Welding in Oil Industry
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THE PRESENT AND FUTURE STATUS OF OIL INDUSTRY IN INDIA

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Mr. Chairman, Ladies and Gentlemen,

I am happy to be with you on this occasion- One Day Seminar on "Welding in oil Industry."

I express my hearty thanks to the organisers for giving me an opportunity to speak to the participants of this Seminar on 'Oil Industry in India- Present Status and Future Plans'.

I have been called upon to speak on Oil Industry In India in a Seminar essentially on welding. Perhaps the idea of the Chairman of Indian Institute of Welding, Calcutta Chapter, is to know the future of Oil Industry and the role it has to play in development of welding industry.

Before I touch the topic or role of welding in Oil Industry, I feel necessary to tell you, briefly, the Oil scenario of VIIth plan and subsequent years upto 2000-05, the end of Xth Plan.

1.0 Growth of Oil Industry in the Country

Indian Oil Industry is one of the oldest in the world. After the discovery of first oil well in Pennsylvania in 1859, oil was struck at Makum in Assam in 1867, barely 8 years after the world's first oil discovery.

Not much efforts to develop oil industry were made until the country gained independence and hardly 0.25 million tons of oil was being produced from the Assam field by Assam Oil Company.

It was only after independence under the dynamic leadership of late Shri K.D. Malaviya, work in right earnestness was started in 1956 with the formation of

Oil & Natural Gas Commission. Oil India Ltd., was also established in partnership with Burmah Oil Co. Crude oil production till 1970 remained modest when the country reached a production figure 6.8 million tons of oil.

The oil scenario was completely changed with the discovery of oil on the Western Coast of the country in Bombay High. With this discovery, the crude oil production shot up from 10.51 million tons in the year 1981 to 30.5 million tons in 1987. Thus a three fold increase could be achieved within a period of 6 years. The self sufficiency in crude oil in the year 1986-87 was about 70%. During the VIth Plan, the actual crude oil production has been 102.8 million tons as against original plan of 93.4 million tons. This has been due to high priority accorded to Exploration and Exploitation efforts in the country.

With the discovery of gas fields, Natural gas is emerging as a major energy resource as a substitute for oil. Bassein gas field offshore Bombay, has a potential of 20 million cubic metres per day. Additional gas fields have since been discovered.

2.0 Future Plans

So far, about 25% of the prognosticated reserves have been converted into geological in-place reserves. Exploration in Category-II and III Basseins during VIIth and IXth plan periods shall be needing priority.

We have been conducting exploration in the areas which have given more rewards, where geology was more favourable and there were relatively lesser technological and logistical problems. Areas where geologi-

cal, technological and logistical conditions are difficult are being taken up for exploration. Chances of discovering giant oil fields like Bombay High may not be bright but there are more than 3000 small fields which carry 51% of the recoverable oil reserves. The strategy, therefore, is to increase our efforts to tap oil and gas from these smaller oil fields.

ONGC has drawn up a 20 year conceptual plan upto a period of 2004-05. Planning being a continuous process, these plans are being updated very now and then with new data, change of environmental conditions and other economic factors such as price of oil etc. This has shown that it should be possible to achieve a production of over 100 million tonnes of oil and an equivalent of gas by the year 2004-05. The demand is also expected to be of the same order.

The existing energy strategy of oil sector is to intensify exploitation of available recoverable oil and gas and to further augment them with accelerated exploration activities. With the emerging gas potential there is a wide scope for utilising natural gas as a substitute for oil that is to use both oil and gas for meeting the energy requirement of the country. In fact increasing usage of natural gas has already resulted in saving of foreign exchange to the extent of over Rs. 1500 crores during 1986-88 and is expected to rise to Rs. 2000 crores during 1989-90 by way of saving in oil imports. Consumption of gas will increase at a much faster rate and is expected to be level with that of oil by the beginning of the 21st century.

3.0 Present status and scope for growth

ONGC is presently employing 120 rigs, both in Onshore and Offshore areas. Oil India is having 7 rigs. These will further increase with the increase in exploration and exploitation activities in future. Similarly there are almost a hundred platforms and a large number of installations in the Offshore/Onshore producing areas, for processing and transportation of oil and gas. A network of pipelines has been laid.

This will go up with the increase in oil and gas production.

On an average the use of structural steel for the construction of different types of platforms and rigs varies from 5000 - 10000 tonnes and Welding materials constitute approx. 2-3 per cent by weight of structural steel. One can imagine the welding efforts required in this fabrication.

To boost indigenisation efforts and reduce dependence on foreign countries, ONGC has been encouraging various Indian firms, like BHEL, MDL, HSL, BCL, BSCL, BHPV and many more ancillary units in public and private sectors for supplying drilling rigs, oil related equipment and construction and fabrication of platforms. At present 19 platforms, associated pipelines and two offshore drilling rigs are under construction with different shipyards in India. Similarly, BHEL is entrusted to supply another 10 land drilling rigs.

The Oil Industry has been accorded a very high priority by the Planning Commission. In the VIIth Plan outlay for the energy sector - Petroleum accounts for Rs. 12,627 crores out of Rs. 54,821 crores - a share of 23%. The VIth plan outlay for petroleum was Rs. 4300 crores (Planned) (actuals - Rs. 8360 crores) - 16% of energy sector outlay.

Oil Industry will continue to get high priority until some alternative energy source is found out.

From these projections, it is quite apparent that Welding industry can look forward to flourish in the years to come and count on continued support from Oil Industry.

4.0 Role of Welding Technology in Oil Industry

Welding Technology has been playing a major role in the growth of oil industry. From welding of simple steel structure, the frontiers have extended to the deep sea hyperbaric welding and remote control robotic welding. The welding engineering/technology, consumable materials and metallurgy are developing fast in the country and there is sufficient scope for further development in this field, by way of increase in the productivity of manual welding, automation, shielded inert gas welding, abrasion wear-resistant welding stainless steel welding. Besides this, there is also scope in appli-

cation of underwater welding, robotic welding and laser beam welding for the Offshore areas.

With reference to the oil field exploration, exploitation and transportation of oil and gas activities, the welding engineering and technology have phase of its application in - Construction and Fabrication, Operations, Inspection, Maintenance and Repairs and Rescue and Safety.

In the construction and fabrication phase, you are already aware of extensive use of welding technology in oil industry in areas like LPG plants, oil and gas processing installations, storage and transportation, Offshore platforms and drilling Rigs.

In the Operations also, Welding technology plays an equally important part. Inspection Maintenance & Repairs (IMR) Services - provide wide scope for Indian welding industry in Offshore operations in the form of underwater inspection, maintenance & repairs of Offshore Structures. The integrity of these structures and pipelines is affected in sub-sea conditions due to deterioration in welding joints, effects of erosion and corrosion on the parent metal as well as on weldment areas, deposit of sea weeds and marine life, damage to structures due to hits from various types of approaching vessels. This provides a formidable challenge to the welding technologists. Continuous welding support is required in the periodical inspection, examination and investigation of defects and attending to them. The operations call for the use of expensive welding equipment and skilled manpower with twin capabilities of diving and welding.

Another area where welding technology has been playing important role is the repairs of drilling mast and substructures subsequent to periodical inspection. Oil field activities are generally in far flung/remote areas where one finds difficult to bring the job to repair centres i.e. conventional repair technology goes in the background and 'insitu' repairs needing extensive welding meet the challenge of the time. Of late, low heat input electrodes are finding much greater use in comparison to conventional electrodes. Plasma arc welding has a very bright future in meeting the repair

needs of oil field equipment.

The replacement of carbon steel of construction quality by NACE carbon steel, Duplex stainless steel, Incolloy-clad steel and cupro-nickel steel more particularly in offshore structures have provided challenges to the Welding Technologists & Industry.

5.0 Help to entrepreneurs

Till recently ONGC was heavily leaning on the help from foreign contractors, suppliers and builders for oil field equipment and services. With the joint efforts of ONGC and the Indian Trade, we could develop the Indian Market to a great extent for Oil Field Equipment and Services.

I am sure you are aware that it is one of the objectives of ONGC to promote indigenous efforts in developing Oil Related Equipment and Services. We have been having interaction with Industry to help promote indigenisation, but without sacrificing quality. For getting details one can contact the authorities in their regions as well as Import Substitution Group, Dehradun. Besides, Oil Industry Development Board (OIDB) is another agency, which provides guidance about incentives for the trade and scope for indigenisation of products.

6.0 Conclusion

It would thus be seen that Oil Industry needs significant input from Welding Industry in meeting its objectives. I see the future of Welding Industry in meeting its objectives. I see the future of Welding Industry very bright. Only hard work, spirit of competitiveness and quality consciousness in Industry in general and Welding Industry in particular can bring the country in line with International giants. Lot of work has been done but much more is to be done.

I am sure that this one day Seminar will provide right impetus and generate the desired awareness among the community of Welding Engineers/Technologists.

I wish the Seminar, grand success.

IWJ

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