SEVENTH INTERNATIONAL MEETING ON TITANIUM
GINATTA TORINO TITANIUM - TURIN, ITALY
15th NOVEMBER, 1991

PAPER : OFFSHORE OIL & GAS MARKET - THE PROBLEMS OF SELLING TITANIUM

AUTHOR: R. G. PORTMAN - MANAGING DIRECTOR - BUNTING TITANIUM LTD

ABSTRACT: See attached

PAPER:

It is an interesting observation that since the mid 1970's approximately 170 oi1 and gas platforms bave been built to operate in the North Sea area alone. During that time many lessons have been learnt by the operators to enable them to improve efficiencies to the point where now the Industry is utilising some automatic processing and sub-sea processing on a variety of different structures in deeper and deeper waters. The technology and the rate of growth is simply astonishing. How disappointing it is therefore not to be able to mirror that growth when examining the utilisation of Titanium into the Offshore Industry.

Only now in 1991 is Titanium beginning to develop momentum, not I have to say, led by the Titanium Industry but by the need of the Offshore Industry to use better materials with longer life guarantees. Belatedly the Titanium manufacturers are approaching the Offshore Industry with offers of materials, technical support and their interest. Where were they 15 years ago?

In the early days the Offshore Engineer, with no previous experience to relate to had to use conventional technology proven in refineries on land and which were available commercially. He also needed sufficient relevant information in engineering standards against which they could design. This led to the massive use of Carbon Steel with perhaps the only concession to the more difficult environment found offshore being the utilisation of coatings e.g. paints, cements etc.

The average American or British Engineer in the 1970's was trained academically and practically to deal with Carbon Steel (this is still largely the case today!). Most of the codes he would work with gave data only on steel, so it was perhaps no surprise that that was the material he or she turned to. Yet there were exceptions. Titanium plate heat exchangers have been used in top-side seawater cooling systems tram the very first day. There was no problem far the Heat Exchanger manufacturers to sell their product to this conservative audience, yet e1sewhere, either on top-side or sub-sea, Titanium was never considered. No one built on this successful Titanium application so the image of an 'exotic' high priced metal irrelevant to the Industry was fostered and allowed to grow.

Once the early production fields in the U.K. were up and running e.g. Shells Brent Field, BP Forties field etc., the realisation that the rates af corrosion were unacceptably high led to the introduction of Stainless Steels and Cupro Nickel alloys. By the late 1970's early 1980's both these materials were being regularly specified in process equipment where seawater was being handled.

The reaction of those material suppliers was positive and many thousand of tonnes were sold into the Offshore Industry. However, the continual problems of erosion, pitting, crevice corrosion etc soon made users realise that even these materials were not the long term answer to their problems.

With the growing cost of building Oil and Gas platforms and a somewhat erratic market far their product, the operators began to look far more consistency in process equipment and increasingly became aware of weight cost penalties, particularly far topside equipment.

At this stage and with the rapidly expanding Norwegian market the opportunity far the Titanium Industry to really 'attack' the offshore companies was never better. The Industry had years of good experience with power station condensers and had major process equipment working satisfactorily in the Chemical, Petrochemical and Nuclear Plants. The price of Titanium had stabilised after the major rise in the late 1970's and supply was generally good.

Unfortunately, the aerospace dominated Titanium manufacturers chose not to follow the trend in this market but to leave it to small specialist fabricating companies like my own to do their marketing development work far them. Instead the steel industry, realising the problems and learning tram this began to develop a whole range of new improved stainless steels both austenitic and duplex such as Avesta's SMO254, Sandviks 2205 and Weirs Zeron 100. Each year during the mid to late 80's new 'super' grades were introduced by the major steel companies all proclaiming their suitability far corrosion resistance combined with strength and availability. By working closely with the fabrication industry they made moves to fully integrate the supply of all product forms and processes. Training courses far welding their material were provided and forgers and casters were encouraged to develop their skills and capacity to offer these grades. Distribution agreements were made with stockists backed by a strong marketing campaign.

The steel industry made sure their grades were submitted to the appropria te authorities far inclusion in International and National standards so there were no design constraints stopping the implementation of their material. They talked to the Offshore Industry about specific areas of possible utilisation and then provided full 'turnkey' budget costs so that a real financial evaluation could be made with a full understanding of the fina l installed cost rather than just material costo They used trade association and technical seminars to promote their materials and industry. The result? ...Surprise, surprise massive sales by the thousand of tonnes. This far materials, often with no track record, very commonly just a variation on a theme and at cost

levels considerably higher than the previously used stainless and cupro nickel products. All this time Titanium had the better experience, better corrosion performance and with considerable weight benefits to offer but still the market perception was of high costa, low availability, poor fabricatability etc., etc.

Now, today more problems using Duplex steels are continuing to be discovered by the Offshore Industry. The steel industry is quickly introducing so called 'Super Duplex' grades on the 'Daz washes whiter' principal to hold on to their market share. They defend themselves against Titanium with old unrelated arguments based on their hope that the users ignorance of Titanium is still high. However, the user is now sceptical about them and wonders if the ideal material will ever evolve tram them or will there always be some unsuspected limitation arising around the corner. This, once again, is Titaniums opportunity to exploit their nervousness and their concern and what better timing far us. The mills are hurting because the aerospace market has once again hit them badly and demand is currently very low. The military situation means lesa future opportunity for Titanium and the introduction of other sources of supply i.e. USSR means that capacity levels at mills worldwide are operating at very low volumes. The net effect is that prices are low and Titanium can currently compete very effectively against the competitive materials.

With the Titanium manufacturers now despatching their salesmen all over the Offshore market and with them all proclaiming their long term intention to seriously develop the non-aerospace market, surely there is hope that at long last Titanium will take up its pro per position as one of the major materials used Offshore? But wait, how is the Titanium industry doing? The answer is I'm afraid not too good. The approach is unco-ordinated, the infrastructure for dealing with success is not established. The personnel selling the materials are the same people who sell any grade of Titanium anywhere. No specialists are brought in, and no one talks to the market to understand the customers needs. Yes individuals are approached on specific projects but no one, or no one body, is overseeing where the opportunities aree In the U.K., the Titanium Information Group, of which we at Bunting are members, has made a start but by virtue of the membership and the intent of the association, this is on a small scale. Where are the Titanium seminars organised to attract end users not other Titanium people ? Where are the approaches to the International authorities to get Titanium specified into working codes? Where are the marketing initiatives that bring Titanium to the forefront and to the attention of the end user ?

What alloy development is being don e to meet the growing sub-sea market requirements? Why is it that the only people I meet when operating in this market are those from small companies like ours, who with all the enthusiasm and expertise in the world cannot be perceived by the end user, often multi-internationals, as being capable of supporting a large scale capital investment project. Why is it on the Hibernia project, for instance, that for the topside seawater source pipe system, titanium was not even considered? Has anyone here studied how the Aluminium industry has so successfully penetrated the Offshore market in areas like

accommodation unita and helipads ? They, like Titanium, started with many myths to overcome and a great deal of prejudice. Are we aware of the work being done to promote the use of glass reinforced plastica and carbon fibre materiale and the whole range of composites ? Do these industries allow unita like Shell Research to give up evaluating their materiale far use in manifolds in favour of Duplex steels because they could not attract anyone's interest within the Industry to help them source pumps ? That actually happened several years ago with Titanium.

There is, I'm afraid, still a lot to do. My purpose in giving this paper is to address some of the home truths. We bave in Titanium, a real and effective solution to many of the Offshore Industry problems. The potential is large, the challenge is fierce. If we are to succeed it will be as an Industry not as a collection of companies. It is, with respect, upto the major Titanium manufacturers to get their act together and give the smaller companies the lead and support we bave so long waited far.