

AMPLA WA BRANCH CONFERENCE – FLNG & OTHER SUBJECTS

Thank you for the invitation to attend your annual conference.

FLNG COMMENTS & OBSERVATION

When Valeria first spoke to me we talked about a main topic to do with a Floating Liquefied Natural Gas vessel or platform (FLNG). The oil and gas industry is now quite well advanced in the design, engineering and construction areas of FLNG with several projects announced. I shall attempt to provide some thoughts on how the construction contracts, financing, charter and other arrangements might develop as commitments to build FLNG are made. As well I will touch on some operational aspects of FLNG once up and running.

As you are all well aware there are a number of FLNG projects announced:

1. Shell has announced its plan to build an FLNG for its Prelude Field off the NW coast of WA. This will be the worlds largest at LOA 488m and when ballasted weighing at 600,000mt and capable of producing up to 3.5mt pa.
2. I am aware that others including Inpex in Indonesia for its Masela Abadi field are working on plans for FLNG also.
3. Flex LNG of Oslo with Inter Oil, Pacific LNG and Samsung Heavy Industries.
4. Petronas has awarded FEED a consortia to Technip and Daewoo Shipbuilding & Marine.

5. The Koreans and in particular Hyundai Heavy Industries in conjunction with German Industrial Gas and engineering firm Linde AG appear to be well progressed with plans to build a 335m FLNG with storage capacity 193,800m³ LNG in 45 months. This has received approval in principle from Class Society DNV. Its annual production capacity is 2.5m tonnes.

6. Chevron and Exxon Mobil are similarly considering FLNG for suitable fields.

The FLNG concept which is derived from the well established Floating Production Storage & Offloading vessels (FPSO) operation is primarily aimed to provide a cost effective means of developing stranded fields. In theory the ability of an FLNG to move usually not under its own power but by tow to and from fields makes it an attractive proposition, even though FLNG may in most cases need to be custom designed and constructed to suit the characteristics of a particular field. Requirements may vary from field to field thus requiring expensive re-fit changes. But it is most likely that FLNG will remain in situ for their life on the particular field which it was designed for.

Although there remains a lot of work to be done in the area of Classification of FLNG and the application of international conventions with respect to safety and management eg, ISM, SOLAS, survey and manning, these will occur. FLNG which is basically a ship with a gas processing plant stuck on it and in it and the ability to extract, process, store and then offload its catch so to speak will probably qualify as a ship and require registration in a suitable flag registry and probably manning with minimal marine crew in accordance with flag state and governing jurisdiction requirements and standards. As well as flag state she will be obliged to comply with the law of the country which has jurisdiction depending upon location and the rights to exploit the particular fields.

All of this means that there will still be a vast mass of regulation, law and standards to which the FLNG must comply. This will be essential also because of its insurance both H&M and P & I. Covenants and finance covenants – I can touch on this a little further on. If an FLNG does not have under law the status of a ship and thus requiring registration once on site there may not be the same level of statutory application as might otherwise prevail.

Once the engineering and design stage is completed it is a matter of finding a willing and capable shipyard/engineering/construction facility to undertake what is likely to be a project cost of \$US2-3b or more. Probably this will be a consortia of the worlds bigger shipyards. It is expected that the construction contracts will be along the lines of suitably modified shipbuilding contracts. The consortia members will likely be yards experienced in building LNG carriers and FPSO conversions. Major yards such as Samsung, Hyundai, Daewoo and Keppel have been reported as being involved.

Because of the huge cost and the lack of track history for FLNG which might give an indication of its residual or re-sale value once proven or otherwise there will be many traditional ship finance banks reluctant to participate in financing the construction. For such a large project there no doubt will be syndication of banks and it is likely that part of the required security will be a long term charter with management and operating agreements with a major oil/gas producer for the offtake who in turn will have secured long term sale agreements. To the extent possible such agreements will need to be back to back with important provisions in the shipbuilding contract so to as ensure that the charterer or operator is involved in and satisfied with the design and construction methods and delays/liquidated damages aspects. The charterer will need to be closely involved in the build process and then later the sea trials, processing and offtake tests etc. Having referred to this owner/operator structure it is probable that the oil majors will own and operate which is quite different to a charterer/operator such as occurs with many FPSO which are owned by the likes of Maersk and Teekay and time

chartered to oil majors. This is likely to be the case because of the huge cost and that FLNG are not yet proven. So Capital risk by investors may be unlikely at this stage.

It is likely that FLNG will be purpose designed and built for particular fields and this means that careful attention will need to be given to the tests and acceptance process. It may well be that production, extraction, processing and offtake tests cannot be finally done till the FLNG is at the field and plugged in when title would probably then pass from the yard to the owner and handover to the charterer if any. This gives rise to another potential complication in the shipbuilding contract and that is if a default occurs which might otherwise give rise to a right to cancel. With an FLNG intended for a particular field and with an owner wanting that FLNG as promised to his charterer (if one) cancellation, unless in the most extreme of circumstances, may not be an option. Step in rights are likely to be included but there are enormous practical and legal difficulties with this approach in a shipyard which may not be owned by the consortia builders and covered by other securities in any event. It is not like an onshore building site. As well as this there are legal problems in certain jurisdictions concerning access and other matters. So choice of a well capitalised, experienced and substantial building consortia is essential. If the usual approach to modern shipbuilding title and security is followed it is likely that the consortia yards will require progress payments to match certain stage milestones, they will retain title until delivery and in consideration of that arrangement will offer the buyer a refund guarantee from a first class bank (often a government backed trade bank). This refund guarantee provides that in the event of cancellation by the buyer (which is not disputed by reference to arbitration under the shipbuilding contract) refund of all progress payments plus interest will be made to the buyer. These are not on demand refund guarantees and can be problematic since they are conditional upon there being no dispute under the Building Contract or if there is then payment is not made until a final, unappealable Arbitration ruling or Court judgment or an amicable settlement.

The consortia yards may also require payment security in the form of Letters of Credit from the buyer but with major oil companies as buyers this may not be so.

Under the FLNG charter agreement (if there is a charter) with the particular oil field operator there may well be a range of applicable day rates covering such things as full or partial down time, production and processing levels, lay up, force majeure events etc. This will be similar to FPSO and the day rates which vary on exploration and production rigs.

If a charter or offtake agreement is not on a simple daily hire rate there will evolve other formulae such as apparently has been set up with the Flex LNG arrangement. These could involve the yard having equity or giving credit which is to be paid down from earnings.

The charter or operating agreement for the FLNG will also deal comprehensively with operational matters which are generally the charterers/operators responsibility. These will include:

1. Bunkers, fuel oil and lubes for the FLNG;
2. Arrangements with offtake tankers (OT) including legal liability regime covering the offtake tanker coming alongside the FLNG and receiving the product;
3. OT support vessels (OSV) which are purpose designed and built tugs with significant tow and winch capacity to safely assist in the berthing, offtake and unberthing procedure. Similarly legal liability regimes between OSV,

OT and FLNG will be necessary and probably on the basis of the United Kingdom Standard Towage Conditions (UKSTC);

4. Pilotage and access, possibly by helicopter;
5. The field terms and conditions of visit which should cover the various legal relationships including a possibly hazardous offtake berthing arrangement side by side;
6. Probably FLNG dedicated support vessel to provide provisions, water, supplies, parts etc; and
7. The anchor and mooring system warranties.

FLNG Risk Analysis

It is understood that the interested parties/groups involved in FLNG such as Classification Societies, Hull & Machinery/property insurers, financiers, P&I Clubs, risk reinsurers are still considering the risks associated with the untried nature of such an enormous structure. Some of these risks are far different and at a higher level than what would be encountered with FPSO and include the following:

- (a) FLNG are not likely to be powered. They will require tugs to move to site and off site. This is probably not a major risk factor since many FPSO are similar;
- (b) It is expected that they will be moored permanently at the one field site and not have the capacity to be readily moved in the face of expected cyclonic

and other major sea and weather events. So they must endure everything the sea and nature can throw at them;

- (c) Massive mooring systems must be designed and fixed in place also capable of holding the FLNG in place in the worst of sea conditions. Many FPSO can be moved offsite in emergency circumstances.
- (d) Aboard the FLNG are a multitude of recovery and processing functions and accommodation modules all in the one confined place. The risk of explosion and fire is magnified as are the consequences. It all happens in one place so more hazardous activities cannot be isolated one from the other by great distances. Substantial blast walls will separate processing areas etc from accommodation areas;
- (e) The offtake process is expected to be to OT berthed alongside and held off by barge fenders. The berthing and unberthing procedures can be risky as can the offload process in deteriorating weather conditions. This is in contrast to most FPSO offtakes which are done off the stern with the OT held in place by OSV. I understand that the side by side transfer system is in most cases required due to the technical difficulty in pushing LNG over larger distances such as would occur over the stern.

Insurances

Being most probably at least for some parts of its function a ship it is likely that the FLNG property insurance will be along the lines of a suitably modified Hull & Machinery policy with special clausings for the process aspect of the operation. Similarly as with an FPSO liability insurances will probably be through entry with an International Group P & I member such as Gard P & I which covers many FPSO and

offshore structures. As we know from the “Deepwater Horizon” disaster in the Gulf of Mexico and Montara, closer to home the liability exposure in the event of a major disaster is enormous. Not only as a result of any oil pollution statutory and civil exposure but more from wreck removal responsibility. This is usually covered under the P & I entry or liability cover once the vessel or offshore structure has become a total loss and abandoned to H&M underwriters. The cost associated with seabed removal and clean up is huge. It is often a very complicated technical operation. To give you an example, the largest ship salvage/wreck removal operation ever attempted will soon start on Giglio, the small island off the Italian coast to hopefully turn and refloat the “Costa Concordia” before towing her away.

The ship cost \$US372m when it was built in 2005. The salvage costs have been “guesstimated” at close to \$US100m. This compares with \$US50m to salvage the PCTC “Tricolour” and 3,000 cars, over a period of 18 months in 2004, albeit in worse climatic conditions in the English Channel. She was cut up and removed in large lumps. All up, the sinking of the “Costa Concordia” will cost close to \$US1b.

There have been a number of heavy container ship losses over the recent past, including the “Hanjin Pennsylvania” (fire), “Hyundai Fortune” (fire), “APL China” (storm damage) and “MSC Chitra” (collision). Costs of these incidents, while considered to be high, were much less than those incurred by the “MSC Napoli” (heavy weather hull damage and beaching) or the “Rena” (stranding).

The “MSC Napoli” was carrying 4,688 containers while the “Rena” was carrying 3,352 containers. Compare these capacities to the Maersk E class and similar ships owned by other companies of 13,000 to 15,000 containers. Container ships involved in serious casualties have their own unique problems but the size of these new vessels means the likelihood of huge wreck removal costs if there is such a casualty.

Particular risk insurance may be necessary for the tow to the field and attachment to the mooring and riser spread. This must be approved by a Marine Warranty Surveyor.

So it is an evolving area for the oil and gas industry which given the vast gas discoveries off our coast we shall all watch with great interest.

Various Topical Charter Issues

It may be of some interest to you as mining and oil and gas lawyers to mention some fairly topical and typical commodity shipping type problems which arise under bulk carrier Charterparties.

1. Moisture Content Cargoes

Moisture content cargoes such as iron ore fines, nickel and copper concentrates have recently been very much in the spotlight more so in tropical export zones like Philippines, Indonesia and India but still an issue in Australia particularly during cyclone season. The problem and danger arises since such cargoes which contain a sufficient amount of small particles and moisture can liquefy giving rise to free surface effect in a ships holds which in turn upsets stability. These are classified as IMO solid bulk cargoes group A. Since October, 2010 to December, 2011 there have been 5 bulk carriers lost with loss of some 75 crew as a result of this dangerous phenomenon.

Only in recent times have steps been taken by our major iron ore fines shippers to also address this potential risk. Testing procedures to determine safe levels of moisture content in a cargo to be loaded had been performed on a historic basis ie, on samples of cargo previously shipped without thorough regard to what was actually to be shipped and its status in the stockpile and on the conveyor as it was loaded.

Consequently there were a number of cases where cargo once loaded was showed to have excess Transportable Moisture Level (TML) and so unsafe for carriage. There are Arbitrations on foot in London covering several such cases. Obviously the risks with such IMO Class A cargoes are greater when, exposed to heavy rains during monsoon/cyclone season. It is a serious problem which can delay shipments with consequent demurrage risk to the cargo seller and vessel charterer.

The underlying purpose of the Code is to minimise the risk to life and property from the shipment of bulk cargoes.

The Code categorises bulk cargoes into three groups, A, B and C. The groups are defined as follows:

- Group A includes cargoes prone to potentially liquefy if shipped with moisture content in excess of their transportable moisture limit;
- Group B includes cargoes that pose a chemical hazard; and
- Group C includes cargoes not prone to liquefy or to pose a chemical hazard.

As is well known, SOLAS applies as a matter of law in most maritime countries and thus is compulsorily applicable to all shippers of bulk cargo. The Code is explicit in requiring the shipper to provide the master, or his representative, with appropriate information regarding the cargo's characteristics, sufficiently in advance of loading, to enable the necessary precautions for safe carriage to be put into effect.

In the case of Group A cargoes, the shipper is required to provide a signed certificate of moisture content, including the cargo's TML. The interval between the testing of the moisture content and loading must not be more than seven days.

If the master has concern as to the cargoes safe TML he should call for a further expert analysis. Because of the most serious consequences it is wise to be conservative. The question remains as to who is liable for delays during testing – which can often be lengthy depending on the geographical region.

2. Force Majeure Problems

I don't need to tell you how many clients continue to be under the impression that Force Majeure is an event beyond their control or fault whether defined or not and means that all obligations including to pay money are suspended. This, combined with the current tendency to define Force Majeure (FM) events very widely means that problems in this context arise frequently particularly in the cyclone season when ports close down, congestion develops and stockpile supplies at the ports are interrupted due to road, mine and rail closures.

Powerful charterers can negotiate very wide FM clauses which even extend to inclement weather, port congestion and the flow on effect thereof. FM being a contractual right it is open to the parties to make the FM events as wide or as narrow as they wish. The traditional scope of FM events was to cover extraordinary events beyond the parties reasonable control and would not include unfortunate commercial events eg, GFC or port congestion due to breakdown in shiploader etc. A charterer having directed the vessel to a particular port or place with an agreed time to load/discharge has to pay the price by way of demurrage if that time is exceeded due to load/discharge delays peculiar to that port. But now it is quite common for the FM events to give a charterer very wide contractual benefit.

The complication with a wide force majeure provision in a commodity export situation can arise not only in the sale and purchase agreement between the miner/shipper and

the buyer but also particularly where that miner/shipper has sold CIF and is obliged to charter, usually voyage charter, a vessel to carry the cargo to the buyer's nominated port. That charter will allow laytime, meaning an agreed period to load and discharge the vessel. Once exceeded the charterer will then have to pay a daily demurrage rate. The general rule covering demurrage is that once on demurrage always on demurrage. So that if a nominated FM event occurs after laytime is exceeded it will not interrupt or suspend the running of demurrage. In that event the charterer gets no relief from what might be a FM event which may prevent loading of cargo and must pay demurrage.

If the charterparty expressly states that a named FM event such as a cyclone, flood, earthquake interrupts the running of laytime or demurrage the charterers will be excused from paying demurrage. Complications can then arise also as to how far can the consequences of a force majeure event eg, congestion at the load port caused due to port or berth closure can go. Usually congestion delays mean that charterers after the vessel has given Notice of Readiness will be liable for demurrage.

If charterers and this means almost every shipper from Australia selling to its clients CIF are able to negotiate such wide force majeure clauses this can, especially in cyclone season save them a fortune. Shipowners and disponent owners in tough freight times will accept anything in order to obtain a fixture but having done so will try it on with demurrage if there is any prospect of contesting an adverse FM clause.

3. Risk Management Arising Out of Casualties

In the context particularly of oil and gas work involving the charter of support vessels, tugs, personnel carriers, seismic etc and this includes for the servicing of FPSO and FLNG you will probably all be aware of the very active interest which the oil company,

field operator has in relation to the investigation of any casualty in their field area. The same applies for the big infrastructure projects for ports, building jetties, dredging etc.

All vessels operating in these projects must have full P & I Club entry which usually means entry with an International Group P & I Member for in some cases unlimited liabilities. The usual practice in the event of a casualty eg, an oil spill or a collision between vessels or with fixed objects is that the vessel operator will report to its P & I Club and the Club will then have its lawyers/surveyors/naval architect experts involved in investigating the casualty so as to best protect its shipowner/operator member. In many cases such investigation will include also seeing to that member's interests as against AMSA/DOT and other local and flag authorities as well as any third parties involved and the contractual charterer. It is critical in such cases that the evidence of the master and ships witnesses and reports are obtained in such a way as to retain their privileged status. This generally means that such proofs should be taken by the lawyers and reports from the vessel and the appointed experts directed to those lawyers similarly. This is where it becomes complicated since the charterer will generally be in contract with the field operator/project principal and compelled to ensure that its contractors report such matters to it and the principal. This then starts a sequence of meetings, briefings and root cause analysis and processes all of which the particular vessel is obliged to participate in and if it fails/refuses to the consequences commercially can be very serious including termination of the charterparty for breach of such a covenant.

Participation in such "root cause analysis" investigations can result in otherwise privileged material losing that status and later becoming discoverable in totally unrelated third party proceedings eg, where a chartered vessel comes into collision with a passing by third party vessel. This is a difficult situation to manage given the insistence of the oil majors as to thorough investigation of such casualties. This

predicament was prominent I believe I the “Deepwater Horizon” disaster in the Gulf of Mexico.

It is a matter of balancing the commercial and contractual considerations against the potential contractual, third party and statutory liabilities which could be more exposed given the loss of privilege. The principal’s position is understandable given the obligations it has under its permits and applicable statutes covering the fields.

Serious casualties which attract statutory investigation by ATSB require those involved to participate and frequently the final ATSB reports are damaging and assist those contemplating civil action arising out of the same event. However those reports cannot be used in evidence. They certainly do however point a concerned plaintiff in the right direction. The ATSB powers are wide and since their investigators are usually qualified mariners, naval architects or engineers it is important for the vessel owner and often the charterer to have involved counterpart experts. Their reports similarly must retain privilege.

4. Piracy

The position under time charter for payment of hire. I refer to two important recent cases in this context with differing outcomes. In the “Saldanha” the vessel was held to remain on hire during pirate detention. In the “Capt Stephanos” the Commercial Court reached the opposite view based upon the meaning in Clause 56 in the time charter based upon the meaning of the words “capture or seizure”. This was an unfortunate outcome for the vessel owners and highlights the need to check the wording in printed form documents.

5. Arbitrate of Litigate

Those of us working in the area of maritime and Admiralty law in Australia are fortunate in that our clients as potential litigants have access to commencing proceedings for causes of action under the Admiralty Act (which covers charterparty disputes) in the Federal Court in its Admiralty jurisdiction.

Invariably it is our advice to clients in negotiating Charterparties, contracts of affreightment and documents which would be covered under the Admiralty Act to specify WA governing law and the Courts of Australia to decide. The Federal Court in Admiralty is efficient, prompt and accessible even giving us 24 hour and weekend service for ship arrest and release from arrest. The cost of Arbitration (particularly where 3 Arbitrators are to be appointed) and delays also makes the Federal Court in this area a for more commercially attractive forum. This will make we unpopular with our Arbitrator proponents in Sydney but I have yet to hear a convincing response from them in this context.

I had suggested to Valeria that if time permitted I touch on other topical subjects such as charterparty implications for safe ports, ports of refuge in the event of serious casualties, statutory powers of intervention for vessel assistance and salvage in Australia.

Thank you for this opportunity.

Tim Cocks

AMPLA Fremantle

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