



IMIA Working Group Paper 115 (19)
IMIA Annual Conference 2019, Vienna

Construction to Operational Insurance

Introduction

Generally, the global market for engineering insurance is structured with different layers involving various parties, depending on who controls the risks as well as the type and range of the cover provided. Construction projects typically involve multiple entities and stretch over several construction phases that affect the structure of project insurance. Operational insurance, on the other hand, is more analogous to property insurance, where asset owners usually purchase insurance. Nonetheless, intermediaries play an important role in the distribution of insurance in both cases.

Both phases of engineering insurance, construction and operation, are overlapping in main risk defining characteristics like insured values, insured perils and MPL's. The complexities and subsequent difficulties of transferring the construction to operational insurance, however, emerge from many unique technical aspects and different parties involved with different interests, often expressed in various contracts.

Because engineering insurance by its nature is always in step with technology innovation and in addition, it has to respond to new financing solutions, ownership structures, etc., it has to constantly evolve and meet market needs while challenging the existing insurance policy structures. Not to be forgotten, engineering insurance plays a vital role in promoting economic activity. Though total engineering premiums are low relative to the size of the wider insurance market, without such policies, most major construction and infrastructure projects could not be undertaken. Similarly, if operators were unable to protect themselves against losses arising from circumstances beyond their control, such as mechanical failure or boiler explosion, the use of key plant and industrial machinery would be severely restricted.

Zürich, 16th October 2019

Scope of the Paper

This paper is a collection of underwriting, technical and claims experience addressing the complexity of the transfer of the construction to operational insurance. Document is focusing on physical damage aspects (PD) and following delay in start-up (DSU) or business interruption (BI) implications.

There is no intention to go in depth in any specific technology, industry occupation or policy coverage other than showing examples and addressing the specific issues arising out of the above-mentioned transfer of risk.

The purpose of this document is to provide an overview of critical aspects identified in the given topic and deliver some recommendations on how these aspects might be treated.

Due to confidentiality requirements, paper is presenting industry claims examples as general cases with no details of parties involved.

The work group members, as presented on the last page, issue this document on behalf of IMIA organisation.

Contents

Why the Concerns

Claims Examples

Risk Assessment & Technical Aspects

Contract Exposure - Insurance Condition Aspects

Underwriting Considerations

Reference List

Working Group Members

Why the Concerns

Several factors threatening the smooth risk transfer from construction to operation

Both phases of engineering insurance, construction and operation, often share most of the major characteristics like insured values, insured perils and MPL's. Therefore, in theory, it should not be too challenging to evaluate them jointly and ensure the smooth transfer of the risk.

All parties involved, on the other hand, have the same ultimate goal of the on time project delivery and commercial success of the operations.

Question is "why are we facing so many difficulties and corresponding claims from this risk transfer"?

Difficulties arise from the complex contractual framework that goes along with the risk transfer and slightly different interests of the parties involved. The result is a highly challenging handover of the risk - both technically and contractually.

Below graph is showing the typical timeline and some of the complexity involved in the transfer of the risk.

Different interests of parties involved add complexity to the risk transfer

In a very simplified structure, the main parties involved in the project represent the Lender, the Principal and the Contractor(s). All of them should have the joint goal of successful project completion but after taking a closer look, it is obvious that due to different contractual obligations the ultimate success factors are not exactly the same.

Risk factors involved provide even more complex picture:

- **Lenders:** Insolvency, Non-payment, etc.
- **Principal:** Reliability of feasibility study, Project performance, Cost overrun, Delay, Commercial failure, etc.
- **Contractors:** Liquidated damages, Penalties, Supplier performance, etc.
- **Owner (operation):** Loss or reduction of revenue, Commodity price fluctuations, Currency fluctuation, Regulatory changes, etc.
- **Operator and Supplier (operation):** ...

Depending on contracts in place and project / ownership structure, most of the above-mentioned factors & perils can be allocated to other parties involved.

Overlapping activities as well as non-finalizing of acceptance certificates add uncertainty to the coverage that requires the handover date.

As contractual law and/or construction projects become increasingly more complex, the date on which a project goes operational is becoming harder to clearly define for all parties involved.

In theory, the policy end date for a Project should be set to match the date on which construction/erection works have been completed and the resulting asset/s have been handed over to the owner.

Practically however, such a date would be difficult to confidently determine in the instances when:

- An owner commences utilising a part of the premises prior to construction being complete; or
- An owner is refusing to agree to the “Final Acceptance” terms of the contract due to a dispute; or
- It becomes apparent that the machinery installed has excessive redundancy or been over designed and cannot realistically be run at the rates and/or loads needed to meet hot testing requirements; or
- The works have been completed but the premises have not commenced operation.

When such a date cannot be clearly determined, the degree of contract certainty for all parties is diminished.

This makes it increasingly harder for Insureds to be confident that traditional policy forms are capable of providing the seamless coverage needed as assets transition from the construction phase to operational.

Understanding, interpretation and acceptance of plant discipline (timing, output on transfer) becomes more challenging.

From the brokers’ perspective, diminished contract certainty also makes it difficult to:

- Clearly articulate when one policy ends and the other starts to Insureds; and
- Ensure the coverage desired by the Insured has truly been sourced.

This not only increases a broker's Errors and Omissions exposure, but also creates a potential reputational risk for such service providers.

UW's mostly do not have the opportunity to re-survey facilities during testing and commissioning periods to get the right picture about the progress and potential exposure.

For underwriters', the main concerns are generally:

- Whether the right amount of premium has been collected for the Construction or Operational exposures present; and
- Whether there is an increased likelihood that lengthy extensions to the period of insurance will be requested for unresolved defects issues or failure to meet performance testing requirements.

Claims handling for projects with unclear handover dates, or even relatively long Defects Liability Periods, is also a key concern for all parties. It can take significantly more time in the adjustment process to identify which policy should respond, and any dispute is likely to ending lengthy delays and significantly increased claims handling/defence costs.

It therefore makes sense for all parties that an insurance product exist is available to cover an asset from the commencement of works through to a period when it is clear that the asset is undoubtedly operational.

Involved Parties – Power Project Example

Claims Examples

Examples of potential issues, conflicts and uncertainty during the risk transfer period.

Construction projects, whether they are infrastructure civil works, oil and gas, power generation, renewable energy are nowadays more complicated, more expensive and thus with an expected greater operational performance. The transfer of assets from construction phase to operation phase is not always smooth and there are many examples of claims arising at the transfer phase and leading to conflictual situations. We shall provide here several examples that were intentionally modified to guarantee the confidentiality of the clients and projects.

Smart buildings claims example; concerns with testing and commissioning under the appropriate conditions.

Smart buildings projects are not only about building better or bigger structures, but it is essentially about buildings that outperform under operation phase when it comes to energy efficiency and reliability of the systems.

High quality energy certification commonly also known as Green Buildings, require testing the energy consumption of a building under certain conditions especially ventilation, air conditioning and heating. Testing and commissioning is usually done before the “official” handover phase when buildings are not fully occupied and also when it is not the adequate weather conditions required to test the equipment. The systems passed the testing phase and the building is handed over to the asset management entity.

After a couple of months, during the summer period, the building is occupied by a major Law firm who paid the lease based on Green certificate promise and hundreds of employees who are working in the heat weather and are pushing the cooling systems to their limits. At first, it started as a comfort issue, but for the tenants the situation became unbearable when a major electrical surge occurred and caused a global electrical shut down on the whole floors with following fire in the electrical transformer room.

There is physical damage and loss of revenues because of the unavailability of the lease. Would this fall under the operational policy cover or can it be linked back to the construction policy? This raises the question of conducting testing and commissioning under the appropriate conditions as it should be performed under similar conditions to the operation situation.

Combined cycle power plant claims example;
Potential claim to operational policy following damage typically covered under warranty contract.

A combined-cycle power plant (CCPP) combines a gas and a steam turbine to produce up to 50% more electricity from the same fuel than a traditional simple-cycle plant. The gas turbine's waste heat is routed to the nearby steam turbine, generating extra power. Because they target such high efficiency, combined-cycle power plants also include the most efficient state of the art equipment.

Gas turbine (GT) would represent such equipment in CCPP and it is common that installation, testing and performance of GT would represent the most critical path in the lifecycle of the CCPP project.

Incident described in the following appeared after the plant was handed over and in operation but the root cause analysis is indicting that both CAR policy and the contractor might be liable for the damage.

In this case, equipment sustained considerable damage to both the compressor and turbine blades and vanes. There is also a potential damage to the rotor.

Incident would appear to be caused by potentially defective blade that was that was installed during construction and not replaced with an upgrade although the issue was recognised at that time. It is a known phenomenon of corrosion damage causing premature failure that was addressed with additional coating and other measures in the past.

In this example, there was no issue or failure during testing and commissioning and first year of operation but since the blades were not upgraded or replaced on time property damage would appear to be with the the EPC contractor warranty. Following business interruption and extra expense might however effect the operational policy.

Renewable Energy Project claims example; policy covering bot construction and first year of operation, LEG2 coverage during construction but LEG3 as the trigger for BI.

Renewable Energy projects are investment targets for a lot of stakeholders such as pension and private investment funds, former players from the oil and gas industry, big utilities and insurance companies.

On the one hand to achieve their own CO2 targets, on the other hand to make profitable investments.

In order to focus on one of the most complex examples, for offshore wind projects it is crucial to set-up an appropriate insurance concept and to fulfill the requirements of all involved parties.

These projects consist of components with a high single value like wind-turbines, foundations, cables and offshore substation which are built over a period of 1-2 years.

Overall investments are typically around EUR 1,000,000,000 to EUR 1,500,000,000 per project. As these are to be built offshore in harsh conditions often with prototypical parts, insurance cover has to be tailor-made for each and every project.

It is typical for this kind of project that the Owner takes out a comprehensive CAR insurance policy and all involved parties are co-insured, incl. a waiver of subrogation in case of a claim/loss.

As there are many parties involved also a lot of different interest must be covered and insured. Requirements of Lenders/Financiers regularly include seamless insurance cover for the construction and operational phase under one policy to secure continuous protection between the different phases. As part of this it is common to include a specific transition cover in the OAR/BI to cover loss of revenue during the commissioning and testing phase before final take over the windfarm, which is triggered by the first feed-in of electricity to the grid. From this time the transition cover replaces the DSU cover in place, which is triggered by a potential delay of the overall project. Regularly the insurance cover for defective parts is separated during the construction phase in LEG2 for the wind-turbines and LEG3 for all other components; and after taking over for the operational phase on LEG3 for all components.

If there is now loss or damage happening during the commissioning (after first feed-in) of the wind-turbines, two parts of the policy are triggered. The construction policy, securing the interest of the supplier/contractor covering the physical loss on one hand and on the other

hand the transition BI cover of the operational policy covering the loss of revenue of the owner.

For the claims handler the challenge is to work with these two different defective parts clauses which have a potentially different impact on the BI cover. The physical loss will be handled under the regime of LEG2 for the interest of the contractor/supplier, but the financial loss and delay will be already handled under the regime of the OAR policy, meaning LEG3 as trigger for BI and the loss of revenue and the waiting period starting from the day of the loss and not a potential impact on the overall project. Underwriters must bear in mind during calculations, that they must include a sufficient loading in their BI premium in respect of providing cover for not fully tested, not taken over parts - which is not standard cover. In addition, it has to be taken into account that a potential availability guarantee provided by the wind-turbine supplier is not already in force, as this is triggered by the taking over of the whole site; and potential liquidated damages for the delay may not fully cover the loss of revenue. Risk engineering has to be involved, as these projects often include prototypical technologies and the track-record of suppliers/contractors has to be anticipated for the new technology.

Power Plant claim example; outstanding root cause analysis might expose both construction and operational policy.

The industry is very much aware of issues involving power generation turbines that could occur during testing and commissioning phase or during operation phase. In this particular example, an EAR + DSU policy was in place and an OAR + BI policy covers the operation phase. During the testing phase, some vibrations on the rotor occurred at a certain speed that deemed not to be an issue during the testing since they disappeared at the nominal output target. This was recorded and the plant was afterwards transferred to the operating company.

Later, the plant was synchronized with the grid and the operator notified that vibrations occur at a certain speed then disappearing, but this would limit the full utilisation of the generated power. At this stage, there is no evidence of damage yet but the Insured is of the opinion that there is a very great possibility that the HP/IP steam turbine rotor will need to be changed.

In order to progress in the investigation, it is likely that the rotor will need to be removed from its casing and sent away to be tested at the manufacturer. It is estimated that it would take two months to dismantle and ship, two months to test at the manufacturer and another two

months to ship back and install if the rotor was not malfunctioning or with limited damage. Otherwise a new rotor will be required.

The Insured is in a complicated situation where there is no evidence of a damage yet and to investigate this, he will need to suffer 6 months Business Interruption + costs that might not be recovered if there is no proof of damage. If there is a damage, the new rotor replacement could take up to 18 months – hence Business Interruption + costs of the new equipment. In this later case, the Insured is tempted to claim on the EAR policy but remember that testing and Commissioning was conclusive, and the plant was already running under an OAR policy!

The situation is complicated because the Insured could suffer loss of revenues unnecessarily in the case where there is no damage, and if there is damage, where to claim on construction or operation?

Petrochemical plants; joint CAR/OAR coverage with same panel can avoid potential disputes when hand over is done prior to full load operation.

Petrochemical projects are big investments and they are also built on such large scale with multiple units to benefit from funding opportunities to launch these projects that the insurance program is required to cover units in different phases: some units are still under construction, some under testing and commissioning whilst others in operation phase. Loss of revenue cover is often purchased, and it is common for those programs to have a packaged construction and initial operation cover, hence Delayed Start Up and Business Interruption cover. Packaging the EAR and the initial Operation under one policy is beneficial to the Insured because there is continuity of cover between the different phases and there is no recourse in case a claim happens at an unclear period of the cover.

This type of cover is also recommended since in many petrochemical projects, the 100% nominal output for 72 hours – ie the official handover trigger to transfer to the operation policy, cannot be achieved during the testing and commissioning phase. Depending on the ore availability or the sales forecast of the end product, the 100% target could be reached only several months after completion of the testing and commissioning.

This was the case on “Polymer Project” where the testing and commissioning was not done at 100% nominal output but a lower level because there was no market to sell the produced chemicals. Nevertheless, the project was handed over to operational teams and six months later when production was increased to reach 100%, a major damage occurred causing Physical Damage and more

expensive Business Interruption. Would this be considered as a claim under the EAR policy or the OAR policy? From a business/project point of view, the project was handed over to operation however, from an insurance point of view, since the 100% nominal output was not reached, the production units would not be covered under the operation policy.

What should be the appropriate position? A major litigation is announced but luckily both EAR and Initial Operation / OAR, are covered under the same policy with the same insurance panel. Having one single policy can thus be a better solution to avoid lack of cover. In the case of two separate programs for construction and operation, partial handover of 100% operational “sub-units” can be an alternative to guarantee the continuity of cover.

The above examples show the importance of thorough investigation during testing and commissioning pushing the systems to their nominal limits from one hand, and from the other hand making sure to have the appropriate type of cover to the Insured that sometimes needs to include initial operation cover to avoid grey areas turning dark.

Risk Assessment & Technical Aspects

Full scope of assets and values to be transferred - this can cause complications; identification and understanding of the risks to be transferred;

The main goal for underwriter is to have the full picture of the property at risk, the period when the property should be insured and the risks needed to be covered.

The underwriting involves carrying out an assessment which allows dealing with the risk factors of the insured project and, according to such assessment, to make the subsequent premium rating which allows for the insurance premium calculation.

There could be some differences between the different kinds of projects.

Civil engineering projects

A) Apart from TSI underwriters will need the split of TSI to different parts and blocks which are independent one from another (road, pipeline section, office block, apartment building etc.) combined with the construction schedule. The underwriter need to understand when each part of the project change the phase from construction to operation and assess if the construction risks of the remained part of the project could have the influence on the operational part.

B) What are the contract conditions of the project: shall the objects be covered after testing and commissioning and during what period? Normally such objects have to enter property coverage after signing of the Technical Acceptance Act, but according to some wordings risks which are connected with the construction nature should be covered. Here the good example could be the reconstruction of the building, e.g. department store: fire could start due to construction works and damage not only newly construction part but also existing one. Normally such risks are not covered by the operational policy and should be covered by engineering insurance. In this case underwriters usually use Existing property clause. During the risk assessment it is very important to understand the Value of the existing property at risk and the probability of damaging it during construction works.

Industrial erection projects

Here the situation may be even more complicated.

A) In case of new construction underwriters have to have full description of items to be erected combined with the construction schedule. The assessment of risk should be the same as for civil engineering projects: there is a need to understand when each part of the project change the

phase from construction to operation and access if the construction risks of the remained part of the project could have the influence on the operational part.

B) In the case of reconstruction it is important to understand how the process of erection is interrelated with the normal operation of the plant. The tricky situation could be when the erection and testing of the new equipment are combined with the idle period of time when the equipment is already assembled but still not working. Here it is very important to assess will it be under operational or under constructional coverage according to the contract conditions.

C) The project also could use second hand equipment. In case of second hand equipment there to assess the risk underwriter need to know the availability of spare parts and the ability to change equipment in case of loss.

ALOP/DSU

In case if the Material damage section is combined with the Loss of Profit section the following questions should be considered:

- Which items are of crucial importance for the loss of profit?
- Are there any spare parts for the reconstruction in the case of loss?
- What is the average period for the reconstruction?

In the case of the complex projects which includes new construction incorporated in the operational plant underwriter would need the additional information about the financial plan of the plant: split of production /profit/ fixed costs between the new equipment and old one.

Contract Exposure - Insurance Condition Aspects

Risk responsibility provisions and requirements for insurance

Construction contracts usually allocate project responsibilities and determine whether one or several parties are responsible for purchasing insurance. Typically one party arranges insurance on behalf of all (or most) parties or wraps up all parties working on a project. Depending on the contract, the owner or contractor or a combination of the two can purchase insurance.

These contracts also set expectations for the transfer in reaching operational status - what needs to be achieved and by who; (PAC, FAC, Final Handover, etc). These expectations need to be understood and in the process of risk transfer to the insurance, they need to be mirrored in the insurance policy.

Construction policies covering not only principal but also any kind of contractors risk might be very challenging for the insurers

Non-recourse financed projects, for example, are particularly complex and many interests have to be covered. Lenders and Financiers are often pushing for the widest cover available and also contractors/suppliers try to implement clauses in the supply and installation contracts to protect their warranty risks.

This protection shall be, for example covered via:

- Guarantee Maintenance instead of an Extended Maintenance cover;
- implementation of a very wide Waiver of Subrogation clause;
- No Manufacturers Warranty clause, stating that these warranties are primary to insurance cover in place.

These contractual requirements/agreements between the involved parties makes it more complex for the underwriting of such combined policies. Not only that the already very comprehensive technical risk situation of the construction project must be evaluated, also the manufacturing process as such must be investigated and rated. During the initial insured period the insurers are regularly informed about project – updates, but after expiry of the initial period the insurer panel might change and the insurers are still on risk for an additional period covering the warranty risks of the involved suppliers/manufacturers.

So accumulation control has to be carried out on different levels, also taking into account policies which might have already expired, which are in effect and also between different lines of business (construction vs. engineering/property).

Underwriting Considerations

Full and accurate information is the key to the correct risk assessment and successful underwriting

To achieve seamless Construction to Operational risk transfer insurance industry needs to first understand and correctly interpret the process of handover or acceptance. That includes the information about the Provisional Acceptance Certificate (Start of Warranty Period), Phased handover, Warranties, Punch List, Maintenance Schedule, Early Operations, Final Hand Over, Final Acceptance Certificate (End of Warranty Period).

That information then needs to be considered in the policy wording, risk evaluation, capacity deployment and finally in the risk premium rate.

The process of acceptance

In the construction industry, the process of acceptance is divided into two basic steps:

PROVISIONAL ACCEPTANCE

A conditional acceptance which means that the client has accepted the project but performance needs to be verified or confirmed under operational conditions within an agreed period. The client issues a Provisional Acceptance Certificate to evidence this step. This is when the warranty period starts.

FINAL ACCEPTANCE

When the final condition of the completed work is verified or confirmed, which usually takes place after the necessary tests have run. If any defect or deficiency is identified, the contractor has to make corrections. This is also the end of the warranty period. After this date, the contractor has limited liability for the operation of the facility, depending, of course, on the applicable laws and the agreement of the parties.

PUNCHLIST/SNAGLIST

Document created in the final stages of a construction project (before the provisional acceptance) to provide a list of items that must be addressed before construction is considered complete and payment is issued. The list is usually made by the owner, architect or designer, and general contractor, while they tour and visually inspect the project. Most often, the items are minor issues, like scratches and markings on walls and floors from construction, but it may also include items that were done incorrectly and require rework. Punch lists may even include brand new items that were not included in the original project specifications. Sometimes during the walk through, the owner may identify some changes they'd prefer and then agree with the general contractor to add new scope and cost to the project. Once the full punch list

is compiled, the general contractor will assign work to the right subcontractor(s) and they will work through each item until the list is completed. On the day when the PAC (Provisional acceptance Certificate) is signed all works in the punchlist should be completed.

In this case underwriters usually provide standard all risks coverage for all the works before the provisional acceptance date. All works in the punch list remained uncovered as there is no sudden and unforeseen damage to the works just normal reworking.

After the provisional acceptance date only the maintenance coverage could be granted:

- Guarantee maintenance cover
- Extended maintenance cover
- Visits maintenance cover

Partial completion/Partial possession/Sectional completion

The extent to which building works have been completed and whether a client can occupy a building or not is an issue that often arises during a project. There can be pressure to occupy a building, even if the works are not complete, and this can lead to disputes if the differences in the options available are not properly understood.

Practical completion (Provisional acceptance)

The contract administrator certifies practical completion when all the works described in the contract have been carried out. This is when, leaving aside minor items and/or snagging, the works are considered to be complete. Once the certificate of practical completion has been issued, the client takes possession of the works for occupation. At this point the contractor no longer has exclusive possession of the site, and their obligation to insure the works and their liability for liquidated damages for delay comes to an end. Practical completion signifies the beginning of the defects liability period, during which the contractor must make good any defects that become apparent.

Partial possession

The client may wish to take possession of part of a building or site, even if works are ongoing. This can be programmed within the original contract documents if the need can be foreseen through a requirement for sectional completion, but in the absence of such a provision many contracts offer the more open-ended option of partial possession.

The effect of partial possession is that:

- Any part for which partial possession is given is deemed to have achieved practical completion.
- Half of the retention for that part must be released.
- The defects liability period begins for that part.
- Liquidated damages reduce proportionally.
- The client is responsible for that part and should insure it.

Sectional completion

The contractor is not obliged to allow partial possession (although permission cannot be unreasonably withheld), and may not wish to if, for example, access routes are difficult to achieve, it would disrupt the works, or it would incur additional costs. There could also be additional difficulties if the occupants of the part that has been possessed disrupt the contractor, which could result in a claim for extension of time and/or loss and expense.

Sectional completion refers to a provision within construction contracts allowing different completion dates for different sections of the works. This is common on large projects that are completed in sections, allowing the client to take possession of the completed parts whilst construction continues on others. Sectional completion differs from partial possession in that it is pre-planned and defined in the contract documents. If sectional completion is required, it must be an express term of the contract, and reflected by the fact that there are multiple completion dates rather than just one. The extent of each section must be clearly defined and liquidated damages, and the amount of retention that will be released must be specified for each section. There may also need to be clarification of how extension of time provisions will be applied if, for example, delays to one section of the works have a knock-on effect on other sections (the cascade effect).

In procedural terms, sectional completion is similar to normal completion and follows the usual handover procedures (see handover to client). However, some work within the section may remain outstanding, such as the completion of commissioning, operation and maintenance manuals and as built drawings, which will cross all sections.

It may exclude mechanical and electrical service systems which are reliant on total completion before they can be properly tested and commissioned. This means that their needs to be an agreed protocol for re-entry into completed sections for the contractors to complete outstanding work. Sectional completion requires particular care to be taken regarding:

- Difficulties with logistics on site when different sections are in the possession of different parties.
- The protection of completed sections from ongoing work.
- The provision of appropriate insurance at all times for all sections.
- The adoption of appropriate health and safety measures to deal with risks resulting from occupation of

areas adjacent to, or only accessible through ongoing construction works.

- The provision of appropriate security measures.
- The consequences of sectional completion are that
- Half of the retention is released for that section.
- The Rectification Period begins for that section,
- The contractor's responsibility for insuring the works (if applicable) ends for that section.
- The contractor's liability for liquidated damages ends for that section.
- The employer is now responsible for any damages to the works for that section

It is helpful when the separate agreed construction and erection, testing and maintenance periods are specified in the policy as unambiguously as possible. Both Underwriters and clients should clearly understand what type of completion is used in the contract wording. This can help a lot when the insured has the need to request an extension of insurance period and it is particularly relevant when applying the deductibles. The construction contract and insurance policy usually indicate the duration of testing period. Some policies may exclude loss or damage to the machinery during testing or the cover may be restricted. Testing under operational conditions may take place separately from different sections of the project, with interval between them there may be commissioning and subsequent operations of the parts of the work by contractors, e.g. of power generation plant in a major petrochemical plant where the power will be required for the ultimate commissioning of the whole plant. Some contracts will allow phased hand over. Sometimes the contract provides for some testing work to take place during the maintenance period.

Underwriters are usually limited the period of testing because during that period the risks of fire, explosion and breakdown assume a greater significance. This coupled with the fact that full value of contract is at risks will mean the greater exposure. The policy will make it clear whether the cover for testing (other than that which is contractors' responsibility within the maintenance period) ceases either as soon as commercial operation begin or when the design production targets have been reached. The maintenance period may include the period of testing or training which can only be carried out during the full operation. This is the significant aspect to consider and will give the insurer some fundamental points to resolve. The question whether the insurance should be extended repeatedly whilst the

Risk monitoring

production targets are achieved may greatly increase the exposure.

In the complex projects where the operational covers are combined with the project covers underwriter need to have updated information about the site progress. This could be done using Risk Monitoring. It is better to have several surveys on site: one before the commencement of the work and others during the crucial stages of the construction. This can give the possibility to have the clear picture, to change the period of insurance and to adjust the premium if needed. Underwriters have clearly stated the borders of operational and project covers.

Changes in the works programme are virtually inevitable during construction, and insurers need regular progress reports to keep abreast of developments. This monitoring function is often assigned to independent consultants or claims adjusters, who must obtain in-depth knowledge of the project's progress to adjust any material damage claim that may arise. Their familiarity with the project enables claims adjusters to easily identify whether a delay is caused by an insured or a non-insured event. The guaranteed and scheduled business commencement dates are often adjusted for a variety of reasons and may need to be redefined during construction. Since DSU cover is strictly limited to delays caused by accidental physical loss or damage, the insurer must ensure that the cause of any delay is clearly recorded. If a delay occurs, the insurance periods of both the material damage and the DSU covers must be extended, and a revised scheduled business commencement date must be agreed upon. However, this does not apply to the guaranteed completion date, which triggers liquidated damages payable by the contractor in the event of a delay, provided that the works' EPC contract stipulates such an obligation. As the project progresses, the scheduled business commencement date and the guaranteed completion date – which coincide at the beginning of the project – may drift apart. Due to the apparent conflict of interests among the contractor, the principal and the insurer, the revision of the scheduled business commencement date and the stipulated guaranteed completion date is often a contentious point. While postponing the guaranteed completion date would hardly be in the interest of the principal, it may help the contractor to avoid liquidated damages. Similarly, the scheduled business commencement date may be a point at issue between the principal, who strives to ensure that the scheduled business commencement date remains unchanged, and the DSU insurer, who endeavours to postpone this date as far as reasonably possible to

Market Movement

accommodate unexpected delays. Therefore, it is essential for DSU insurers to monitor works progress closely and negotiate any adjustment of the scheduled business commencement date with the principal as early as possible. Any revision, ie extension, of the insurance period entitles the insurer to adjust the premium and, if necessary, the excess period to the increased risk exposure.

Construction to Operation policies are in essence the fusion of a long-tail product followed by a short-tail product with notably different exposures. During the negotiation process, it would therefore be prudent to consider what impact any potential movements in the insurance market may or should have on the risk being placed.

To do this, one must assess what the Property Insurance market trend is likely to be around the time the Construction Works are predicted to be completed. Failing to do this can result in an underwriter agreeing to unsustainable pricings and/or conditions or losing business for not offering reasonably competitive quotes.

Attention should also be paid to ensuring the maximum number of extensions is clearly defined, especially for highly complex works. Without clarity, lengthy extensions have the potential to push the Operational section of the policy into a phase of the market cycle that may be the opposite of what was originally factored in.

Partial Occupation

For instances where “Partial Occupation” is being proposed, consideration needs to be given to whether the fire exposure for the resultant occupancy will be notably higher during the initial operation phase than what it would if no construction works were occurring.

For certain heavy industry or higher hazard occupancies (e.g. Oil, Gas, Power Generation etc), this is not usually a concern as the inherent fire hazards for these often outweighs those present during construction.

But for commercial buildings such as office towers who generally have limited ignition sources during operation, simultaneous construction works such as welding and grinding do significantly increase the risk of a fire occurring on the premises.

Extra thought should also be given to what type of events on the worksite might trigger Delay in Start-up, Business Interruption or Contingent Business Interruption losses for the portions of the site that has been taken into operation.

For example, what magnitude of loss may occur should access to the site be restricted by authorities during incident investigations (e.g. accidents, deaths, other safety concerns)? Any notable exposures should have appropriate Sub-Limits negotiated to provide better contract certainty for all parties.

Reference List

- | | |
|--|--|
| Delay in Start Up Insurance | Swiss reinsurance Company, 2003 |
| Construction Insurance (Advanced study group report) | Paperback – 1 Nov 1999 by N.D. Alderton, Insurance Institute of London |

Working Group Members

Georges Helou

Krystal Meek

Marina Zyuganova

Lutz Weidtke

Simon Dejung (Sponsor)

Milos Sarbajic (Chairperson)

Scor

Hannover Re

Renaissance

Codan

Scor

Helvetia

GHELOU@scor.com

Krystal.Meek@hannover-re.com

MZyuganova@renins.com

lutz.weidtke@codan.dk

sdejung@scor.com

milos.sarbajic@helvetia.ch