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CAR to Operational Handover

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Hugh Kennaway

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PURPOSE OF THIS PRESENTATION

1. To set the contractual, coverage and commercial background for oil and gas risks transferring from CAR to Operational

2. To explain the thoughts and views of those involved and the challenges inherent in the process

3. To suggest potential solutions

To give the delegate a better understanding of the drivers, challenges and potential solutions to this difficult area of risk transfer

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AGENDA

- Who are the parties to the process and what do they say about it
- Life-cycle of a process plant
- Testing and Commissioning Clauses
- Meaning of words in the Testing and Commissioning (T&C) clause
- How it can affect a claim
- Challenges and Solutions

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WHO ARE THE PARTIES TO THE PROCESS AND WHAT DO THEY SAY?

- Risk Manager/Insurance Department
- Broker – Risk Engineer/Placing/Account Handler
- Reinsurers in-house Engineers
- Reinsurers Operational Underwriter
- Reinsurers CAR Underwriter
- Associated Involvement: EPC Contractor, Insured's Project Team and Operations Staff (Reinsurers Claims Personnel, Loss adjusters, Legal)

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WHAT DO THEY SAY

- Risk Manager @ NOC: *"Anyway, if you want an assessment of insurance market practice on the transition from CAR to operational, I would give them a maximum 1 out of 10. They are hopeless and none of their practices are fit for purpose…"*

- Broker: *"ahh, indeed, I would tend to agree with the sentiment"*

- Risk Manager: *"…why when I have selected the same operational insurers as the CAR insurers am I dealing with different people and sometimes entities…"*

- Broker: *"…its not possible to transfer from CAR to Operational without any ambiguity…"*

WHAT DO THEY SAY

- Reinsurers Operational Underwriter: *"I write operational risks not testing and commissioning which is a construction risk…"* but we have and continue to transfer risks from CAR to Operational with minimal bureaucracy [referring to NOC and IOC projects]

- Reinsurers Operational: Data dumping unindexed multi GB of information 2 or 3 days before transfer [is not helpful]

- Reinsurers Claims Manager: *" This is the one subject that causes us the most headaches at the moment…"*

- Reinsurers Risk Engineer: *"Nothing has changed in ten years…"* [despite recommendations]

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WHAT DO THEY SAY

- Owners PMC: *"…endless questions we have already given responses to…why can't there just be one or two points of contact rather than 10 or 15…we are very busy trying to get this plant operational"*

- Owners Insurance Department to loss adjuster: *"…the reason the [insurance] claim for T and C continues to increase is because your [reinsurers] engineers keeping asking for further information and tests…"*

- EPC Contractor: *"We just want to get paid as per our contract and go but we end up in the middle of a battle of wills between the owner and their insurers with little chance of recovering the extra time and expense in a variation…"*

- Owners PM: *"AM"*

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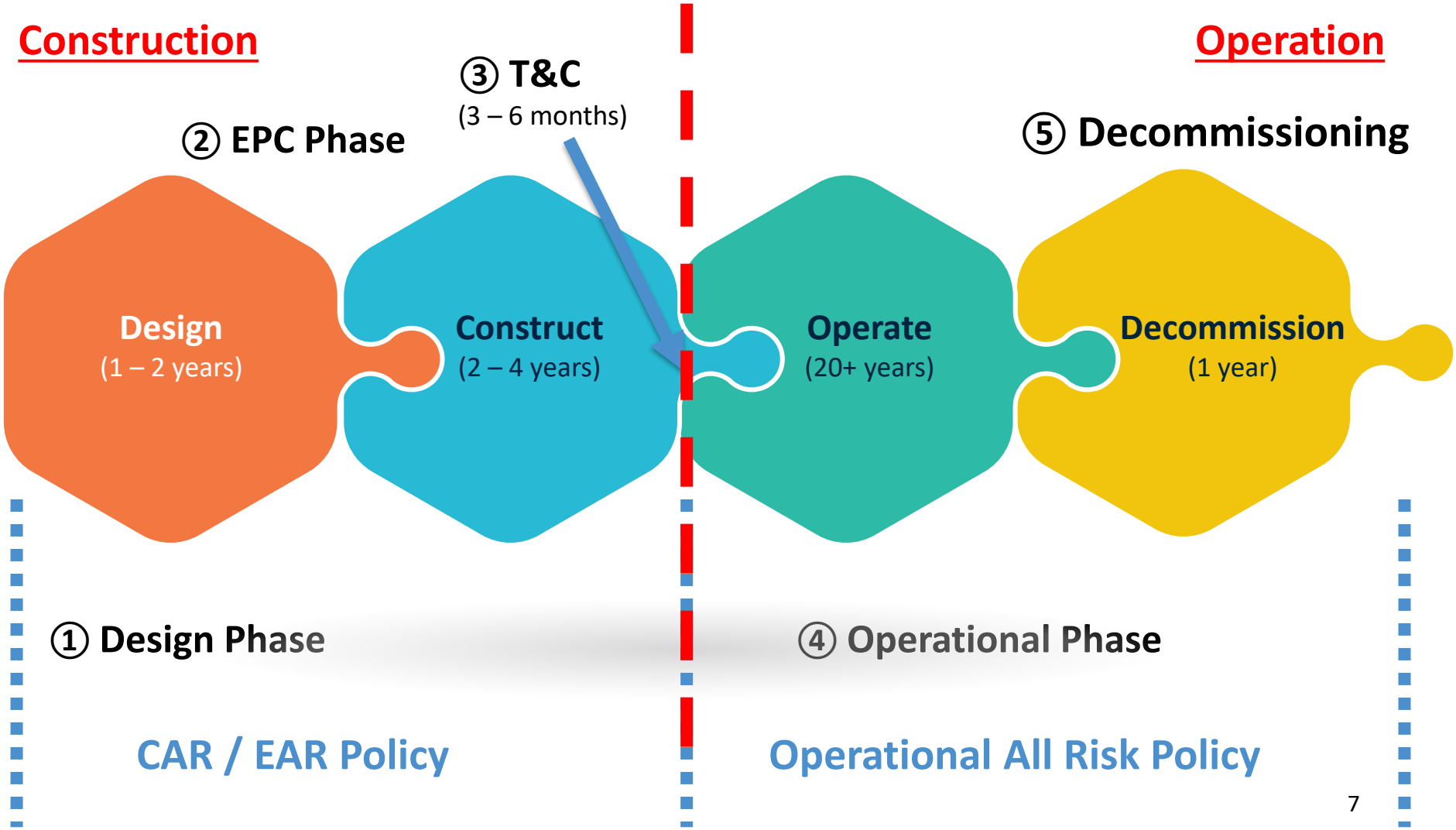
LIFE CYCLE OF A PROCESS PLANT



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TESTING AND COMMISSIONING

Testing and Commissioning – The terms

- Mechanical Completion

Attainment of readiness for commissioning of plant and equipment

Mechanical completion is a key project milestone

- Pre-Commissioning / Cold Testing

Encompasses all static and non energised checking and test work, necessary to ensure that a given system is built according to project specifications and documents

Visual checks & inspection, pressure testing, flushing and cleaning

- Commissioning

Includes all dynamic and energised checking and test work such as start up of machinery and function testing

- Ready for Start –up and Start Up

Milestone at which hydrocarbon feedstock is introduced with subsequent ramp-up to operating conditions, optimisation and trouble shooting

DEFINITIONS

Provisional Acceptance

Provisional Acceptance means the stage when all work up to mechanical completion has been successfully completed and mechanical completion certificate is issued.

- Provisional Acceptance Certificate(s)

Provisional Acceptance Certificate(s) (PAC) means the certificate(s) signed by company and issued to contractor confirming provisional acceptance of the plant or parts thereof, provided however that where more than one (1) PAC is issued all warranty provisions are contingent on and commence from the issuance of the last PAC.

- Punch List

A punch list is a document prepared near the end of a construction project listing work not conforming to contract specifications that the EPC contractor must complete prior to final payment. Punch lists will likely be segregated into time periods: Short/Medium/Long which are then further defined

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TESTING AND COMMISSIONING

- "Testing and commissioning is the most difficult and potentially hazardous period in the life-cycle of a process plant"

Process Plant Commissioning – D . Hawsley, IChemE 1998

Why?

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FOUR KEY STAGES OF TESTING AND COMMISSIONING

1. Visual Inspection
2. Flushing and Cleaning
3. Leak Test
4. Start Up

Typical Incidents occurring during T&C…

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TYPICAL T&C INCIDENTS

- Foreign materials exclusion (FME)
- Missed scheduled replacement
- Pressure testing
- Rotating machinery
- Furnace and Firebox explosions
- Poor construction – welds failing
- Construction debris

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FME FAILURE – TRANSPORT BOLT DROPPED INTO GENERATOR ROTOR

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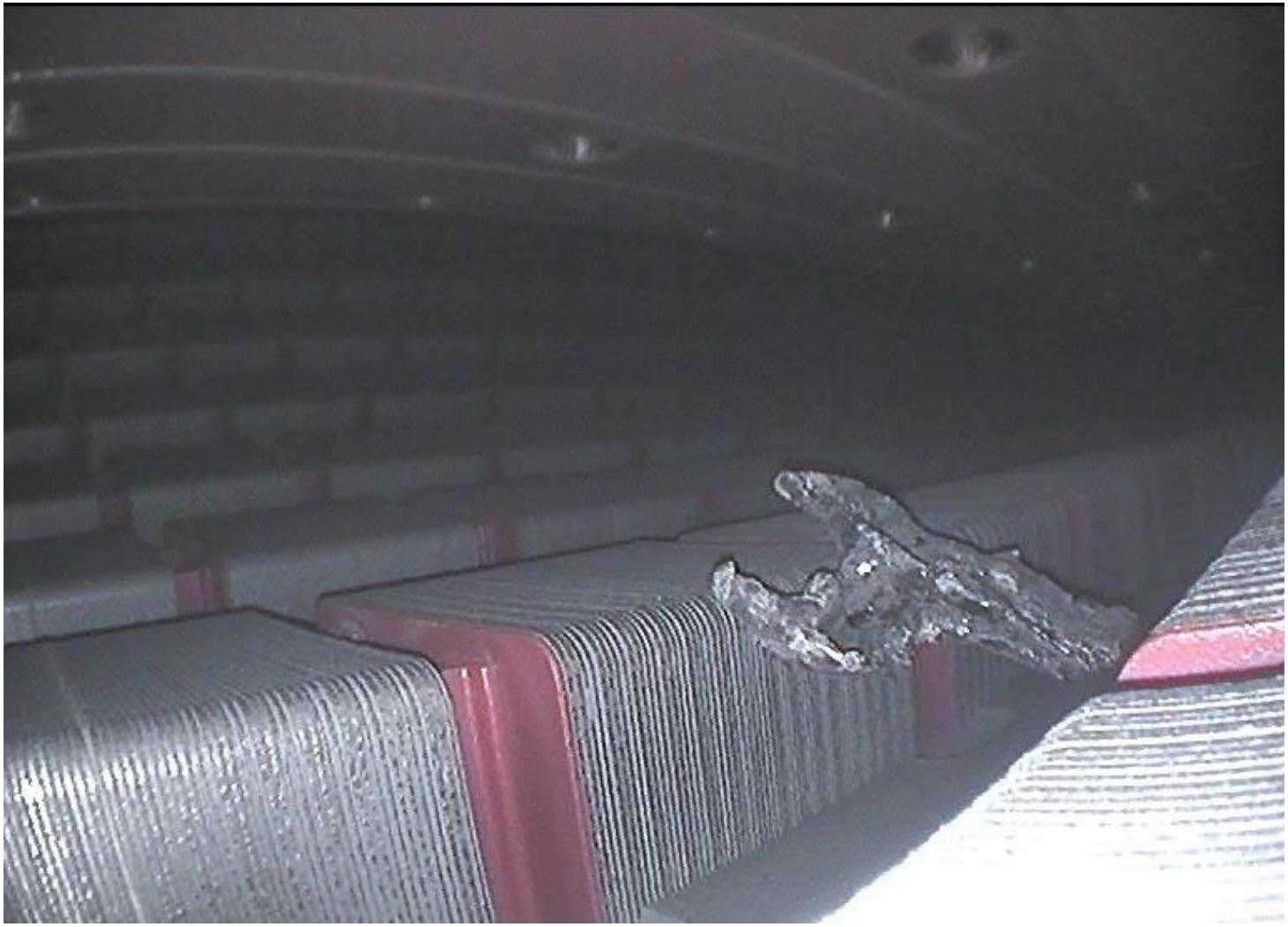
FME FAILURE – SPANNER IN THE WORKS



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CONSEQUENCES OF RUSHED T AND C (TAR)

OVERHEAD LINE (L-407/1) CORROSION

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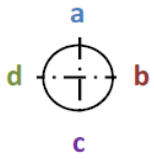
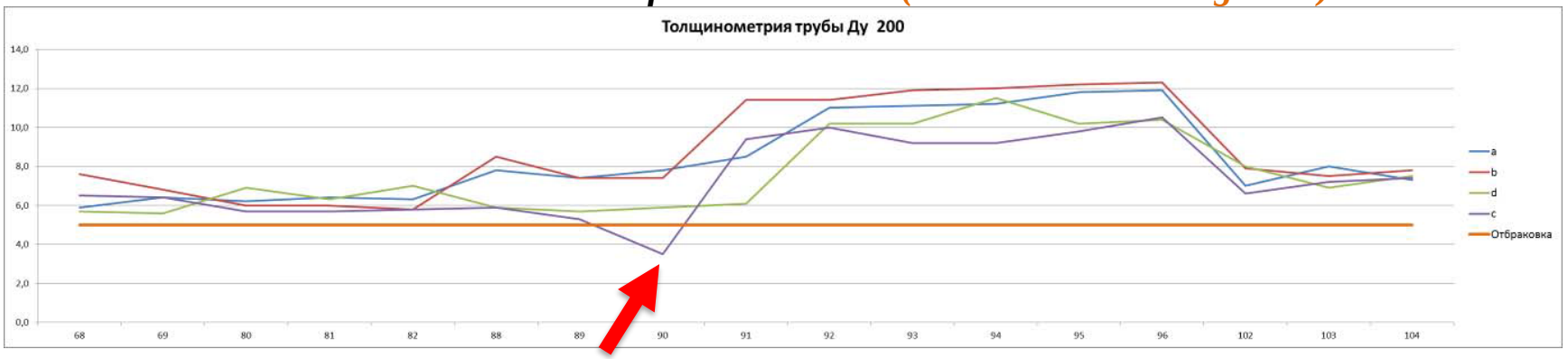
Actual wall thickness of L-407 DN 300 Vs allowable value (GOST Code = orange line)

- a
- b
- d
– c



Actual Wall thickness of L-407 DN 200 (GOST Code = orange line)



- a
- b
- d
– c

FAILURE OF STEAM CURTAINS

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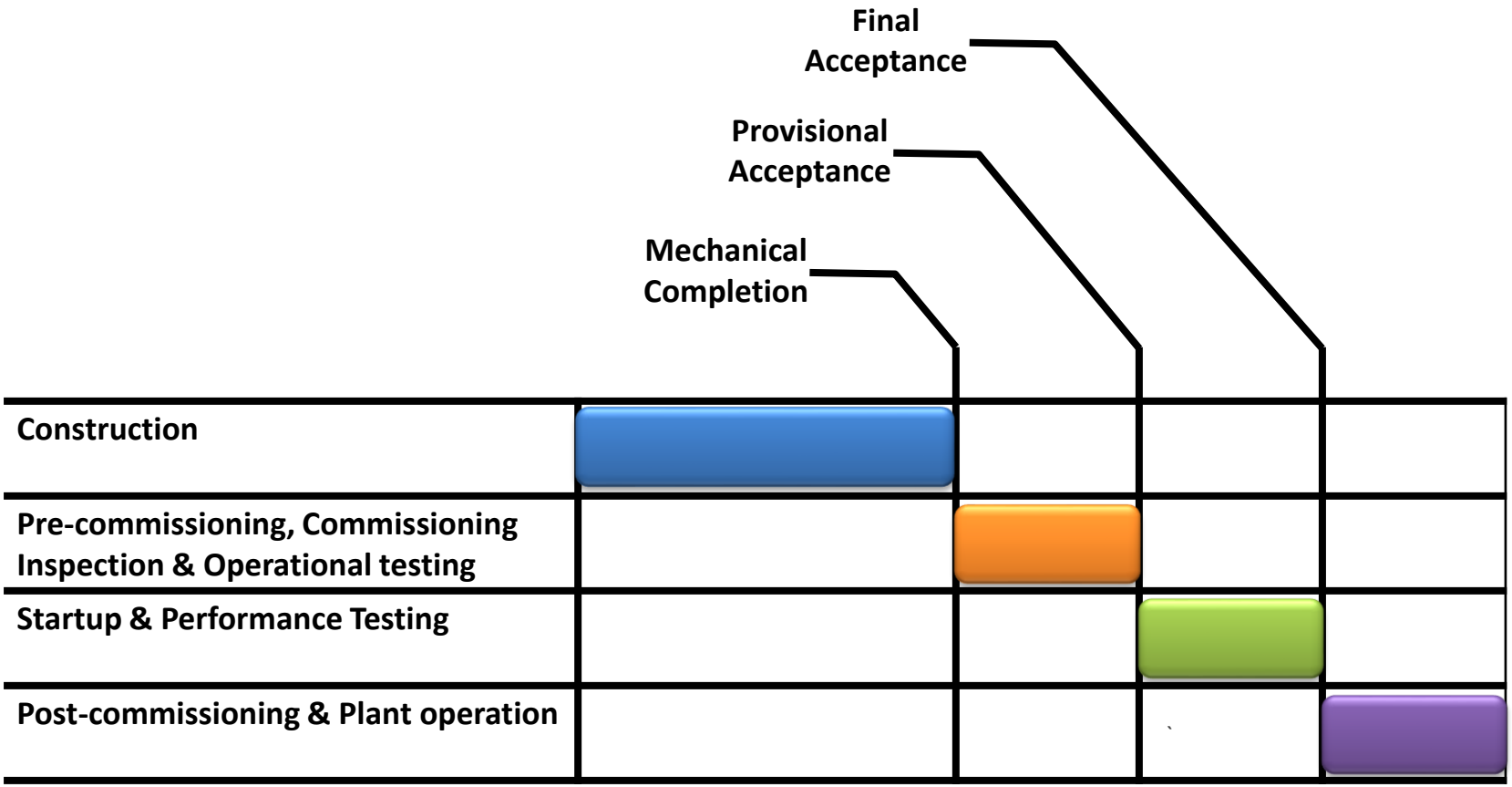
T&C – IN THEORY, HOW INSURERS WOULD LIKE IT TO HAPPEN…



T&C – HOW IT ACTUALLY HAPPENS: PHASED HANDOVER

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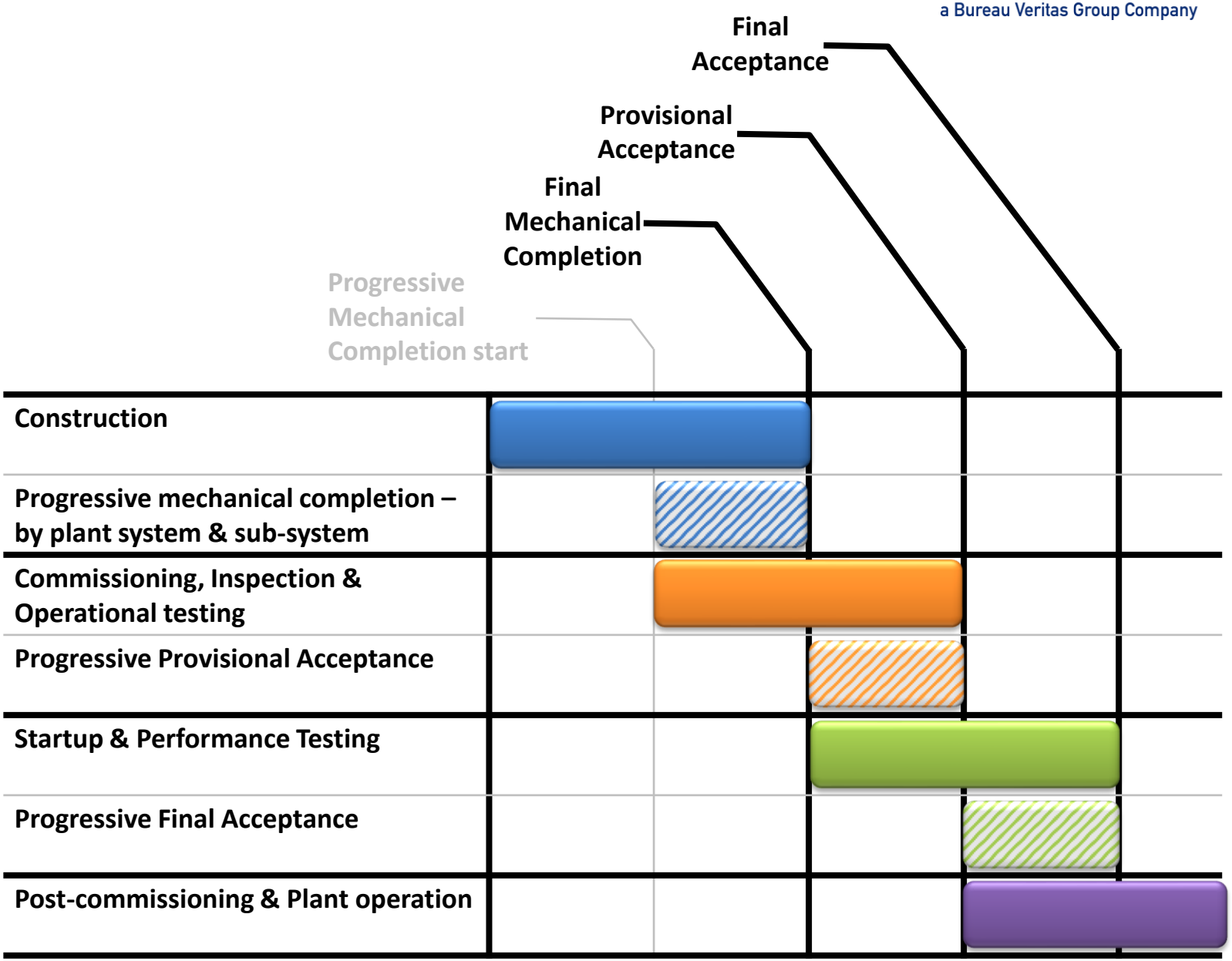

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DRIVERS FOR TRANSFER FROM CAR TO OPERATIONAL

- EPC Contractor: Stage payment and complete contract to avoid prolongation costs and never ending project. No DSU
- Owner: CAR more expensive (in the past by a factor of 4 to 5 times) and might have DSU but no BI
- Owner: Political and geo-political influence to declare plant ‘operational’
- Owner: Commercial imperative, licensors, warranties running down

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DRIVERS FOR TRANSFER FROM CAR TO OPERATIONAL

- Lenders: Commercial interest…sunset clauses?
- Broker: Is it the same broker?
- CAR Insurers: Construction risk is finished. Policy is time based , may not want to issue extensions
- Broker: Reacting to wishes of client – cover/BI/price
- Operational Insurers: Premium and not directly concerned about interests of lenders or EPC contractor

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POTTED HISTORY OF T&C CLAUSE…

- STSCTnC' written on slips (Subject to Satisfactory Completion of Testing & Commissioning)
- Goes back as far as CIGNA and IOI in 1990's
- CAR Policy had X months Construction and X months T&C to match the project programme but did not contemplate phased handover
- Operational policy based on Property policy and did not have T&C clause
- T &C clause introduced culminating in LMA5179A 2014

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LLOYDS MARKET ASSOCIATION

" The purpose of the LMA is to identify and resolve issues which are of particular interest to the Lloyd's market. We work in partnership with the Corporation of Lloyd's and other market-related associations to influence the course of future market initiatives"

The following issues, which impact across the underwriting community irrespective of class of business, are currently being considered by the NMC:

- E-Placing
- Solvency II / Basel II / various Capital Requirements issues
- International Sanctions
- Law Reform
- Ongoing Wordings projects
- Cyber risks
- Non-Disclosure Agreement
- Confidentiality

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PROPERTY TESTING AND COMMISSIONING LMA5197A

1. It is hereby noted and agreed that this (Re)insurance does not cover destruction of or damage to property in course of construction or erection, dismantling, revamp or undergoing testing or commissioning including mechanical performance testing and any business interruption resulting therefrom.

2. Acceptance of property hereon is subject to satisfactory completion of the following:

- *2.1. Mechanical Completion.*
- *2.2. Testing and Commissioning.*
- *2.3. Performance Testing conforming to 100% Contract Design Criteria having been maintained by the entire plant in a stable and controlled manner for a continuous period of a minimum of 72 hours duration.*
- *2.4. Official acceptance by the Insured following formal hand over without reservation or waiver of guarantee conditions.*
- *2.5. Any deficiencies identified during the testing, commissioning and start-up that may affect the mechanical integrity, process safety or reliability of the plant, having been declared to (Re)Insurers prior to attachment.*

….

MECHANICAL INTEGRITY

Mechanical Integrity can be defined as the management of critical process equipment to ensure it is designed and installed correctly, and that it operates and is maintained properly (i.e. no leaks and all elements are fit for service)

PROCESS SAFETY

"Process safety is a blend of engineering and management skills focused on preventing catastrophic accidents, particularly explosions, fires, and toxic releases, associated with the use of hazardous materials and energy"

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SUMMARY OF LMA5197A CLAUSE

Requirements for satisfactory completion of:

- Mechanical Completion, including Testing and Commissioning
- Performance Testing
  - 100% design criteria
  - 72 hours
  - Stable and controlled operation
  - Continues ongoing period

Also requires

- Official acceptance by Insured
- Plant handed over without reservation or waiver of guarantee
- No equipment faults or punch-list items affecting operational integrity
- No temporary structures or start-up modifications

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LMA5197A QUESTIONNAIRE

- Purpose: Facilitate the transfer of a newly constructed Onshore Oil, Gas and Petrochemical asset from a Construction policy to an Operational policy

- Important: Any issues identified…not necessarily a barrier to transfer…more likely a basis for discussion between Insured and Re-insurers..

- PT – 100% design criteria …stable and controlled..72 hours duration...if not why not

- Copy of punch-list

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PUNCH-LIST

"..A punch-list is a document prepared near the end of a construction project listing work not conforming to contract specifications"

Period:

- Short term
- Medium term
- Next TAR or ongoing whilst in operation

Typically:

- Unit tag no
- Performance/Integrity/Reliability
- Criticality – High/Medium/Low
- Term – Long/Medium/Short
- Impact/Description

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"OPERATIONAL INTEGRITY"

- Items affecting "operational integrity"
  - Reactor hot spots (cooled by steam lances to keep plant running)
  - ESD trips defeated
  - Fire & Gas Detection System unavailable
  - Fire fighting equipment unavailable
  - Furnace tubes operating at temperature above design
  - Relief valves not commissioned or undersized
  - Reduced Fire Pumps available
  - Flare stack thermocouples and auto-ignition system out of service
  - De-min and / or BFW results consistently cut-in specification
  - Piping vibration
  - No performance test on separate vendor supplied packages
  - Alarm flooding
  - Cathodic protection system not fully functional
  - Steam curtain inoperative

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CLAIM COMPLICATIONS

- Claim occurs shortly after PAC
- Punch-list
- Gateway
- Operational integrity
- CAR Maintenance period losses
- What's left on the CAR policy or has it expired?
- Are any reinsurers common to both CAR and OP policies?
- What is on the punch-list that could morph into the claim?
- Would the second T&C take out some of the EPC handover problems?
- Pre Commissioning - why do it again?
- Belt and braces safety on T&C - well, we don't want it to happen again!

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CHALLENGES

- T&C clause is ok for vanilla stand-alone plants or trains but with multi-phased and integrated projects it can be too simplistic
- Problems can arise when there is insufficient or delayed feedstock or plant configuration changed from design
- LMA 5197A Questionnaire helps operational Insurers to gain understanding that the EPC contract has been executed to a certain standard
- Lack of transparency
- New Technology

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POTENTIAL SOLUTIONS

- Time and Communication seems to be the biggest single factor
- Broker: Pre-operational surveys (if they get both CAR and OP – what if they don't?)
- Extend CAR to include early operations e.g.: early power, early steam operations date…
- All Risks "Construction and Operational risk coverage" in one policy form

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POTENTIAL SOLUTIONS

- Phased hand-over
- Lower limits and raise deductibles
- Independent verification site team paid for by Insured and Insurers

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SUMMARY

- Early engagement and clearly defined lines of communication
- Overwhelming impression is that more communication is needed
- Educating all involved ahead of T&C preferably towards end of EPC phase
- LMA5197A Questionnaire is a sound document to provide the technical dialogue and envelope
- Time: it needs and deserves responsibility and time which brings about trust
- Trust might be in limited supply if a loss occurs close to T&C when it has to all be unpicked

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- Wikipedia (Slide 28)
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