

1 alignment/coverage-matrix.md

1.1 Coverage matrix (SOPEEC topics vs SAM coverage)

SOPEEC Topic	SAM Coverage	Notes
1.0 Legislation	Yes (partial)	Strong on codes and licensing; CRN and permit constructs implicit only
1.2 Safety	Yes	SAM has extensive practical safety and emergency procedures
1.3 Calculations	Partial	HP covered; heating surface and explicit unit conversions not explicit
1.4 Thermodynamics	Yes	SAM 2.2 covers all core concepts
1.5 Boilers	Yes	SAM 2.3–2.5 very detailed
1.6 Inspection	Partial–Strong	Concepts covered; explicit NDE methods and CRN named only in SOPEEC
1.7 Operation	Yes	SAM 2.8–2.14 provide rich operational detail
1.8 Testing	Yes	Hydro test and conditions in SAM 2.15
1.9 Water Treatment	Yes	SAM 2.6 aligns closely
1.10 Steam Engines	Yes (minus indicators)	All except indicator diagrams
1.11 Emergency Procedures	Yes	SAM 2.13 maps closely
1.12 Repairs	Yes	SAM 2.16 + 2.18 align with repair standards and QA

1.2 High-level gap summary

- **Conceptual gaps (SOPEEC-only)**

- CRN and “Certificate of Inspection Permit” as explicit constructs.
- Named NDE methods (UT, MPI, LPI, RT) and their explicit use in MAWP determination.
- Heating surface calculations.
- Indicator diagrams.
- Explicit naming of “thermal stress”, “water hammer”, “overspeed trip” (though related ideas exist in SAM).

- **Practical gaps (SAM-only, beyond SOPEEC)**

- Detailed hands-on task list for candidate experience.
- Crew preparation routines, belting, maneuvering, parading.
- Fine-grained lubrication practice and bearing checks.
- Detailed component-level nomenclature and historical context.