

QUALIFICATIONS NEEDED TO DESIGN, CONSTRUCT AND MANUFACTURE NUCLEAR SYSTEMS AND EQUIPMENT

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Does the nuclear Industry need locally produced products and services?

What kind of qualifications and approvals are required?

80% of a nuclear reactor's lifetime total costs are the upfront costs

Keeping downtime to a minimum is essential

Even a minute failure will require the plant to shut down

All systems undergo testing of each component and the overall assembly at the most extreme operating conditions.

Interested suppliers, manufacturers or construction companies need first to pre-qualify for the work they want to do.

A company should start the pre-qualification process before commencing discussions with the Architect/Engineer

Zone 1

- . Reactor core and its control systems
- . Anything in contact with the PHT

Zone 2

- . moderator cooling system
- . containment system
- . most systems and equipment inside the containment

Zone 3

- . turbine/generator
- . turbine steam system
- . turbine building and all systems inside it except ECCS pumps and piping

Zone 4

- . all non nuclear systems in the station

Governing codes and standards

- . ASME Section III nuclear systems
- . CSA N285 nuclear components
- . CSA B51 pressure vessels & piping
- . CSA C22 electrical systems
- . ISO 9000/10000 quality assurance

Requirements

Zone 1 defined by ASME Section III Class 1
and by CSA N285

Zone 2 defined by ASME Section III Class 2

Zone 3 defined by ASME Section III Class 3

Zone 4 defined by ASME Section III Class 4

Zone 4

- Comparable to small, low pressure, and non process systems of the oil industry

Zone 3

- comparable to high pressure process systems in the oil industry (greater than 103.4 kPa)

Zone 2

- . All of the requirements of zone 3
- . material traceability to the ingot
- . development, approval and testing of equipment and systems
- . increased quality surveillance & records

Zone 1

- . all of the requirements of zone 2
- . special requirements for individual component fabrication, construction & testing
- . manufacturing of prototypes and testing including destructive testing.

Time estimated to qualify for contractor with oil industry experience:

zone 4 work: 1 to 2 months

zone 3 work: 3 to 4 months

zone 2 work: 6 to 12 months

zone 1 work: 18 + months

The company willing to go through the qualification process will:

- . find an excellent return on investment.
- . place itself ahead of competition for future nuclear contracts
- . become better qualified and more competitive for oil industry work