

WEYLAND-YUTANI CORP



"BUILDING BETTER WORLDS"

CENTAUR SYSTEMS TECHNICAL MANUAL
PRIMARY THERMONUCLEAR REACTOR (MODEL: E.V. PERSEPHONE – CLASS I)

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Communications Systems Field Guide

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LIMITATIONS AND RESPONSIBILITIES

1. The reactor shall be operated only by personnel certified under Centaur Systems Reactor Operations Program C-5.
2. Alternate or improvised fuels are prohibited. Only Centaur-grade Injection Bottles bearing approved certification seals may be introduced to the feed system.
3. Any deviation from approved procedure requires written authorization from the Chief Engineer and the Ship Safety Officer.
4. All steps herein must be logged, countersigned, and archived within twelve hours of execution.

Technician Acknowledgement:

Signature _____ Crew ID _____ Date _____

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1 PURPOSE & SCOPE

This document defines the approved procedures for startup, operation, and maintenance of the Centaur Systems Thermonuclear Reactor, Model E-V. All personnel shall maintain strict compliance to ensure safety, efficiency, and regulatory conformity.

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2 ROLES & AUTHORITY CHAIN

- Chief Engineer (CE) – Operational authority and final approval for all reactor activities.
- Reactor Lead Technician (RLT) – Performs physical operations, including injection bottle handling and crank initiation.
- Safety Officer (SO) – Monitors compliance, may halt any procedure without prior notice.
- Corporate Liaison (CL) – Audits documentation; non-technical oversight.

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3 SAFETY NOTICES

⚠ WARNING – FUEL INTEGRITY

Only approved injection fuel may be introduced to the reactor feed. Substitutions, mixtures, or experimental additives are strictly forbidden.

Unauthorized injection may result in containment failure, void coverage, and trigger automatic SCRAM.

⚠ WARNING – RADIATION CONTROL

Ensure all shielding panels and coolant valves are secured before energizing the core.

⚠ WARNING – COOLANT LEVELS

Coolant must register within green band prior to startup. Inadequate cooling will result in quench event.

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4 REACTOR COLD START PROCEDURE

4.0 Pre-Start Checklist

- Reactor access panels closed and interlocks verified.
- All personnel cleared from the red safety arc.
- Coolant pressure confirmed nominal.
- Safety Officer present at console.
- One sealed, serialized Injection Bottle available and logged.

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4.1 Injection Bottle Preparation

1. Retrieve sealed Injection Bottle from authorized locker.
2. Verify tamper tape intact; cross-check serial number with logbook.
3. Mount bottle into feed well until retainer locks with audible confirmation.
4. Confirm console indicator: BOTTLE SECURED – READY.

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4.2 Cold Start Initiation

1. On Chief Engineer's signal, Reactor Lead Technician engages starter crank.
2. Rotate handle at steady cadence until console displays IGNITION PHASE ACTIVE.
3. Continue rotation until indicator shifts to SELF-SUSTAIN = YES.
4. Secure handle in parked position and insert safety flag.
5. Confirm console status lights: Power GREEN / Coolant GREEN / Stress WHITE.
6. Chief Engineer signs Reactor Log "Cold Start Complete."

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4.3 Post-Start Verification

- Confirm coolant circulation nominal.
- Monitor neutron counter; readings must stabilize within variance.
- Record start time, fuel lot, and operator signature in Log Section IV-B.
- Notify Bridge of power availability.

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5 NORMAL OPERATION & MONITORING

- Maintain coolant header pressure within green markers.
- Record hourly stress index and magnet stability.
- Report any amber alert immediately to Safety Officer.
- If power fluctuation exceeds $\pm 5\%$, perform soft-shutdown procedure.

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6 ROUTINE MAINTENANCE SCHEDULE

Daily:

- Inspect bottle seals in storage.
- Verify coolant header pressure.
- Clean crank assembly; lubricate pivot.
- Log inspection signature.

Weekly:

- Perform sensor calibration test.
- Replace tamper seals on spare bottles.
- Review coolant filtration logs with CE.

Post-Event:

- After any SCRAM or quench, perform full diagnostic before re-start authorization.

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7 EMERGENCY PROCEDURES

7.1 SCRAM (SEVERE CONDITION)

Press SCRAM control. Reactor enters rapid shutdown.

Announce: "Reactor Shutdown Initiated."

Record time, initiating crew member, and observed cause.

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7.2 QUENCH (EVENT)

If coolant flow lost or magnet temperature exceeds limit:

- Execute SCRAM.
- Evacuate Engineering Bay.
- Activate containment purge.
- Await clearance from Safety Officer.

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7.3 ALTERNATE-FUEL ERROR

If contamination suspected:

- Initiate SCRAM.
- Seal feed line.
- File Incident Form 12-B.
- Quarantine injection manifold pending inspection.

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8 INCIDENT REPORTING

Every anomaly requires completion of Incident Form 12-B with chronology, personnel list, probable cause, and corrective actions.

Submit three copies to CE, SO, and CL.

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9 APPENDICES & GLOSSARY

Injection Bottle: Sealed container for reactor start sequence.

SCRAM: Emergency rapid shutdown sequence.

Quench: Coolant loss resulting in automatic SCRAM.

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