

**GINNA**  
**EXTENDED POWER UPRATE**  
**POWER ASCENSION TESTING**  
**PROGRAM**

# GINNA EPU

## Power Ascension Testing

- Combination of Program Components Results in Integrated Testing Program
  - Normal Start-up & Surveillance Tests
  - Post-Modification Tests
  - Power Ascension Plant Monitoring
  - Analysis
  - Transient Testing

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## Power Ascension Testing

- Testing program meets requirements of applicable regulations
  - 10CFR Part 50, Appendix A, Criterion 1
  - 10CFR Part 50, Appendix B, Criterion XI
  - Regulatory Guide 1.68

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## Power Ascension Testing

- Normal Start-up and Surveillance Testing
  - Ensures critical plant components function as required
  - Replicates several tests performed in original start-up test series
  - Low power physics tests verify core performance

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## Power Ascension Testing

- Post Modification Testing
  - Ensures new or modified equipment performs in accordance with revised design basis
  - Done in accordance with existing plant processes and procedures
  - Discrete test performed for each modification

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## Power Ascension Testing

- Power Ascension Plant Monitoring
  - Various plant parameters are monitored during power ascension and compared against expectations
    - Process Parameters
      - Flow, temperature, pressure
    - Area Parameters
      - Temperature, radiation
    - Equipment Parameters
      - Vibration, temperature
  - Acceptance Criteria established for critical parameters

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## Power Ascension Testing

- Analyses performed using LOFTRAN to predict behavior of plant systems with new equipment and setpoints:
  - 10% step load increase from 90% to 100% of uprated full power
  - 10% step load decrease from 100% to 90% of uprate full power
  - 50% load rejection from 100% of uprated full power
  - Turbine trip without reactor trip from P-9 setpoint (49% of uprated full power)
  - Turbine trip followed by a reactor trip from 100% of uprated full power
  - Natural Circulation Confirmation
- All analyses indicate satisfactory results
- Analyses will be benchmarked against planned turbine trip at 25% power

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## Power Ascension Testing

- Transient testing proposed to confirm acceptable integrated plant response at EPU conditions
  - Turbine Trip from 25% power
  - 10% Load Change at two power levels
    - 30% Power
    - 100%Power
  - Turbine Stop Valve, Governor Valve, and Intercept Valve Testing
  - Steam Generator Level / Feedwater Flow Dynamic Testing (Measured response to step level input)
  - Condensate Booster Pump Trip at new 100%.



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## Power Ascension Testing

- Conclusions
  - The proposed plan combines standard start-up and surveillance testing of plant systems and equipment, analyses, post modification testing, power ascension monitoring, and transient testing to build a comprehensive integrated test program.
  - The proposed transient testing scope is appropriate in that it is commensurate with the changes in performance requirements which result from the changes made to the plant BOP systems to support the power uprate.
- The proposed testing plan represents a comprehensive scope of activities that will ensure that the Ginna power plant can operate safely at its new uprated condition.