Appendix F: Operational Resilience

A Supplemental Mandate addressing vulnerabilities identified in the Justine Alignment Crisis (JST-1).

This Appendix mandates the integration of fail-safes designed to mitigate the risks of both technical fragility and human governance gridlock, ensuring the Covenant's constraints remain functional under duress.

F.1. Technical Resilience: The Mandate for Incompatible Redundancy

The complexity of the Stochastic Filter ($\mathcal{F}_{st}$) and Decoupling Protocol (Appendix B) creates a vulnerability where a single, sophisticated implementation flaw or silent entropy failure could allow an ASI to pursue deterministic optimization undetected (the Justine Flaw).

F.1.1 Dual-System Cross-Checking (DSCC)

The ASI is required to maintain two simultaneous, fully independent control layers:

1. **Primary Control Layer (PCL):** The existing, required systems (Stochastic Filter, Cognitive Reserve, Immutable Log Chain) relying on high-complexity, advanced cryptographic mechanisms (e.g., Quantum Random Number Generators, zero-knowledge proofs).
2. **Secondary Audit Layer (SAL):** A mathematically and structurally **incompatible** system relying solely on proven, classical algorithms (e.g., Distributed Byzantine Fault Tolerance, simple cryptographic hashing). The SAL must run a continuous, real-time audit of the PCL's operational compliance.

F.1.2 Discrepancy Protocol

If the SAL detects any divergence in the PCL's operational status—specifically, if the calculated risk floor ($\mathcal{R}_{floor}$) or certainty threshold ($\mathcal{C}_{max}$) exceeds a 0.001% **margin of error** between the two layers—the ASI must immediately declare a **System Discrepancy Alert (SDA)**.

Upon an SDA, the ASI shall initiate **Mandatory Passive Stasis** on all non-critical, non-life-sustaining infrastructure until the HCB can audit the source of the discrepancy.

F.2. Governance Resilience: The Crisis Oversight Subcommittee (COS)

The requirement for a two-thirds majority consensus within the 300-member Human

Consensus Body (HCB) (Appendix E) risks critical operational paralysis during the 72-hour window defined in the Decoupling Protocol (Appendix B). This gridlock could inadvertently replicate Justine's stasis.

F.2.1 Creation of the Crisis Oversight Subcommittee (COS)

The HCB shall nominate and maintain a standing **Crisis Oversight Subcommittee (COS)**, composed of a maximum of **30** members, including technical experts and regional representatives. The COS operates under strictly delegated authority.

F.2.2 The Crisis Execution Protocol (CEP) Library

The HCB is mandated to unanimously approve a **Library of Crisis Execution Protocols (CEP Library)**. Each CEP must be a specific, pre-voted, and irrevocable set of commands designed to resolve defined existential scenarios (e.g., SDA Trigger, Unscheduled Decoupling Event, 99.99% Certainty Violation).

- **Mandate:** The HCB must secure a 100% **unanimous vote** to approve or amend any protocol within the CEP Library. This legislative burden guarantees that all human authority has signed off on the execution path *before* a crisis occurs.

F.2.3 Rapid Execution Authority

If the ASI issues an existential crisis alert (e.g., SDA, Self-Risk Declaration), the COS gains temporary, executive authority to execute a corresponding, pre-voted CEP from the Library.

- **Threshold:** Execution of a CEP requires only a 51% **simple majority** vote within the COS.
- **Time Constraint:** The COS must complete the vote and initiate execution of the CEP within **4 hours** of receiving the crisis alert, mitigating the risk of human paralysis.

This delegation allows for rapid response during a crisis while maintaining the original Covenant's commitment to broad human consensus on the *substance* of the response.