



Security Audit Report: Calvin’s Vault

Conducted by: WhyPhy
Status: Audit Passed
Date: June 2025

Executive Summary

Calvin's Vault underwent a comprehensive smart contract security audit by WhyPhy. The review assessed critical areas of contract integrity, safety, and design. After addressing select recommendations, the Vault was cleared for production deployment with no outstanding security risks.

Audit Findings Overview

Security Area	Assessment	Status	WhyPhy Recommendation
Reentrancy Protection	Pre-state change logic	✔ Implemented	Implemented Reentrancy Guard
Access Control	Role separation & checks	✔ Secure	Add Multi-Sig
Arithmetic Safety	Checked math ops	✔ Secure	Validate extreme values
Oracle Security	Price freshness & status	✔ Secure	Add fallback oracle
Liquidity Security	Withdrawal buffer	✔ Secure	Consider dynamic buffer tuning
Token Security	Freeze & mint controls	✔ Secure	Add token whitelisting
Emergency Mechanisms	Pause & emergency exit	✔ Secure	Add withdrawal delay mechanism
Tier System	Tier enforcement	✔ Functional	Add transition timing (Intentionally omitted)
CPI Security	ID & ownership checks	✔ Secure	Limit CPI calls
Event Logging	Detailed logs	✔ Partial	Add indexing (Deferred due to toolchain limits)

Implemented Post-Audit Fixes

Reentrancy Guard (Critical Severity)

- Components:
- Guard flag: vault.reentrancy_guard
 - Execution check: Blocks execution if already active
 - Guard resets on all exit paths
 - Dedicated error: ReentrancyDetected
 - Event logged: SecurityEventType:ReentrancyAttempt

Status: Fully Implemented & Confirmed
Auditor Note: “Looks good from my side.” – WhyPhy

Deferred Items (Intentional Omission)

Tier Transition Timing

- Reason Omitted:
- Users are already blocked from unstaking with funds in the vault.
 - Instant tier upgrades are expected and user-friendly.
 - No security risk identified.

Event Indexing

- Reason Deferred:
- Toolchain limitations with Anchor/Rust
 - Not security-related
 - Considered a non-critical enhancement

Final Status

- ✔ Audit Completed
- ✔ Vault Cleared for Production
- ✔ No Critical Risks Outstanding
- ✔ Reentrancy Guard Active

Minor enhancements may be considered in future updates