

IONau COLLATERAL FRAMEWORK FOR PMUSD

Executive Summary

As of February 2026, the gold per ounce spot price exceeds \$5,300/oz. Against this backdrop, this report considers the legal, accounting, and structural basis for using IONau mineral reserve tranches as collateral for the pmUSD stablecoin.

The central clarification is that pmUSD is not backed by a mining operation or projected production, but by a tokenized, senior-secured claim on proven mineral reserves, structured as a Tokenized Asset-Backed Security (T-ABS) rather than a project-finance instrument. The collateral framework rests on four independent and reinforcing pillars:

1. Independent verification of asset existence and title, evidenced by an unqualified FY2024 audit opinion from Mac Accounting Group & CPAs.
2. Extreme over-collateralization, implemented via a 5:1 reserve ratio (80% valuation haircut), producing an effective loan-to-value (LTV) ratio of approximately 3.7%.
3. Perfected senior security interests under the Yukon PPSA and U.S. UCC Article 9, ensuring enforceability and priority irrespective of issuer solvency.
4. Programmatic issuance and redemption controls enforced by RAAC and the Trust Sync framework, eliminating discretionary over-issuance and collateral leakage.

Taken together, these features materially mitigate operational extraction risk, liquidity mismatch, and issuer default risk. The result is a collateral structure that is more conservative and legally explicit than most prevailing stablecoin and DeFi collateral models.

I. First Principles: What Constitutes an Asset

A recurring error in critical assessments is the assumption that an asset must be physically mined and vaulted to qualify as high-quality collateral. This assumption is incorrect under both accounting standards and commercial law.

Accounting Definition

Under the FASB Conceptual Framework (SFAC No. 8), an asset is defined as "a present right of an entity to an economic benefit." IONau tranches satisfy this definition because they represent NI 43-101 Proven Mineral Reserves, gold deposits that have been geologically verified, assessed by a Qualified Person, and demonstrated to be economically mineable. The asset is the legal right to the mineral reserve, not the future act of mining. Physical extraction is a realization mechanism, not a prerequisite for asset recognition. This is a very different approach to traditional mine financing.

Legal Definition

Under UCC § 9-102(a)(6), unmined minerals subject to a security agreement are classified as "as-extracted collateral". This classification expressly allows a security interest to attach prior to extraction, treating the mineral interest as personal property capable of securing obligations.

Title, Control, and Enforceability

Through properly executed UCC-1 filings (United States) and PPSA registrations (Yukon, Canada), I-ON Digital has perfected senior security interests over the IONau tranches. This legal perfection converts geologically proven reserves into institutionally enforceable collateral, allowing it to be repossessed or sold independently of the issuer's schedule. It also ensures priority over unsecured creditors in default or insolvency scenarios. The collateral framework does not rely on accounting recognition to establish liquidity; accounting recognition establishes existence and control, while liquidity pathways are provided separately through secured-credit enforceability and secondary market transactions.

Stablecoin collateral need not be “cash-equivalent” to be viable; it must be (a) verifiably real, (b) legally enforceable, and (c) paired with issuance discipline such that run risk is mathematically constrained. The ION structure is not “T-bill-like”; it is a conservative secured claim model with high excess coverage and engineered issuance limits.

II. Audit Logic and the Timeline of Verification

The audit and accounting history should be read as a deliberate two-stage validation process:

Stage 1 — Verification of Substance (FY2024 Audit)

The FY2024 audit by Mac Accounting Group & CPAs resulted in an unqualified opinion. The auditor identified Intangible Asset Impairment as a Critical Audit Matter and performed recoverability testing on management's reserve estimates and title documentation.

Issuing an unqualified opinion necessarily implies:

- The reserves exist as represented;
- Legal ownership and control were substantiated; and
- No material misstatement existed regarding the asset's existence or recoverability.

Stage 2 — Verification of Market Value (2025 Transition)

Following the audit, management undertook a transition to mark-to-market valuation, consistent with fair-value principles and recent digital asset accounting guidance.

Following the audit, management undertook a transition to mark-to-market valuation under ASU 2023-08, consistent with fair-value principles. Observable market transactions with Goldfish GGBR and now RAAC, provide initial external price discovery. Accordingly, we can conclude that the 2024 audit established that the asset is real and controlled; the 2025 transactions demonstrated that the asset is transferable, priceable, and liquid in institutional contexts.

III. Correct Risk Lens: T-ABS vs. Project Finance

Many critiques implicitly apply a project-finance framework, demanding mine plans, production permits, and operating cash-flow forecasts. This lens is inapplicable.

Inventory Finance, Not Production Finance

In project finance, lenders depend on future production. In the pmUSD structure, gold is treated as audited inventory already on the balance sheet. The obligation is secured by the right to the reserve itself.

Structural Feasibility via Over-Collateralisation

Feasibility is "pre-funded" by monetizing only 20% of proven reserve value. The remaining 80% valuation haircut is explicitly designed to absorb extraction cost uncertainty, time-to-liquidation discounts, and price volatility. With project finance, repayment depends on operations. With this structure, repayment depends on security interest in the asset, with operations as one possible realization route, but not the definitional source of coverage. Operational risks still exist, but they are priced via the explicit haircut, conservative extraction-cost assumptions, and the ability to transfer/sell the claim/operator rather than run the mine oneself.

Independent Liquidation Analysis

An independent review by NordCap Advisors LLC (April 2024) validated the Burwash deposit tranches and modeled an orderly liquidation scenario using conservative recovery costs of \$850–\$900/oz:

In April 2024, the baseline for IONau was set against a gold spot price of \$2,200/oz, providing a total physical backing of \$11,000 per token based on the 5:1 reserve ratio. At current spot prices:

- Gross backing per IONau unit: ~\$26,556
- Effective LTV: ~3.7%
- Implied coverage: approximately 27:1

The Safety Coverage Ratio is a critical credit risk metric used in the pmUSD collateral framework to measure the net liquidatable value of the gold reserves backing each token compared to the \$1.00 liability of the stablecoin peg. Based on the forensic audit and the independent engineering review by NordCap Advisors, the ratio is derived as follows:

1. Gross Backing: Each IONau token is backed by 5 troy ounces of proven in-situ gold.
2. Max Recovery Cost: The estimated cost to extract or legally liquidate those 5 ounces (including an 80% valuation haircut to cover permitting, operational overhead, and friction).
3. Liquidatable Net Value: The gross value of the gold minus the recovery costs.
4. Ratio: The resulting net value divided by the \$1.00 stablecoin liability.

The ratio has nearly doubled since the initial 2024 assessment due to the historic rise in gold prices:

- NordCap 2024 Baseline: At \$2,200/oz gold, the net value was \$10,100, resulting in a 10,100 : 1 coverage ratio.
- 2026 Forensic Update: At \$5,311.29/oz gold, even after assuming a much higher recovery cost of \$1,400/oz, the net value is \$19,556.45, resulting in a 19,556 : 1 coverage ratio.

This ratio demonstrates a "Safety-of-Margin" that is unprecedented within publicly documented stablecoin collateral structures. A ratio of nearly 20,000 : 1 means that the underlying gold price would have to collapse by over 95%, or extraction costs would have to rise by 1,800%, before the collateral value would be insufficient to support the \$1.00 peg. This extreme buffer is designed to neutralize "time-to-liquidation" risk and ensures that even in a "fire sale" of the mineral rights, the lender can be made whole many times over.

Liquidity Analysis: What is Traded in a Default?

1. Secondary Market Redemption (Institutional Demand)

As evidenced by the Archer One Letter of Intent (May 15, 2025) and the Sustainable Synergies Purchase Agreement (April 15, 2025), a robust secondary market for IONau already exists. Archer One Tranche: Committed to purchasing 18,000 tokens at a 12% discount to spot and Sustainable Synergies Basis: Traded 24,886 units at \$2,500/unit when the cost basis was significantly lower. These tranches demonstrate that institutional "market participants" (as defined under ASC 820)

Metric	NordCap (Apr 2024)	Forensic Update (Feb 2026)
Gold Spot Price	\$2,200	\$5,311.29
Total Backing (5 oz)	\$11,000	\$26,556.45
Max Recovery Cost (Est)	\$900	\$1,400 (80% haircut)
Liquidatable Net Value	\$10,100	\$19,556.45
Safety Coverage Ratio	10,100 : 1	19,556 : 1

value the digital certificate at or near the spot price of gold.

2. Judicial Foreclosure and Title Sale (The Yukon Pathway)

If the secondary market for tokens fails, the RWA Federation (as a secured party) can exercise its rights under the Yukon Miner's Lien Act. Case Law Precedent: The 2025 ruling in Brad Paddison v.

Sumitomo confirms that mineral liens remain valid and follow the property even if ownership changes. The Sale: The mineral rights to the 673,040 proven ounces (per claim) are sold at public auction. Given that the stablecoin only tokenizes 20% of the value, even a "fire sale" at 50 cents on the dollar would still provide a 13.5x recovery ratio for pmUSD holders

3. Issuance and Redemption Integrity:

T+2 ABS Settlement: This settlement profile is intentionally aligned with institutional asset-backed securities markets and should not be interpreted as equivalent to retail, on-demand stablecoin redemption. Unlike retail-focused stablecoins, pmUSD redemptions for institutional tranches follow standard Asset-Backed Security settlement cycles, matching the liquidity profile of the underlying institutional title market. To eliminate discretionary risk and ensure auditability, pmUSD issuance and redemption are programmatically enforced through full control over pmUSD issuance and a POR tied to the data and valuation reports. pmUSD supply cannot exceed the audited collateral value under any normal operating condition. Discretionary over-issuance is structurally prevented under the defined issuance logic.

Redemption requires the burning of IONau tokens to release the corresponding legal title (represented as an updatable vNFT). pmUSD must be burned to remove the ION.au tokens and ION.au tokens must be burned to remove the Claim vNFTs from the vault contracts. Price volatility is handled through a substantial onchain reserve that can absorb a massive price shock. Collateral cannot exit the system without a proportional reduction in outstanding claims. This prevents the primary failure mode seen in asset-token systems: orphaned supply. The price of gold could drop to 1/3 of current market value and the protocol would still be overcollateralized.

Acknowledging the time risk, the ION structure addresses it through two-tier liquidation plus runway created by haircut magnitude and issuance constraints. The average critic treats liquidation as only "judicial foreclosure." Whereas ION explicitly describes a first resort: secondary market redemption / institutional demand, with judicial processes as a fallback. More importantly, "time risk" kills pegs when the system is forced to liquidate because collateral value is too tight relative to liabilities or because collateral can be pulled out (collateral leakage / discretionary issuance). The framework described attacks both primary failure modes, liabilities are a small fraction of collateral value (explicit 80% haircut) and issuance is programmatically constrained and collateral cannot exit without proportional liability reduction ("no orphaned supply" mechanics). In other words: time-to-liquidation matters most when you are operating near 100% LTV or when the system can be over-issued. This structure is explicitly not.

The underlying NI 43-101 is not presented as "market clearing." It is presented as the technical standard establishing the reserve classification as real, quantified, and economically mineable, which is necessary for (i) auditors to sign off on existence and recoverability testing and (ii) secured parties to treat the collateral as enforceable economic property. Requiring the asset to be market clearing imposes a different evaluative standard from "is this a real asset?" to "is this a continuously quoted, deep, exchange-traded instrument?" The structure does not assume continuous exchange liquidity and is not dependent on it. The liquidation object in a default is not "NI 43-101 itself"; it is the perfected right / lien / title pathway over a quantified mineral reserve interest, which is precisely the legal mechanism UCC/PPSA contemplate for collateralization of such interests.

V. Addressing Common Claims

Claim	Forensic Assessment
“The audit was too early.”	Incorrect. The audit verified existence and title; subsequent transactions verified market liquidity.
“Gold in the ground isn’t recoverable.”	Incorrect. NI 43-101 Proven Reserve classification requires demonstrated economic and technical viability.
“No production permits.”	Not relevant. Value resides in perfected title, which can be sold or transferred independently of issuer operations.
“Issuer default risk.”	Mitigated. Assets are segregated under Article 8 control agreements with institutional custody, rendering them bankruptcy-remote.

Final Determination

The IONau tranches constitute a legitimate, senior-secured financial asset. It is not a speculative mining exposure. Functionally, the structure resembles a warehouse receipt for minerals, where:

- The “warehouse” is the earth,
- The receipt is perfected by commercial law, and
- Issuance is constrained by cryptographic enforcement rather than trust.

Even if a liquidator assumes a massive \$1,400/oz extraction cost (well above industry averages), the net value of the gold backing a single \$1 pmUSD is \$25,156. The gold price would have to drop by 96% or extraction costs would have to rise by 1,800% before the peg became under-collateralized.

With an unqualified audit, extreme over-collateralisation, perfected liens, and programmatic supply discipline, pmUSD represents one of the most conservatively structured collateralized instruments currently deployed in decentralized finance.

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