HOW A SHIPMENT BECOMES A VERIFIED CLAIM

From weighbridge ticket to audited number, in four stages.

This walkthrough follows real records through the running system: a lab certificate, a residue lot, a shipment. It tracks each one from the moment data arrives to the moment a certifier, an investor, or an offtaker reads a number on a dashboard. Every screen below is the actual product, not a mockup.

VC1 Eswatini forestry residue → torrefied pellets → Japan thermal power

VC2 Mozambique C4-grass residue → biocarbon briquette → EU steel coke ovens

01

INTAKE

Data comes in three shapes today: a fourth is what breaks most systems

Field data, lab paperwork and system-to-system feeds don't arrive in one format. Rather than force everything through one narrow door, the platform recognizes each shape and validates it the same way regardless of which door it came through.

01A · BULK CSV

A field team's spreadsheet

Harvest weights, lot numbers, and GPS-tagged movements, uploaded per table and validated row by row before anything commits.

01B · JSON API

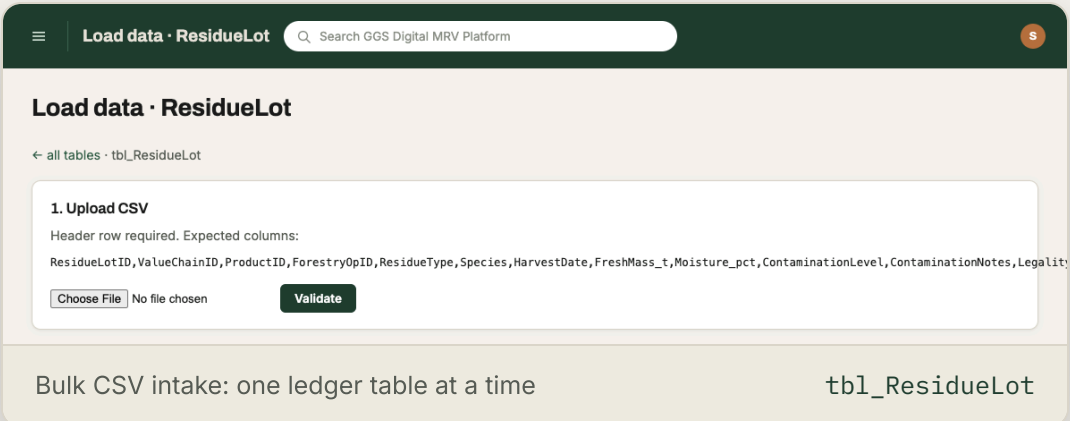
A weighbridge or LIMS, talking directly

Authenticated system-to-system ingestion (POST `/api/v1/tables/…`), the same door a digital scale or a lab's own database can call.

01C · LAB REPORTS

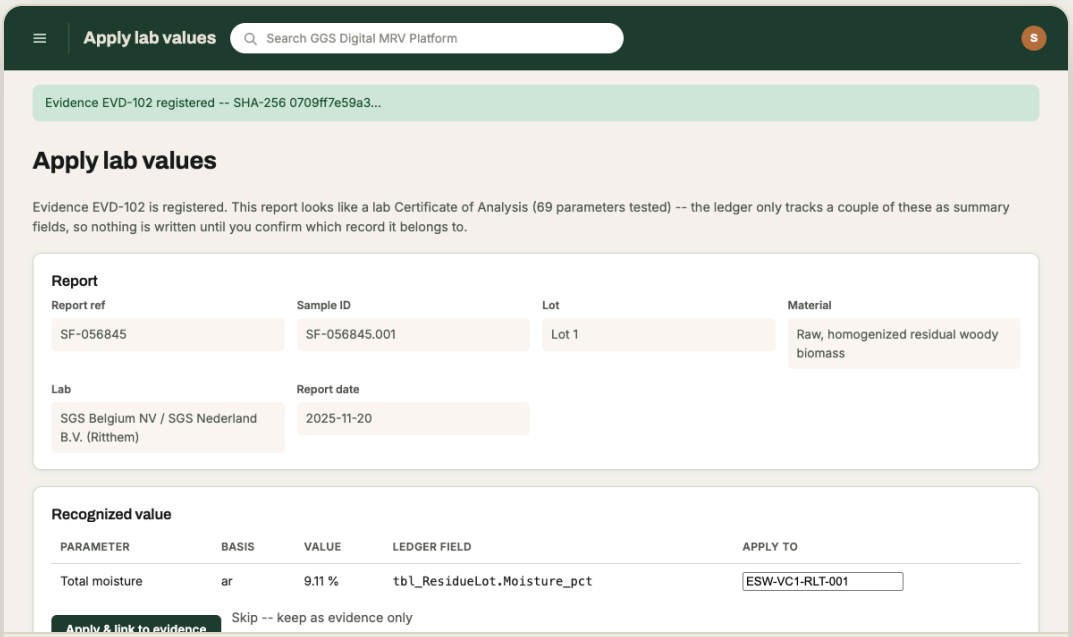
An accredited lab's own export

A Certificate of Analysis arrives as one row per parameter tested: a different shape entirely, recognized on sight (see below).



Bulk CSV intake: one ledger table at a time — `tbl_ResidueLot`

A real example of the third shape: an SGS Certificate of Analysis for a raw wood-residue sample, laid out as 69 rows, one per parameter and reporting basis (moisture, ash, volatile matter, calorific value, a full elemental breakdown). The ledger only tracks one of those as a number; the platform recognizes the shape, registers the whole document as evidence, and offers to pull the one field that matters:



Lab-report recognition: 1 of 69 parameters mapped, the rest kept as evidence

`EVD-102 · SF-056845`

> `Total moisture, as-received` **`9.11 %`** `→ ledger field`
>
> **`ResidueLot.Moisture_pct`** `→ linked evidence` **`EVD-102`**

Once fully implemented

The intake doors above are built and running. The roadmap adds the The roadmap below adds real sources already named in the platform's own integration plan, not hypothetical ones:

- **Live today**
- **Next to connect**

Site weather

Temperature, humidity, and 3-day rain forecast, fetched live per location and never stored.

`Open-Meteo · no key required`

Demo system credentials

Weighbridge, LIMS and Sentinel-hub API keys are already provisioned and authenticate real requests today.

`X-API-Key · /api/v1`

Satellite land monitoring

Independent verification of parcel-level land use, from multispectral imagery at 10m resolution, revisited every 5 days.

`Sentinel Hub (Sentinel-2)`

Historical land-cover check

A third-party time series for the same parcels, cross-checked against the Sentinel/Landsat archive.

`Google Earth Engine`

Direct lab & scale feeds

The same JSON door above, pointed at a live LIMS or digital weighbridge instead of a demo key.

`POST /api/v1/tables/…`

02

PROCESSING

One validator, not three: a rule can't be true on one door and false on another

Whichever door a record arrives through, it passes the same checks before it becomes a ledger row: does the ID match this entity's format, is every value the right type, is a computed field being supplied as if it were an input.

- **ID format is enforced, not suggested.** A pellet batch is `ESW-VC1-PLT-###`; a shipment is `ESW-VC1-SHP-###`. A malformed ID is rejected on sight, not stored and flagged later.
- **Computed fields can't be typed.** Dry mass, GHG intensity, spec-pass/fail: all derived server-side on every request. Supplying one as input is a rejection, not a silent overwrite.
- **Type and range checks run before commit.** A date that isn't a date, a number that isn't a number, an enum value outside its allowed set: caught at the door, with the specific reason shown.

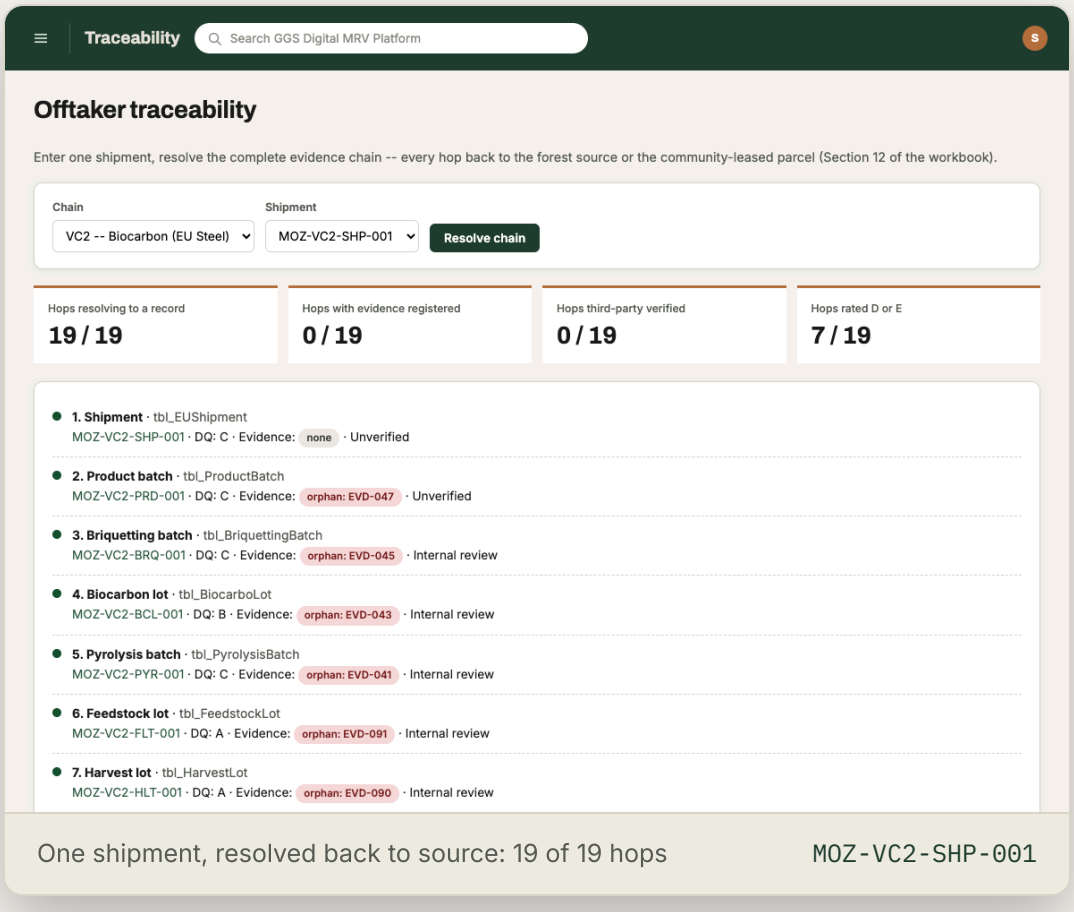
> `Rejected, real example`
>
> **`CAPAID: Expected format CAP-YYYY-### (e.g. CAP-2026-001)`**

03

ASSURANCE

Every hop back to the source, or the gap is shown, not hidden

A shipment resolves backward through every processing step to its physical origin: a forest parcel, a community-leased field. Where a hop is missing evidence, that's shown as a gap, not smoothed over.



One shipment, resolved back to source: 19 of 19 hops — MOZ-VC2-SHP-001

30 RULES

Red-flag engine

Threshold and consistency checks re-run on every request against live data. Not a periodic batch job.

~60 CHECKS

Cross-chain firewall

Structural guarantees, chiefly: nothing from VC1 and VC2 ever mixes in a single record.

SHA-256

Evidence register

Every supporting document is hashed and linked; an orphaned or missing reference surfaces automatically, not by audit.

04

PRESENTATION

The same ledger, five different views, computed live and never cached

An administrator, a certifier, an investor and an offtaker are reading the same underlying data, but each sees only what their role is entitled to, computed fresh on the request that renders it.

Admin / Internal ops

full read/write, both chains

Certifier

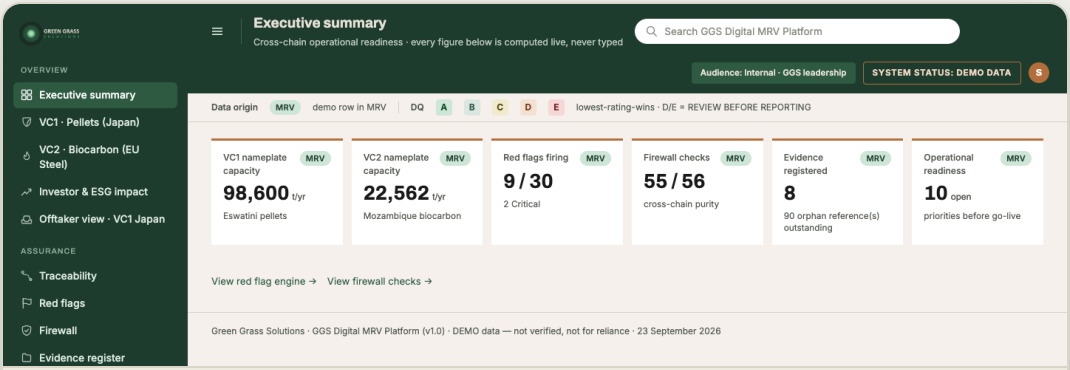
compliance + evidence, read-only, export for audit

Investor

read-only KPIs & ESG, no raw ledger

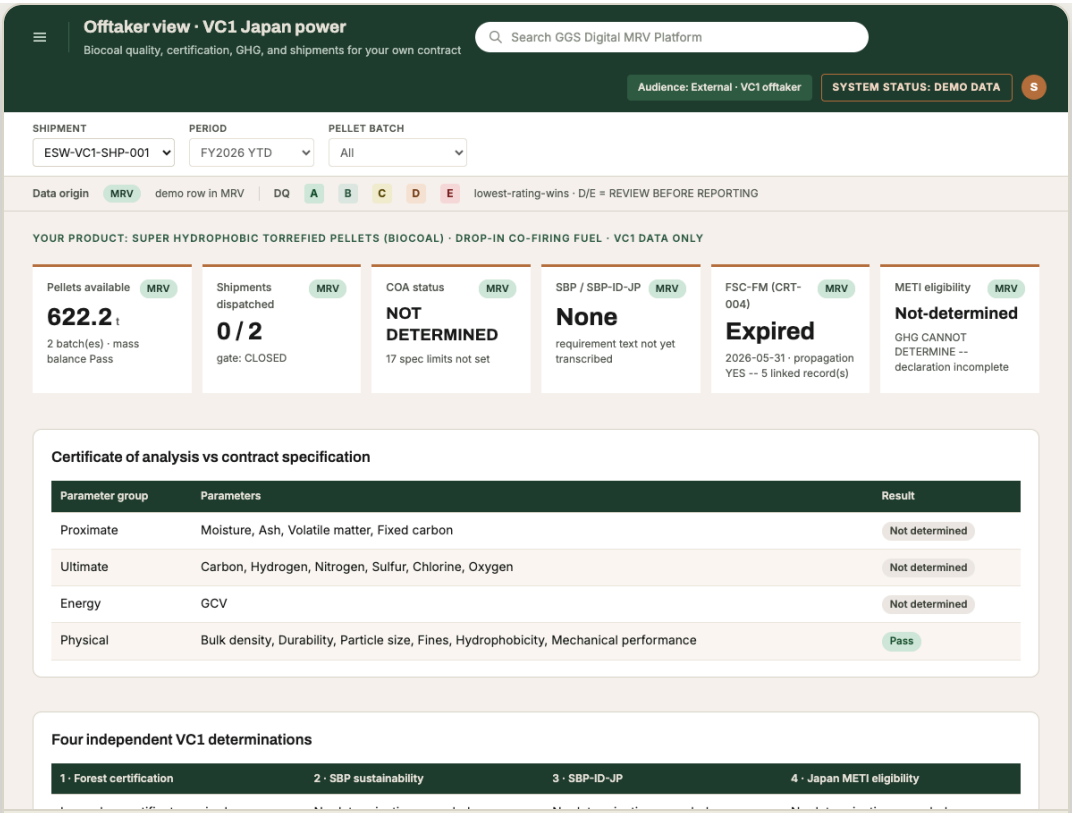
Offtaker

own chain only, shipments & COAs



Executive summary: cross-chain operational readiness

`9/30 red flags · 55/56 firewall`



Offtaker view: this buyer's contract, nothing else `ESW-VC1-SHP-001`

The reverse is just as deliberate: when a real value doesn't exist yet, the platform reads **"Not determined,"** rated **E, low confidence**. Never a placeholder dressed up as a result. That discipline is the product.

What changes at full rollout

The four stages above don't change shape. Phase 2 (seven sub-phases, October 2026 to August 2027) adds real intake doors for weighbridge and lab systems and satellite land monitoring, decision engines for REDIII, FIT/FIP/METI, and SBP eligibility, an automated carbon-claim gate, and a GHG estimator. The same validator and assurance engine keep running underneath all of it, and the same five dashboards keep reading whatever the ledger actually contains. Phase 2 closes with a live pilot running both value chains end to end.

Nothing shown in this walkthrough is a mockup. It's the same application a signed-in user opens today, on this session's own demo data.



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