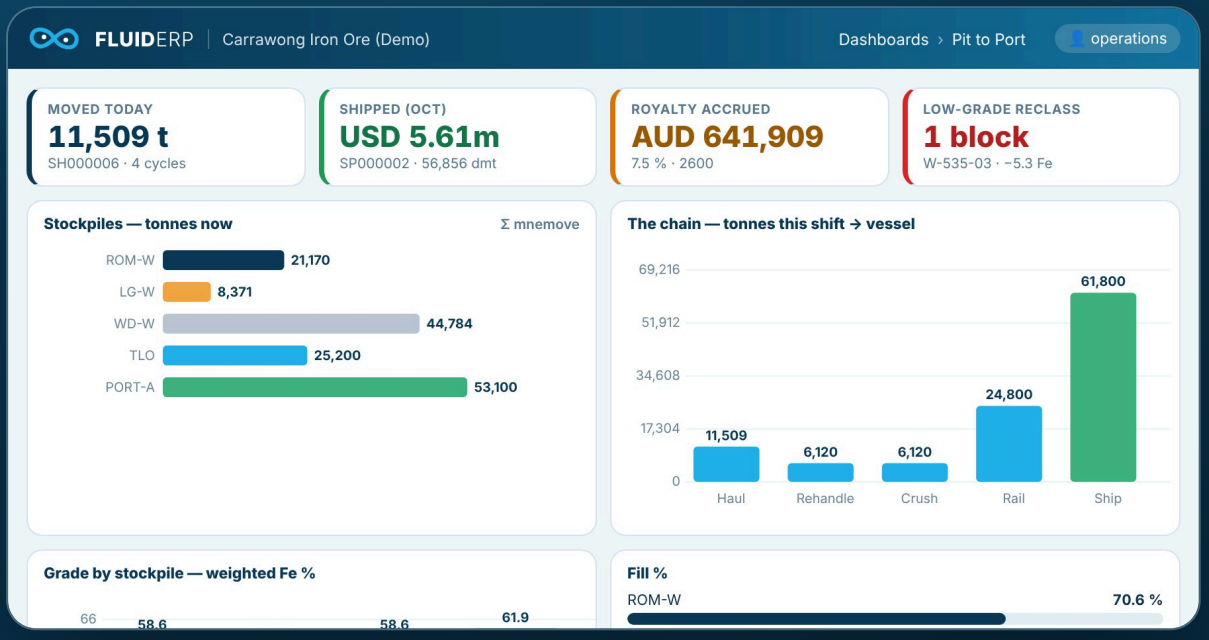
FLUID ERP · USER MANUAL

FLUID Mining
Pit to port.

Haul shifts, blasting, fuel, fleet life, condition monitoring, the site app, rail, shipping, royalties, cost per tonne and HSEQ — captured once and posted to every ledger that needs it.

EAM & fleet | Pit-to-port logistics | Grade control & reconciliation | Cost per tonne & royalties | HSEQ | Site app (offline)



Sceptre Tech Science · October 2026

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1 About this manual

This manual explains how to run a mine on FLUID Mining: how each record is captured, what each posting button writes, how to read the critical dashboards, which reports to print and how to reconcile receipts and the bank. The worked examples follow Carrawong Iron Ore, the demonstration mine shipped with the edition, on 15 October 2026.

Who it is for

READER	READ THESE CHAPTERS
Geologists	3, 4 (grade control), 8 (Grade reconciliation), 9
Shift supervisors and operations	3, 4, 5, 8 (Pit to port, Plan & cost)
Maintenance planners	3, 6, 8 (Fleet health)
Logistics and port	3, 7, 8, 9
HSEQ	3, 6 (site app), 8 (HSEQ), 9
Finance	3, 5, 7, 8, 9, 10

Conventions

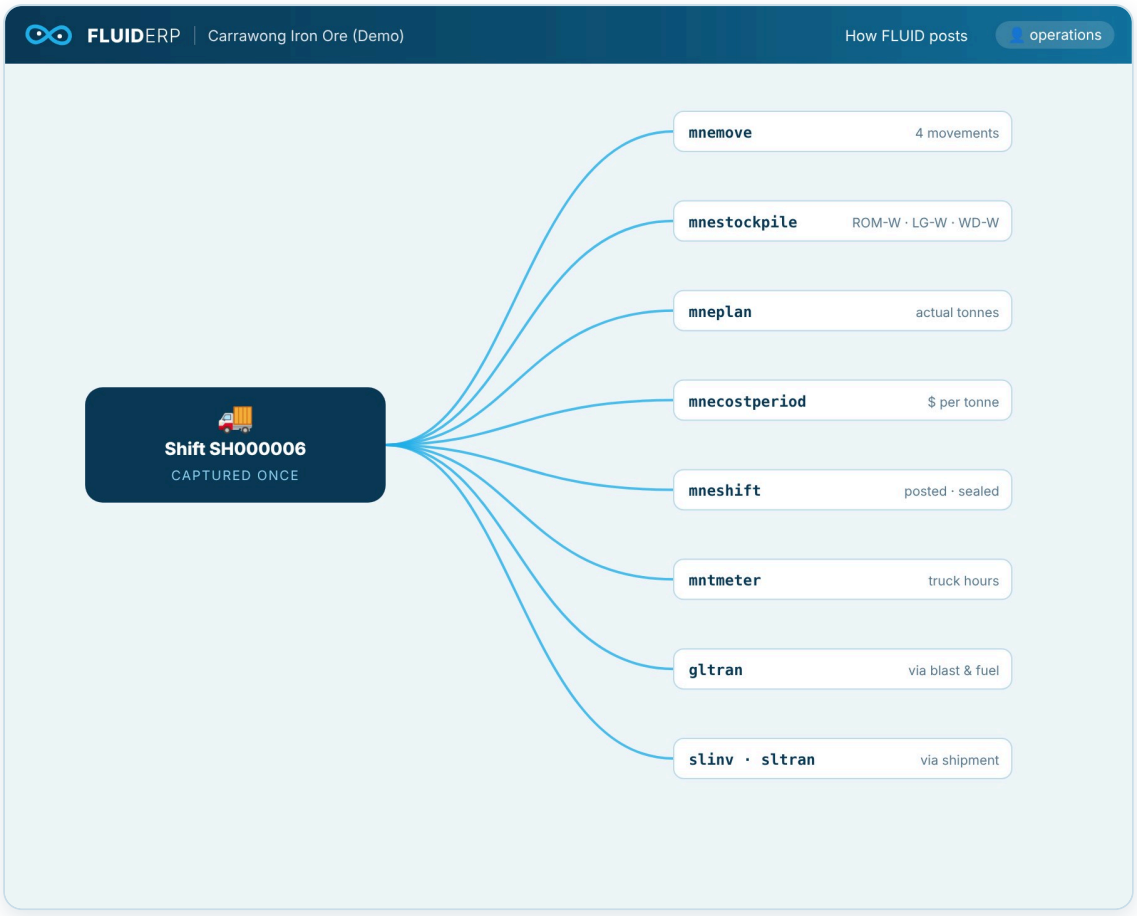
YOU SEE	MEANS
Bold names such as **Shifts**	A tile on the launcher, a screen, a tab or a field label, exactly as it appears in FLUID.
A button with an emoji, e.g. 🚚 **Post the Shift**	A posting button. Posting buttons are aqua; they write to other tables. 💾 **Save** is navy and saves only the record in front of you.
A field marked ƒ	A calculated field. You never type it — the calculation engine fills it from other fields or other tables, and keeps it right when they change.
`mneshift`	The name of the underlying table (collection). Useful when talking to your administrator or reading a report definition.
SH000006, MO000001 …	Record numbers. They are issued automatically by counters and carried on every row a button writes, so you can trace any figure back to the record that caused it.

ABOUT THE EXAMPLES

Record numbers and the main figures in this manual (for example SH000006, 21,170 t on ROM-W, USD 5,606,001.60 on SP000002) are the story data of the Carrawong demo package. Some history series and counterpart names on the dashboards are illustrative. The screenshots are taken from the FLUID Mining demonstration film so that the manual and the film match.

2 How FLUID works: capture once, post everywhere

A tonne is recorded once, on the movement ledger, by the button that moved it. Stockpiles, the mine plan, cost per tonne, the royalty return and the dashboards are all sums over those rows — nobody types a stockpile balance.



One haul shift fans out to the movement ledger, the stockpiles, the plan, the cost period and its own seal.

Three kinds of action

ACTION	WHAT HAPPENS	TYPICAL BUTTON
Capture	A person (or a feed, a file, a phone app) records something that happened — once. It is saved on its own table and gets a number.	💾 Save · a form on the phone · a file import or feed
Post	A posting button reads the captured record and writes every row that follows from it — ledgers, stock, other documents, stamps — each carrying the source number. Most posting buttons are one-way: the record is marked posted and cannot be posted again.	🚚 Post the Shift · 💥 Fire the Blast · 🚢 Invoice the Shipment
Derive	Calculations keep totals, balances, KPIs, flags and due dates right. Dashboards and reports read those rows directly; nothing is copied into a spreadsheet.	none — fields marked ƒ, dashboards, reports

Rules you can rely on

1. **Nothing is typed twice.** If a number exists in one record, every other table that needs it receives it from the button, not from a person.
2. **A posted record is sealed.** Pressing a posting button a second time writes nothing and says so. To change a posted figure you raise a correcting document (a credit note, a reversal, a correction) — which is itself captured once and posted.
3. **Every row is traceable.** Each row a button writes carries the reference of the record that caused it (for example `ref = SH000006`). Drill from any dashboard figure to the rows behind it and from there to the source record.
4. **Rules are enforced at the server.** Approvals, segregation of duties, embargoes, seals and signatures are checked by the gateway for every user, not just on screen.
5. **Imports are idempotent.** Files and feeds are keyed so that sending the same data again updates rows instead of duplicating them.

> **READ A POSTING PANEL**
>
> When you press a posting button, a panel lists every table it is writing to, one tick at a time, and ends with a green line such as “Posted — 5 writes to 5 tables from one capture”. That list is exactly what the button changed; the receiving tables show the same reference number.

3 Getting started

Signing in

Open the FLUID app (Windows, Android) or the browser client and sign in with the user name and password your administrator gave you. Each sign-in belongs to a group; the group decides which tiles you see and which fields and buttons you may use.

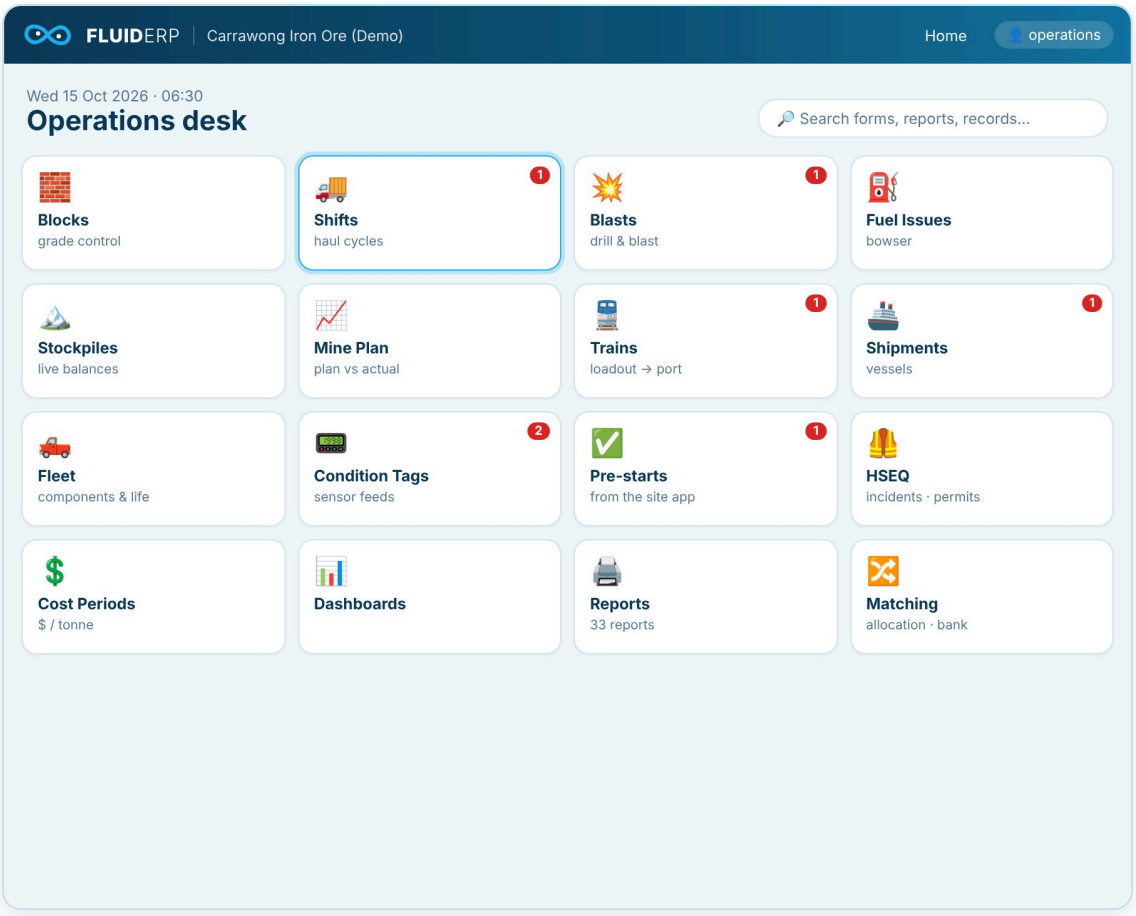
SIGN-IN	GROUP / DESK	USES FLUID TO ...
geology	Geology	Blocks, grade-control samples, reconciliation
operations	Operations	Shifts, blasts, fuel issues, stockpiles, the plan
maintenance	Maintenance	Fleet, components and life, condition tags, requests and orders
logistics	Logistics	Rehandle, crushing, trains, shipments, the movement ledger
hseq	HSEQ	Incidents, hazards, permits, competencies, pre-starts
finance	Finance	Cost periods, royalties, invoices, matching, the ledger
d.marsh@carrawongcontracting... (site app)	Contractor	Pre-starts, hazards, incidents, My Permits, My Tickets
service@pilbaradiesel... (site app)	Contractor (maintenance)	Maintenance jobs released to the contractor

DEMO SIGN-INS

In the demo package the staff password is the same as the user name; the site-app contractors use customer123. Change every password at go-live.

The launcher

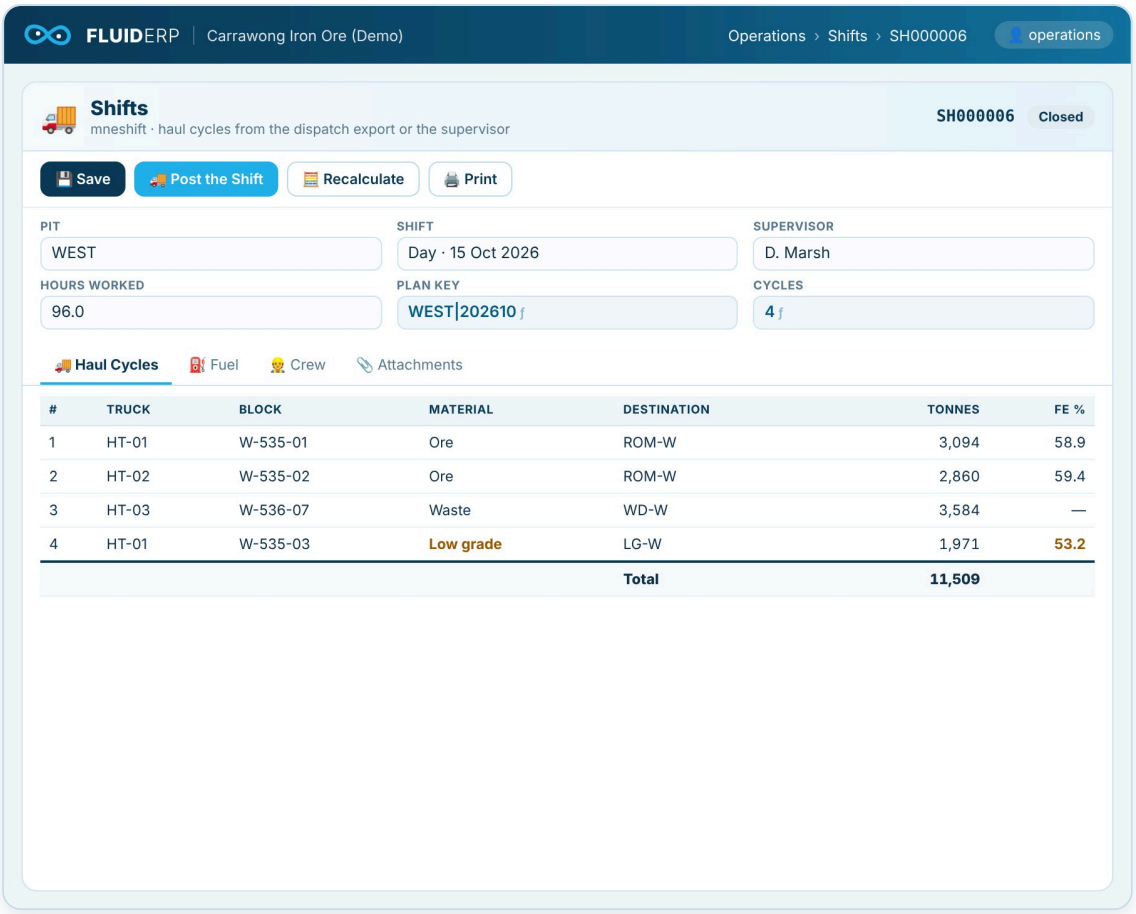
After sign-in you see the launcher: a grid of tiles for the screens, dashboards, reports and matching screens your group may open. A red badge on a tile counts records waiting for you. Use the search box to jump straight to a form, a report or a record number.



The operations desk launcher. Badges count records waiting: one shift to post, one blast loaded, one train dispatched, one shipment sailed.

Anatomy of a screen

1. **Header** — the form name, the table it belongs to, the record number and a coloured **status** pill (for example Closed, Posted · sealed, Approved).
2. **Toolbar** — 💾 **Save** (navy) saves this record. Aqua buttons are **posting buttons**: they write to other tables. Outline buttons recalculate (🧮), print (🖨️) or open related screens.
3. **Fields** — typed fields are white; calculated fields (ƒ) are tinted and read-only. Red, amber and green fields are flags raised by a calculation (expired, due soon, OK).
4. **Tabs** — the record's lines and related records (lines, movements, attachments, signatures). Child rows are saved with the parent.
5. **Banners** — an amber or red banner explains why a record is locked, sealed, embargoed or refused. Read it before calling support; it names the rule.



A shift record: header and status, toolbar with the posting button, typed and calculated (ƒ) fields, and the Haul Cycles tab.

Everyday actions

TO ...	DO THIS
Create a record	Open the tile, press ➕ **New**, fill the white fields, press 💾 **Save**. The number is issued on first save.
Find a record	Use the search box on the launcher or the filter row above any list. Record numbers, names and (where enabled) full text are searchable.
Refresh calculated fields	They refresh on save. 🧮 **Recalculate** re-runs them on demand (for example after a related record changed).
Print or save as PDF	🖨️ **Print** opens the printed copy in the document viewer; choose 🖨️ **Print / PDF** for paper or a PDF, or 💾 **Save** for the file.
Work offline (phone apps)	Forms marked as captures keep working with no signal; they wait in the **outbox** and send when you are back in range.

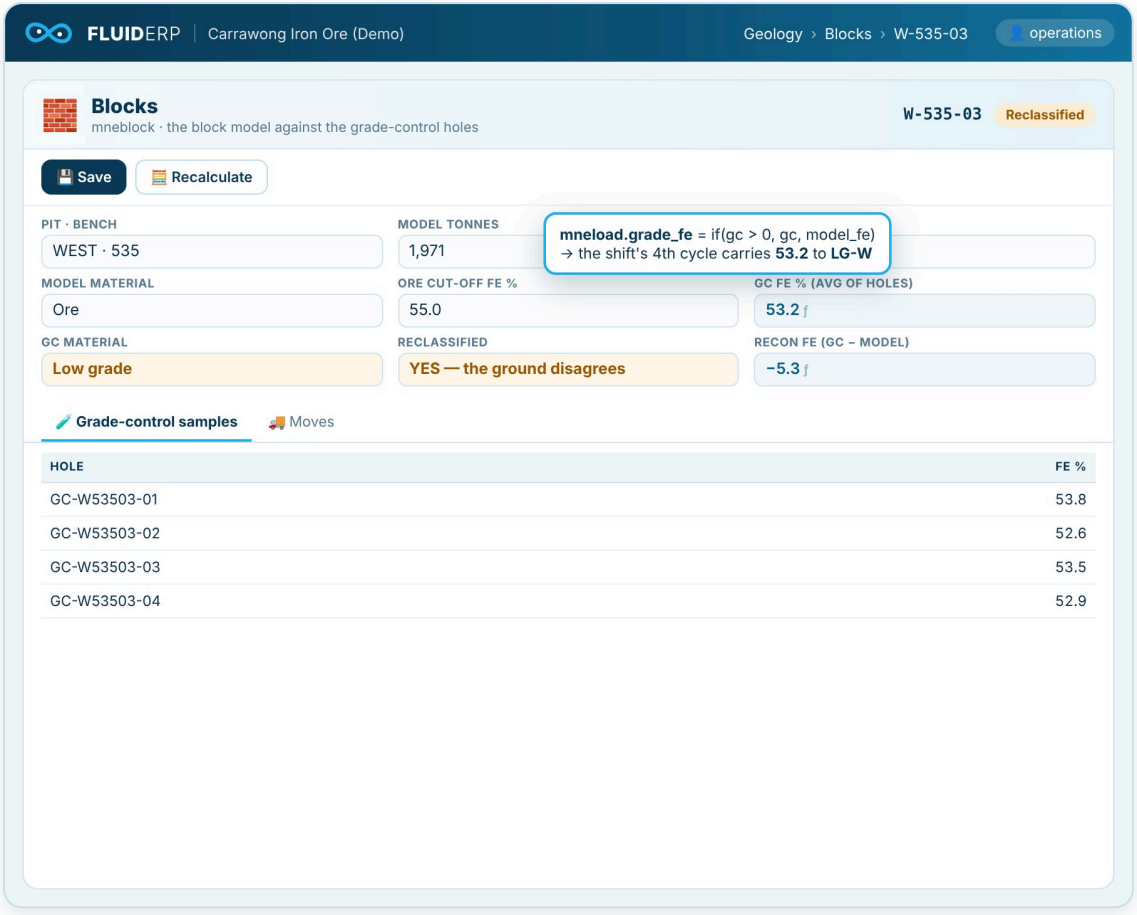
4 Production: grade control and the haul shift

The shift is the biggest single source of tonnes. It is captured once — from the dispatch export or by the supervisor — and posted to the movement ledger by one button.

Record grade-control results on a block

Who **geology** | Where **Geology › Blocks** | Table **mneblock · mnesample**

The block model gives each block its tonnes and grade. Grade-control holes tell you what the ground really is. Enter the holes once; the block decides its own material.



W-535-03: the model said ore at 58.5 % Fe; four holes average 53.2 %, below the 55.0 cut-off, so the block is reclassified as Low grade.

1. Open **Blocks** and the block (for example **W-535-03**).
2. On the 🧪 **Grade-control samples** tab add one line per hole with its Fe %. Samples are append-only.
3. Press 💾 **Save** (or 🧮 **Recalculate**). **GC Fe %**, **GC material**, **Reclassified** and **Recon Fe** fill in.

CHECK IT

GC Fe % is the average of the holes; GC material compares it with the ore cut-off; Reclassified is YES when the ground disagrees with the model; Recon Fe = GC − model.

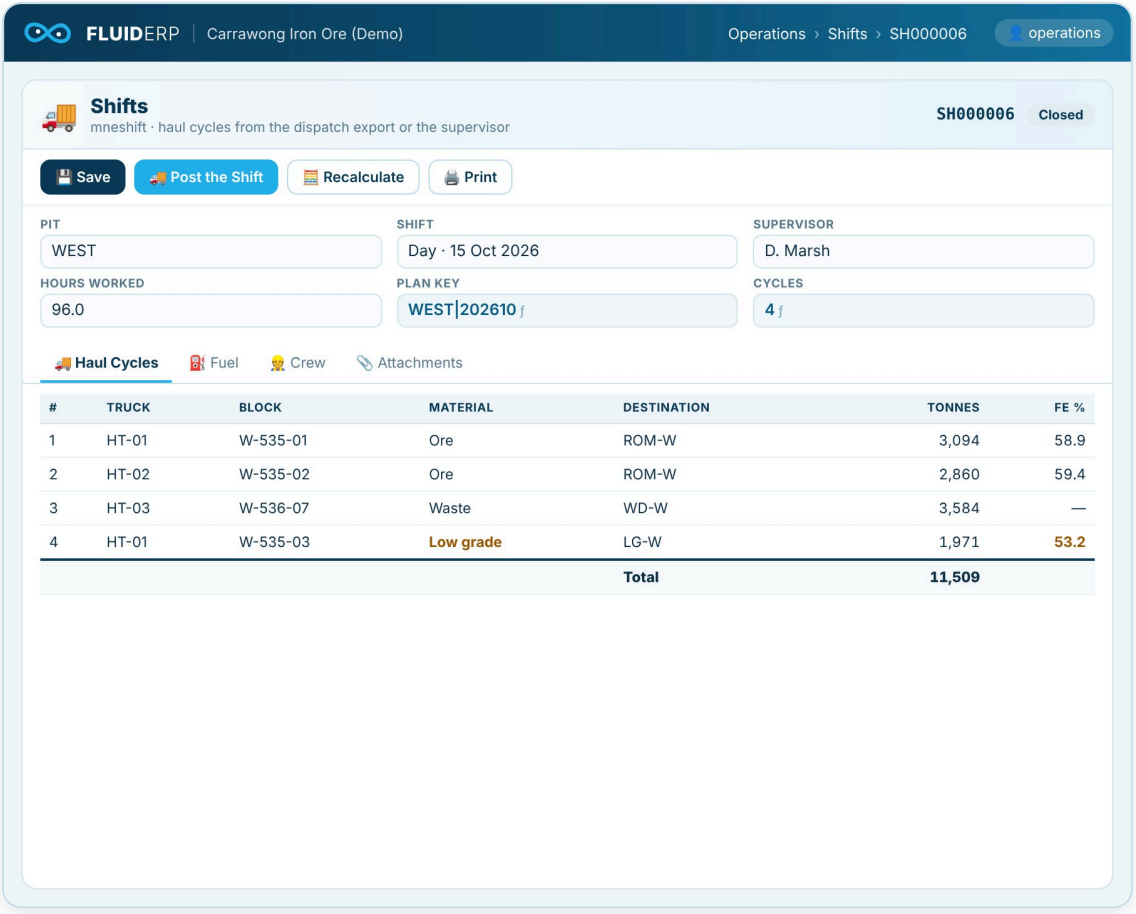
TIP

You never re-type a grade on the shift. A haul cycle from a reclassified block carries the ground's grade automatically: `grade_fe = if(gc > 0, gc, model_fe)` .

Capture the haul shift

Who **operations** | Where **Operations › Shifts** | Table **mneshift · mneload**

One record per pit per shift, with one line per haul cycle: truck, block, material, destination stockpile and tonnes.



SH000006 — WEST day shift, four haul cycles totalling 11,509 t.

1. Open **Shifts** and press ➕ **New** (or open the shift imported from dispatch).
2. Fill **Pit**, **Shift**, **Supervisor** and **Hours worked**. **Plan key** (pit|yyyyMM) and **Cycles** are calculated.
3. On 🚚 **Haul Cycles** add each cycle: truck, block, material, destination, tonnes. Fe % comes from the block.
4. Set the status to **Closed** when the shift ends and press 💾 **Save**.

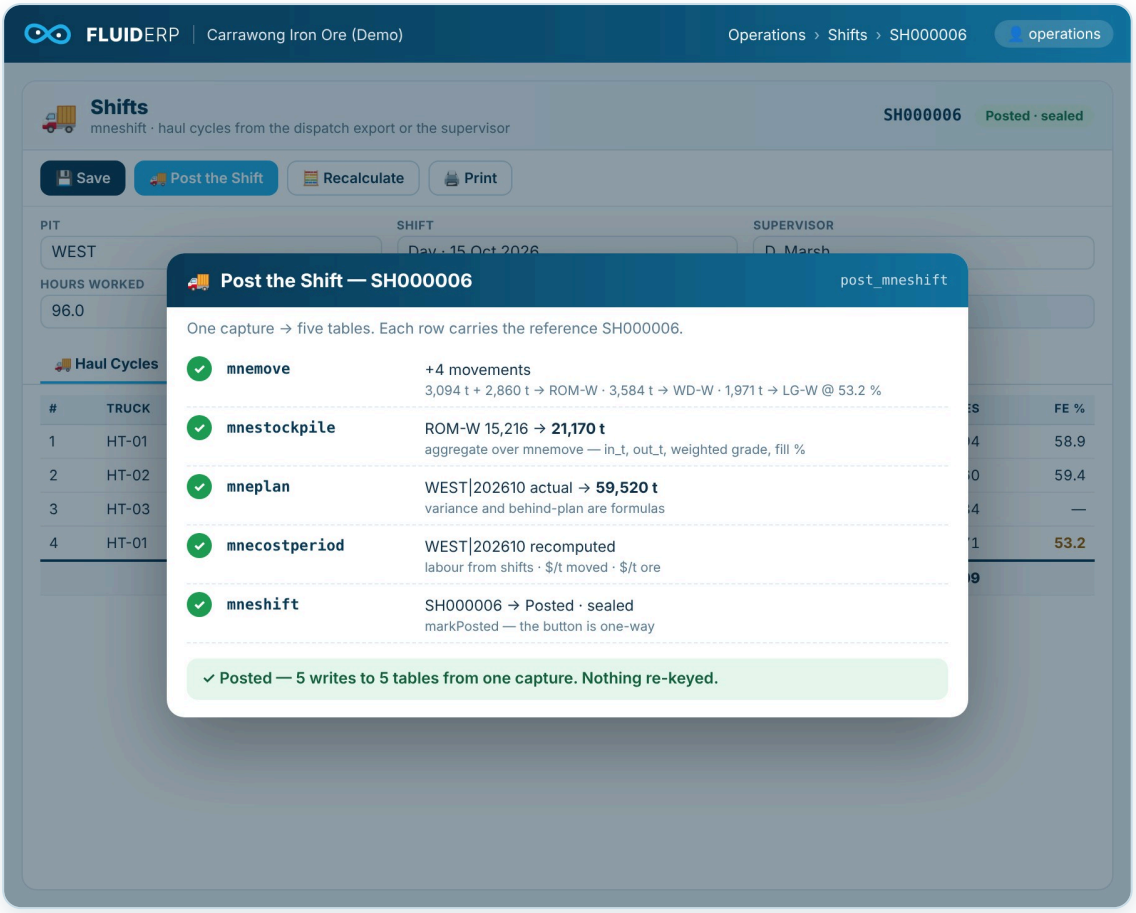
NOTE

Close the shift only when every cycle is in. Posting is one-way: once posted, the shift is sealed.

Post the shift

Who **operations** | Where **Operations › Shifts › SH000006**

Press the button once. The shift's cycles become movements on the one ledger every stockpile is built from.



🚚 Post the Shift — four movements, three stockpiles, the plan and the cost period updated from one capture.

1. Open the closed shift.
2. Press 🚚 **Post the Shift**.
3. Watch the panel tick each table; it ends “Posted”. The status becomes **Posted · sealed**.

What 🚚 Post the Shift writes	post_mneshift
✓ **mnemove**	one movement per cycle: 3,094 t and 2,860 t to ROM-W, 3,584 t to WD-W, 1,971 t to LG-W at 53.2 % Fe — each with ref SH000006 and plan key WEST|202610
✓ **mnestockpile**	balances re-derived: ROM-W 15,216 → 21,170 t (in − out, weighted grade, fill %)
✓ **mneplan**	WEST|202610 actual tonnes → 59,520 t; variance and behind-plan are formulas
✓ **mnecostperiod**	WEST|202610 recomputed — labour from the shift, $/t moved, $/t ore
✓ **mneshift**	SH000006 → Posted · sealed (markPosted)

CHECK IT

Open **Movement Ledger** (Logistics): four new rows with ref SH000006. Open **Stockpiles**: ROM-W shows 21,170 t.

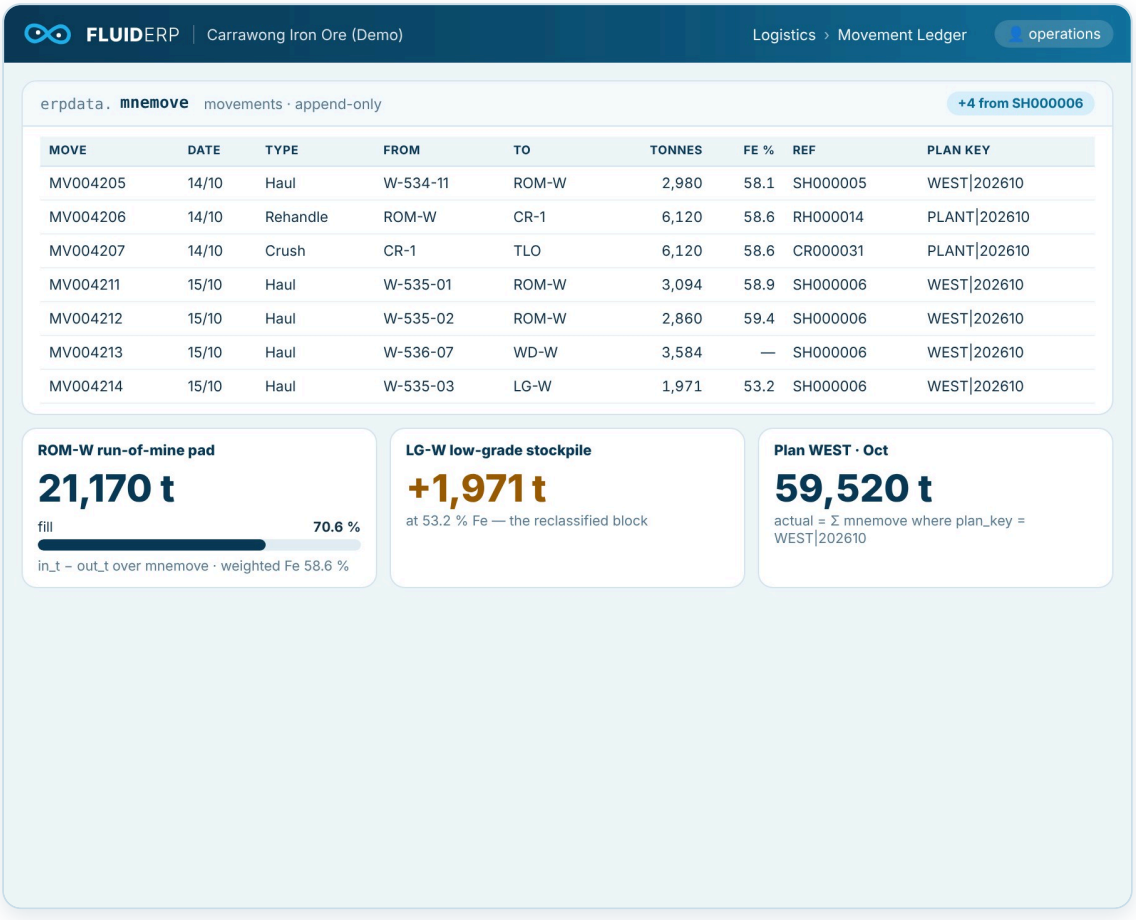
If the system refuses

YOU SEE	WHAT IT MEANS / WHAT TO DO
🔒 Already posted — 0 rows written	The shift was posted earlier. Nothing is written twice. If a cycle was wrong, raise a correcting movement (Rehandle or Adjust) rather than editing the shift.
Shift must be Closed	Set the status to Closed when every cycle is entered, save, then post.

Read the movement ledger

Who **logistics, finance** | Where **Logistics › Movement Ledger** | Table **mnemove (append-only)**

Every tonne from the block to the vessel is one row: haul, rehandle, crush, rail and ship. Rows are never edited or deleted, so every stockpile reconciles by construction.



The movement ledger after the shift, with the stockpile and plan totals that are derived from it.

TIP

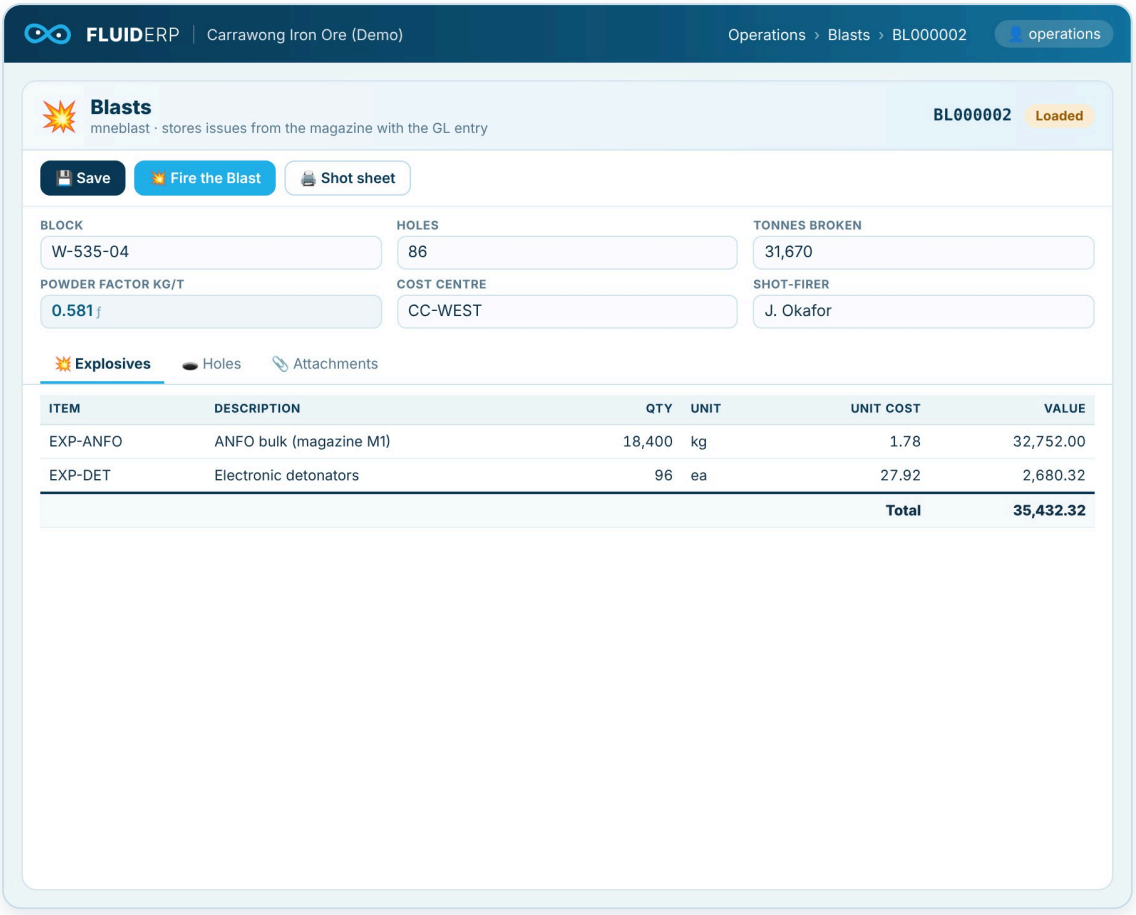
To check any stockpile figure, filter the ledger by stockpile: opening + Σ in − Σ out = the balance on the stockpile record.

5 Drill and blast, fuel and stores

Explosives and fuel are stores items. The buttons issue them from stores and write the cost entry at the same time.

Load and fire a blast

Who **operations (shot-firer)** | Where **Operations › Blasts** | Table **mneblast · stktran · gltran**



BL000002 on W-535-04: ANFO and detonators on the 💥 Explosives tab, powder factor calculated.

1. Open **Blasts**, create or open the blast for the block.
2. On 💥 **Explosives** enter what went down the holes (item and quantity). Unit cost comes from stores; **Powder factor** is calculated.
3. Set the **Cost centre** and press 💾 **Save**. The status is **Loaded**.
4. After the shot, press 💥 **Fire the Blast**.

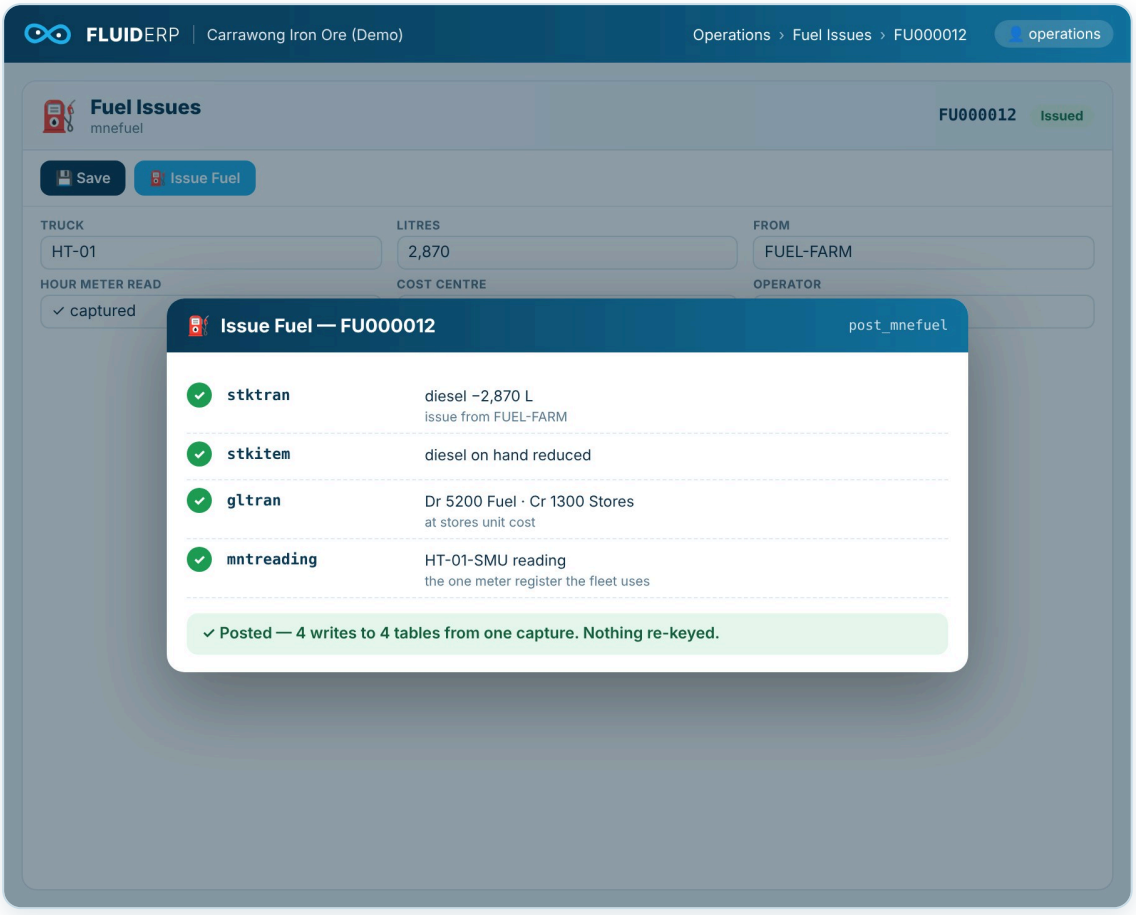
What 💥 Fire the Blast writes	post_mneblast_fire
✓ **stktran**	two stores issues from the magazine — EXP-ANFO −18,400 kg, EXP-DET −96, ref BL000002
✓ **stkitem**	on hand: ANFO 29,000 → 10,600 kg; detonators 1,842 → 1,746
✓ **gltran**	Dr 5300 Drill & Blast · Cr 1300 Stores, $35,432.00 on CC-WEST — balanced
✓ **mneblock**	W-535-04 → Blasted
✓ **mneblast**	BL000002 → Fired · sealed

CHECK IT

Finance › Ledgers shows the two GL rows with ref BL000002 and equal totals.

Issue fuel

Who **operations (bowser)** | Where **Operations › Fuel Issues** | Table **mnefuel**



FU000012 — 2,870 L to HT-01; one docket, three ledgers.

1. Open **Fuel Issues** and press ➕ **New**.
2. Enter **Truck**, **Litres**, **From** (the fuel farm), the hour-meter reading and the cost centre. Save.
3. Press ⛽ **Issue Fuel**.

What ⛽ Issue Fuel writes	post_mnefuel
✓ **stktran**	diesel issued from FUEL-FARM
✓ **stkitem**	diesel on hand reduced
✓ **gltran**	Dr 5200 Fuel · Cr 1300 Stores at stores unit cost
✓ **mntreading**	a reading on HT-01-SMU — the same meter the component-life model rolls from

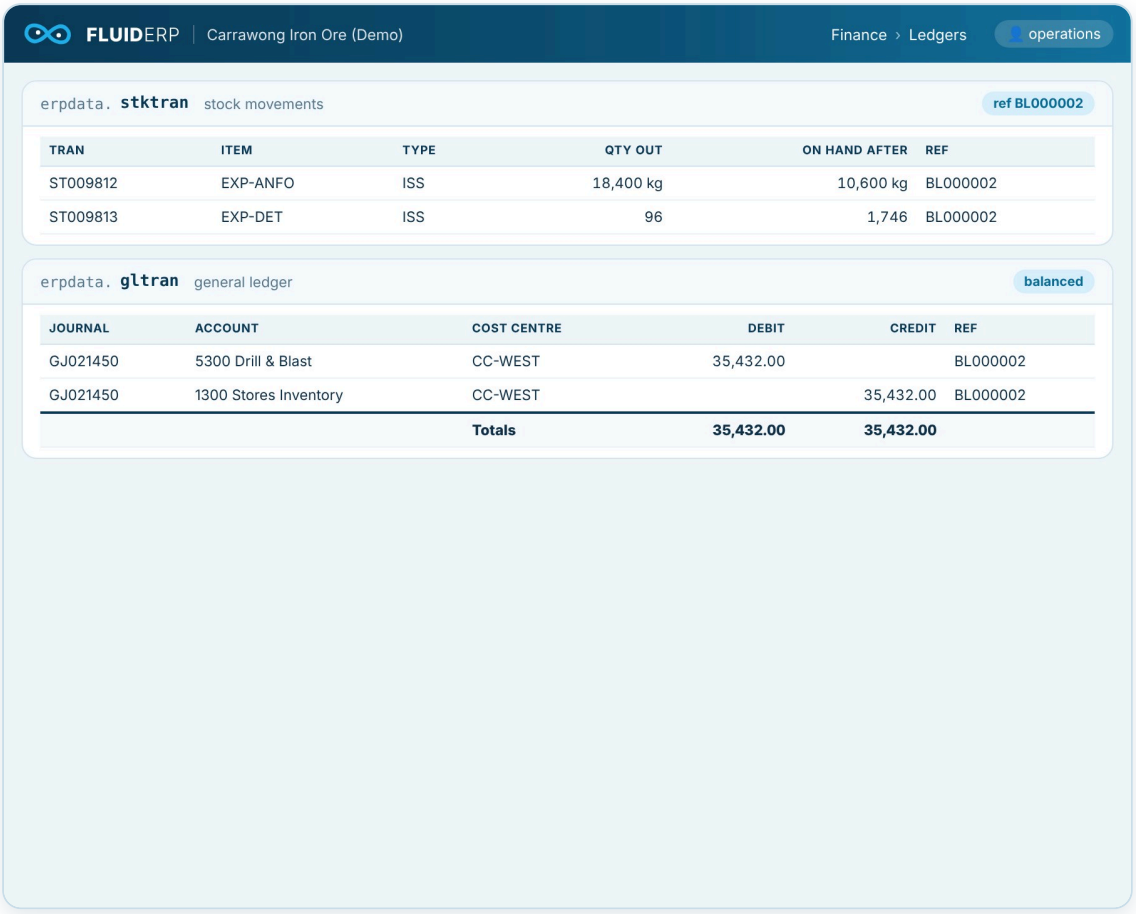
TIP

Because the bowser's reading is a meter reading, issuing fuel moves the truck's component clocks. Enter the hour meter carefully.

Check stores and the ledger agree

Who **finance** | Where **Finance › Ledgers**

Use the stock ledger (`stktran`) and the GL detail (`gltran`) side by side. Every issue made by a button has a matching GL pair with the same reference.



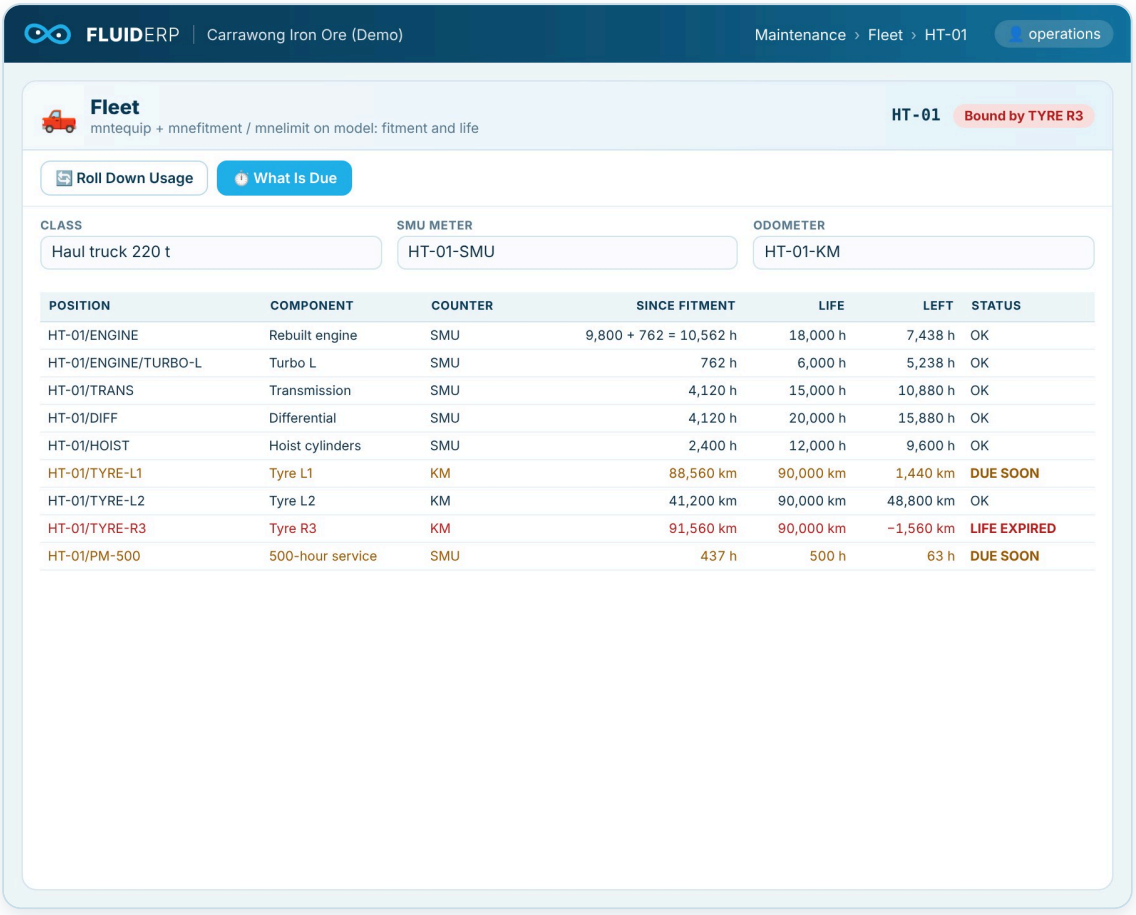
The stock ledger and the general ledger both carry BL000002; debits equal credits.

6 Fleet, condition monitoring and the site app

The fleet uses the plant-maintenance module: equipment, meters, requests and orders. Component life and condition tags turn readings into due dates and requests.

Roll down usage and see what is due

Who **maintenance** | Where **Maintenance › Fleet › HT-01** | Table **mntequip · mnefitment · mnelimit**



HT-01 after 🔄 Roll Down Usage and ⏱️ What Is Due: tyre R3 life expired, tyre L1 and the 500-hour service due soon.

1. Open **Fleet** and the truck.
2. Press 🔄 **Roll Down Usage**. Each fitted component's usage since fitment is rolled from its meter (SMU hours or odometer km).
3. Press ⏱️ **What Is Due**. Each component shows life, what is left and its status; the truck's header names the component that binds it.

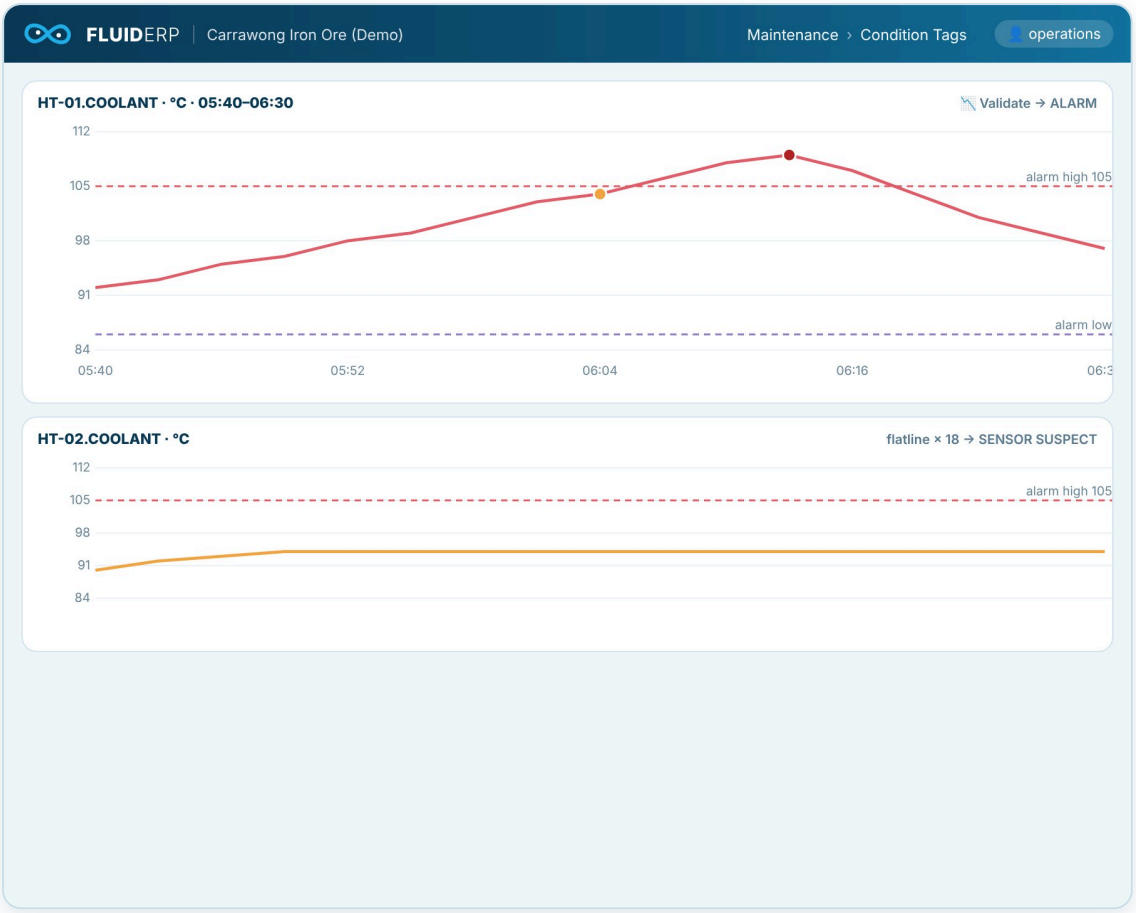
> **CHECK IT**
>
> Rebuilt engine: 9,800 h at fitment + 762 h since = 10,562 h. Tyre R3: 91,560 km against a 90,000 km life — LIFE EXPIRED.

If the system refuses

YOU SEE	WHAT IT MEANS / WHAT TO DO
N of N fitment lines could not be rolled down	The fitment lines name a counter the meter register does not have. Ask the administrator to check the counter names (lineCounterField).

Validate condition tags and raise requests

Who **maintenance** | Where **Maintenance › Condition Tags** | Table **mnetag · mnetagvalue · mntreq**



HT-01 coolant peaks at 109 °C (alarm 105) — ALARM. HT-02 reads 94 °C eighteen times in a row — SENSOR SUSPECT.

1. Open **Condition Tags** and the tag (for example **HT-01.COOLANT**).
2. Press 📉 **Validate**: the minute readings are checked for gaps (estimated on the line), out-of-range values and flatlines.
3. Press 🔔 **Raise the Request** on a tag in ALARM or SUSPECT.

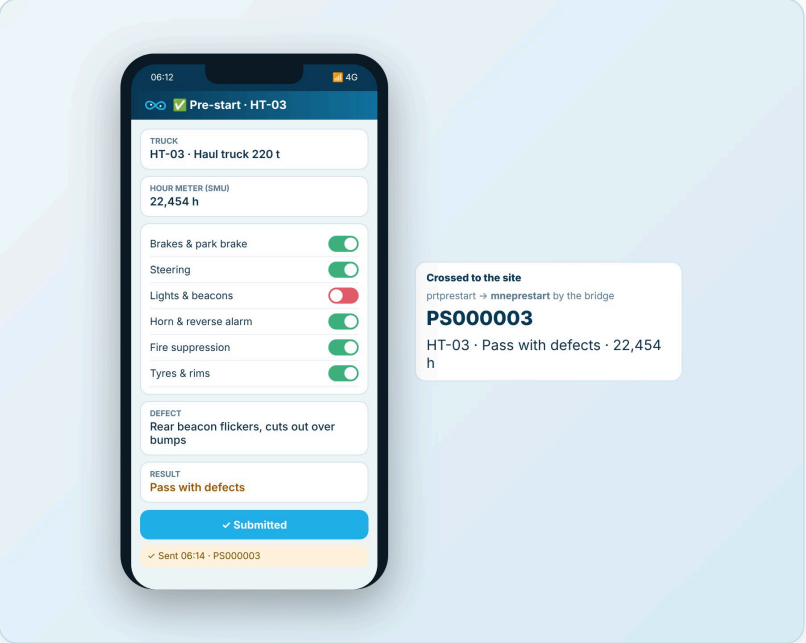
What 🔔 Raise the Request writes	`post_mnetag_request`
✓ `mntreq`	a P2 Urgent request from Condition monitoring with the reading (MR000031 for HT-01)
✓ `mnetag`	the tag stamped with the request number — never raised twice

NOTE

The button only works when its rule is true: `iv_max > alarm_high || iv_flatlines > 0 || iv_out_of_range > 0`. A healthy tag raises nothing.

Pre-start on the site app (offline)

Who **operator, contractor** | Where **Site app › ✅ Pre-start** | Table **prtprestart → mneprestart**



The operator's pre-start for HT-03, filled in the pit with no signal and held in the outbox.

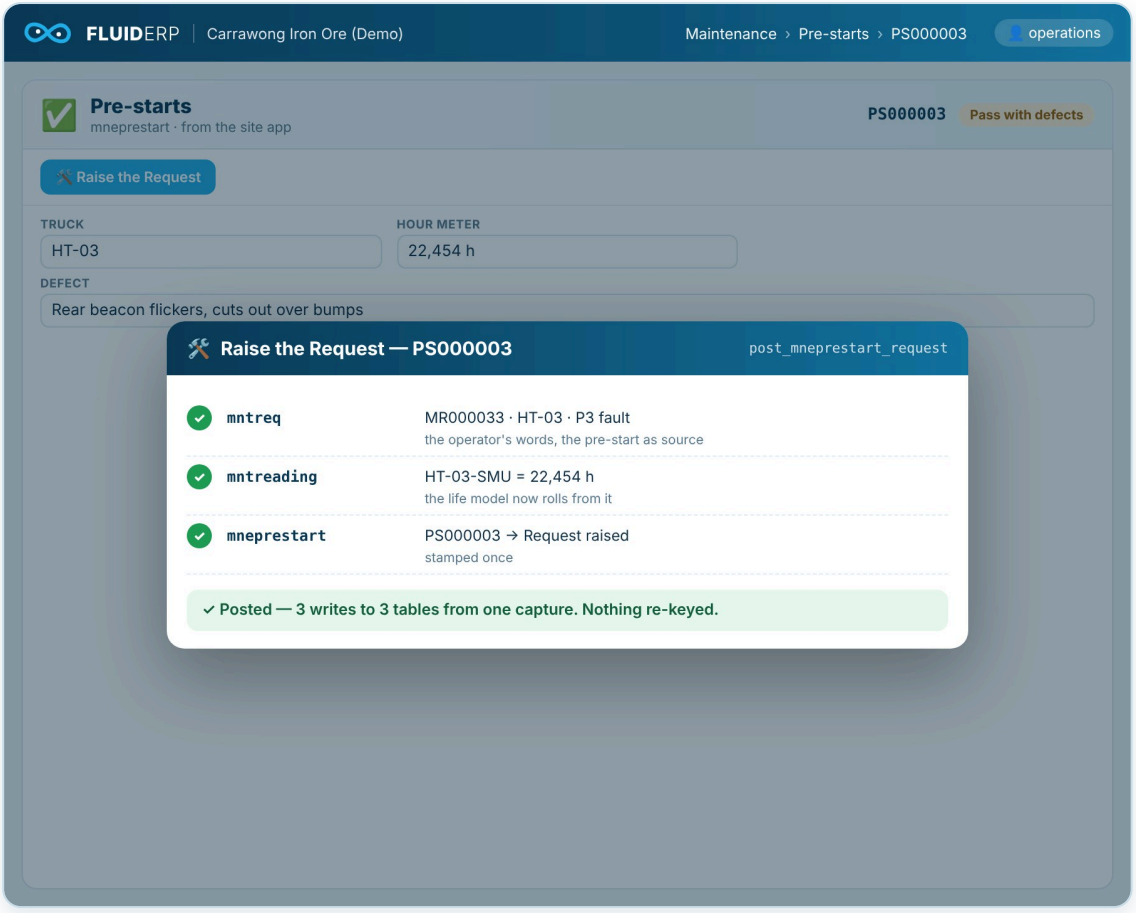
1. On the phone open ✅ **Pre-start** and pick the truck.
2. Type the **hour meter**, set the six switches and describe any defect.
3. Choose the **Result** (Pass, Pass with defects, Fail) and press **Submit**.
4. With no signal the form waits in the 📤 **outbox** and sends when back in range. It arrives on site as a pre-start (PS number).

TIP

Hazards (⚠️) and incidents (🚑) work the same way. **My Permits** and **My Tickets** show your own permits and certificates, readable offline.

Raise the maintenance request from a pre-start

Who **maintenance** | Where **Maintenance › Pre-starts › PS000003**



PS000003 (Pass with defects) → a P3 request and an hour-meter reading on HT-03.

1. Open the pre-start marked **Pass with defects** or **Fail**.
2. Press 🛠️ **Raise the Request**.

What 🛠️ Raise the Request writes	post_mneprestart_request
✓ **mntreq**	MR000033 — HT-03, P3 fault, the operator's own words, the pre-start as source
✓ **mntreading**	HT-03-SMU = 22,454 h — the life model rolls from it
✓ **mneprestart**	PS000003 → Request raised (once)

CHECK IT

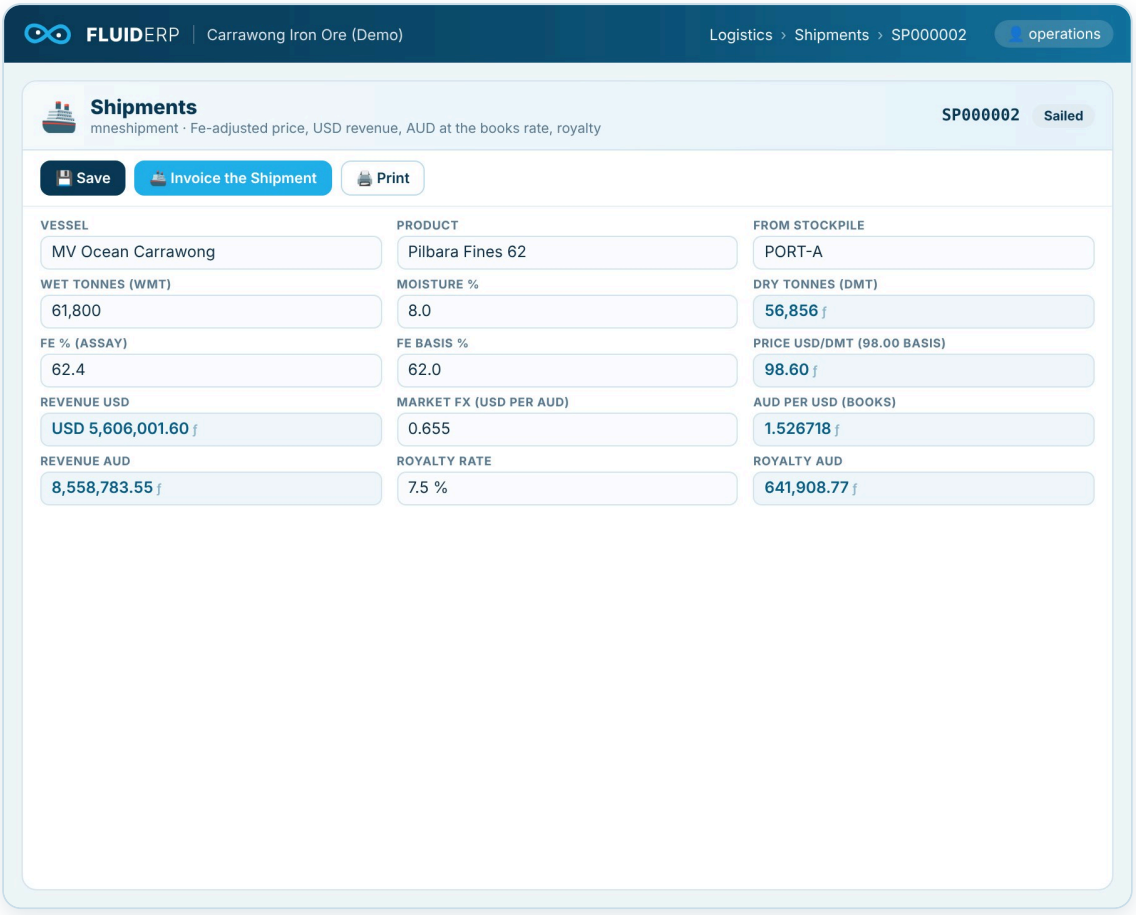
A clean **Pass** (PS000001) raises nothing — the button is refused.

7 Logistics: rail, shipping and the invoice

Rail and ship are rows on the same movement ledger as the haul. The shipment also writes the sales invoice and the royalty accrual.

Capture the shipment survey

Who **logistics** | Where **Logistics › Shipments** | Table **mneshipment**



SP000002 MV Ocean Carrawong: typed — wet tonnes, moisture, assay, market FX; everything else ƒ.

1. Open **Shipments** and the vessel's record.
2. Type **Wet tonnes**, **Moisture %**, **Fe % (assay)**, the **Fe basis** and the **market FX** (USD per AUD, the way the market quotes it). Save.
3. Check the calculated fields: dry tonnes, Fe-adjusted price, revenue USD, AUD per USD (books), revenue AUD, royalty.

CHECK IT

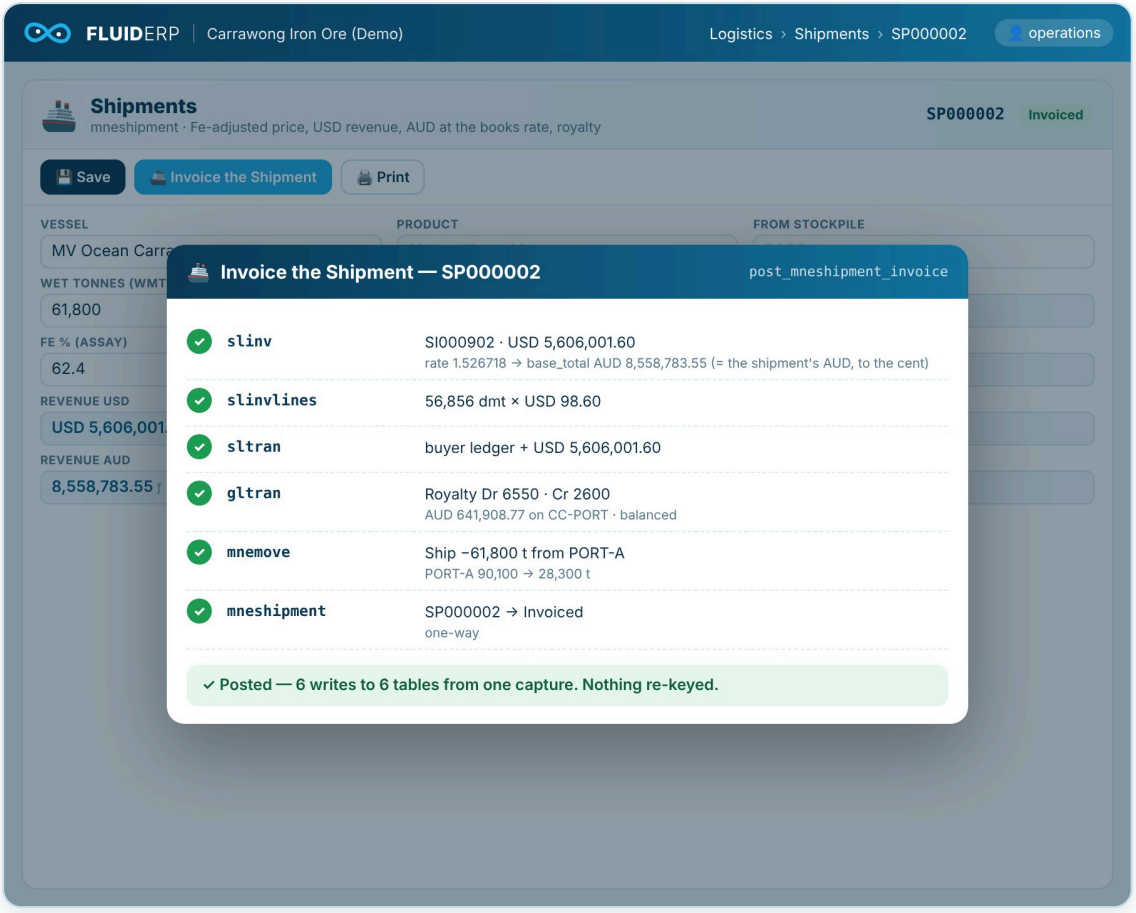
61,800 wmt at 8.0 % = 56,856 dmt. USD 98.00 × (62.4 ÷ 62.0) = 98.60/dmt. USD 5,606,001.60 × 1.526718 = AUD 8,558,783.55. Royalty 7.5 % = AUD 641,908.77.

NOTE

Two rates on purpose: you type the market quote (0.655 USD per AUD); the books multiply by AUD per USD (1.526718). The invoice's AUD base and the shipment's AUD revenue are then the same number to the cent.

Invoice the shipment

Who **logistics, finance** | Where **Logistics › Shipments › SP000002**



🚢 Invoice the Shipment — invoice in USD with its AUD base, royalty accrual and the ship movement.

1. When the vessel has sailed, press 🚢 **Invoice the Shipment**.

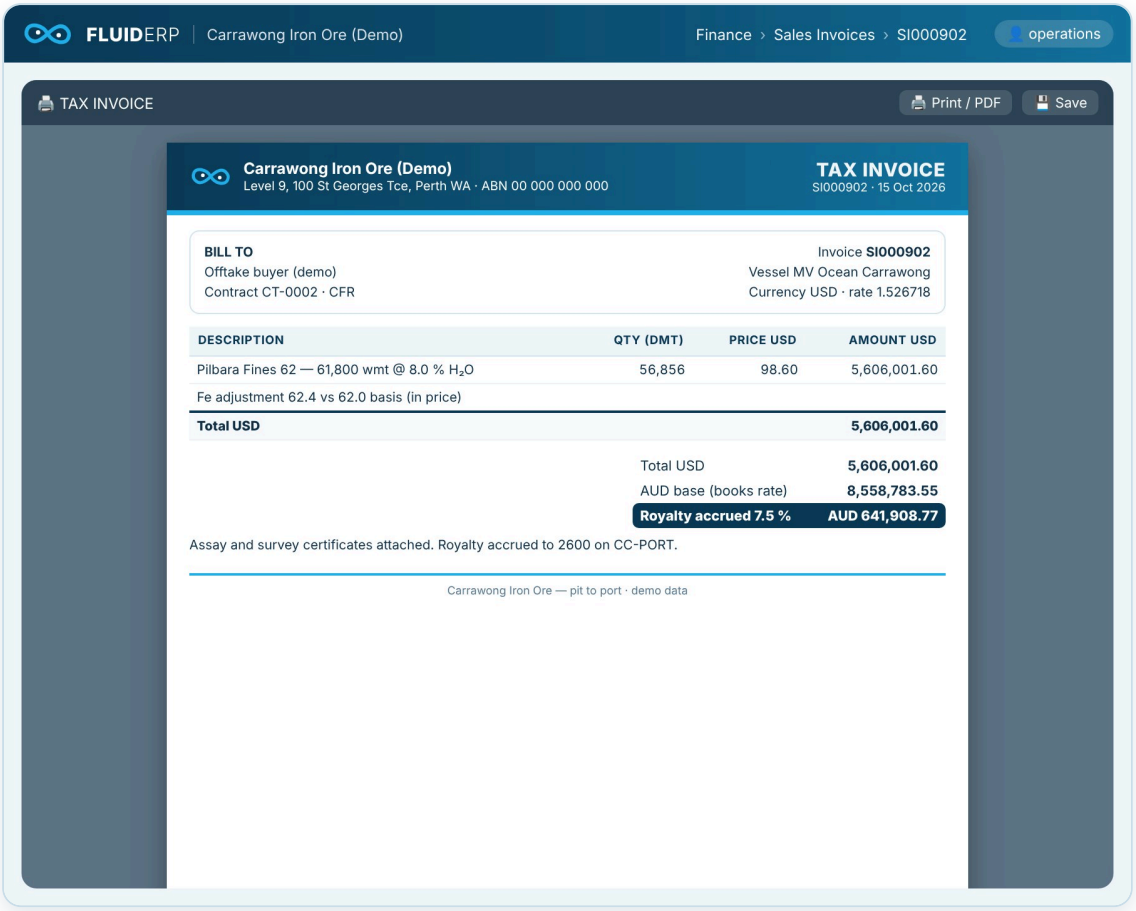
What 🚢 Invoice the Shipment writes	post_mneshipment_invoice
✓ **slinv**	SI000902 — USD 5,606,001.60, rate 1.526718, base total AUD 8,558,783.55
✓ **slinvlines**	56,856 dmt × USD 98.60
✓ **sltran**	the buyer's ledger + USD 5,606,001.60
✓ **gltran**	royalty accrual Dr 6550 · Cr 2600, AUD 641,908.77 on CC-PORT
✓ **mnemove**	Ship −61,800 t from PORT-A
✓ **mneshipment**	SP000002 → Invoiced (one-way)

CHECK IT

PORT-A falls by 61,800 t. The printed tax invoice (Sales Invoices › SI000902 › 🖨️ Print) shows the USD total and the AUD base.

Print the tax invoice

Who **finance** | Where **Finance › Sales Invoices › SI000902**

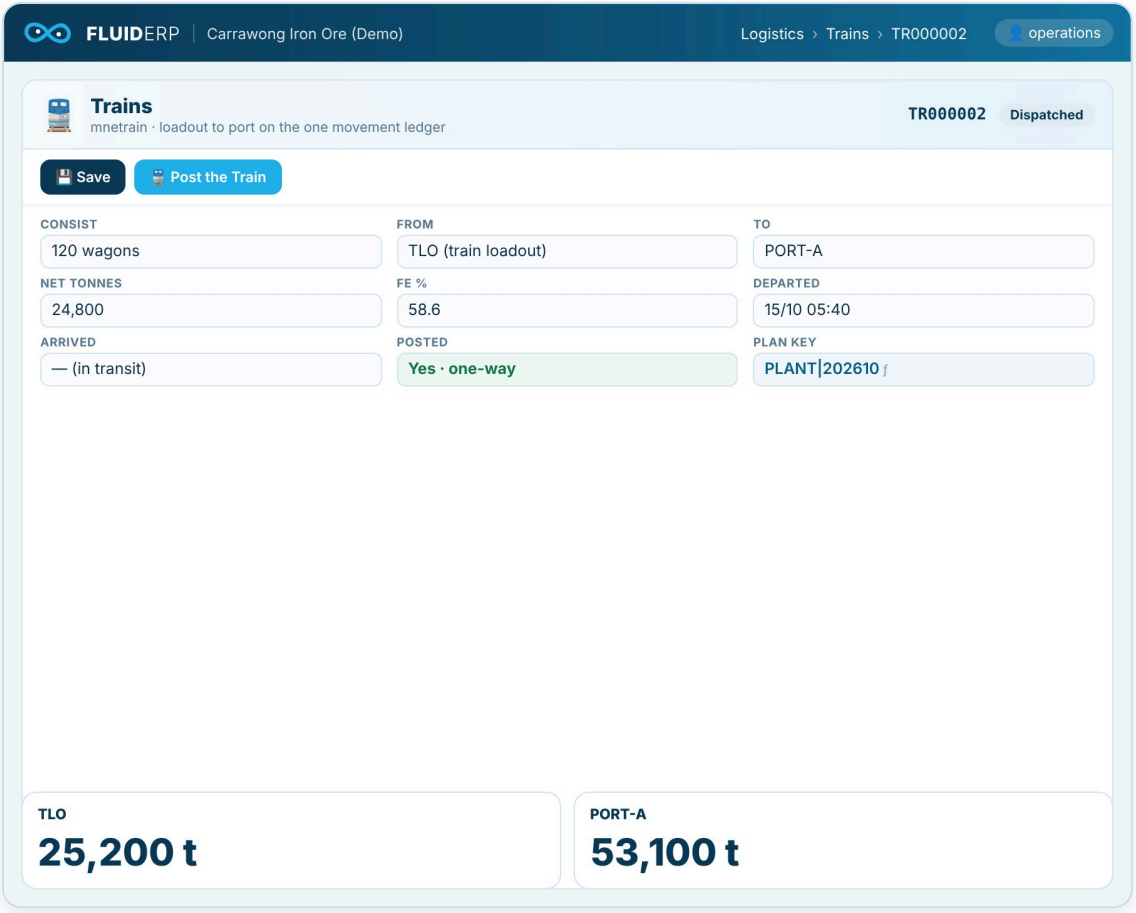


The printed copy the buyer receives — letterhead, document header, lines, USD total, AUD base and royalty note.

1. Open the invoice and press 🖨️ **Print**.
2. In the document viewer choose 🖨️ **Print / PDF** or 💾 **Save**.

Post the train

Who **logistics** | Where **Logistics › Trains** | Table **mnetrain**



TR000002 — 24,800 t from the loadout to the port; TLO 25,200 t, PORT-A 53,100 t after posting.

1. Open the dispatched train.
2. Press 🚆 **Post the Train**.

What 🚆 Post the Train writes	post_mnetrain
✓ **mnemove**	Rail −24,800 t from TLO and +24,800 t to PORT-A
✓ **mnetrain**	TR000002 posted (stays Dispatched until it arrives)

If the system refuses

YOU SEE	WHAT IT MEANS / WHAT TO DO
Already posted	A train can be posted once, even while it is still in transit.

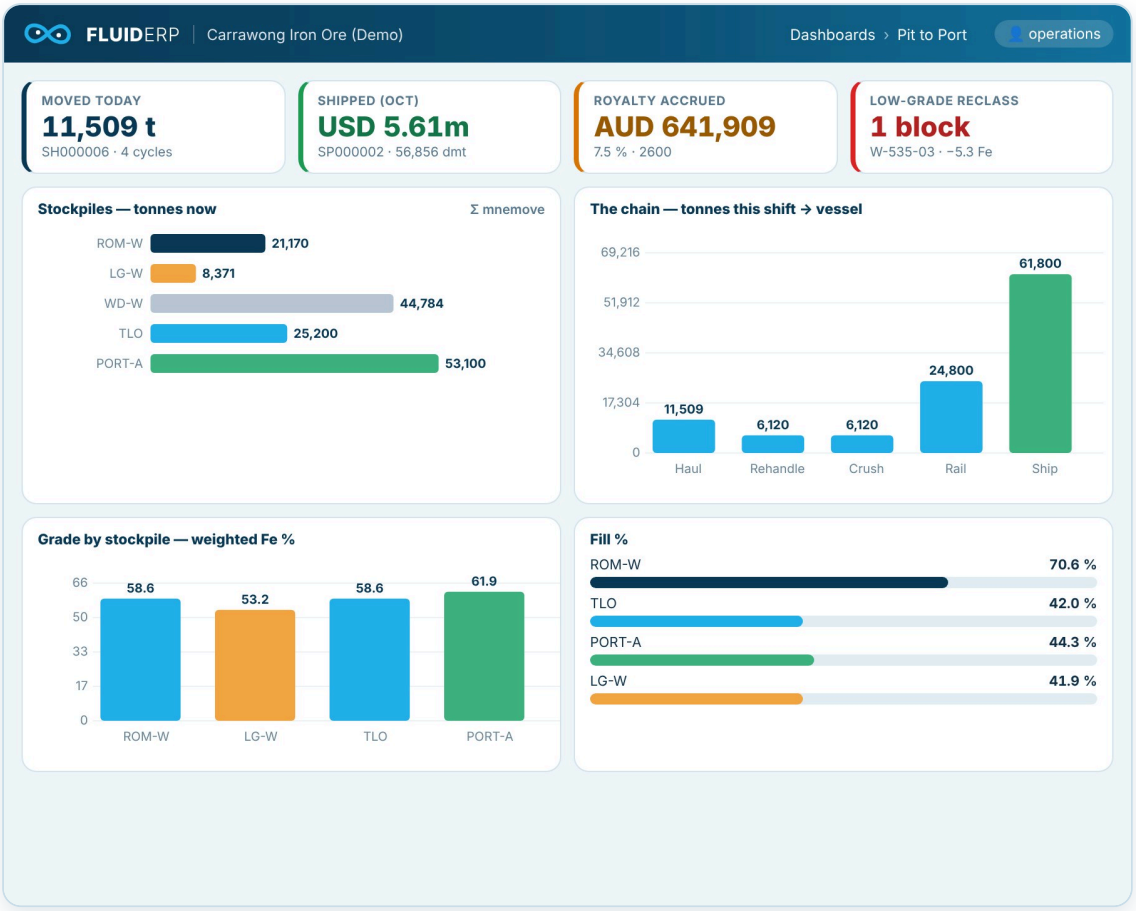
8 Critical dashboards

The dashboards read the rows the buttons wrote. There is no overnight load: the shift, the train and the ship are in the numbers the moment they are posted.

Pit to port

Where **Dashboards › Pit to Port** Who **operations, logistics, management**

The chain from the face to the vessel on one page.



Pit to port

What each tile is and where it comes from

Moved today
Tonnes on haul movements dated today.
`Σ mnemove.tonnes where type = Haul`

Shipped (Oct)
Revenue and dry tonnes of invoiced shipments this month.
`Σ mneshipment.revenue_usd`

Royalty accrued
Royalty on this month's shipments.
`Σ mneshipment.royalty_aud`

Low-grade reclass
Blocks reclassified by grade control.
`count mneblock where reclassified`

Stockpiles — tonnes now
Balance of each pile.
`Σ in − Σ out per stockpile`

Grade by stockpile / Fill %
Weighted Fe and how full each pile is.
`tonne-weighted Fe · balance ÷ capacity`

ACT ON IT

A pile filling faster than it empties is a bottleneck downstream: check the crusher's rehandle and the train schedule.

Plan and cost

Where **Dashboards › Plan & Cost** | Who **operations, finance**

Plan against actual for each pit and period, and cost per tonne with where the dollars came from.



Plan and cost

What each tile is and where it comes from

Actual · Oct
Tonnes moved this period.
`Σ mnemove by plan_key`

Behind plan
Plan to date minus actual — a formula, not a judgement.
`mneplan.variance`

$ / t moved
Period cost ÷ tonnes moved.
`mnecostperiod.cost_per_t_moved = $15.97 WEST`

$ / t ore
Period cost ÷ ore tonnes.
`mnecostperiod.cost_per_t_ore = $35.64 WEST`

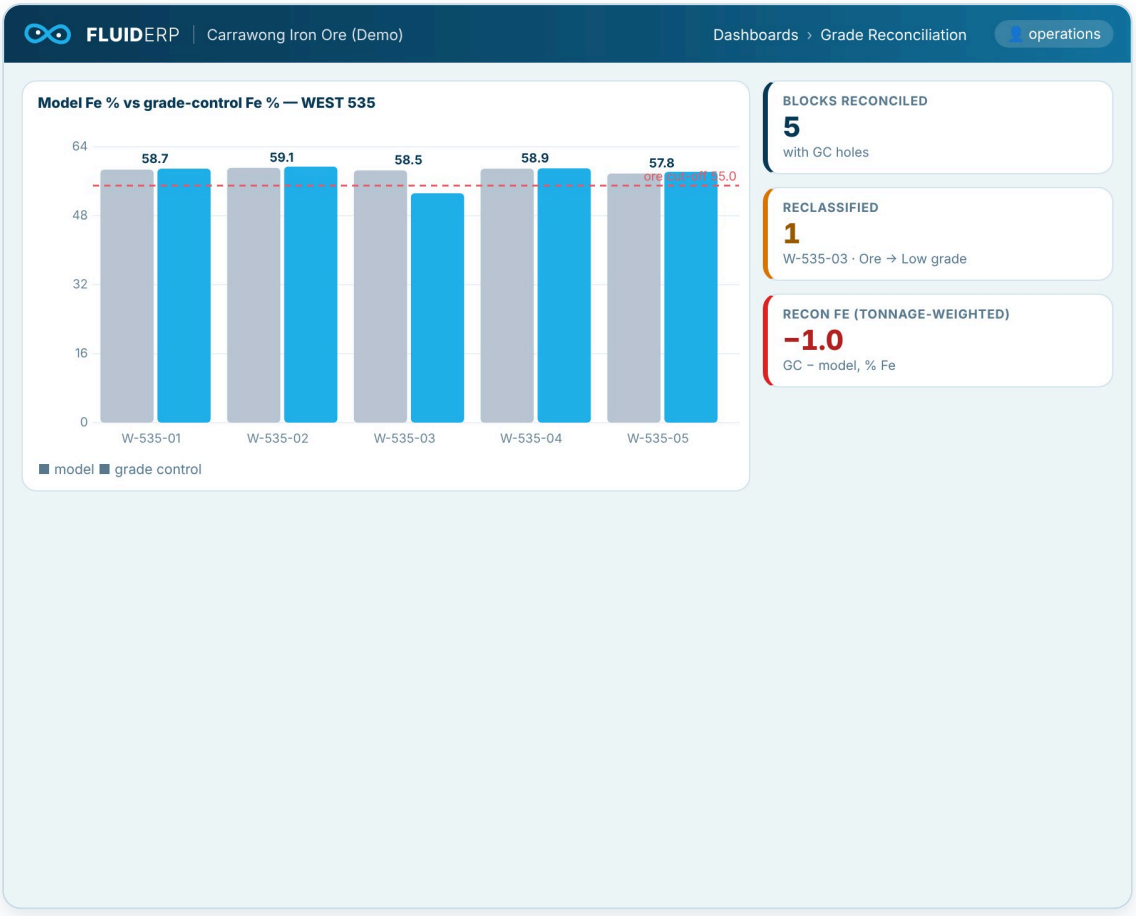
ACT ON IT

Labour comes from posted shifts, fuel from fuel issues, explosives from fired blasts. If a slice looks wrong, open the cost period and drill to the source rows.

Grade reconciliation

Where **Dashboards › Grade Reconciliation** | Who **geology**

Each block's model grade beside its grade-control average, with the ore cut-off line.



Grade reconciliation

What each tile is and where it comes from

Blocks reconciled
Blocks with grade-control holes.
`count mneblock with mnesample`

Reclassified
Blocks whose GC material differs from the model.
`mneblock.reclassified`

Recon Fe
Tonnage-weighted GC − model.
`mneblock.recon_fe`

Fleet health

Where **Dashboards › Fleet Health** | Who **maintenance**

What will stop a truck next: hours or kilometres to each truck's binding limit, the maintenance board and life consumed by component.



Fleet health

What each tile is and where it comes from

Life expired
Components past their life.
`mnelimit.status = LIFE EXPIRED`

Due soon
Components inside their warning band.
`mnelimit.status = DUE SOON`

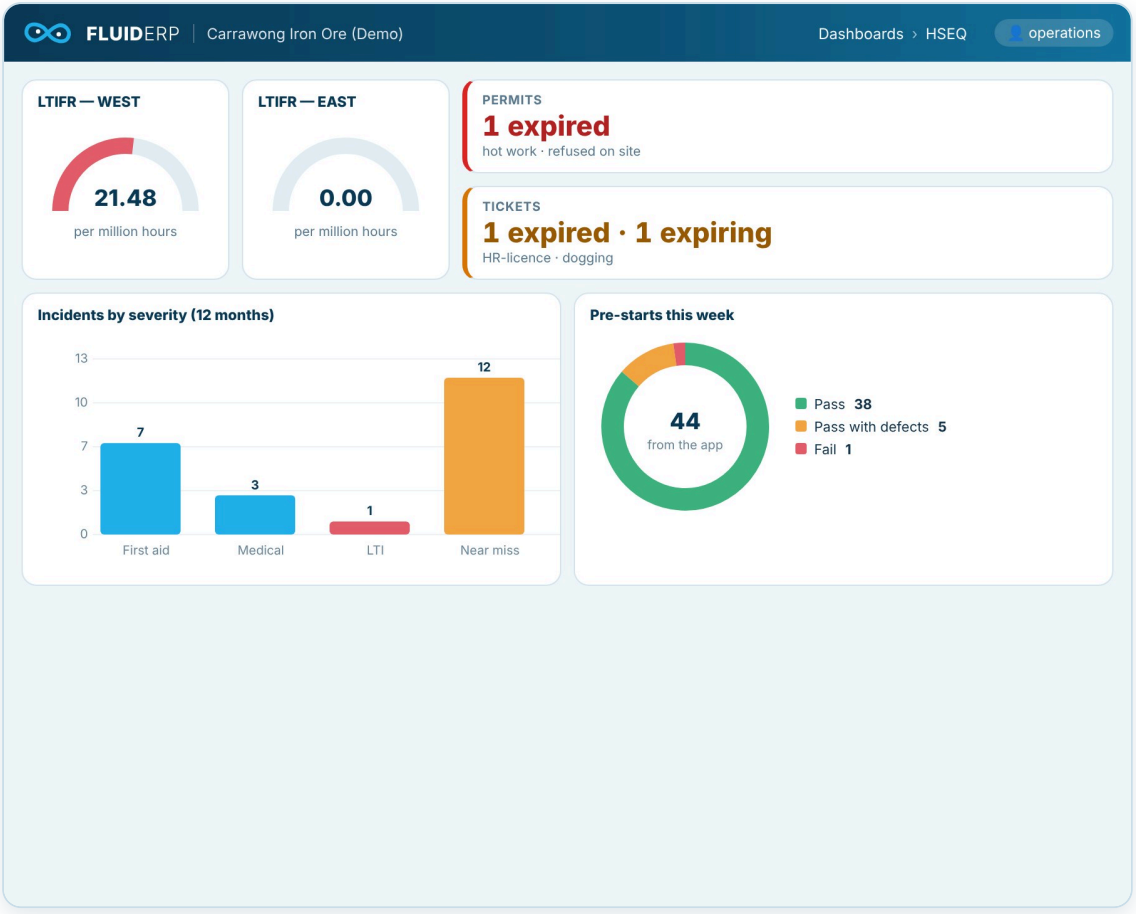
Open requests
Requests from tags and pre-starts.
`mntreq status New`

Fuel burn
Litres per operating hour.
`Σ fuel ÷ Δ SMU`

HSEQ

Where **Dashboards › HSEQ** Who **hseq, management**

Lost-time injury frequency per pit, permits and tickets, incidents and pre-start results.



HSEQ

What each tile is and where it comes from

LTIFR
Lost-time injuries per million hours.
`ltis × 1,000,000 ÷ (hours_opening + hours_worked) — WEST 21.48`

Permits
Expired permits are not permits.
`mnepermit hours left ≤ 0`

Tickets
Competencies expired and expiring.
`mnecert days left`

Pre-starts
Results from the site app this week.
`mneprestart.result`

9 Reports

Thirty-three reports ship with the edition. Each is a report definition over the same rows the dashboards read, and prints with the mine's letterhead.

Running and printing a report

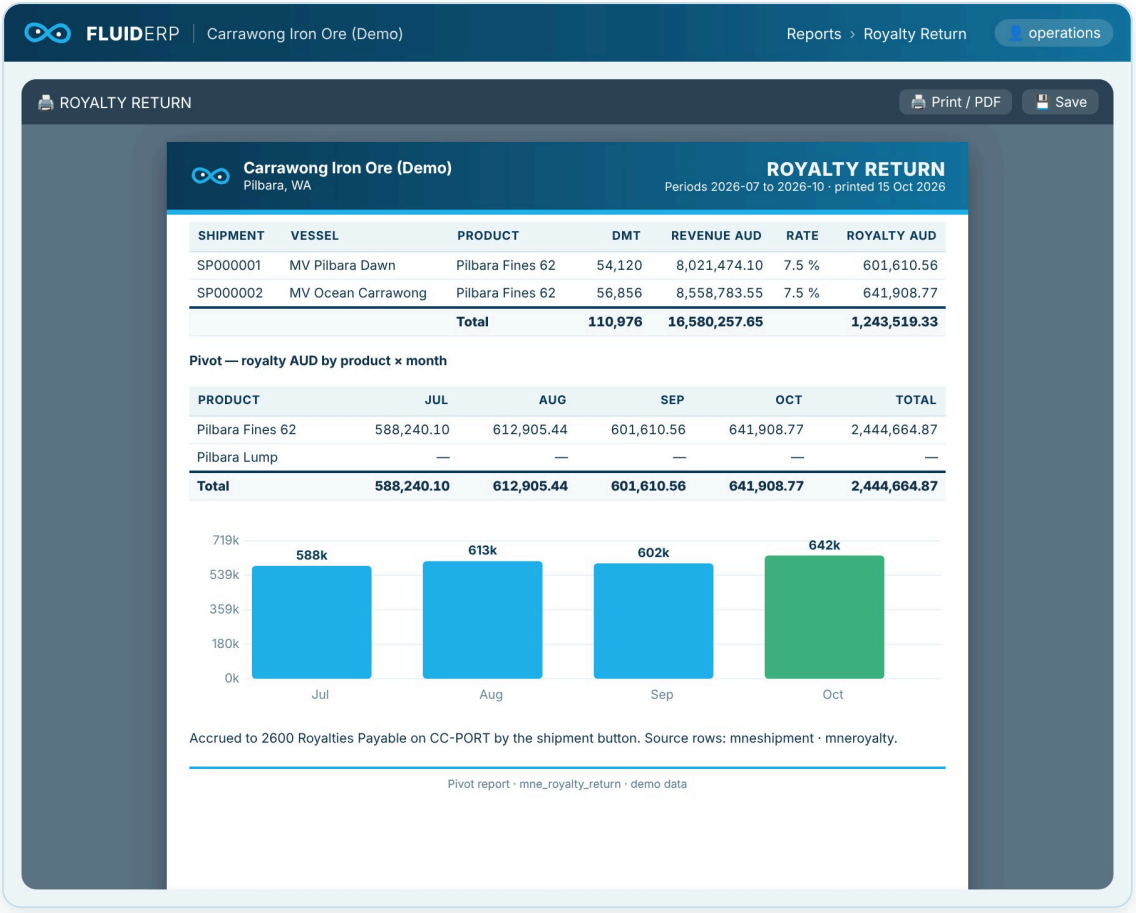
1. Open 🖨️ **Reports** on the launcher (or the report's own tile) and pick the report.
2. Fill the parameters. Required parameters are marked; dates accept `$today`-style defaults and lookups show "value — description".
3. Press ▶ **Run**. The report draws its shape — grid with subtotals, chart, pivot, calendar, Gantt, board or tree — from the live rows.
4. Press 🖨️ **Print** to open the printed copy (letterhead, document header, footer) in the document viewer, then 🖨️ **Print / PDF** or 💾 **Save**. Reports with a file layout also offer 💾 **Export File**.

Report catalogue

REPORT	SHOWS	TYPICAL READER
Royalty Return	Royalty by shipment and a pivot by product × month	finance
Stockpile Balances	Opening, in, out, closing and Fe % per pile	logistics, finance
Cost per Tonne	Cost buckets, tonnes and $/t by pit and period	finance, operations
Grade Reconciliation	Model vs grade control per block, reclassified flagged	geology
Permits & Tickets	Expired and expiring permits and certificates	hseq
Plan vs Actual	Plan, actual and variance by pit and period	operations
Shift Report	Cycles, tonnes and hours for a shift	operations
Fleet Due List	Components by days or hours to limit	maintenance
Incident Register / LTIFR	Incidents by severity and frequency rates	hseq
Sales Invoice (print)	The tax invoice with document header	finance

Royalty return

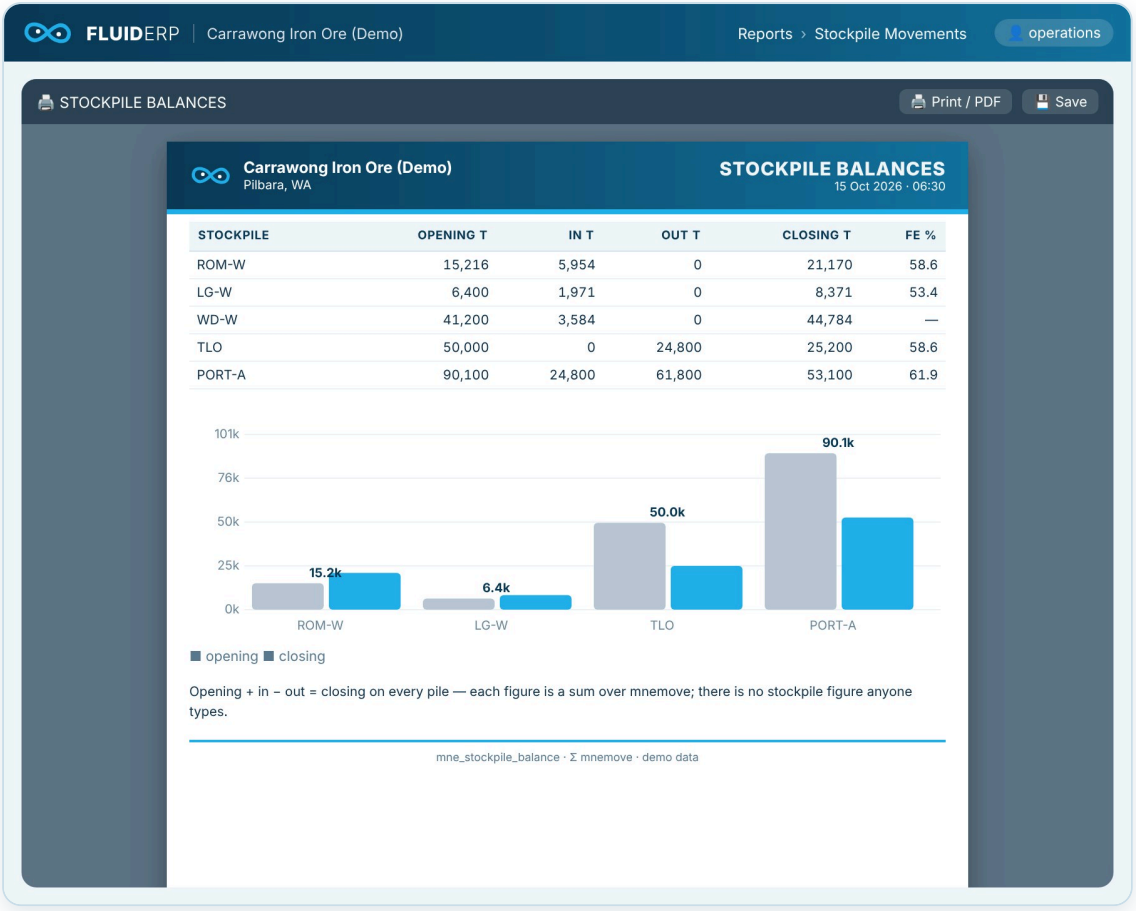
Lists every invoiced shipment with its dry tonnes, AUD revenue, rate and royalty, then pivots the royalty by product and month with a chart. The royalty was accrued by the shipment button, so this report is what you lodge.



Royalty return

Stockpile balances

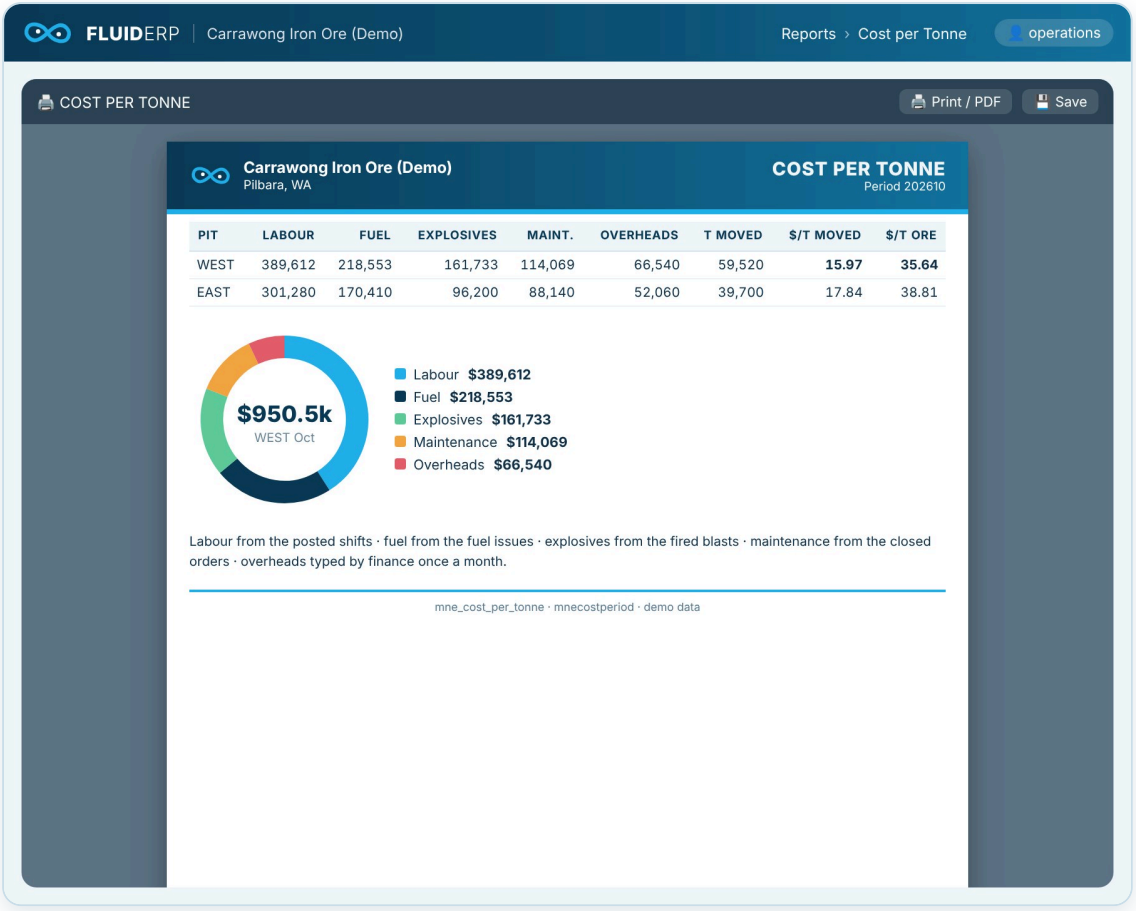
One report over one ledger: opening + in − out = closing for every pile. Use it at month end and for the stockpile survey reconciliation.



Stockpile balances

Cost per tonne

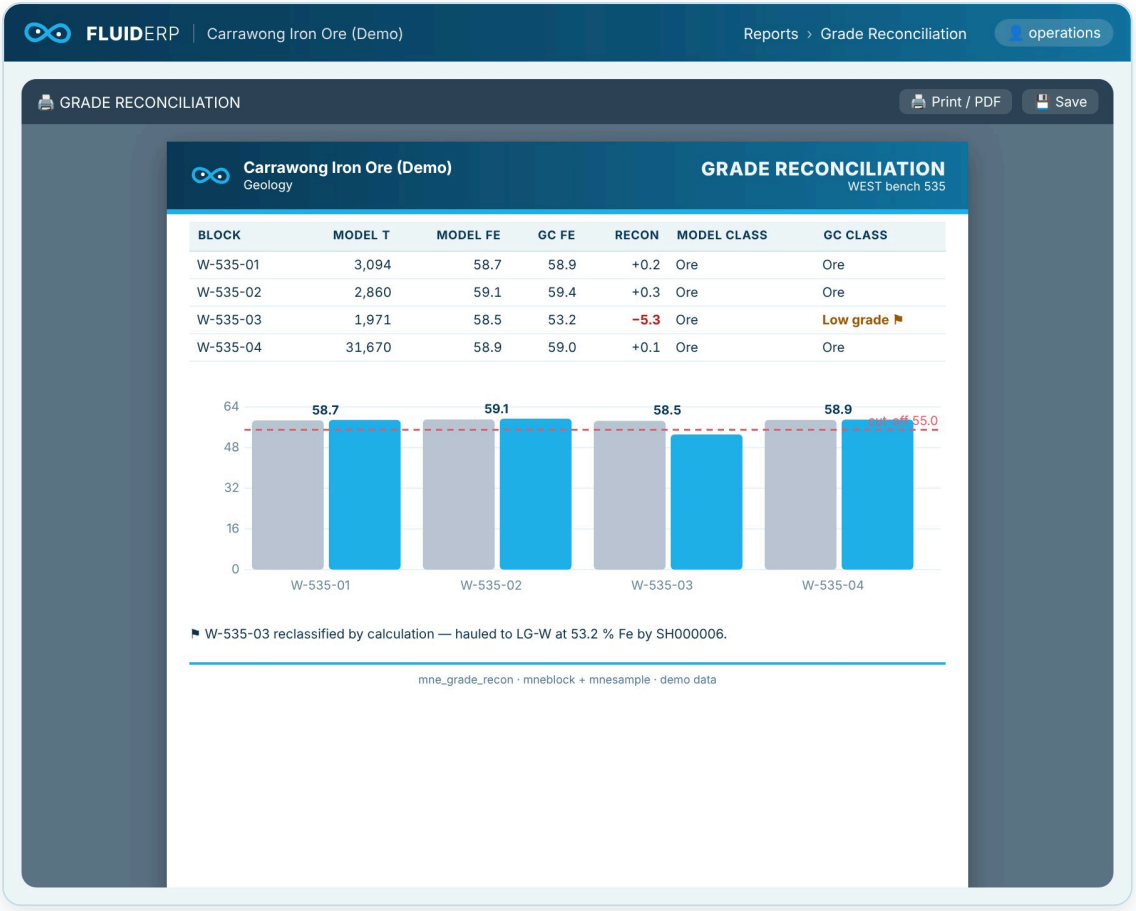
Labour, fuel, explosives, maintenance and overheads by pit, with tonnes moved and $/t. Each bucket is traceable to the records that posted it.



Cost per tonne

Grade reconciliation

The geologist's block-by-block reconciliation with the cut-off line, printed straight from the blocks and their samples.



Grade reconciliation

10 Matching

A matching screen sets two lists side by side — for example bank statement lines and cashbook entries — and pairs the rows that belong together. Matching is a definition (`tblmatchdef`): it names the two sides, the fields to compare, the tolerances and what a confirmed match writes.

How every matching screen works

1. Open the matching screen from its 🔀 tile on the launcher, or with 🔀 **Match** on a form that takes part in it.
2. 🔄 **Auto Match** runs when the screen opens. Rows that meet the rule are paired and arrive **pre-ticked** in green.
3. Read the **summary strip**: how many pairs, how many unmatched on each side, and any outstanding amount.
4. Untick any pair you do not accept. To pair rows by hand, tick one row on each side and press 🔗 **Match Selected**. ✖ on a pair puts both rows back.
5. Press ✔ **Confirm Ticked**. Both sides are stamped (so they never match again), a session record is written, and the reconciliation report opens in the document viewer.

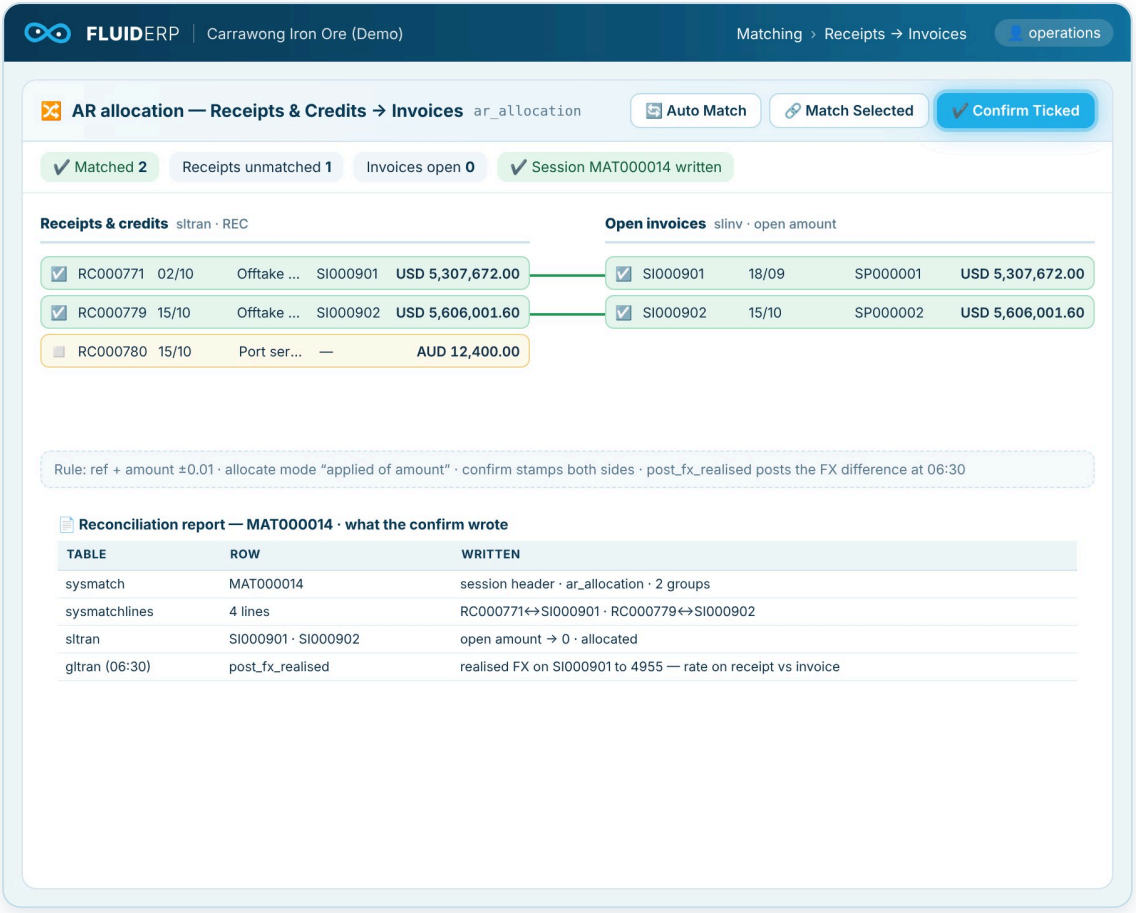
What ✔ Confirm Ticked writes	matching definition · confirm
✓ `sysmatch`	the session header — definition, who, when, number of groups (MAT number)
✓ `sysmatchlines`	one line per row in each confirmed group
✓ `each side`	the stamp field (for example matched_ind = M) and any counterpart fields the definition copies across

UNMATCHED IS INFORMATION

What is left after Auto Match is the exception list: an unexplained bank fee, a payment with no reference, a count that disagrees. Deal with those, not with the hundreds of rows that matched.

Allocate the buyer's receipt to the shipment invoice

Who **finance** | Where **Matching › AR allocation**



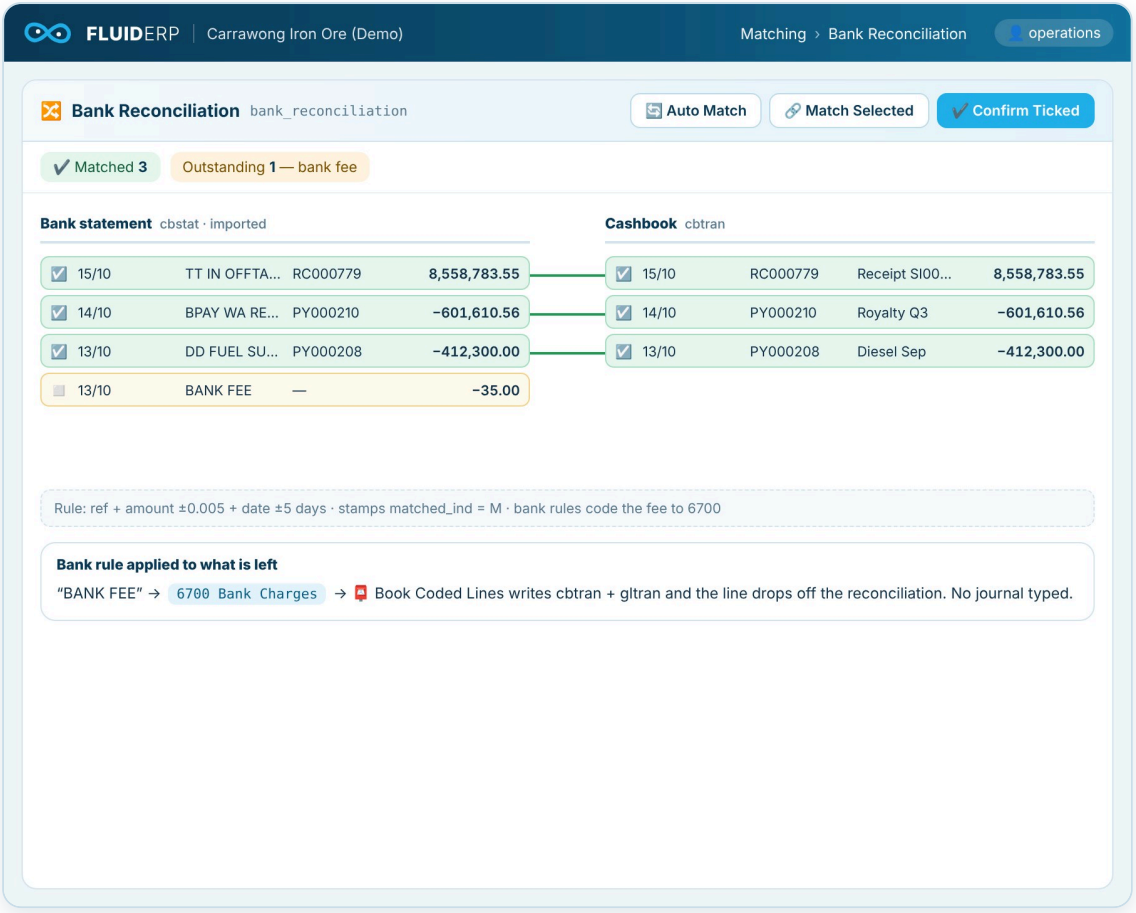
RC000779 pairs with SI000902 on reference and amount; the port-services receipt has no invoice and stays unmatched.

1. Import the bank receipts (or let the bank feed bring them).
2. Open **AR allocation — Receipts & Credits → Invoices**. Auto Match pairs receipts and open invoices on reference and amount (±0.01).
3. Review the pairs and press ✔️ **Confirm Ticked**.

What ✔️ Confirm Ticked writes	ar_allocation
✓ **sysmatch**	MAT000014 — the session
✓ **sysmatchlines**	four lines for the two pairs
✓ **sltran**	SI000901 and SI000902 open amount → 0
✓ **gltran (06:30)**	post_fx_realised posts the realised FX difference to 4955 the next morning

Reconcile the bank statement

Who **finance** | Where **Matching › Bank Reconciliation**



Three statement lines tick off against the cashbook; the bank fee is coded by a bank rule.

1. Import the statement (CSV / OFX) into **cbstat**.
2. Open **Bank Reconciliation**. Lines pair on reference and amount (±0.005) within five days.
3. Confirm. For what is left, run **Apply Bank Rules** and **Book Coded Lines** — the fee is written to the cashbook and 6700 Bank Charges.

11 Messages, refusals and what to do

FLUID refuses an action rather than let a figure go wrong. Every refusal names its rule. These are the ones you will meet on this platform.

MESSAGE (IN SHORT)	WHY	WHAT TO DO
Already posted — 0 rows written	The record is sealed (shift, blast, train, shipment).	Raise a correcting movement or document; do not re-post.
Shift must be Closed	Only closed shifts can be posted.	Enter every cycle, set Closed, save, post.
The button's rule is not met	For example a tag that is healthy, or a pre-start that passed.	Nothing to raise; check the tag's Validate result.
Permit expired	An expired permit is not a permit.	Renew the permit in HSEQ before work starts.
N of N fitment lines could not be rolled down	The counter name on the fitments does not match the meter register.	Administrator: check lineCounterField on the fleet model.
Purchase invoice not Approved	Contractor and supplier invoices post only when Approved by someone other than the capturer.	Ask the approver.

12 Data reference and glossary

Tables you will meet

TABLE	HOLDS	WRITTEN BY
mneblock · mnesample	Block model results and grade-control holes	geology (typed); calculations
mneshift · mneload	Shifts and their haul cycles	operations / dispatch import
mnemove	The movement ledger (append-only)	🚚 🚆 🚢 and rehandle/crush postings
mnestockpile	Stockpiles — balances derived from mnemove	calculations
mneplan · mnecostperiod	Plan and cost per pit × period	typed plan; calculations
mneblast	Blasts and their explosives	operations; 💥 Fire the Blast
mnefuel	Fuel issues	operations; ⛽ Issue Fuel
stkitem · stktran	Stores items and stock movements	stores; issuing buttons
mntequip · mntmeter · mntreading	Fleet, meters and readings	maintenance; fuel; pre-starts
mnefitment · mnelimit	Component fitments and life limits	maintenance; 🔄 ⏱️
mnetag · mnetagvalue	Condition tags and minute values	sensor feed; 📉 🔔
mntreq · mntorder	Maintenance requests and orders	🔔 🛠️; maintenance
mneprestart · mnehazard · mneincident	Site-app captures	site app via bridges
mnepermit · mnecompetency · mnecert	Permits and competencies	hseq
mnetrain · mneshipment · mneroyalty	Trains, shipments and royalty rates	logistics; finance
slinv · sltran · gltran	Sales invoices, the sales ledger, the general ledger	posting buttons only

Glossary

TERM	MEANING
ROM pad	Run-of-mine stockpile next to the pit.
Grade control (GC)	Close-spaced drilling that tells you the real grade of a block before it is mined.
Reclassified	A block whose GC material differs from the model's.
wmt / dmt	Wet and dry metric tonnes; dmt = wmt × (1 − moisture).
Powder factor	Kilograms of explosive per tonne broken.
SMU	Service-meter-unit hours (the engine hour meter).

TERM	MEANING
LTIFR	Lost-time injury frequency rate per million hours worked.
Plan key	pit|yyyyMM — the key that ties movements, plan and cost period together.
Capture	Recording something once — by form, phone app, file or feed.
Posting button	An aqua button that writes rows to other tables from the record in front of you.
Posted · sealed	The record has been posted; the button is one-way and a second press writes nothing.
Calculated field (ƒ)	A read-only field the calculation engine keeps up to date.
Reference	The source record number carried on every row a button writes.
Matching definition	The rule for pairing rows of two tables and what confirming writes.
Session (MAT…)	The record of one confirmed matching run.
Gateway	The server that checks every read and write against the rules for your group.

A Walk it once on the demo package

The Carrawong package is installed with these records waiting. Sign in as shown and press the buttons in this order; each step is a chapter of this manual.

Operations (operations)

1. Shifts › SH000006 → 🚚 Post the Shift. Four movements; ROM-W 15,216 → 21,170 t; plan actuals 59,520 t. Press again: nothing.
2. Blasts › BL000002 → 💥 Fire the Blast. ANFO 29,000 → 10,600 kg; Dr 5300 / Cr 1300 $35,432.00 on CC-WEST.
3. Fuel Issues › FU000012 → ⛽ Issue Fuel (do this after the fleet steps — its reading moves HT-01's components).

Maintenance (maintenance)

1. Fleet › HT-01 → 🔄 Roll Down Usage → ⏱️ What Is Due. Tyre R3 LIFE EXPIRED; tyre L1 and PM-500 DUE SOON.
2. Condition Tags › HT-01.COOLANT and HT-02.COOLANT → 📉 Validate → 🔔 Raise the Request (ALARM and SENSOR SUSPECT, one request each).
3. Pre-starts › PS000003 → 🛠️ Raise the Request. PS000001 (Pass) raises nothing.

Logistics and finance (logistics, finance)

1. Shipments › SP000002 → 🚢 Invoice the Shipment. USD 5,606,001.60; AUD 8,558,783.55; royalty AUD 641,908.77; PORT-A 28,300 t.
2. Trains › TR000002 → 🚆 Post the Train. PORT-A 53,100 t; TLO 25,200 t.
3. Dashboards, then Reports, then Matching.

For the administrator

TASK	HOW
Install	`bash scripts/fresh-install.sh Mining --dry-run`, then without --dry-run (sudo). `./deploy-mining.sh` lists the buttons left for the reviewer.
Site app	Deploy `institutions/mining-portal`; contractors sign in on the phone app; captures send via the outbox.
Condition feed	Load minute values into mnetagvalue (capture definition or import); 📉 Validate reads them.
Periods	GL periods are yyyyMM. Use the PER() helper in any new formula that builds a plan key.