

Case study:

DEMOCRATIC REPUBLIC OF CONGO

FUEL FARM

75,000 L

Gross tank capacity, 0-75 series tank



ORCA
FUEL SOLUTIONS

MULTI-SECTION GENERATOR FUEL FARM

CHALLENGE

The mine site, located approximately 25 km from Kolwezi in the Democratic Republic of Congo, is among the largest high-grade copper mining operations in the world. The operation runs continuously, 24 hours a day, 365 days a year, across multiple production areas and processing facilities, supported by hundreds of employees and contractors.

Site power is generated on a distributed basis by diesel generator sets deployed across five operational sections. Each section required a dedicated, high-capacity fuel storage and distribution system capable of sustaining extended generator run-time between tanker deliveries, minimising on-site tanker movements, and providing fuel redundancy for critical power generation equipment.



SOLUTION

Orca, was engaged under the site's engineering, procurement and construction management to design, manufacture, supply, deliver, and commission a fully integrated fuel storage and distribution package across the mine site's five operational sections.

The scope centred on Orca's O-75 self-bunded storage tanks, a double-walled, containerised, aboveground tank rated to a gross capacity of 75,000 litres (71,720-litre safe-fill) per unit, supplemented by 10,000-litre cube tanks at localised distribution points. Each storage tank was paired with a dedicated tanker off-loading system, a dual-rate light/medium-vehicle dispensing system, and flameproof electrical control panels, with the full package engineered around a formal Hazard and Operability (HAZOP) study conducted.





STORAGE

- Orca O-75 self-bunded tanks.
- 75,000 L gross / 71,720 L safe-fill.
- 10,000 L cube tanks.
- AS1940 / UL142 design; AS1692 CAT.3 build

DISPENSING

- PP-IND-Refueller dispensing pkg.
- Dual-rate 80 + 300 L/min 2.5" sliding vane pump, 3.0 kW motor.
- 4 x 7-micron dual filtration heads.

OFF-LOADING

- PP-LOADER-500 off-loading package.
- 500 L/min; WEG Zone 2, 5.5 kW motor.
- 20-micron coalescer filtration.
- API 607 valves; AES-verified metering

CONTROLS & SAFETY

- Flameproof DOL panels, 400 VAC.
- Siemens LOGO PLC, RS485 comms.
- SCAMP & HYTEK level alarms.
- HAZOP-derived overfill & relief protection.

RESULTS

Extended tank capacity across each of the five sections lets generator banks run for longer between deliveries, reducing tanker movements on internal haul roads and improving fuel security for continuous, 24/7/365 mining and processing operations.

SCAMP and HYTEK level alarms, positive-displacement metering with AES verification, and Siemens LOGO PLC-integrated field panels give operations and maintenance teams consolidated visibility of fuel level, flow, and system status across every off-loading and dispensing point.



RESULTS

The HAZOP study conducted added overfill shut-off valves, pressure and thermal relief on feed-pump and off-loading systems, and line-leak detection on header pipework, closing out identified risk items on Sections 3 and 5 without a system redesign.

Orca has continued supplying the mine with replacement pumps, metering equipment, filtration consumables, and critical spares from 2020 through to 2026, an ongoing infrastructure support relationship rather than a single delivery.



“Across five operational sections, Orca’s self-bunded storage platform gave the mine extended generator run-time, consolidated fuel visibility, and a HAZOP-verified safety case.”



OUTCOMES

SECTIONAL ROLLOUT

- Five operational sections (Sections 1-5) supplied under a single integrated scope of work.
- Each section engineered as a self-contained storage-to-generator fuel loop.

STORAGE STANDARDS

- O-75 self-bunded tanks: 75, 000 L gross / 71, 720 L safe-fill, 12,192 x 2,438 x 2,869 mm.
- Built to AS1940 and AS1692 CAT.3, certified to UL142.
- 6 mm Corten weathering steel; empty weight 12,000 kg per unit.

DISPENSING & METERING

- 500 L/min off-loading; dual-rate 80 + 300 L/min dispensing.
- Positive-displacement metering with AES verification on every point.

ELECTRICAL & CONTROL

- Flameproof control panels on every tank; Siemens LOGO, PLC integration.
- SCAMP/HYTEK level alarms plus HAZOP-derived overfill and relief protection.

