



MINES RESCUE SERVICES
South Africa

LEARNING FROM MAJOR INCIDENTS: EMERGENCY RESPONSE AND RECOVERY

2026 MINE HEALTH AND SAFETY TRIPARTITE SUMMIT

Emperors Palace
17 September 2026

Mannas Fourie | Chief Executive Officer, **MINES RESCUE SERVICES South Africa**
Director, International Mines Rescue Body



How do we still get it Wrong at Times?



Firstly - “What Value Does it Add”

Major Incidents

Learnings

Why Is It Not Out There – Are we Serious

Unexpected – Knowledge Sharing

Kay GE

King AEN

Vorster PJ

Evans WJ

Griffiths L

Gerber PJ

Rodgers FH

Du Plessis JJ

Hunter CG

De Beer MD

Ferreira CJ

Swart BP

Purdy DR

Pieterse WJ

Booth WH

Erasmus BB

De Beer MHPB

Weise HAEH

Van Vuuren OMJ

Porter JJ

Watts VG

Naber SH

Rider WA

Roux PJJ

Pretorius KK

De Waal KM

Opperman CJ

Kock JGAD

Van Wyk Louw A

Hildebrandt SG

Bothma B

Prinsloo FJ

Randall JR

Bothma JA

Momberg WJ

Steyn PL

Liebenberg CJ

Siobo T

Peacock LG

Kolbe GA



Lest we Forget

In honour of the Rescue Team Members who lost their lives while voluntarily serving

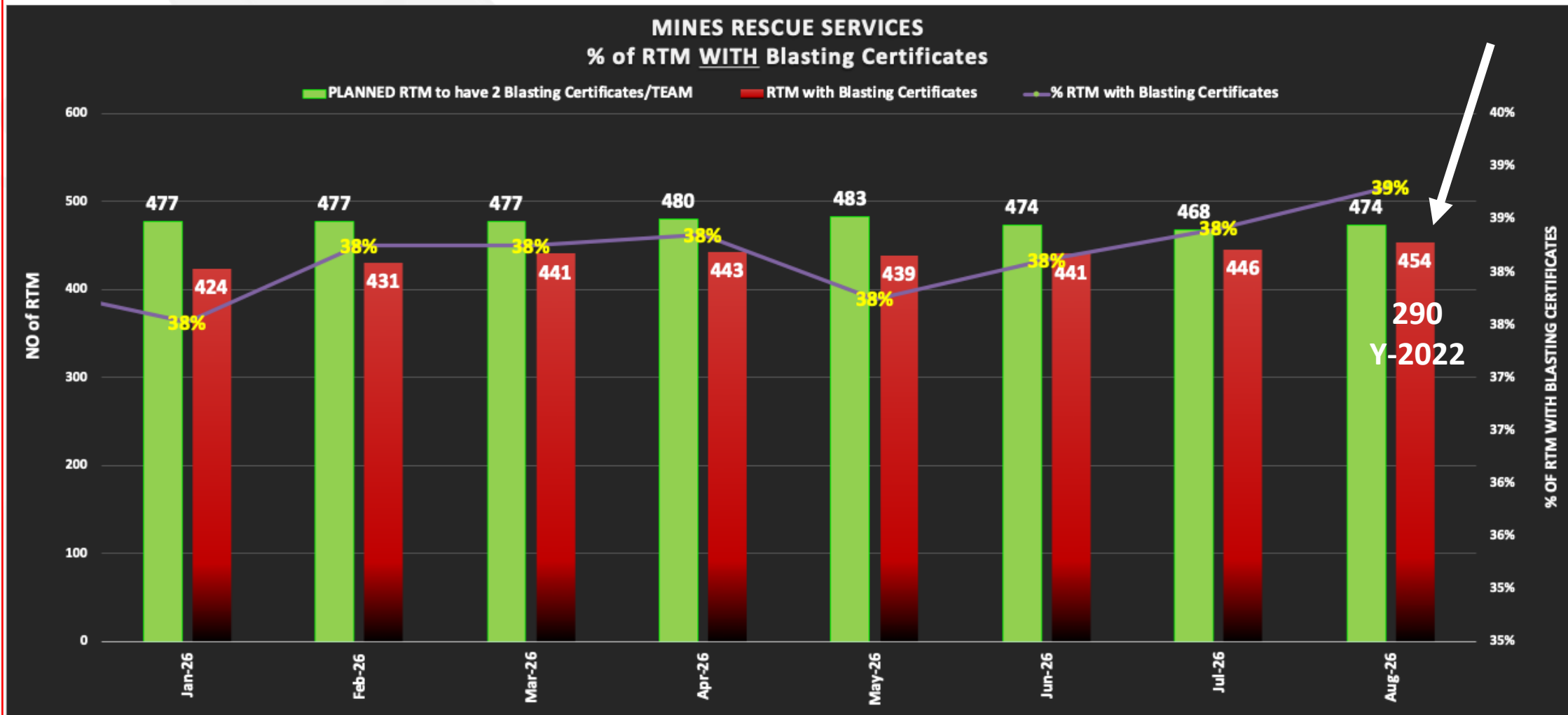
Current Status: "PROTO" Members



TRAINED	PASSED	FAILED	% FAILED
INITIAL Comprehensive PROTO	190	83	44%
INITIAL Screening PROTO ¹	487	209	43%
TOTAL	677	292	43%



Current Status: "PROTO" Blasting Certificates



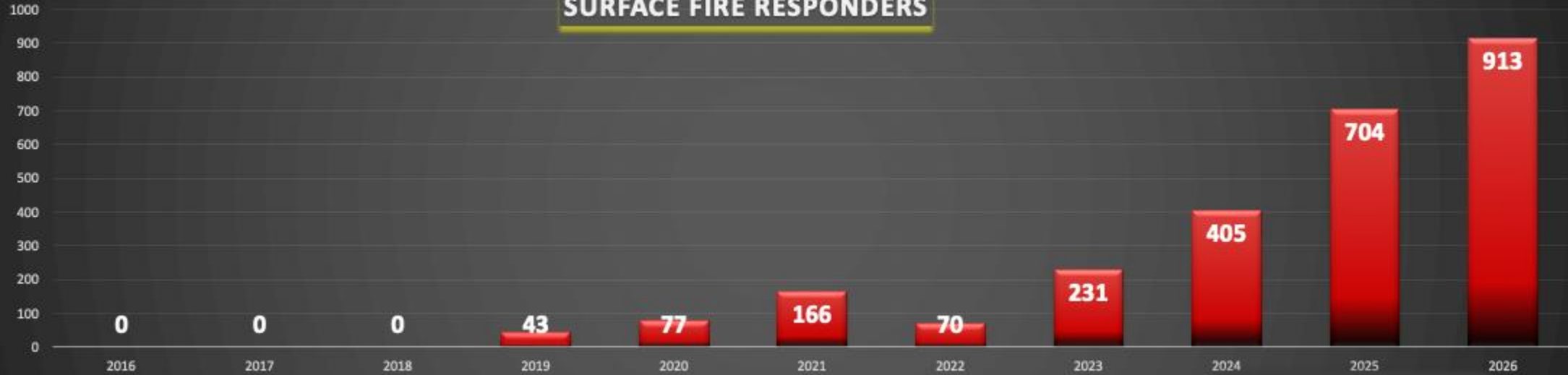
Current Status: "PROTO" In-Active Teams (6)



REGION	CRLTVL	EVANDER	S/POORT	WELKOM	TOTAL
TOTAL PROTO TEAMS	61	30	27	36	154
TEAMS < 6 MEMBERS TO RESPOND	1	4	6	2	13
TEAMS < 2 BLASTING CERTIFICATES	4	9	5	7	25
TEAMS < 8 MEMBERS TRAINED	26	14	15	18	73

Current Status: "SFR" Members

SURFACE FIRE RESPONDERS



TRAINED	PASSED	FAILED	% FAILED
INITIAL SFR	315	125	40%
REFRESHER SFR	732	33	5%

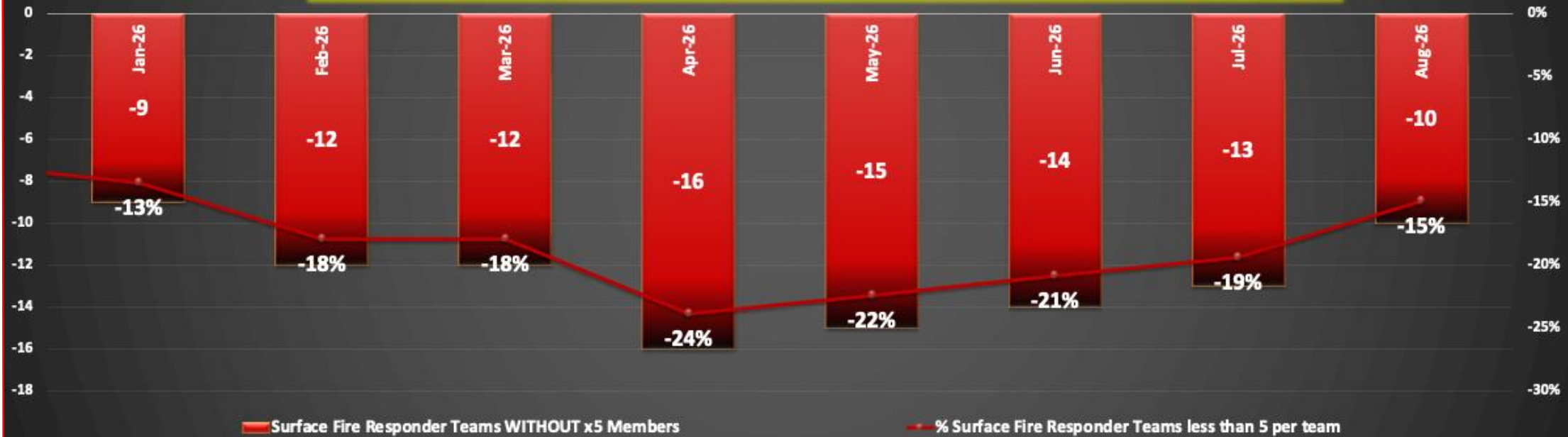


PSS® 4000



Current Status: "SFR" In-Active Teams (5)

MINES RESCUE SERVICES
Surface Fire Responder TEAMS - LESS than 5 Members available as required by MHSA
("In-active Teams")



REGION	CRLTVL	EVANDER	S/POORT	WELKOM	TOTAL
TOTAL SFR TEAMS	40	17	19	27	103
TEAMS < 5 MEMBERS TO RESPOND	3	0	1	6	10
TEAMS < 2 COMMANDER	25	1	17	12	55
TEAMS < 7 MEMBERS TRAINED	10	1	4	15	30

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GLENCORE

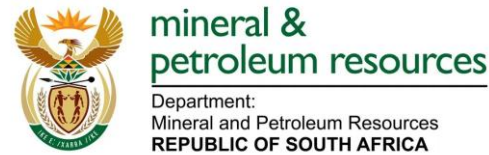


NORTHAM
PLATINUM HOLDINGS LIMITED



Sibanye we are one
Stillwater

thungela



MINES RESCUE SERVICES
South Africa

• **102 YEARS**





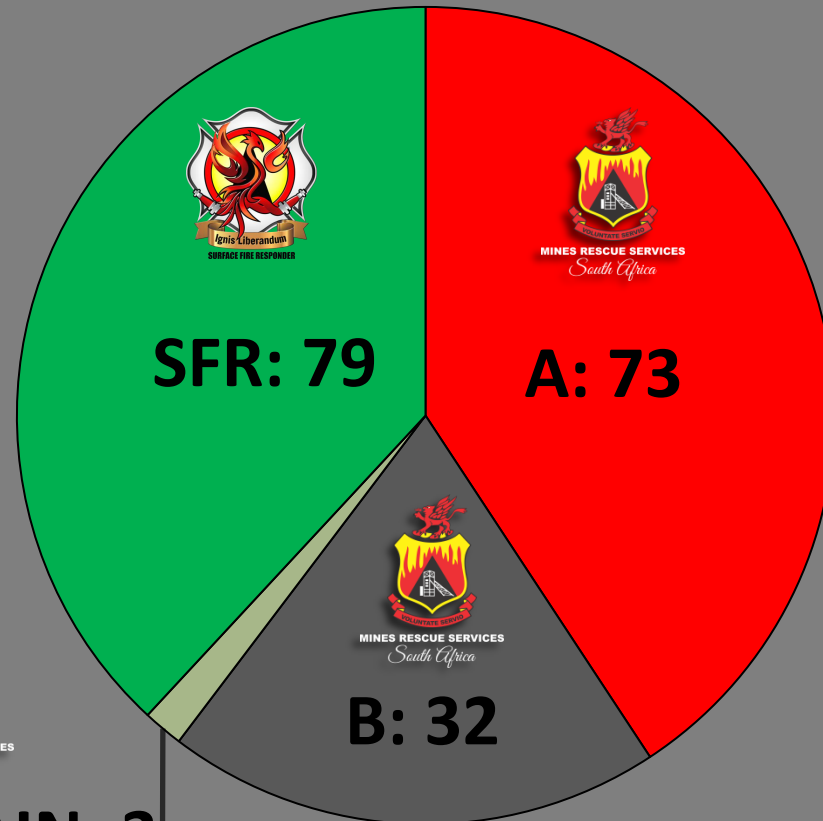
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CAPACITY

- **187 MEMBER MINES**



MRS MEMBER MINE AGREEMENTS



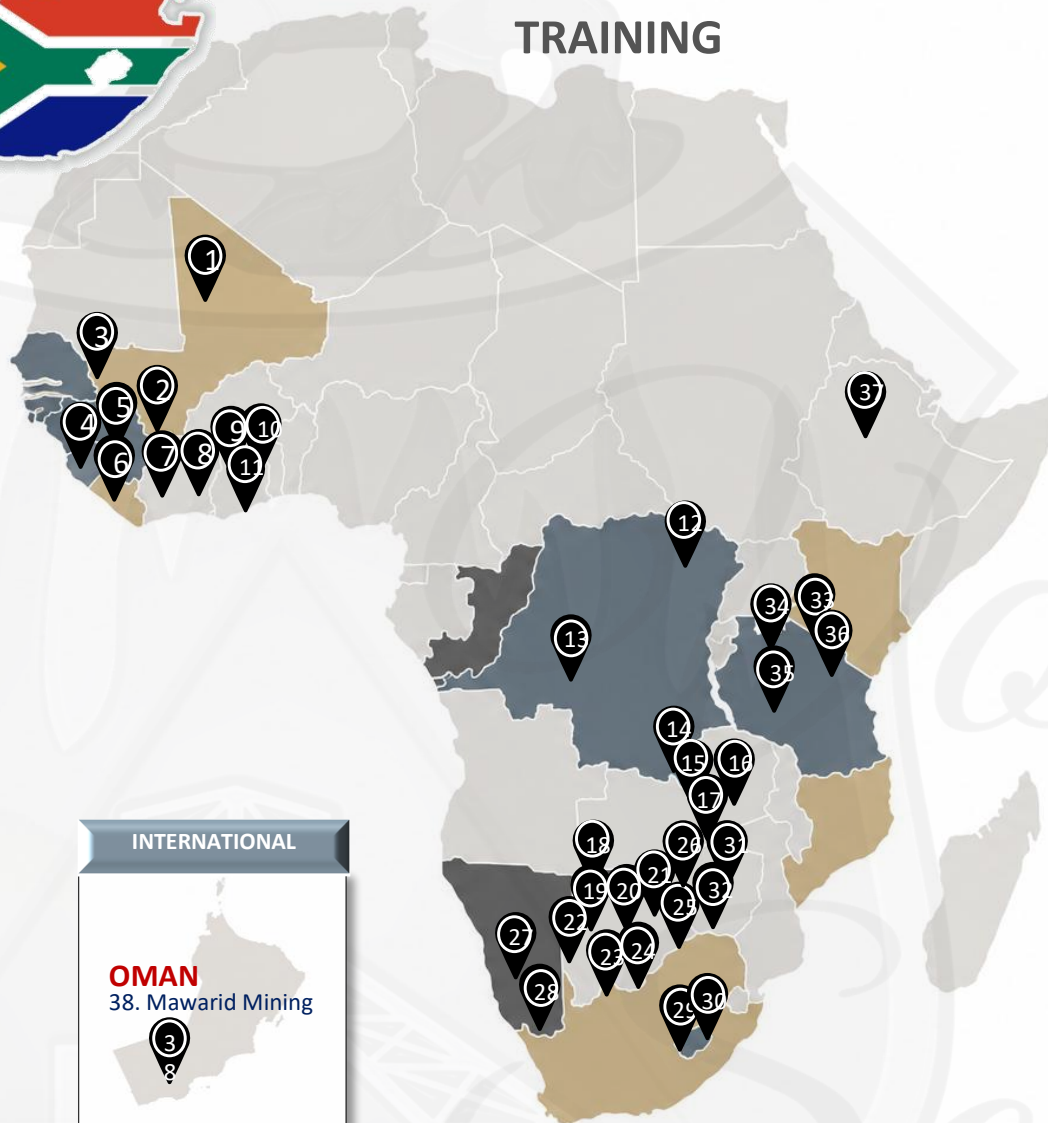
TRAIN: 3

MINES RESCUE SERVICES

South Africa



LOCATIONS OF ACROSS THE BORDER TRAINING



WEST AFRICA	CENTRAL AFRICA	EAST AFRICA
MALI - Hummingbird Resources - Sadiola Gold Mine - Syoma Gold Mine SIERRA LEONE - Sierra Leone Diamond Mine GUINEA - Nordgold LEFA Mine LIBERIA - New Liberty Gold Mine COTE D'IVOIRE - Allied Gold Bonikro Mine - Allied Gold Agbaou Mine GHANA - Chirano Gold Mine - Golden Star Wassa - Kinross Gold Corporation	DRC CONGO - Kibali Gold Mine - Kaomoa Copper - Kipushi Mine ZAMBIA - Konkola Copper Mine - Mopani Copper Mine - Zambia Chamber of Mines	TANZANIA - North Mara Gold Mine - Geita Gold Mine - Shanta Gold New Laka - Barrick Gold Mine Buyanhulu ETHIOPIA - Allied Gold Kurmuk
SOUTHERN AFRICA		
BOTSWANA - Khoemacu Copper Mine - Orapa Gold Mine - Ghaghoo Diamond Mine - Karowe Diamond Mine - Letlahane Diamond Mine - Jwaneng Mine - Galane Gold Mine - Premium Nickel Resources - Lucara Diamond Mine	NAMIBIA - B2 Gold Mine - Rosh Pinah Mine LESOTHO - Storm Mountain Diamonds - Kopano Ke Matla JV	ZIMBABWE - Unki Platinum Mine - Caledonia Blanket Mine



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NOTE: Viewer discretion is advised for sensitive viewers

MAJOR FOGs AND FLOODINGS

MAJOR Disasters – SA Mining

COALBROOK COAL MINE DISASTER

21 JANUARY 1960

CLAIMED THE LIVES OF 435 MINE WORKERS

In the worst mine disaster in South Africa, a large section of the Clydesdale Colliery, at the Coalbrook mine caved in and trapped 435 mineworkers 180m underground. There were no survivors. No machine capable of drilling holes large enough through which to rescue people was available anywhere in the country, these bodies were never recovered.

Do you know where Coalbrook was?

Sasolburg



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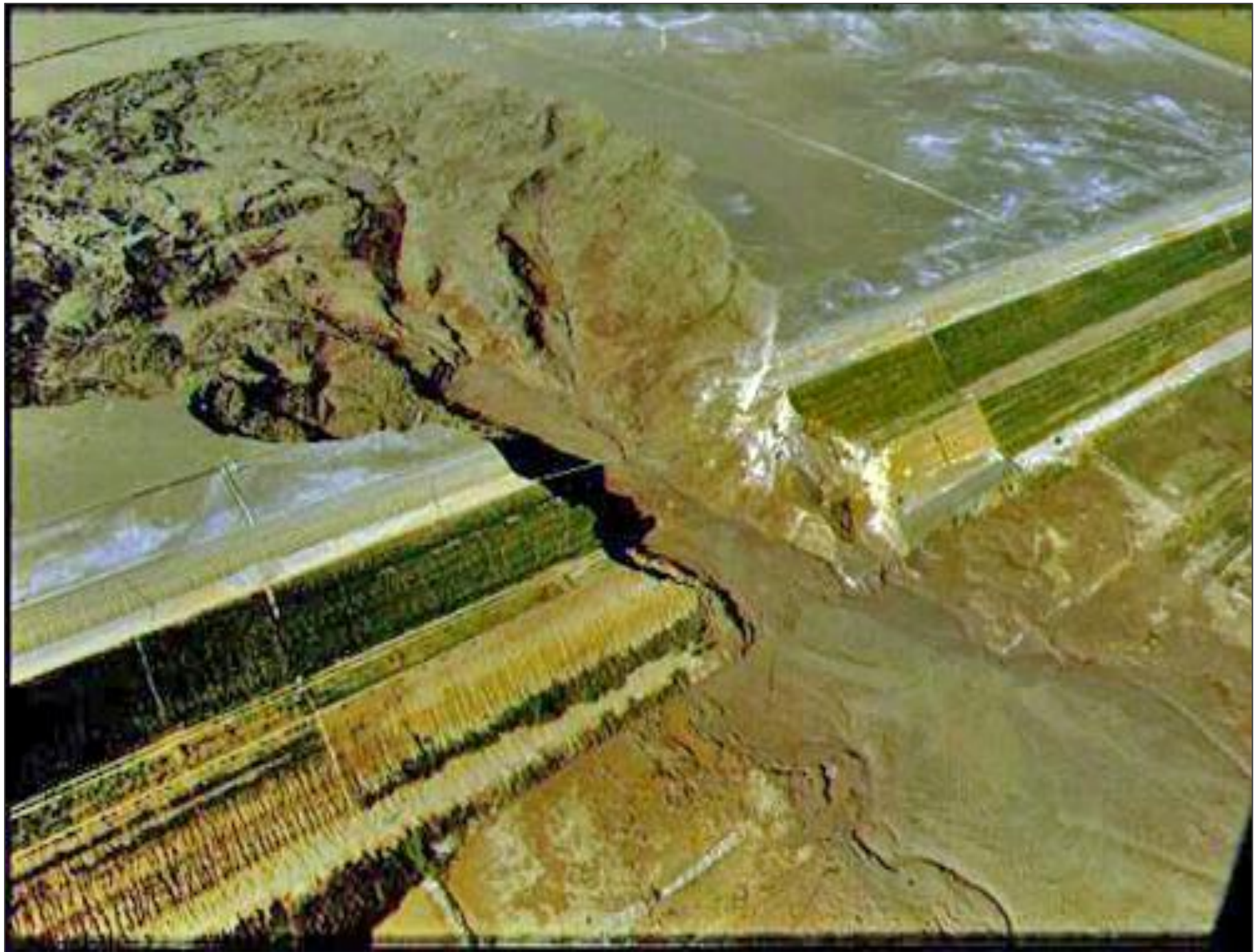
MAJOR Disasters – SA Mining

MERRIESPRUIT TAILINGS DAM

22 FEBRUARY 1994

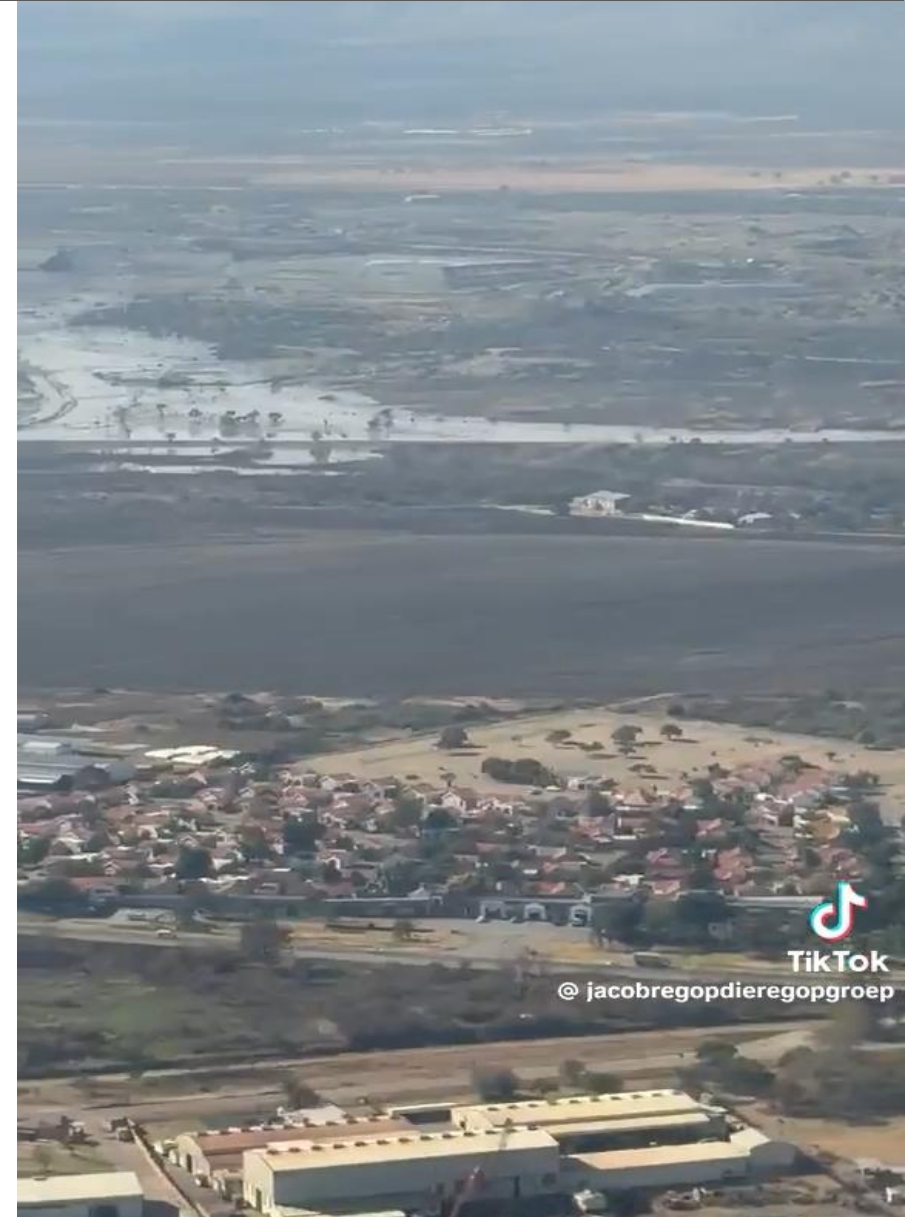
CLAIMED THE LIVES OF 17 PEOPLE

During the evening a 2.5-metre-high flood poured out of the Merriespruit, No 4 tailings dam, carrying 600,000 cubic metres of water and tailings over a distance of 4 kilometres through the Virginia suburb of Merriespruit. The flood engulfed 80 homes, taking the lives of 17 people while relaxing or sleeping in their homes.





Tailings Dam Failure SA - 13 August 2026



Equipment Availability – Tailing Access

A NEW ERA IN
EMERGENCY RESPONSE

Ekapa Du Toitspan Mine - 17 February 2026

Tuesday, 17 February 2026 - At approximately **00:55**, a sudden and significant **mud and water inflow** occurred at the **890-meter level**, the lowest mining level at Du Toitspan.

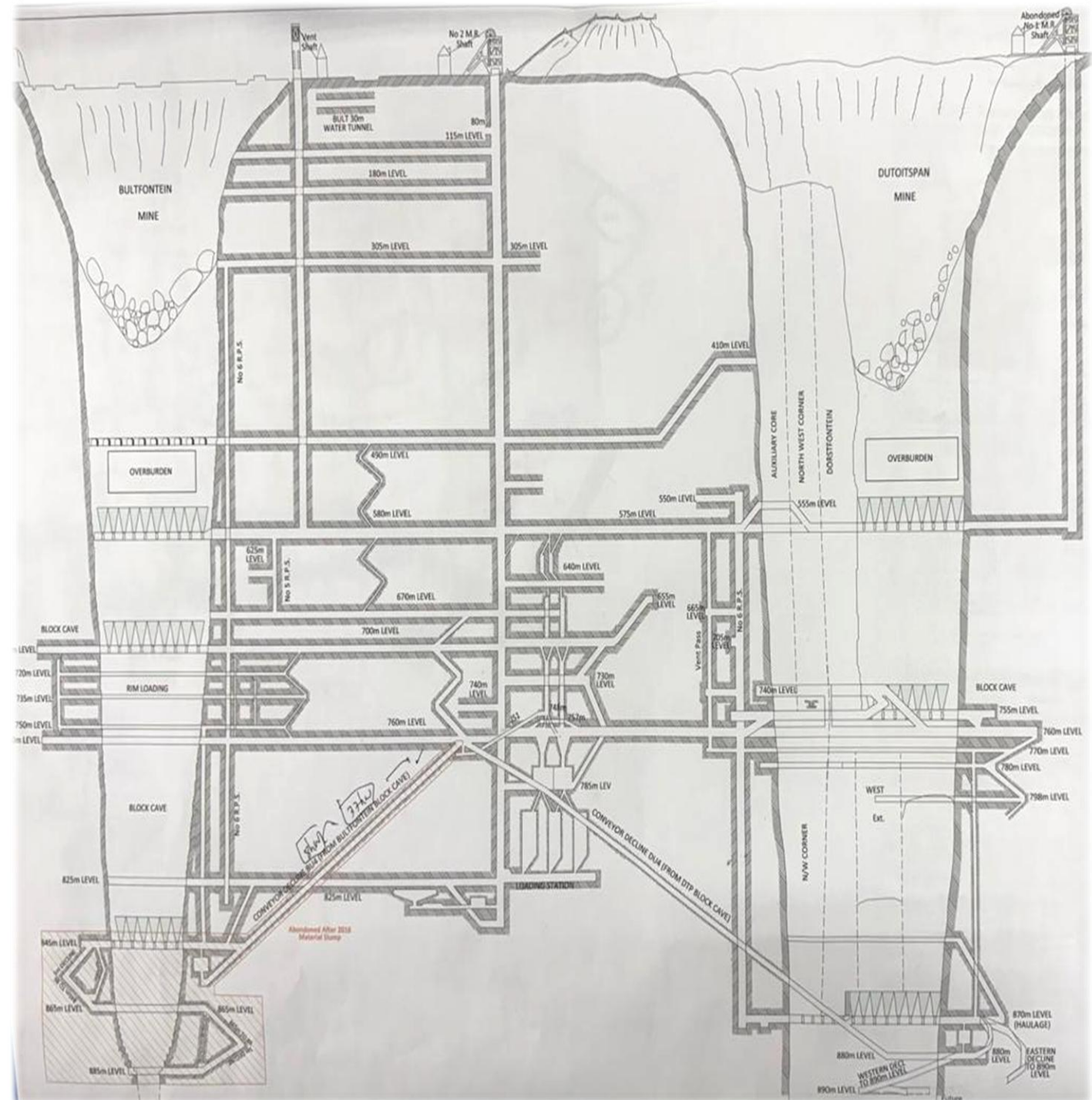
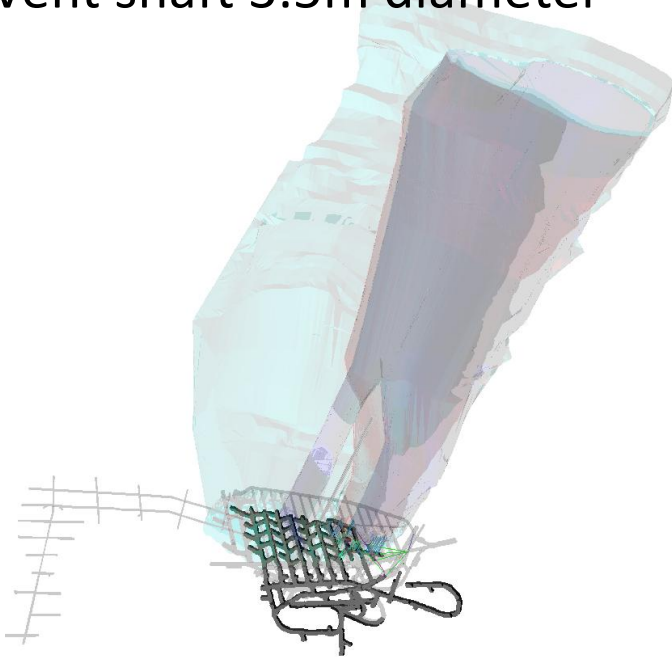
The event developed rapidly and **flooded the newly developed underground area within minutes**, resulting in the loss of access to a critical section of the mine.

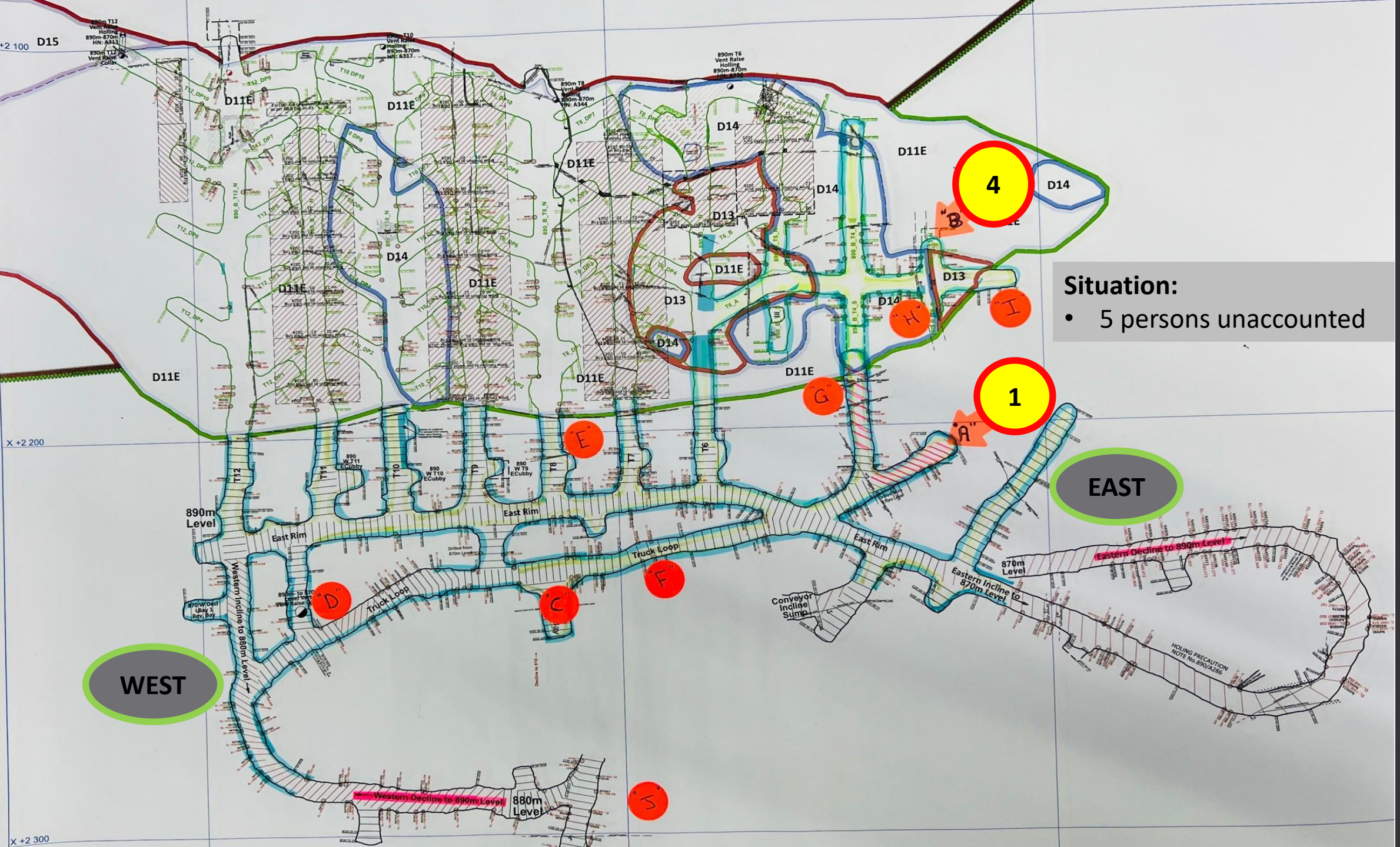
Despite ongoing **dewatering efforts under strict safety controls**, and close coordination with **regulators, technical specialists, and contractors**, the damage to this key mining area, combined with **continued global pressure in the rough diamond market**, has made the continuation of operations financially unsustainable.

After careful evaluation, the **Board and Shareholders of Ekapa Resources and Ekapa Minerals** made the difficult decision to **initiate liquidation proceedings**. As a result, **Du Toitspan Mine has officially ceased operations**.

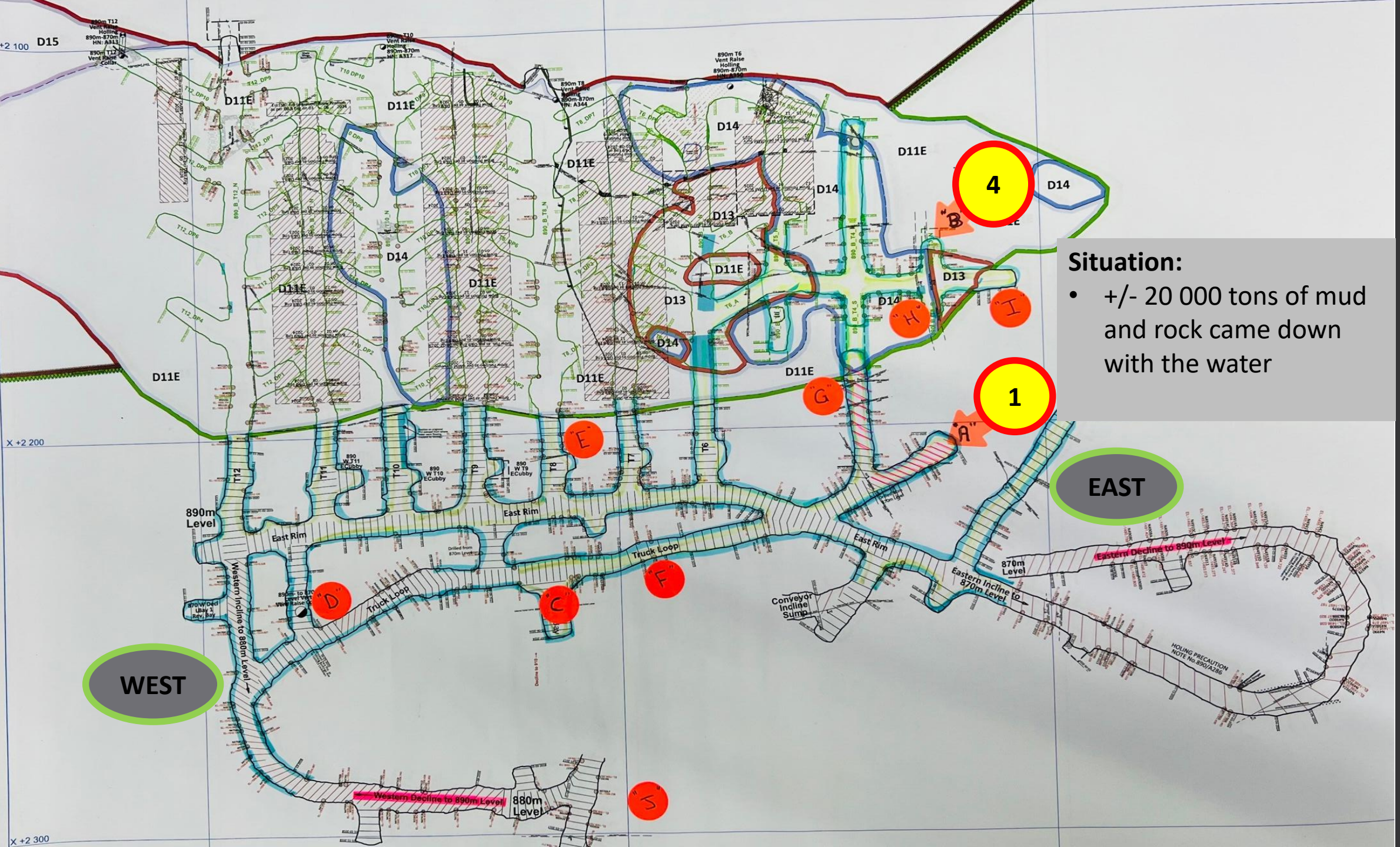
Sub-Level Block Cave Mining Methodology

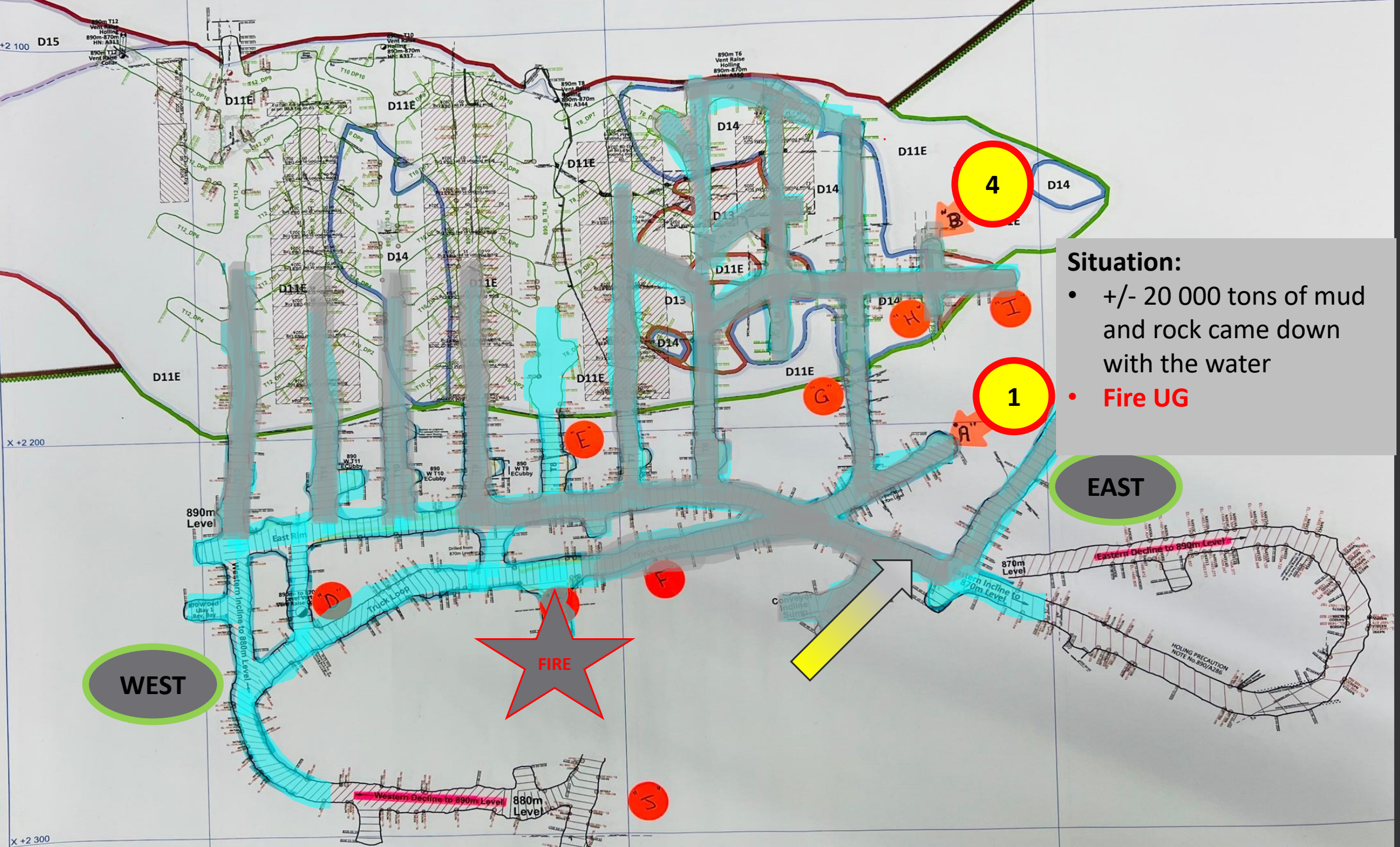
- Vertical Shaft - 890m from Surface (890L)
- 2 declines on 870m -14 degrees to the 890m incident level
- 1 Vent shaft 3.5m diameter











Situation:

- +/- 20 000 tons of mud and rock came down with the water
- **Fire UG**

EAST

WEST

FIRE









Hepatitis B Virus

HBV

a viral infection that affects the liver and can lead to both acute and chronic disease.

**NOTE: 100 times more infectious than HIV*

How it can be contracted?

- Through contact with infected blood or bodily fluids.
- Possible exposure may occur through:
 - ✓ Contact with contaminated blood or bodily fluids entering the body through cuts, abrasions, needles, or sexual infection
 - ✓ Exposure to bodily fluids during rescue or recovery of injured persons
 - ✓ Contact with contaminated equipment or environmental conditions example water, mud, etc. in emergency situations

Effects on the body?

- HBV attacks the liver and may result in:
 - ✓ Acute liver infection
 - ✓ Chronic liver disease
 - ✓ Liver scarring (cirrhosis)
 - ✓ Liver failure
 - ✓ Increased risk of liver cancer
- Some individuals recover completely; however, others may develop chronic infection with serious long-term health effects.

FIRES AND EXPLOSIONS



Coal Mine Fires





Major Methane (CH₄) Disasters

1.	HLOBANE COAL MINE	CH ₄	12 SEPTEMBER 1944	57 EMPLOYEES
2.	HLOBANE COAL MINE	CH ₄	12 SEPTEMBER 1983	64 EMPLOYEES
3.	MIDDELBULT COLLIERY	CH ₄	12 AUGUST 1985	33 EMPLOYEES
4.	ERMELO MINE	CH ₄	9 APRIL 1987	34 EMPLOYEES
5.	ST HELENA GOLD MINE	CH ₄	31 AUGUST 1987	63 EMPLOYEES
6.	MIDDELBULT COLLIERY	CH ₄	13 MAY 1993	53 EMPLOYEES
7.	MPONENG GOLD MINE	CH ₄	29 JULY 1999	18 EMPLOYEES
8.	BEATRIX GOLD MINE	CH ₄	15 MAY 2000	7 EMPLOYEES
9.	BEATRIX GOLD MINE	CH ₄	8 MAY 2001	12 EMPLOYEES
10.	GLORIA COAL MINE	CH ₄	3 FEBRUARY 2019	28 PEOPLE

= 369 PEOPLE OVER 75 YEARS

MAJOR Disasters – SA Mining

KINROSS GOLD MINE DISASTER

16 SEPTEMBER 1986

CLAIMED THE LIVES OF 177 MINE WORKERS

An acetylene tank sparked flames that swept through the mining tunnel igniting plastic covering on the wiring. The flames also set fire to polyurethane foam that is used to keep walls in the mine dry. The burning plastic combined with polyurethane and churned toxic fumes that filled the shafts, choking miners to death

Floxal Unit

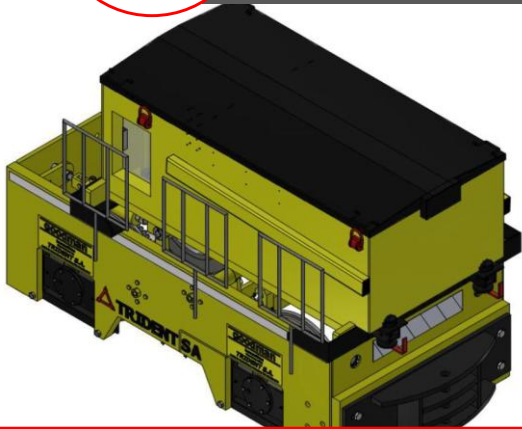
Safety	Surface installation
Quantity supplied	0,5m³/second
Flow rate	1800 m³ per hour
Pressure	9 bar
Purity	97% Nitrogen
Fuel consumption	• 25% load, 75 litres per hour • 50% load, 145 litres per hour • 75% load, 212 litres per hour • 100% load, 276 litres per hour





CHALLENGES

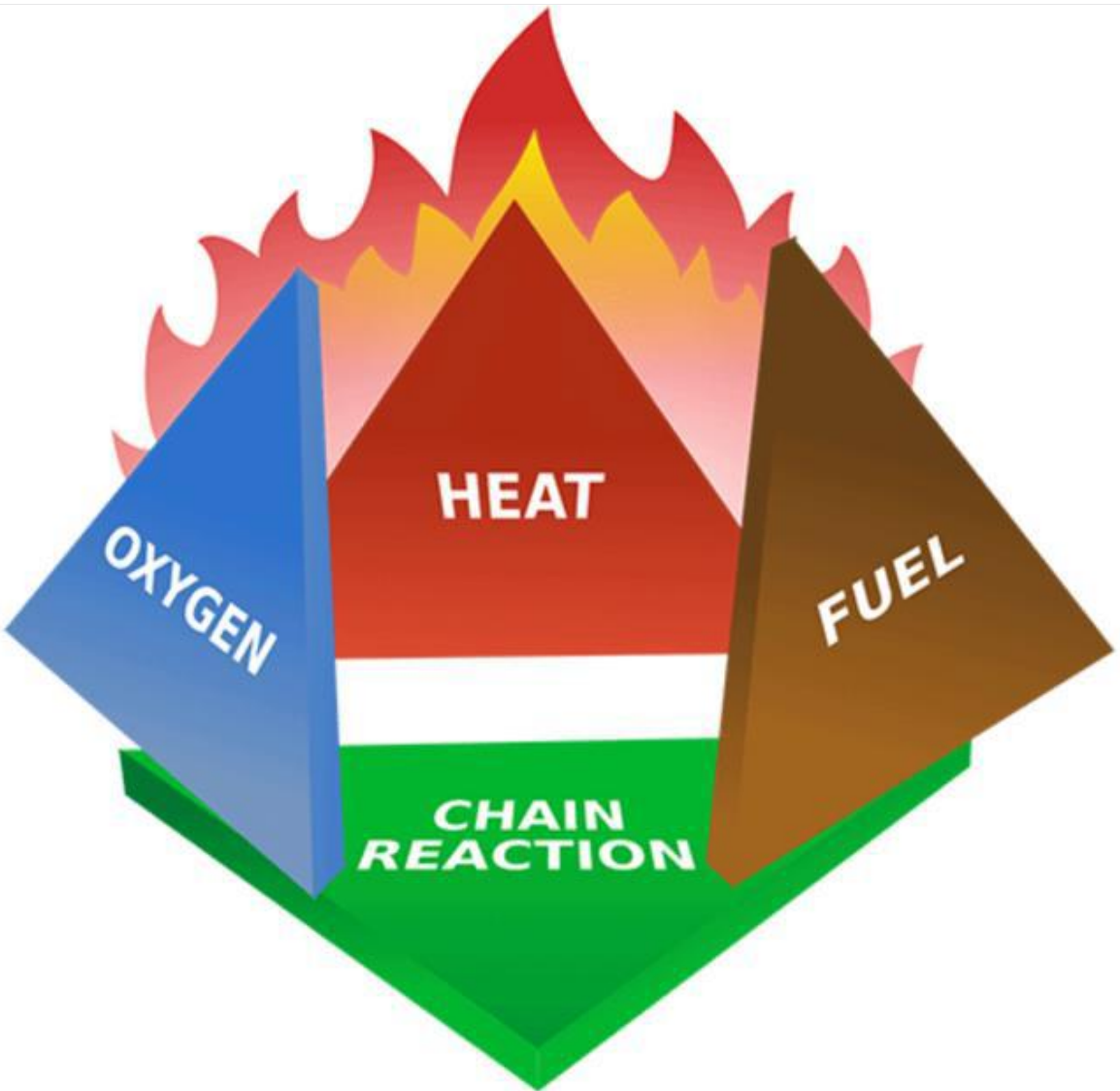
Battery Equipment



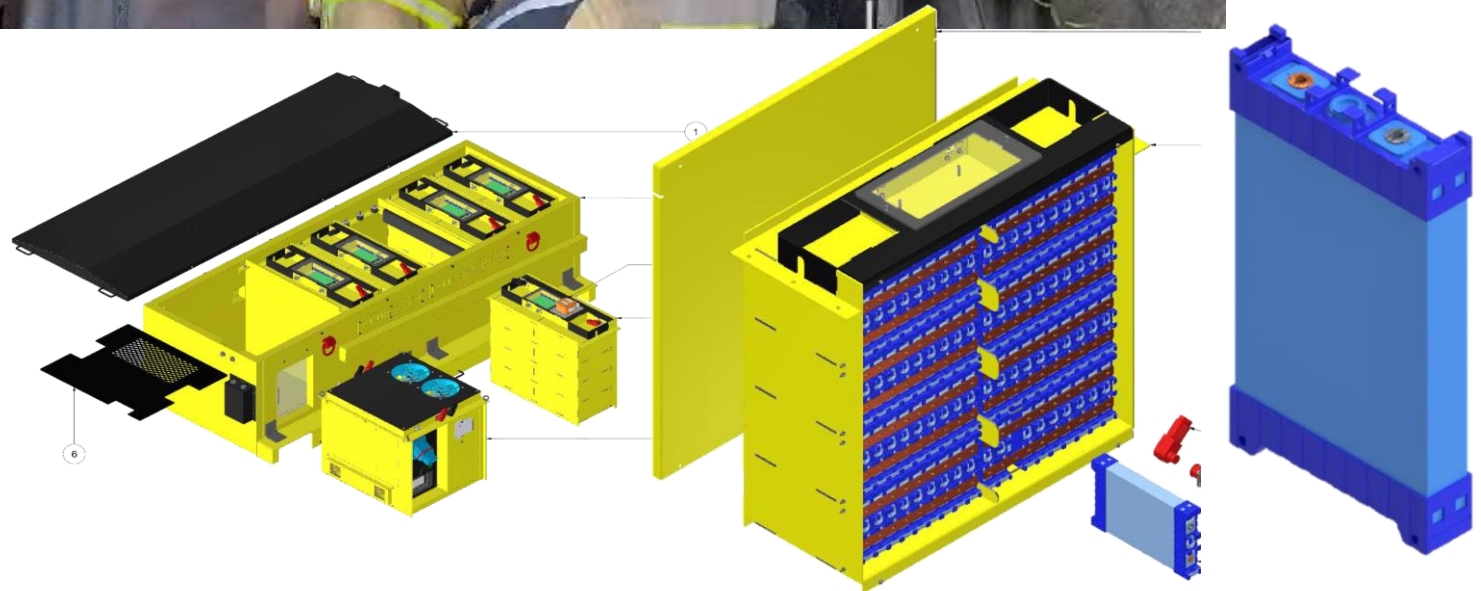
Sandvik to supply its largest-ever battery-electric vehicle fleet to South32 - International Mining



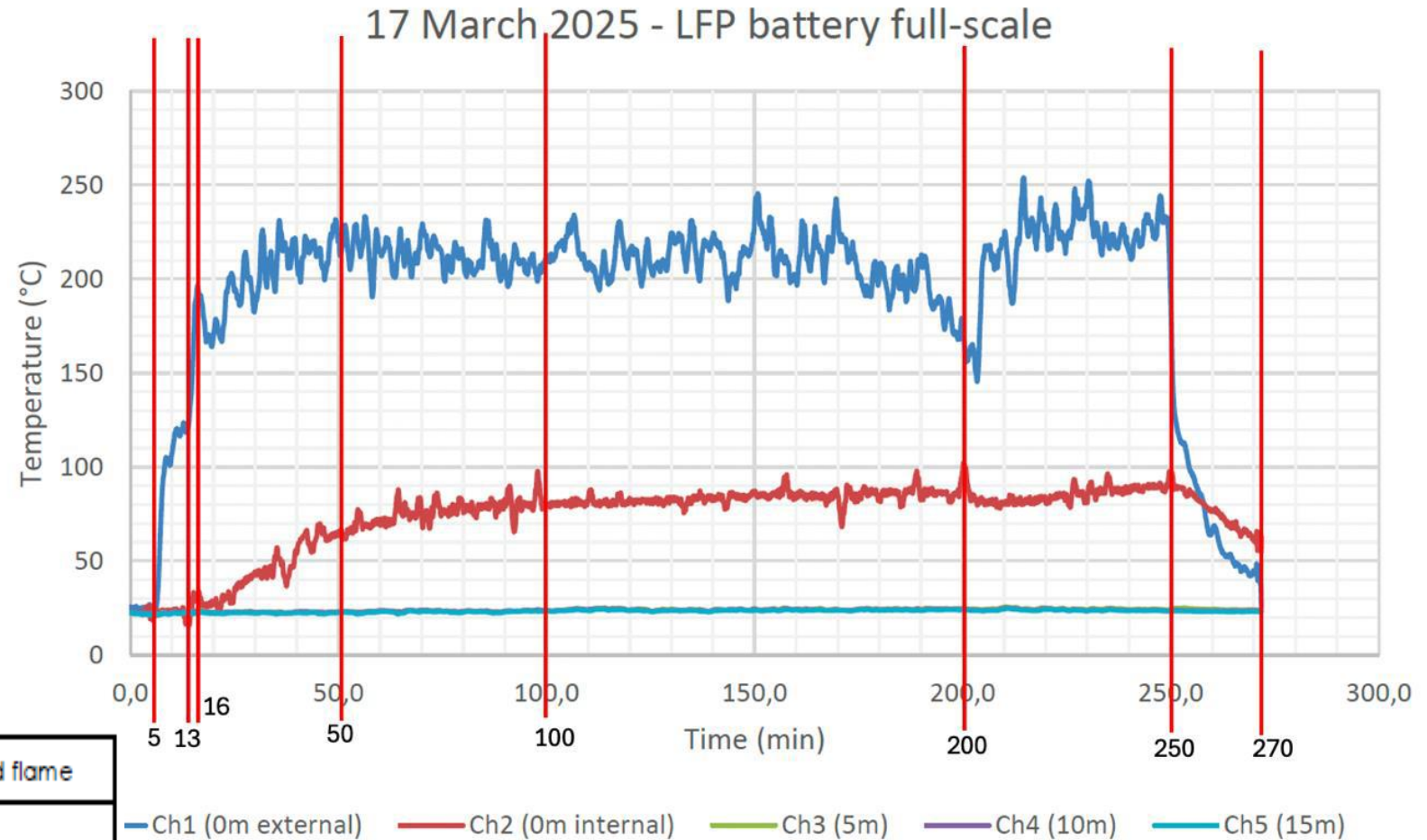
Lithium ion - BATTERIES

Battery	Usage	Thermal breakdown temp (°C)	Time to TR (s)	Thermal runaway temp (°C)
LCO Lithium Cobalt LiCoO ₂		90-150	12-600 (0.2-10 min)	150-200
NMC nickel, manganese, and cobalt LiNi _x Mn _y Co _z O ₂		120-210	45-1800 (0.75-30 min)	210-250
NCA nickel cobalt aluminium LiNi _x Co _y Al _z O ₂		120-200	26.7-800 (0.45-13.3 min)	200-250
LFP lithium iron phosphate battery LiFePO ₄		150-270	24-12000 (0.4-200 min)	270-300
LTO lithium-titanium-oxide battery Li ₄ Ti ₅ O ₁₂		>200	1000 (16 min)	>300
LiPo lithium-polymer LiCoO ₂		80-120	500-2000 (8.3-33 min)	120-180

Burn Test Cells



Burn Test Full Battery



Ch1	On top of lid - directly in line with applied flame
Ch2	Above venting port of cell/module
Ch3	5m away from module
Ch4	10m away from module
Ch5	15m away from module

Fire Encapsulator Product – F500

On-Site Time
of Fire Test

14:40:04:19

Fire Suppression
Time

00:00:44:19

ANKUG ENGINEERING



Mine Security Task Team (MSTTT) Training

- Medical Examinations:
 - ✓ *Medical Exam (6monthly)*
- Heat Tolerance Test:
 - ✓ *Temperate $\leq 39.0^{\circ}\text{C}$*
- Pre-screening Test:
 - ✓ *Physical capacity and claustrophobia*
- MSTT Training
 - ✓ *3 Day duration – theory & practical*
 - ✓ *Pass rate of 75%*
 - ✓ *61 Active and 59 Refresher trained YTD*



MINE SECURITY TASK TEAM

Mine Security Task Team (MSTT) Trainees



Rescued and Recovered - Collaboratively



WORLD FIRST – 324 (246/78)



✓ **SALUTE**

- Dirk Odendaal
- Dawie Jacobs
- Willem Botha
- Quentin Shanahan
- Wynand Aveling
- Akhona Mthelekiso
- Danie Prinsloo
- Divan Naude
- Mannas Fourie
- William Phefo
- Donovan Williams
- Daan Smith
- Ruaan Jacobs (*in front*)



MINES RESCUE SERVICES
South Africa

QUESTIONS & ANSWERS

Get to know the presenter

Mr. Mannas Fourie



A highly accomplished mining executive and the Chief Executive Officer, Director, and Trustee of Mines Rescue Services South Africa. With over three decades of operational leadership experience, Fourie has dedicated his career to emergency preparedness, and risk mitigation, in various commodities being mined, including deep-level underground to surface mines rescue. He began his journey in 1994 as a learner official and went on to serve as a proto team captain, eventually rising to the helm of global mine rescue innovation. Notably, he has spearheaded some of the industry's most complex and high-profile rescue operations, including the Stilfontein and Ekapa missions. Alongside his role at MRS South Africa, Fourie serves as a Board Director for the International Mines Rescue Body (IMRB), where he helps shape ethical clarity, safety standards, and technological capabilities for rescue teams worldwide.

Every mine worker returning from work unharmed every day. Striving for zero harm in our lifetime.