



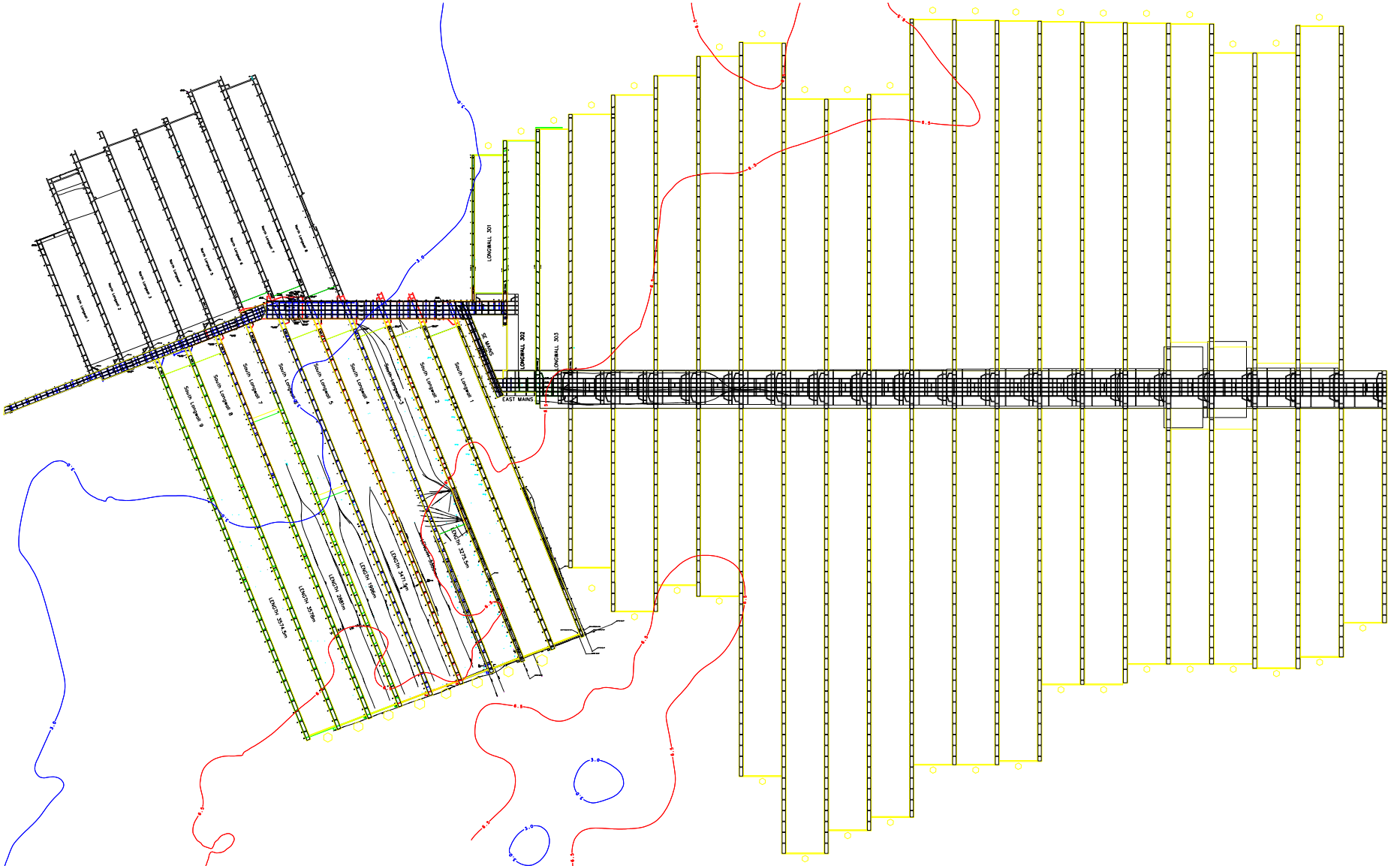
Gas Management Oaky North Mine Neville Stanton




14 9 2005



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APPROVED :	DRAWN	NS	OAKY CREEK COAL PTY LTD Oaky North Mine Mine Workings and Ventilation As at 31.07.05	
	DATE	30.08.05		
	CAD DRAWING	Mine Plan		
	REVISION No.			
	SCALE	nts	DRAWING No.	A1

Presentation

- Open discussion during the presentation
- Methods of gas management at Oaky North Mine



Methods

- Ventilation practices
- UIS Drainage
- SIS Drainage
- Goaf Drainage
- Envirogen Project





DANGER

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Oaky North Goaf Plant

Goaf Drainage

- Reason for operational requirements
 - Access into the Tailgate
 - Prevent gas build up around the tailgate drive
 - Prevent gas trips



Source of the seam gas

- Longwall is full seam extraction
- Aquila seam was mined out by open cut methods
- Tieri 1 and Tieri 2 Rider seam
- Corvus 1 and Corvus 2 Rider seam

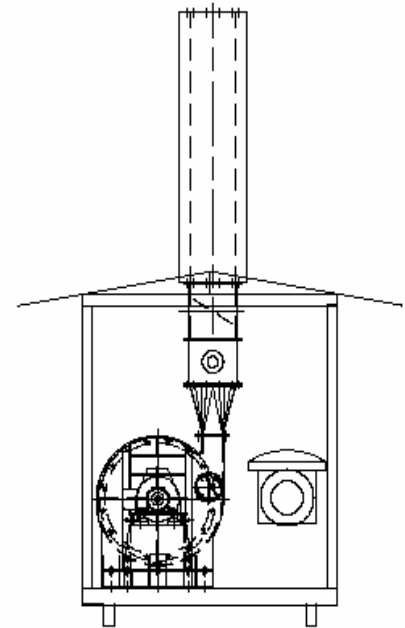
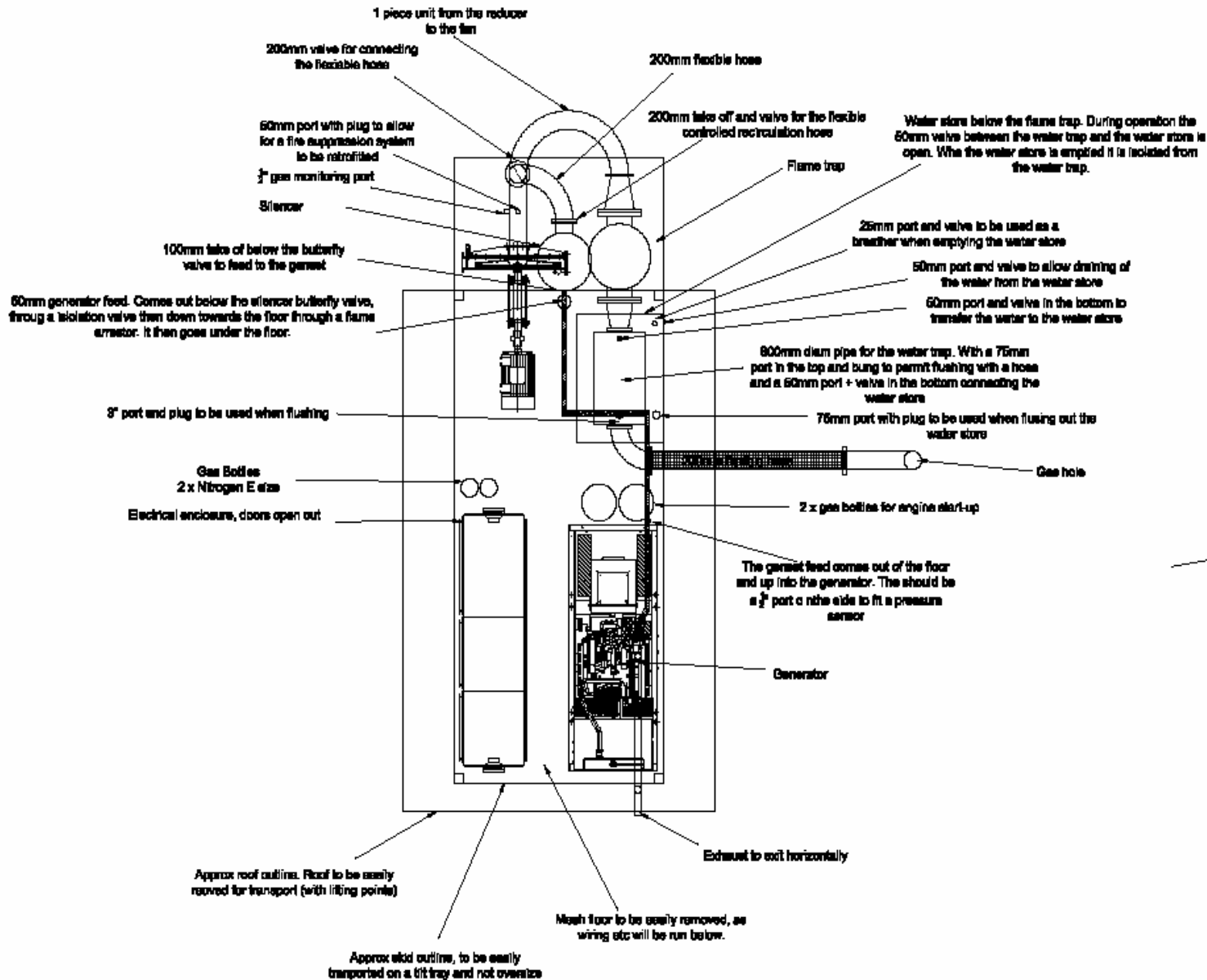
Location of goaf wells

- Every 100 metres
- 30 metres from the tailgate roadway
- Wells are drilled and cased for the first 50 metres in the tertiary (200mm)
- They are drilled to 20 metres above the German creek seam
- Detonation Flame arrestors on each riser



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Line of goaf wells



END ELEVATION

PLAN VIEW

DRAFT GENERAL ARRANGEMENT

Plant specifications

- At open circuit it will pull 1600 L/s
- Rated at 1500 L/s
- Engine CH₄ requirements are 16m³/h or 4.44 L/s (50% load)
- Telemetry to the Communication room
- 4 x Gas analysers, CH₄, O₂, CO, CO₂
 - Maihak S715 with calibration cuvettes (autocal)
- UPS back up on analysers + all control

Plant specifications

- Auto/Manual mode
 - Auto normal operating mode will shut down if there is a fault or out of range gases
 - Manual Communication can still see it will bypass the analysers and trips
- Centrifugal fan
- Detonation flame arrester
- Water trap

Operational Parameters

- Alarm levels
 - 35% CH₄
 - 20% Co₂
 - 50ppm CO
 - 5% O₂
- Shut Down
 - <30% CH₄
 - >30% CO₂
 - >80ppm CO
 - <8% O₂





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Gas Engine

- Type of engine is a V10 ford 6.8 litre engine
 - Spark ignition (spark plugs) engine that runs on LPG/Methane
- Starts with LPG then changes over to CH₄
 - Runs for 45 seconds on LPG and methane, cut LPG off, if frequency of the alternator drops below 47 Hz turn LPG back on, does this 3 times and will shut down if methane supply is insufficient (Bad)
- Drives a 75 Kw alternator

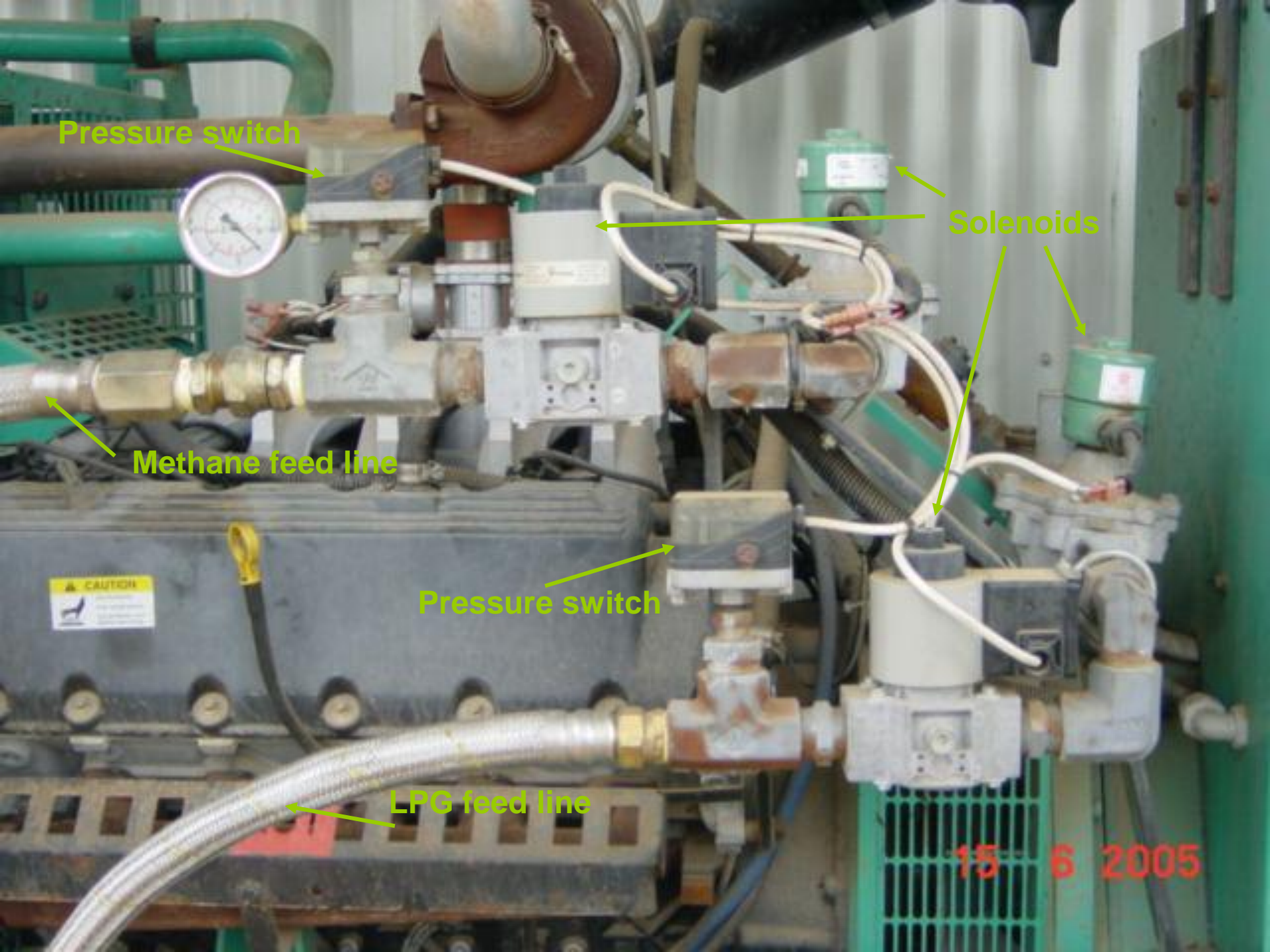
Goaf Plant

- Has a diesel generator for back up
- Motor driving the fan on the plant is a 37 Kw 2 pole motor (3000 revs)





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Pressure switch



Methane feed line

Pressure switch

LPG feed line

Solenoids

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Allight

Allight

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Citect display

- Both the plants can be run at the same time usually we run one at a time.
- During times where the Longwall will pass under a road or creek

TCO2_40CT_STPU_FLOW_A TCO2 40c/t Stalker Pump Flow Fault
 SRO2_FS01_GISO_A Main Vent Fans Fire System Gas Isolated ???????????
 SRO2_FS01_GDIS_A Main Vent Fans Fire System Gas Discharge ???????????

User: 03:37:22 PM
 03:08:00 13/09/20
 12:39:42 13/09/20
 17:51:09/09
 VIEW GROUND CONV POWER SERV

- ← Last
- ↑ Prev
- ↓ Next
- ?
- OVERVIEW
- UND. GND
- CONV
- POWER
- SERV
- Key icons for status monitoring

Goaf Gas Drainage

GM01

SPADGE #1

SPADGE #2

GM02

Annubar Trends

Fan Trends

Gas Analyser Trends

Troxel CH4 Trends

AN01 Annubar

GS02 General Body CH4 Detector

GS01 Gas Analyser

FA02 Cabinet Vent Fan

GS03 G/A Cabinet CH4 Detector

CO2 Level	15.34 %
CH4 Level	67.25 %
CO Level	1.0 PPM
O2 Level	0.00 %

CH4 Level	0.011 %
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CH4 Level	0.097 %
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Annubar Trends

Fan Trends

Gas Analyser Trends

Troxel CH4 Trends

AN01 Annubar

GS02 General Body CH4 Detector

GS01 Gas Analyser

FA02 Cabinet Vent Fan

GS03 G/A Cabinet CH4 Detector

CO2 Level	-25.00 %
CH4 Level	-25.00 %
CO Level	-125.0 PPM
O2 Level	-6.25 %

CH4 Level	0.056 %
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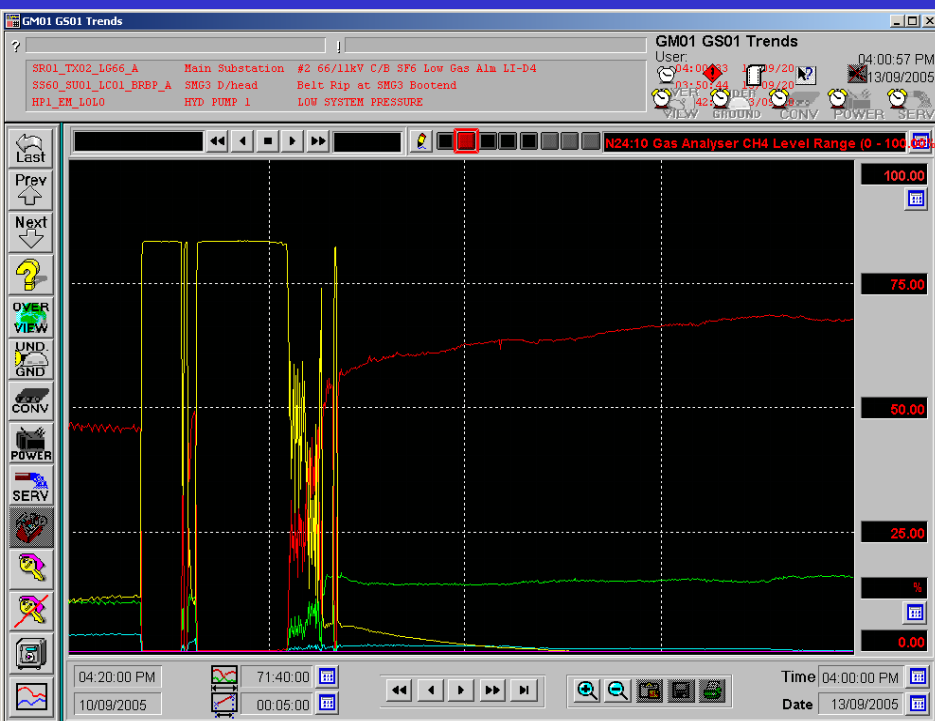
CH4 Level	0.089 %
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- Permanent Generator Mains Supply Not Healthy
- Temporary Generator Mains Supply Healthy
- PLC Communications Healthy
- Automatic Operation Selected

- Permanent Generator Mains Supply Not Healthy
- Temporary Generator Mains Supply Not Healthy
- PLC Communications Healthy
- Manual Operation Selected

Current Methane flow from the Goaf Plant

- Flow rates have ranged between 800 – 1200 L/s at the start of the panels
- As the block retreats the flows drop to around 600 – 800 L/s



Issues with the Goaf Plant

- Methane Generator fuel set up
 - Fluctuations in flow
 - CH₄ Concentrations
- Water in the pipe range
 - Pipe range has been buried now it lays on the ground surface

Other gas related Issues

- Flaring of the methane
- Oaky North will be looking at flaring all methane from the
 - SIS risers
 - UIS risers
 - Goaf plant



Flaring

- Why flare
 - Environmentally friendly
 - Reduce green house gas emission
 - Comply with the Mineral Resource Act 1989



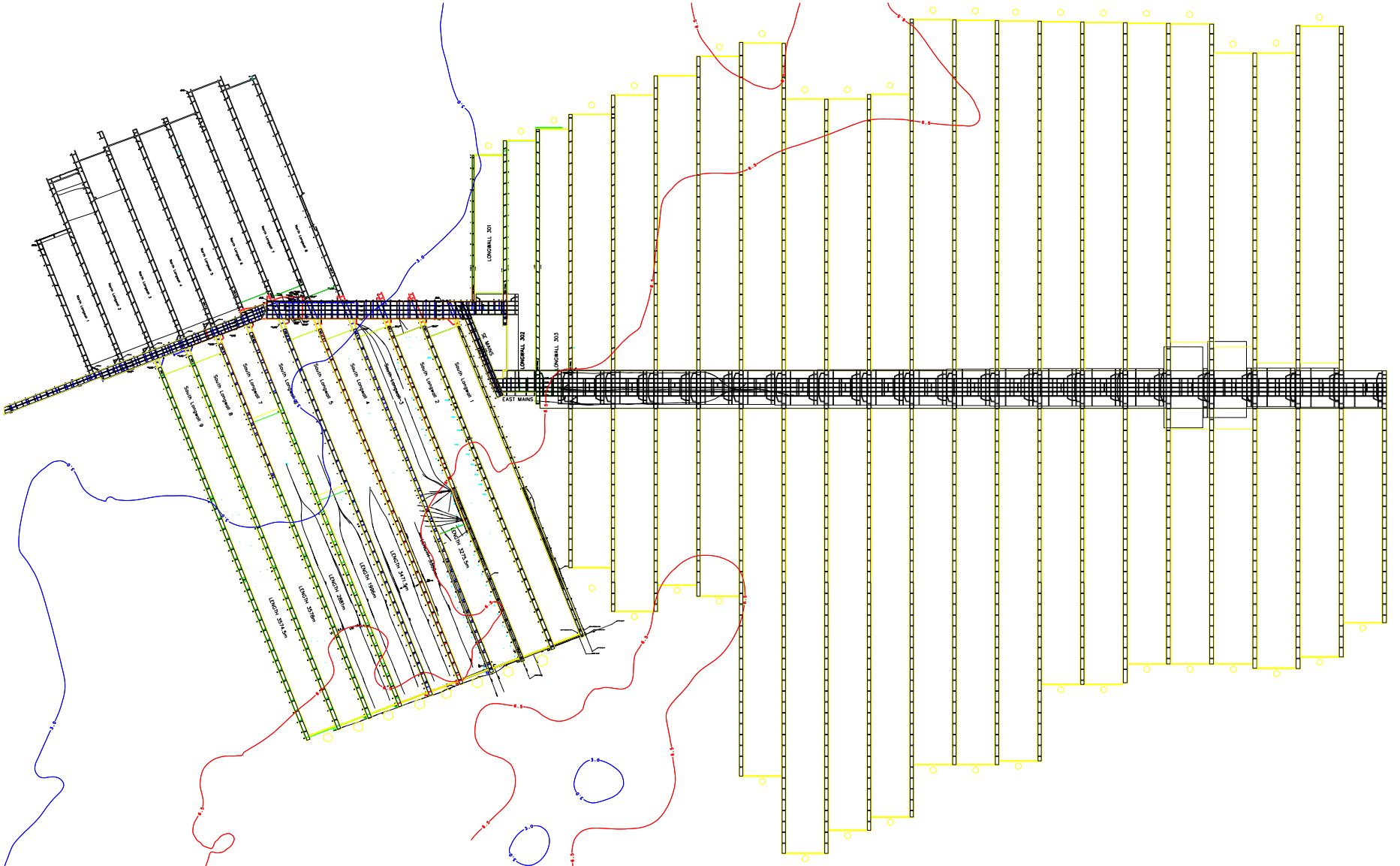
Envirogen Project

- A joint project between Oaky No1 and Oaky North to supply the methane to the power station, which will produce 10 – 20 mega watts of electricity requiring 750 – 1500 L/s of methane.
 - Oaky North mine would use around 8 – 10 mega watts
- This project is expected to be operational in June 2006



Central Queensland Mining and Engineering

OCT 26 2004



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