

Journey from NSW approvals to IECEX global certification scheme

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Background

Within Australia, we have states and territories that independently regulate industry safety. The New South Wales (NSW) Department of Trade and Investment Regional Infrastructure and Services, regulates mine safety through Mine Safety Operations Branch (MSO). My role as an Inspector of Electrical Engineering - is regulator verification and enforcement of mining activities. Some relevant examples include underground and open cut coal mines, coal seam methane extraction and onshore petroleum exploration activities.

The major coal resources within Australia are located on the eastern sea board states of NSW and Queensland. NSW coal resources and mining activities are located in the 500km long, 150km wide Sydney-Gunnedah basin. For those familiar with Australia, the Gunnedah basin extends south of Wollongong, north to Newcastle, and northwest through Narrabri to Queensland.

There are currently 34 underground mines in operation in NSW, many with expansion activities and several additional are planned. Within a coal mine are numerous hazardous zones, places where coal is extracted and airways leading from the face areas where methane gas and coal fines are present. Many of our existing mines are defined as very gassy and operate with carefully managed ventilation strategies at the first layer of protection against explosion risk.

Explosion Protected (Ex) plant is another prominent layer of protection to reduce the likelihood of explosions in mines. Ex plant has been used extensively within the coal mining industry for many decades, predominantly in underground coal mines but also in some surface application directly associated with the mine management and coal processing. Increasing global fuel demands, installations of Ex plant is becoming more common on the surface of coal mines in places such as 'coal reclaim tunnels' and "coal seam gas extraction". Hazardous Zones within NSW underground coal mines remains strictly regulated at present, however we have recently embraced

hazardous area classification assessments strategies for mine surface activities with increasing success.

On average, each mine would have more than 4,000 items of (approved or certified) electrical Ex items in use at any given time. The average longwall will contain more than 2,000 items.

Our journey

The original 1912, New South Wales coal mining legislation called for Ex plant to be approved for use in underground coal mines. That approval scheme was managed by MSO until 1999, and involved an assessment by an Inspector of Electrical Engineering then the Senior Inspector of Electrical Engineering signing off on all electrical approvals, under a delegation from the Chief Inspector of Coal Mines.

Post 1999, NSW regulation was altered to remove the requirement for the regulator's approval and to permit certified explosion protected electrical plant from recognized schemes A staged transition occurred to firstly permit equipment certified, firstly under the national schemes of AusEx and ANZEx, before moving, in 2006 to embrace the IECEx scheme A pivotal key to the transition was the maturity of risk management in the industry and the industry's capability of determining fit-for-purpose explosion protected equipment with minimal regulatory input

The transition to permit the introduction of IECEx certified plant required MSO to consult with all industry stakeholders. Many Original equipment manufacturers embraced the opportunity to operate within the global market.

Change without increase in risk

It is the view of MSO that change to existing work practices must pose no increased risk to mine workers, and that any risks must be as controlled to a level as low as reasonably practical (ALARP).

The 2006, New South Wales Coal Mines Health & Safety legislation allowed for an instrument called a Gazette notice to be used. It offers flexibility in certain aspects of legislation, and can be used to manage transition periods. These notices are developed by MSO and then reviewed by the Mine Safety Advisory Councils before being published in the New South Wales Government Gazette.

One such Gazette notice relates to equipment suitable for use in a hazardous zone. This notice makes it a requirement that certain items of information (eg. Documentation and drawings) have to be supplied to the mining operator. The required information is generally, in addition to the requirements of the

IECEX certification scheme. The latest version, IEC 60079.0, addresses some of these documentation issues.

Some of the major challenges MSO faced during the introduction of the IECEx certification scheme were:

- Whether the safety of Ex equipment would be affected
- Whether certain information that the industry had previously been provided with as part of the old approval system would be missing
- What the process would be if a major safety issue was identified with Ex plant certified by an overseas certifying body (CB).
- Uncertainty by those familiar with the Australian CB schemes.

Stakeholder issues also needed to be responded to in a timely manner, along with certain upgrades to global equipment affecting old mining certifications and approvals.

Communication with stakeholders was and continues to be the key. The rewards MSO believes it has reaped with adoption of IECEx scheme are:

- The freeing up of resources to carry out field work within the industry
- The time expediting Ex plant from overseas from the design/certification phase to the coal face has been reduced without a reduction in safety
- NSW and MSO have aligned with the World Trade Organisation (WTO) requirements for free trade.
- And it's now involved with a global scheme that allows for continued improvement, education and networking

Currently as part of the 2012 national OHS harmonisation legislation is being introduced by Australian states. The mining regulations being developed through Safe Work Australia do not include IECEx certification requirements. Because of this, working parties from across NSW, Queensland and Western Australia have recommended including IECEx certification in their state specific mine safety legislation. This recommendation is being considered by the governments of each of those states.

The director of MSO has been fully supportive of the journey from approval to global certification, and continues to support participation in the management of IECEx and the development of international and Australian standards.

New South Wales will continue to work with IECEx and is currently looking at IEC Personnel Competences scheme and Recognised Service Facilities schemes.

In summing up, the keys to successful implementation have been:

- Good clear communication with all industry stakeholders
- Key points of contact at mines with qualified electrical engineers

- Being actively involved with the development and management of the scheme
- Working within an industry that is mature in its approach to risk management
- Support from within MSO for the Director, who holds a long-term strategic view for mine safety across all disciplines

On behalf of Mine Safety Operations I would like to thank *UNECE* and you all for this opportunity to share our journey.

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