



John Simmons

Summary of Original Contributions to Coal Geology and Related Disciplines in Queensland

The pursuit of geological knowledge of Queensland's coal deposits has been driven by a recognition of their huge value as a resource and consequently a strong desire to mine them. Today around 245 million tonnes of saleable coal is produced annually in Queensland, of which over 200 million tonnes is from opencut mining. John Simmons is nominated for the 2017 Leichhardt Award because he has brought the training of a civil and geotechnical engineer, together with a lifelong personal commitment to geoscience, to engagement with the greatest driver for coal geology: coal mining.

John's contribution to the geotechnics of opencut coal mining is extensive and wide ranging, but may be considered in terms of the following activities:

1. Development of site investigation, data recording and rock mass and spoil classification tools, including:
 - a. Co-development of a system of spoil classification, now much refined, which has become the standard basis for spoil dump design
 - b. The development of geotechnical hazard assessment checklists which underpin TARPs for rock and spoil slope risk management
 - c. Having a commitment to field mapping and structural analysis and being a long term supporter of SiroVision. John maintains structure data from more than 30 opencut mines.
 - d. Making a leading contribution to the development of the geotechnical elements of CoalLog
2. Research and supervision of research, including:
 - a. Personal research leading to the development of a set of (now mature) generic rock slope design parameters, applicable to coal measure rocks
 - b. ACARP funded research into (i) the application of brittle rock failure knowledge to slope stability radar trigger level settings, (ii) the assessment of spoil strength in very high spoil piles
 - c. Supervision of a number of PhDs relevant to the requirements of 21st century coal mines (plant rejects/tailings dumping in spoil piles, water movement in spoil piles etc.)
 - d. Specific and determined study of the Tertiary cover which presents a major geotechnical hazard to mining in Queensland
3. 3. Dissemination of knowledge through collaboration, training, mentoring and publishing. John has:
 - a. Since 2005, trained over 500 people in the principles of geotechnical hazard assessment using geological observations
 - b. Formed and remains a driving force behind the Bowen Basin & Hunter Valley Open Cut Geotechnical Society
 - c. Published over 70 peer reviewed papers with over 50 directly relevant to open cut coal mining
 - d. Contributed to all Bowen Basin Symposia since 1990, in the form of papers or workshops.

Nominated by: Ken Preston | Seconded by: Richard Ruddock