

THE FIRST

第一届

The 1st China International
Conference Proceedings on Coal
Mine Gas Control & Utilization

中国国际煤矿 瓦斯防治与利用大会 论文集

主 办：国家安全生产监督管理总局

Hosts: State Administration of Work Safety

国家发展和改革委员会

National Development & Reform Commission

科学技术部

Ministry of Science & Technology

国家煤矿安全监察局

State Administration of Coal Mine Safety

承 办：国家安全生产监督管理总局国际交流合作中心

Organizers: National Center for International Exchange & Cooperation
on Work Safety

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**The 1st China International Conference Proceedings on
Coal Mine Gas Control & Utilization**

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序

煤矿安全生产事关经济发展和社会稳定大局，事关人民群众的生命财产安全，瓦斯防治是煤矿安全工作的重中之重。煤矿瓦斯问题是个世界性的课题，当前世界主要产煤国家都很重视煤矿瓦斯的防治与开发利用工作。瓦斯是灾害源，同时又是不可再生的，可开发利用的能源；但如果不加处理地排放到大气中又会引起温室效应、污染环境。所以，煤矿瓦斯的开发与利用，在经济、社会、环境等方面具有重要意义。

中国政府历来高度重视煤矿安全生产工作。同时，随着我国经济的快速发展和人民生活水平不断提高，人们的生存理念发生了深刻的变化，对安全生产的关注已经上升到了前所未有的高度，坚持“以人为本”，追求人与自然的和谐发展，已成为社会发展的共同目标。为了进一步促进煤矿安全生产水平的提高，打好煤矿瓦斯治理与利用这一场攻坚战，国家安全生产监督管理总局、国家发展与改革委员会、国家煤矿安全监察局和科学技术部联合组织召开了这次“第一届中国国际煤矿瓦斯防治与利用大会”。会议先后收到论文 45 篇，这些论文内容涉及煤矿瓦斯防治及利用的相关政策与法规、煤矿瓦斯及煤尘爆炸防治技术、煤与瓦斯突出防治技术、煤矿瓦斯抽放与瓦斯监测监控技术、煤矿安全管理、教育与培训及煤层气开发与瓦斯利用六个方面，全面介绍当前世界主要产煤国家在煤矿瓦斯防治与利用领域相关的政策法规、技术经验和开发管理模式，这对于我国当前的瓦斯治理和开发利用工作，对于进一步提高我国煤矿安全生产水平，无疑具有极其重要的参考和利用价值。

在此论文集的编辑过程中，有关单位和同仁给予了大力支持和帮助，在此衷心地表示感谢！同时，由于我们水平有限，加之时间仓促，文集中难免有不妥之处，敬请读者批评指正。

编 者

2005 年 10 月

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Preface

Safety in coal mines is closely linked with national economic development, social stability and people's life and property, while gas control is the key to coal mine safety. Coal mine gas is of a common concern in the international community. At present, the world's main coal producing countries place great importance on issues of coal mine gas control and utilization. Although coal mine gas is the source of disaster, it is an unrenewable and utilizable energy resource. However, without appropriate disposition when emitted into the air, it would cause green house effect and pollute the environment. Therefore, it is of great significance to develop and utilize coal mine gas in aspects of economy, society and environment.

Chinese government has always attached great importance to issues of coal mine safety. With the rapid development of Chinese economy and the improvement of people's living standard, fundamental changes have taken place in people's living perspective, and people's attention on work safety has risen to an unprecedented height. Adhering to the people oriented development perspective and pursuing harmonious development between human beings and the nature has already become the common goal for social development. In order to further improve coal mine safety and win the uphill battle on coal mine gas control and utilization, the State Administration of Work Safety, the National Development and Reform Commission, the Ministry of Science and Technology and the State Administration of Coal Mine Safety jointly host this 1st China International Conference on Coal Mine Gas Control and Utilization. The conference has successively received by now 45 theses, covering the following 6 aspects which are: relative policy and legislation on coal mine gas control and utilization, coal mine gas and dust exploration prevention and techniques, coal and gas outburst prevention and techniques, coal mine gas drainage and monitoring techniques, coal mine safety management, education and training, and coal bed methane development and gas utilization. These theses comprehensively introduce to us relative policy and legislation, techniques and experiences, and development management system of the world main coal producing countries at present in the field of coal mine gas control and utilization, and they are no doubt of vital importance and great value for reference and utilization for areas of China's current coal mine gas control and utilization, as well as further improving China's coal mine safety.

We sincerely express our gratefulness to those who have given us great support and help during the process of edition and collection. Meanwhile, due to time constraints and our lack of knowledge, errors are inevitable. All criticisms are welcome.

Editor

October, 2005

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主席致辞

Welcome Message

主 席 致 辞

由中国国家安全生产监督管理总局、国家发展和改革委员会、国家科学技术部、国家煤矿安全监察局共同主办的“第一届中国国际煤矿瓦斯防治与利用大会”将于2005年10月26日至27日在北京召开。我谨代表大会组委会，热忱欢迎关心和致力于煤矿安全生产工作的中外政府官员、专家学者前来出席本次大会，共商煤矿瓦斯防治与利用大计。

煤炭是中国的主要能源，在一次能源消费结构中占67%以上。如何高效、安全开发利用煤炭资源是国际采矿界共同关注的课题。中国煤矿地质条件复杂，煤矿瓦斯涌出量大，高瓦斯矿井多，迄今为止，全国已探明的瓦斯储量达35万亿立方米，与天然气的储量大体相当。由于多种原因，目前我国煤矿的瓦斯抽放利用率低，重特大瓦斯事故时有发生，成为制约煤矿安全生产的重要因素。中国政府坚持以人为本的科学发展观，着力构建和谐社会，高度重视煤矿的安全生产，今年以来特别在瓦斯防治与利用方面采取一系列措施。煤矿瓦斯是一种清洁能源，是大自然赋予人类的财富，不应该成为安全生产的威胁。科学合理开发利用瓦斯，不仅解除了煤矿安全的心腹之患，保障了矿工的生命安全，也有利于经济发展和环境保护。

本次大会将以“瓦斯防治煤矿安全的保障”为主题，交流煤矿瓦斯灾害防治技术与经验、探讨煤矿瓦斯利用以及煤层气产业化的途径和办法，不仅是中国煤炭工业的当务之急，也是世界各国同行的共同课题。我相信，本次大会的召开对于中外煤炭行业进一步完善煤矿瓦斯防治技术、建设本质安全型煤矿，保障从业人员的生命安全健康，促进开发利用煤层气造福于人类，将发挥重要作用。

煤矿安全管理水平具有重要意义。

预祝大会圆满成功！

第一届中国国际煤矿瓦斯
防治与利用大会组委会主席
中国国家安全生产监督管理总局局长
李 毅 中

Welcome Message

The 1st China International Conference on Coal Mine Gas Control and Utilization, which is jointly hosted by the State Administration of Work Safety, the National Development and Reform Commission, the Ministry of Science and Technology and the State Administration of Coal Mine Safety, will open in Beijing during October 26 – 27, 2005. On behalf of the Organizing Committee, I warmly welcome all those who care for and are committed to coal mine safety to join this event, sharing experiences and exploring solutions in various areas concerning mine gas control and utilization.

Coal, a main source of energy, accounts for 67% of China's primary energy consumption, whereas how to develop and utilize coal resources in a highly efficient, safe manner is an area of common concern to the international mining community. China's coal mines are featured with complex geological conditions and high gas emissions. As a matter of fact, China far outnumbers any other country in terms of highly gassy coal mines. Up to now, China's proven mine gas reserves have topped 35 trillion cubic meters, equivalent to its natural gas reserves. Yet due to various reasons, the ratio of coal mine gas drained and utilized is still low and serious coal mine gas acci-

dents occur quite frequently. The gas factor has become a decisive bottleneck in improving the safety record of China's coal mines.

Adhering to the people – oriented development perspective and the goal of a harmonious society, the Chinese government places great importance on issues regarding coal mine safety. Since the beginning of this year, it has taken a string of measures on coal mine gas control and utilization, based on the faith that coal mine gas, a source of clean energy as endowed by the nature, should become anything but a detriment to the safety of mankind. Well – planned development and utilization of coal mine gas can not only relieve coal mines of a serious safety threat to their workers, but also have substantial economic and environmental implications.

Themed “Gas Control for Improved Coal Mine Safety”, the Conference will provide an ideal platform for sharing experiences and techniques in the hazard control aspect of coal mine gas as well as discussing ways of optimized coal mine gas utilization, particularly in the form of coal – bed methane industrialization. Coal Mine gas control and utilization are not only urgent on the agenda of the Chinese coal industry, but also important for the sound development of the world coal industry. I believe the Conference will play an outstanding role in bringing together industry insiders worldwide to improve coal mine gas control techniques, build intrinsically safe mines, protect the workers' safety and health and tap into the benefits of coal bed methane development.

Wish the Conference a great success!

Li Yizhong

Chairman of the Organizing Committee

Minister, the State Administration of Work Safety, P. R. China

第一部分 煤矿瓦斯防治及 利用的相关政策 与法律法规

Session 1 Policy and Legislation on Coal Mine Gas Control and Utilization