

Overview of the Tragedy and Its Influence on the Modern Age OSH

The Hawk Nest Tunnel disaster took place during the process of building a hydroelectric tunnel in the Gauley Bridge, West Virginia. The research by Goetsch (2018), the project entailed a drilling process through a mountain, which was virtually made up of high silica content rock. African American migrants, mostly the poor workers who work up to 10 hours a day in silica dust clouds without any respiratory protection. In its natural progression, silicosis is a disabling and fatal lung disease that requires decades to appear (Handra et al., 2023). But at Hawk Nest, it was so prolonged that within a year, workers were dying, and the number of ultimate fatalities is estimated a number of several hundred to more than a thousand (Spencer, 2023). The corporate reaction to the tragedy also added to it, as numerous dead workers are said to have been buried in mass graves without even informing their families.

It was the popular outcry that was enhanced with the media and literature, such as Hubert Skidmore's *Hawks Nest*, which compelled a national response to occupational disease (OHSA, 2025). This accident made silicosis the monarch of occupational illnesses and showed that the workplace could trigger health-threatening emergencies (Goetsch, 2018). The immediate effect was two-fold. First, it resulted in the creation of industry-led organizations such as the Air Hygiene Foundation to study dust control. Second, it lobbied the U.S. Department of Labor to lobby the state workers' compensation laws to make silicosis a compensable disease, imposing some economic burden on employers (Goetsch, 2018). The memory of Hawk Nest today can be seen in the holistic approach to the management of hazards, such that engineers must provide engineering controls (such as ventilation and wet controls) and administrative controls (such as rotation and training), and personal protective equipment (respirators) in dusty areas.

Regulatory Environments: Comparison of the Past and the Present

Laws and regulations that existed during the Hawk Nest disaster were disjointed and miserably insufficient. Before 1970, regulation of workplace safety was largely a state matter, and the laws that existed were narrow, haphazard and poorly monitored (Wilson, 2023). No federal authority was assigned to establish and implement the standard safety and health standards. The common law lacked an adequate definition of the general duty of the employer to make the working environment safe, and seldom and infrequently compensated workers with occupational illness such as silicosis. The Great Depression period, as per Goetsch (2018), was associated with employers applying pre-employment physicals to thin out employees who already had pre-existing lung damage because it was a liability and not an effort to create a better work environment. The burden of proving and the cost of sickness was virtually left to the worker in this system.

Contrastingly, the current regulatory environment is grounded on the federal OSH Act of 1970. This act was implemented by Congress due to the worrying annual statistics, such as about 14,000 worker deaths and 2.5 million disabilities (Goetsch, 2018). The OSH Act implemented a prevention-based and proactive system with a number of elements. It established, first, the Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) to have specific federal organs of control, implementation and study (Congress.Gov, 2024). Moreover, it provided the General Duty Clause, which also mandated employers to provide a workplace free of identified hazards, despite the lack of a particular standard (Goetsch, 2018). In tandem with these, it required a system of promulgating and enforcing detailed safety and health standards, which were based upon consensus. It also portrayed the rights of workers, such as the right to report hazards

without any form of retaliation. Lastly, it needed an organized IFRS to keep records of injuries/illnesses to track trends. It is a game changer concerning the reactive, state-based, compensation-oriented model to a proactive, federal, and prevention-oriented system.

OSH Standards For Preventing A Similar Event

Some of the particular OSHA regulatory and consensus standards are directly related to the risks that led to the Hawk Nest tragedy, which predominantly involves exposure to respirable crystalline silica.

The most directly applicable standard is the OSHA **Respirable Crystalline Silica Standard (29 CFR 1926.1153 construction; 29 CFR 1910.1053 general industry/maritime)**. This standard requires an all-inclusive attitude to silica dust management. The most important provisions comprise; *setting a Permissible Exposure Limit (PEL) of 50 micrograms per cubic meter of air as an 8-hour time-weighted average; making engineering controls (e.g., water sprays and ventilation) the primary means to limit exposure; documenting an exposure control plan; medical surveillance, including a chest X-ray and lung function tests, of employees exposed over the action level; and having workers receive training on silica hazards* (Goetsch, 2018; OSHA, 2024a). This standard directly addresses the uncontrollable dust production, which was evident at Hawks Nest.

Moreover, the **Hazard Communication Standard (29 CFR 1910.1200)** provides that employers and workers know the chemical hazards caused in the workplace, such as silica dust (Lippy et al., 2025). This principle of right to know allows the workers at risk of silicosis to be trained on the risks and proper handling processes, which is a sharp contrast to the total absence of information given to the workers at the Hawk Nest Laboratories.

Other assistive standards are regulations on **Personal Protective Equipment (29 CFR 1910.132)** and, in particular, the **Respiratory Protection (29 CFR 1910.134)**. These standards require employers to conduct hazard assessments, supply relevant respirators in cases where engineering controls cannot minimize exposure to less than the PEL, as well as have a comprehensive respiratory protective program, such as fit-testing and training (OSHA, 2024b). These standards offer a very essential back line of defence, although they are the last resort, and they were completely missing in the 1930s, even though the contemporary hierarchy of controls is more focused on the removal of hazards at the source.

References

- Congress.Gov, (2024). *The Occupational Safety and Health Act of 1970 (OSH Act): A Legal Overview*. Retrieved from: <https://www.congress.gov/crs-product/R48292> [Retrieved on: 12/06/2025].
- Goetsch, D. L. (2018). *The Basics of Occupational Safety* (3rd ed.). Pearson Education (US).
<https://online.vitalsource.com/books/9780134701776>
- Handra, C. M., Gurzu, I. L., Chirila, M., & Ghita, I. (2023). Silicosis: new challenges from an old inflammatory and fibrotic disease. *Frontiers in Bioscience-Landmark*, 28(5), 96.
<https://www.imrpress.com/journal/FBL/28/5/10.31083/j.fbl2805096>
- Lippy, B. E., Brooks, S. B., Cooper, M. R., Burrelli, L. G., Saldivar, A., & West, G. H. (2025). Characterizing applications, exposure risks, and hazard communication for engineered nanomaterials in construction. *American Journal of Industrial Medicine*, 68, S45-S59.
<https://doi.org/10.1002/ajim.23618>
- OHSA, (2025). *The worst industrial disaster in the USA Hawk's Nest Incident | (The Tunnel of Death)*. Retrieved from: https://www.occhealth.co.za/_assets/articles/162/681.pdf [Retrieved on: 12/06/2025].
- OSHA, (2024a). *Occupational Safety and Health Administration Standards | 1926.1153 - Respirable crystalline silica*. Retrieved from:
<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.1153> [Retrieved on: 12/06/2025].

OSHA, (2024b). *Occupational Safety and Health Administration Standards | 1910.134 -*

Respiratory protection. | Occupational Safety. Retrieved from:

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134> [Retrieved on: 12/06/2025].

Spencer, H. W. (2023). HAWKS NEST TUNNEL DISASTER. *Professional Safety*, 68(2), 42-47.

<https://www.proquest.com/openview/845f31e9ba99025ddcde947ba2acfeac/1?pq-origsite=gscholar&cbl=47267>

Wilson, D. C. (2023). Learning from the past to plan for the future: An historical review of the evolution of waste and resource management 1970–2020 and reflections on priorities 2020–2030—The perspective of an involved witness. *Waste Management & Research*, 41(12), 1754-1813. <https://doi.org/10.1007/s11142-023-09807-3>