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SAFETY PRECAUTIONS FOR WIND TURBINE WORKERS

Abstract. *The article examines the occupational risks faced by workers who maintain wind farms and turbines, emphasizing the importance of safety measures to protect them. Various emergency situations are described, such as fires, equipment malfunctions, mechanical damage, lightning discharges, and control system failures. The importance of comprehensive risk assessment, education and training on wind turbine safety is emphasized. Advice provided includes using proper fall protection equipment, maintaining heavy machinery, monitoring weather conditions, implementing fire safety measures, ensuring electrical safety, and establishing clear communication protocols. The conclusion emphasizes that safety is a collective responsibility of employers and employees. Following these safety rules can help protect workers, reduce workplace accidents, and ensure optimal operation of wind turbines.*

Key words: *workers safety, safety precautions, wind turbine, safety, security, process of life, environment.*

Introduction. Workers who maintain wind farms, and wind turbines in particular, are exposed to significant hazards during their work. This is mainly since the work is carried out at high altitudes, in different weather conditions at different workplaces.

The main emergencies during the maintenance and operation of wind turbines are:

- Fires.
- Equipment emergencies.
- Mechanical damage.
- Lightning discharges.
- Malfunctions in the control system.

Analysis of the question.

There are many reasons why these accidents can occur. Among them is the fact that wind turbines are in open areas, which means they are constantly exposed to wind, ice, snow, and lightning. In addition, it should not be forgotten that the principle of operation of such power plants is the transformation of mechanical energy into electrical energy, i.e. the rotor is constantly rotating, which can cause mechanical damage over time.

Objective. Develop a set of tips for ensuring safe work of wind turbines employees.

Material and results. A thorough risk assessment should be carried out prior to any construction or dismantling of wind turbines. Identify potential hazards, prioritize risks and develop a safety plan. The risk assessment will allow you to identify hazards and assess the risks associated with the project. By identifying the hazards, you can take steps to eliminate or control them, which will help keep workers safe.

Education and training are the cornerstone of wind turbine safety. Workers involved in wind turbine operations must undergo comprehensive and certified on-site training to understand the intricacies of turbine components, emergency protocols and hazard recognition. Certification programs ensure that workers have the necessary skills to effectively solve problems.

Falls are the leading cause of injuries in the wind energy industry. To prevent falls, workers must be provided with proper fall protection equipment, such as harnesses and slings,

and trained in their proper use. In addition, guardrails, safety nets and other fall protection systems should be installed at heights where there is a risk of falling.

Heavy machinery is a common hazard during the construction and demolition of wind turbines, which is why it is important to ensure that all equipment is properly maintained. Regular inspections, testing and maintenance of equipment can help identify and correct any issues before they become a problem.

Weather conditions have a significant impact on the operation of wind turbines. Monitoring weather forecasts and having well-developed evacuation plans in place in case conditions change rapidly are important to prevent accidents during adverse weather events.

Fire hazards are a reality in the wind industry due to electrical components and the presence of lubricants inside turbines.

Proper fire extinguishing systems and well-developed emergency response plans can minimize the danger of potential fires.

Electricity is another serious hazard during the construction and dismantling of wind turbines. To protect workers from the risk of electric shock, employers should ensure that all electrical equipment is properly grounded, and that electrical panels, switches, and wiring are in good condition. They should also implement lockout/tagout procedures to prevent equipment from being accidentally started during maintenance or repair. In addition, employees should be trained in electrical safety procedures and the proper use of electrical equipment. By implementing electrical safety measures, employers can help reduce the risk of electrical shock and fire.

Clear communication is essential for safety on any construction site, especially when working with heavy machinery. Radios, signaling systems, and standardized communication protocols contribute to a safe work environment. Employers should establish clear communication protocols, such as hand signals, so that workers can communicate effectively with each other and with equipment operators. This will help prevent accidents and injuries caused by miscommunication.

Conclusion. In the wind energy industry, safety is not a choice, it is a duty. Wind turbines are extremely complex structures, usually located in remote locations, so safety protocols are essential for workers and/or anyone on site.

By following these tips, employers can help protect workers from a variety of hazards and reduce the risk of workplace accidents and injuries. By implementing these safety measures, employers can create a safer and more secure work environment for their employees.

It is important to remember that safety is a shared responsibility between employers and employees. Employers must provide the necessary resources and training, and employees must be prepared to work safely, use the resources provided, and follow established procedures.

Implementing the essential wind turbine safety precautions described in this article ensures the well-being of workers and the optimal functioning of turbines.

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ТЕХНІКА БЕЗПЕКИ ДЛЯ ПРАЦІВНИКІВ ВІТРОТУРБІН

Анотація. У статті розглядаються професійні ризики, з якими стикаються працівники, що обслуговують вітряні електростанції та турбіни, підкреслюючи важливість заходів безпеки для їх захисту. Описані різні надзвичайні ситуації, такі як пожежі, несправності обладнання, механічні пошкодження, грозові розряди, збої системи керування. Наголошується на важливості комплексної оцінки ризиків, освіти та навчання з питань безпеки вітрових турбін. Надані поради включають використання належного обладнання для захисту від падіння, технічне обслуговування важкої техніки, моніторинг погодних умов, впровадження заходів пожежної безпеки, забезпечення електробезпеки та встановлення чітких протоколів зв'язку. У висновку підкреслюється, що безпека є колективною відповідальністю роботодавців і працівників. Дотримання цих правил техніки безпеки може допомогти захистити працівників, зменшити кількість нещасних випадків на виробництві та забезпечити оптимальне функціонування вітрових турбін.

Ключові слова: безпека працівників, заходи безпеки, вітрова турбіна, безпека, процес життєдіяльності, навколишнє середовище.

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