The name and the address of the organizations:

Zorlu Doğal Elektrik Üretimi Anonim Şirketi Buharkent Şubesi
Kızıldere Mahallesi Kızıldere Sk. No: 282/1 Buharkent/Aydın

Scope of the organization's BEKRA regulation / BEKRA notice / Safety report information:

Under the Regulation on the Prevention and Reduction of Major Industrial Accidents, Zorlu Doğal Elektrik Üretimi Kızıldere Power Plant has been identified as a "Top-tier Establishment." The hazardous chemicals mentioned in Annex-1 Sections 1 and 2 of the regulation, including butane, sodium hypochlorite, and ferrodor 242, have been reported through the BEKRA notification system of the Ministry of Environment and Urbanization. The latest notification date for the hazardous chemicals and their quantities registered in the BEKRA system is March 12, 2020.

Following the BEKRA notification, Zorlu Doğal Elektrik Üretimi Aydın Facility, classified as a top-tier establishment, is required to prepare a "Safety Report" as one of the significant obligations under the Regulation on the Prevention and Reduction of Major Industrial Accidents. The Safety Report has been prepared considering the provisions stated in the regulation, and it includes explanations regarding neighboring establishments that may cause accidents or be affected by accidents, the environmental structure and conditions of the facility, production units, and hazardous substances within the facility, the Major Accident Prevention Policy, safety management system, major accident scenarios, and measures taken to prevent such accidents. The Safety Report of Zorlu Doğal Elektrik Üretimi Aydın Facility is reviewed and revised annually. The reference number, presentation year, and revision number are GR-2022/REV.1.

Summary of the main operations and production information at the facility:

Zorlu Doğal Elektrik Üretimi A.Ş. operates the Kızıldere-3 Geothermal Power Plant, focusing on electricity generation. The plant utilizes a combined system known as "Triple Flash + Binary Cycle." After the completion of the first facility with a capacity of 99.5 MW, the second facility with a capacity of 65.5 MW was commissioned in March 2018. Thus, the Kızıldere-3 Geothermal Power Plant has a total installed capacity of 165 MW. The plant consists of 24 production wells and 14 reinjection wells. The reinjection wells ensure the preservation and sustainability of the geothermal source by re-injecting the leftover geothermal water, preventing environmental discharge.

Summary of the Operation:

Within the power plant, when the butane liquid comes into contact with the hot water temperature, it transforms into high-pressure steam, which then drives the turbines, leading to the electricity generation by the generator. The high-pressure steam, in the form of butane, is then liquefied through fans and conveyed back to the exchanger via butane pumps. The cycle continues as a closed-loop system.

Toxicological effects and first aid measures for hazardous substances:

Butane:

Toxicological Effects in Humans: Inhalation: Individuals exposed to the substance are moved to fresh air. If the affected person is not breathing, artificial respiration is applied. If breathing is difficult, oxygen is administered. The person is kept warm, and immediate medical attention is required in any case. Skin Contact: Skin in contact with the liquid may turn gray or white and may blister. Clothing is removed by wetting it with warm water, taking care not to rub the skin to avoid causing damage. The affected area is moistened with warm water and, if necessary, covered with a sterile cloth and wrapped with a dressing. Immediate medical intervention is necessary. Ingestion: Ingestion of the substance is a very rare occurrence. Consultation with a specialist doctor should be sought as soon as possible. Eye Contact: Eyes are carefully rinsed with plenty of water (if possible, remove contact lenses) and immediate consultation with a specialist doctor is necessary.

Sodium Hypochlorite:

Toxicological Effects in Humans: The severity of the described symptoms may vary depending on the concentration and duration of exposure. Inhalation: Single exposure may cause the following adverse effects: Irritation of the respiratory tract leading to corrosion. Following excessive exposure, the following symptoms may occur: Severe irritation of the nose and throat. Ingestion: It can cause chemical burns in the mouth, esophagus, and stomach. Following excessive exposure, the following symptoms may occur: Severe abdominal pain. Nausea, vomiting. Skin Contact: It can cause severe burns. Following excessive exposure, the following symptoms may occur: Pain or irritation. Redness. Swelling may occur. Eye Contact: It can cause severe eye damage. Following excessive exposure, the following symptoms may occur: Pain. Redness. Actions to be taken at the accident site: If discomfort persists, seek medical assistance. Show the Safety Data Sheet of the hazardous substance to healthcare personnel. Chemical burns should be treated by a doctor. Inhalation: The exposed person is moved to fresh air, kept warm in a position where they can breathe comfortably, and rested. Airways are kept open. Tight clothing such as collar, tie, or belt is loosened. The nose and mouth are rinsed with water. No oral intake should be given to an unconscious person. If symptoms are severe or persistent, seek medical assistance. Ingestion: Rinse the mouth thoroughly with water. Give a few glasses of water or milk to drink. If the victim feels uncomfortable, vomiting should be stopped as it may be hazardous. Seek medical assistance. Skin Contact: It is important to remove the substance from the skin immediately. Rinse with plenty of water. Continue rinsing for at least 15 minutes and seek medical assistance. Chemical burns should be treated by a doctor. Eye Contact: Eyes are rinsed immediately with plenty of water. Eyes should not be rubbed. If contact lenses are worn, they should be removed, and eyelids should be held open. Continue rinsing for at least 15 minutes and seek medical assistance. Protection of First Aid Personnel: Performing mouth-to-mouth resuscitation can be hazardous for first aid personnel. Special Information to be Provided to the Doctor: Symptomatic treatment should be administered.

Ferrodor 242:

Toxicological Effects in Humans: This information is not available in the Safety Data Sheet of the respective hazardous substance. Special equipment and procedures to be implemented in case of emergency in the organization, depending on the characteristics of the hazardous substances: This information is not available in the Safety Data Sheet of the respective hazardous substance. Actions to be taken at the accident site and recommended behaviors: No special precautions are required.

Inhalation: Ensure fresh air supply and seek medical attention if symptoms persist. Ingestion: Rinse mouth and provide plenty of water to drink (approximately 500 ml). Medical treatment should be sought. Skin contact: Wash with water and soap. Eye contact: Hold the eyes open and rinse under running water for a few minutes. Seek medical attention if symptoms persist. Special information to be provided to the doctor: This information is not available in the Safety Data Sheet of the respective hazardous substance.

Potential environmental effects under conditions of use and dispersal:

Butane:

The substance is stable when used under normal procedures and for its intended purpose. It exhibits stability in terms of its chemical and physical properties during normal operations and when used appropriately. It has a tendency to decompose above temperatures of 400°C. The substance is stable when used under normal procedures and for its intended purpose. When in contact with strong oxidizers (peroxides, chromates, chlorates) or other substances (nitrates, liquid oxygen, fluorine), it can form explosive mixtures in the air and pose a fire hazard under certain conditions (in the presence of ignition sources). The presence of acids and strong alkali substances can cause container corrosion and subsequent leakage. Precautions should be taken to avoid conditions such as hazardous temperatures, pressure, shock, and other similar conditions that may cause dangerous reactions: Excessive heating of the product and containers, sudden drop in container pressure, leaks and spills, accumulation of the substance in close proximity, excessive oxidizers, alkali or strong alkali substances, heat sources/sparks/open flames/hot surfaces, smoking, generation of electrostatic charges, container impact or falling causing friction or spark formation, exposure of containers to high temperatures or direct sunlight (above 50°C). Materials to be avoided, such as water, air, acids, bases, oxidizers, or any other special substance that may cause a dangerous reaction: Excessive oxidizing agents, excessive acid and alkali substances. Substances that may be released or generated due to decomposition or degradation and their hazards: The substance is stable when used under normal procedures and does not degrade. In the event of fire or container rupture, incompletely burned organic compounds such as carbon oxides can be formed. If in contact with water, any harmful decomposition product that may occur, if any, poses a possibility of a hazardous exothermic reaction: This information is not available in the Safety Data Sheet for the specific hazardous substance.

Sodium Hypochlorite:

There are no known reactive hazards associated with this hazardous substance. There are no known potential hazardous reactions. Precautions to be taken regarding temperature, pressure, shock, and other similar conditions that may cause dangerous reactions: There are no known situations that could result in hazardous outcomes. Materials to be avoided, such as water, air, acids, bases, oxidizers, or any other special substance that may cause a dangerous reaction: Acids. Substances that may be released or generated due to decomposition or degradation and their hazards: No degradation occurs when used and stored under recommended conditions. Thermal decomposition or combustion products may include corrosive gases or vapors. If in contact with water, any harmful decomposition product that may occur, if any, poses a possibility of a hazardous exothermic reaction: This information is not available in the Safety Data Sheet for the specific hazardous substance.

Ferrodor 242:

Under the conditions of use and storage as intended, the substance does not produce any hazardous reactions. There are no known hazardous reactions. Substances and their hazards that should be avoided due to temperature, pressure, shock, and similar conditions that may cause hazardous reactions: There are no hazardous products formed during decomposition. Risk of toxic pyrolysis products. If in contact with water, any harmful decomposition product that may occur, if any, poses a possibility of a hazardous exothermic reaction: This information is not available in the Safety Data Sheet for the specific hazardous substance. There are no hazardous reactions, precautions for temperature, pressure, shock, and similar conditions that may cause hazardous reactions, materials to be avoided such as water, air, acids, bases, oxidizers, or any other special substance that may cause a hazardous reaction, substances that may be released or generated due to decomposition or degradation and their hazards, any harmful decomposition product that may occur if in contact with water, and the possibility of a hazardous exothermic reaction for other hazardous substances present in the Kızıldere-3 Geothermal Power Plant operated by Zorlu Doğal Elektrik Üretimi A.Ş. are not available in the Safety Data Sheet.

Information about the measures taken by the organization to prevent major industrial accidents and minimize their effects:

Zorlu Doğal Elektrik Üretimi Kızıldere-3 Geothermal Power Plant, it is the responsibility of the Workplace/Workplace Management to prevent the release of hazardous substances into the environment and minimize the effects of spilled hazardous materials. Material Safety Data Sheets (MSDS) are available for all hazardous substances used and stored in Zorlu Doğal Elektrik Üretimi Kızıldere-3 Geothermal Power Plant.

In the event of an incident involving hazardous materials at Zorlu Doğal Elektrik Üretimi Kızıldere-3 Geothermal Power Plant, the following procedures are followed:

- Non-essential personnel will be directed to safe areas downwind.
- Approach to the accident site will be made against the wind direction.
- The hazardous substance causing the accident will be identified, and the relevant Material Safety Data Sheet will be provided to the Emergency Response Teams.
- The Incident Command Manager will be informed of the type and impact area of the incident.
- If the type of hazardous substance causing the accident is unknown, necessary safety precautions will be taken based on the most hazardous substance.
- The use of appropriate personal protective equipment will be ensured.
- If a personnel is injured or exposed to a chemical substance, first aid will be provided, and an occupational physician will be present at the workplace. • If a spill occurs, the spread of the spill will be prevented using relevant spill containment equipment.
- In the event of a fire, appropriate fire extinguishers specified in the Material Safety Data Sheet will be used.
- If multiple materials are spilled, precautions will be taken to consider their reactions and expert advice on necessary safety measures will be followed. • Cleaning of contaminated chemicals from all equipment and personnel will be ensured.

Petroleum Spill:

In case of a petroleum spill at Zorlu Doğal Elektrik Üretimi Kızıldere-3 Geothermal Power Plant, immediate intervention is carried out as soon as possible. The first person to reach the spill area, for example, the Emergency Coordination Crisis Management Team, will notify the spill and initiate intervention measures.

Uncontrolled Gas or Chemical Leak:

Zorlu Doğal Elektrik Üretimi Kızıldere-3 Geothermal Power Plant is equipped with early warning system detectors in case of a leakage of n-butane gas. There are a total of 9 n-butane detectors, including 4 in the Dual Feed Pump, 2 in the Dual Fluid Storage Tank, 2 in the Dual Turbine/Generator Area, and 1 in the Exhaust Stack Pit.

Precautions taken against uncontrolled gas or oil leaks include:

The implementation of the Emergency Action Plan according to the information in the Material Safety Data Sheet of the leaked or spilled chemical will be ensured promptly.

Information about collaboration with emergency service units for responding to major industrial accidents in the organization:

Zorlu Doğal Elektrik Üretimi A.Ş. Kızıldere-3 Geothermal Power Plant, collaborates with local emergency response units such as AFAD (Disaster and Emergency Management Authority) and Fire Departments regarding emergency plans.