



## CASE STUDY: CONTROL OF HAZARDOUS ENERGY (COHE) THROUGH LOCK-OUT TAG-OUT (LOTO) FOR A SEMICONDUCTOR FOUNDRY CONSTRUCTION SITE

### CLIENT OVERVIEW

The customer is a leading device manufacturer for the global logic integrated circuits (IC) industry. They operate multiple foundries worldwide and are in the process of constructing another one in Phoenix, Arizona, USA to support their new technology expansion. We were brought in to represent the sitewide authority for COHE during construction, including the implementation of an OSHA compliant LOTO program.

### CHALLENGE

The customer required that all contractors and subcontractors were following OSHA standards for COHE to limit the possibility for an injury or death and subsequent violation or potential shutdown. The primary challenge was to ensure there was proper and consistent communication and implementation of the proposed LOTO program site wide. The construction site had up to 13,000+ subcontractors with varying scopes that needed LOTO to perform their work safely. We had to ensure proper LOTO of all forms of energy, anything from the 34.5 kV switchgear to chiller water return valves.

### SOLUTION

We provided and administered an OSHA compliant LOTO program to ensure safe construction of the FAB by executing the following objectives:

- 1. LOTO Procedure and Manual:** We developed and implemented an OSHA 1910.147 compliant LOTO procedure to be included in the LOTO Program Manual.
- 2. LOTO Training:** Our team trained all contractors on proper LOTO procedures and expectations. All contractors doing work on the construction site had to go through our LOTO training to request a clearance.
- 3. Safety and Quality Assurance:** Our team emphasized the importance of LOTO, and safe work practices related to LOTO. All clearance requests were

reviewed by site managers and walked down by qualified personnel to ensure proper isolation points.

- 4. Proper Documentation:** Every clearance is documented from request to release. All relevant information including isolation points (equipment IDs and tags), dates, times, authorization signatures, and LOTO administrator IDs are recorded. Testing and modifications are also recorded with the same level of documentation.
- 5. Streamlined Coordination:** Our team developed a concise method for clearance requests and subsequent administration of a LOTO, which became routine for the contractors.

## RESULTS AND BENEFITS

Our skilled team was able to successfully instill the importance of LOTO to the contractors, which enabled us to properly implement the LOTO Program that was designed. This significantly improved site safety and improved trust in personal safety.

- 1. Centralized LOTO:** Our LOTO Program centralized LOTO for the whole site, which allowed for the owner to know where a clearance is active and who requested it. This also ensured that all LOTO was compliant with OSHA.
- 2. Consistency and Compliance:** The LOTO program provided consistency to all contractors which encouraged compliance. The single source of all LOTO allowed for easier determination of violation or non-compliance.
- 3. Technical Expertise:** Our site managers and field technicians contributed to the successful implementation and ongoing LOTO Program. Understanding proper isolation points for all forms of energy on a large complex system was critical.
- 4. Data Management:** Our team was able to collect data relevant to LOTO. This allowed us to understand the clearance demand by quantity and type for the whole construction site. Additionally, we could use this data to understand how long a clearance stays active (how long work takes to complete), who is testing their systems and how many times, and forecast clearance requirements.
- 5. Long-Term Partnership:** Our efforts have fostered confidence in our ability to perform, allowing us to continue to play a role in the ongoing construction of the current FAB and future FAB projects.



## CONCLUSION

The successful implementation of our LOTO Program showcased our expertise in LOTO and its effective use on the large construction site. Our partnership with the customer has increased safety by centralizing LOTO and ensuring an OSHA compliant Program for their contractors. Our ability to coordinate and technically execute proper clearances allowed the customer to focus on scope execution and maintain a zero OSHA recordable site when related to LOTO.

