

Construction SH&E Practices in China

ROBERT L. POTTS, M.S., CSP, CHS IV, IS THE ENVIRONMENTAL, HEALTH AND SAFETY DIRECTOR FOR M+W GROUP, WHICH RECENTLY CONSTRUCTED A SEMICONDUCTOR MANUFACTURING FACILITY IN CHINA.

In this interview, Potts explains how safety, health and environmental (SH&E) practices were maintained throughout the construction project and discusses M+W Group's plans for future construction projects in other countries worldwide.



CPS: Please provide a brief description of your professional background and of your position with M+W Group.

RLP: I hold a bachelor's degree in industrial technology and engineering and a master's degree in industrial management from Ohio

University. I then entered the U.S. Air Force and became a pilot, but also had safety responsibilities while in service.

While in the Air Force and Air Force Reserve, I worked up to be chief of safety for the installation, including ground, explosives and flight safety. I worked for the federal government for 10 years in safety as a civilian then transitioned out of federal service, and into civilian life and became a CSP. I worked for the Dannon Co. as the corporate director of safety for 7 years. In this position, I oversaw manufacturing and construction of new facilities. I then moved to M+W Group and have been with them for more than 8 years. In my role as environmental health and safety director, I

oversee construction safety on all of our sites, and I also work with our design and architecture group on safety, design and construction risk management.

CPS: M+W Group recently constructed a semiconductor manufacturing facility in China. How did the company become involved in this project, and what was your role during the facility's construction?

RLP: One of our worldwide offices is in Shanghai, and we have built other facilities in China. We won a contract to build this particular facility, as we had done much work for this client before. My role during this project was as a safety consultant to our group in China. Our client demanded excellent safety management on the project, and we needed to help our Chinese group along a bit.

CPS: How often does M+W Group undertake construction projects in China? What made the semiconductor manufacturing facility construction project unique?

RLP: We are constantly bidding on and winning contracts to build high-tech facilities in China since we have worked there continually for more than 10 years. We maintain an office in Shanghai because business is solid. We tend to be in the processing field—we have built

semiconductor as well as pharmaceutical and food processing facilities in China.

This new semiconductor facility was the largest of its type to be built in China and one of the largest in the world. It is a fully self-sustaining manufacturing facility.

CPS: What kind of preplanning and risk assessment does M+W Group typically perform before starting work on construction projects in countries, such as China?

RLP: We do full risk assessment, from the construction site and site prep through design and construction, and we assess the local population's level of knowledge to determine how much external support is necessary. Then we plan accordingly. We always provide a full operations plan, which includes safety and environmental. Then we determine the training and support needs of our in-country group. Our worldwide staff supports the project as necessary to ensure success.

CPS: How did M+W Group address training and any language barriers during the construction of the semiconductor manufacturing facility in China?

RLP: We have many native Chinese who speak English on the M+W China staff, and we use their translation talents both for written

and spoken word. When we conduct training, we have dual training sessions with both English- and Chinese-speaking people involved, and presentations are done side-by-side in both languages, either as PowerPoints or videos.

We conduct field verification to determine that the training has accomplished what it intended. We address any problems immediately, retrain as necessary, and answer questions to ensure that things are done properly. Our Chinese counterparts are eager to learn and very capable.

CPS: Did M+W Group encounter any unforeseen SH&E challenges prior to the construction of this particular project?

RLP: We did not encounter anything unforeseen because we planned based on our China experience. Since this was not our first project in China, we were more familiar with how things work and what to expect. A big challenge was the number of people who came to work having very little construction experience. You need to start with the basics during the initial phases of construction, and you need to demonstrate good safety practices. As long as the workers felt that we were interested in helping them learn how to be construction workers, they were always good about trying to do what was right.

We provided enough housing, food service, laundry and personal care facilities onsite for 2,500 people.

CPS: How is the use of SH&E standards encouraged or enforced during a construction project such as this?

RLP: China has very good written safety standards. They are learning how to use the standards and how to enforce safety requirements. We worked closely with Chinese staff to ensure that our site's standards were the most stringent of the OSHA or Chinese standards.

In some cases, the Chinese standards are more stringent. For

example, Chinese standards require a chinstrap with a hardhat where as OSHA does not. That was something our American workers needed to get used to. If any of the American workers were found wearing a hardhat without a chinstrap, the Chinese workers called them out on it. Although standards enforcement throughout China is on a slow rise, safety standards on our site were strictly enforced.

CPS: How was fall arrest/protection managed during this construction project?

RLP: Prior to engaging in work, fall protection was addressed with thorough introductory training not only on rules and regulations, but also on equipment. Equipment training was reinforced constantly during construction. We taught workers about 100% tie-off, anchorage points and lifelines, and we also conducted drop tests. We used the Z359 Fall Protection Code as the design for our fall protection requirements. We were impressed that no fall injuries occurred on the job.

CPS: How did M+W Group ensure that sustainable construction practices were followed during each phase of the project?

RLP: Area coordinators were on the job all of the time. These included both native Chinese and M+W Group personnel from our worldwide staff who watched every phase of construction and ensured that quality work was done correctly and safely. We also had safety inspection personnel onsite working with the construction coordinators at all times.

We recycled 70% of the construction waste. Waste materials were sorted and picked up from the site. We used recyclable traditional steel and concrete materials. Finished materials were checked to ensure that they were not environmentally hazardous for construction workers or for building occupants afterward.

CPS: Does M+W Group plan to construct any other similar facili-

ties in China or in other countries? If so, what does it intend to do differently?

RLP: We are involved in several construction projects throughout the world, including eastern and western China. Our design and architecture group designs many facilities for our clients; sometimes we win the bid to build and sometimes other companies build our designs. We are currently building the world's largest semiconductor facility in Malta, NY.

We are consistent in the way we conduct building operations throughout the world. Our clients expect us to use the same standards wherever we build. We have made a pointed effort to do that. Our construction and safety standards are at the top no matter where we build. ☺

Robert L. Potts, M.S., CSP, CHS IV, is the corporate director of SH&E management for M+W U.S. Inc. His responsibilities include management of the SH&E discipline, risk management and quality. M+W U.S. Inc. focuses on cleanroom technologies, including the production of cleanroom components and technical facility systems for the electronic, pharmaceutical and food industries. Potts has more than 30 years' of safety experience with extensive experience in construction and industrial safety, environmental management and emergency preparedness. He possesses expertise in managing multiple locations with unique requirements and is experienced in process safety management and environmental management systems (ISO 14001). He has also worked for and with Groupe Danone, Dannon USA, IBM, Intel, Tracor and MEI Technology. He is a professional member of ASSE and a member of NFPA, SESH, the Associated General Contractors of America and the National Safety Council. He is a past administrator of ASSE's Management Practice Specialty (MPS) and a recipient of MPS's Safety Professional of the Year award. He currently serves on ASSE's 100th Anniversary Task Force.

Potts holds a B.S. in Industrial Technology and an M.S. in Industrial Management from Ohio University. His postgraduate studies are in organizational communication from Kent State University. He is also a graduate of the Systems Safety Institute at the University of Southern California.