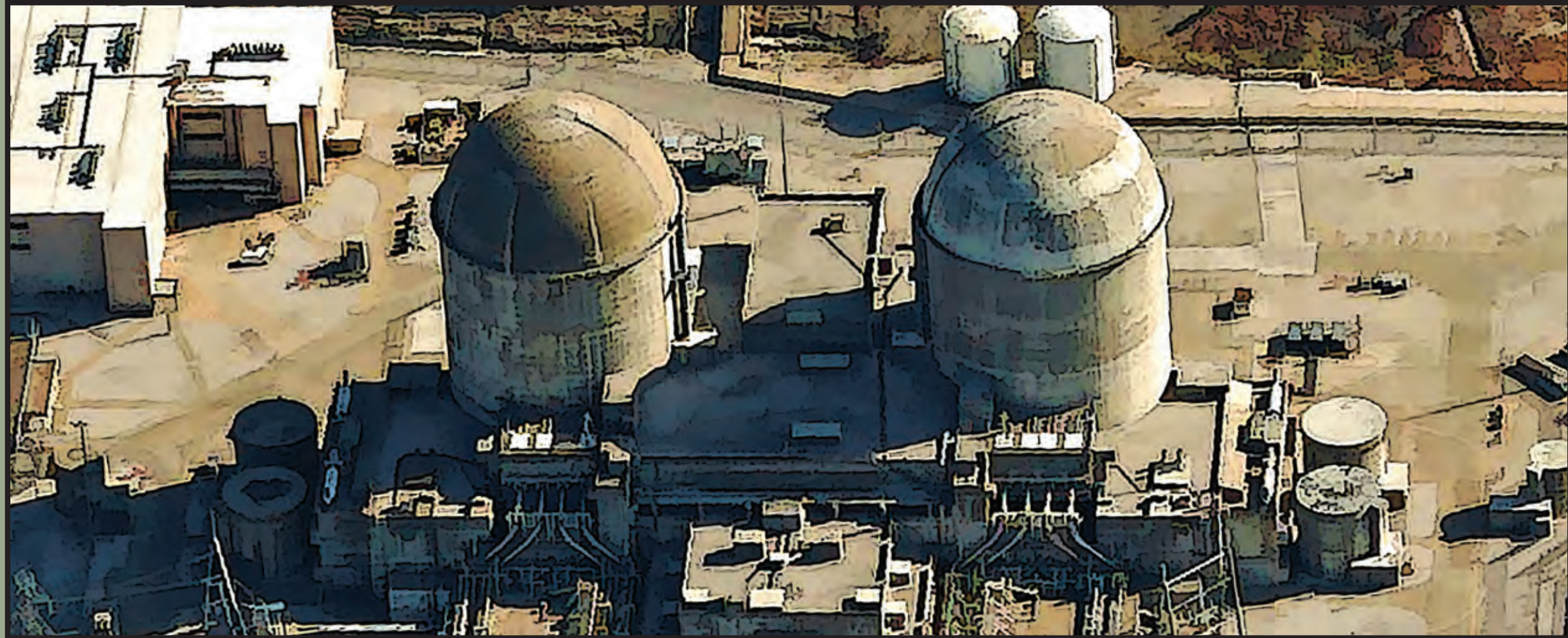


C O M A N C H E P E A K N U C L E A R P O W E R P L A N T



2013 NRTCA GOLDEN HAMMER AWARD ENTRY

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CASTRO  
ROOFING

With decades of experience, Castro Roofing has become one of the finest commercial roofing companies in the industry — Our diverse portfolio encompasses working with everything from nuclear power plants to highly sensitive scientific labs to mental hospitals to penitentiaries to museums filled with priceless objects to small schools to some of the largest corporations in the world — Our company brings a combination of knowledge, expertise, skill, experience, and customer service that is unsurpassed in the industry — With award-winning service, we provide a line of products and services that delivers a wide array of solutions to meet all roofing needs — After receiving dozens of our industry's highest honors and accolades, we pride ourselves in a commitment to safety, service, ethics, and quality that is unrivaled in any industry.





## 2013 NTRCA Golden Hammer Awards Official Entry Form

(Check one of the below)

- Outstanding Commercial Roofing Project  
 Outstanding Residential Roofing Project  
 Outstanding Community Service Project

Contractor's Name: Castro Roofing of Texas, L.P.

Address: 4854 Olson Drive  
Dallas, TX 75227

Phone Number: 214-381-8108

Name of Project: Comanche Peak Nuclear Power Plant

Project Owner: Luminant Generation Company LLC

Project Foreman: Marcos Pérez

Project consultant, engineer or architect (if any): N/A

List the NTRCA associate members involved: ABC Supply, Superior Equipment & Supply,  
Fastenal Company

Date of commencement: September 2013 Date of completion: November 2013

Please submit two copies of your application.

On a separate piece of paper describe the project. Include information concerning its unusual design, time constraints, difficulty factors and/or problems you may have faced.

Attach maximum of five 5x7 photos showing the project from different angles and in various phases of progress. All materials submitted become the property of NTRCA. High resolution photos also need submitted on a cd for use during the awards ceremony.

Projects must have been completed between 12/1/12 and 12/1/13.

Submitted by: Rodolfo Rodriguez

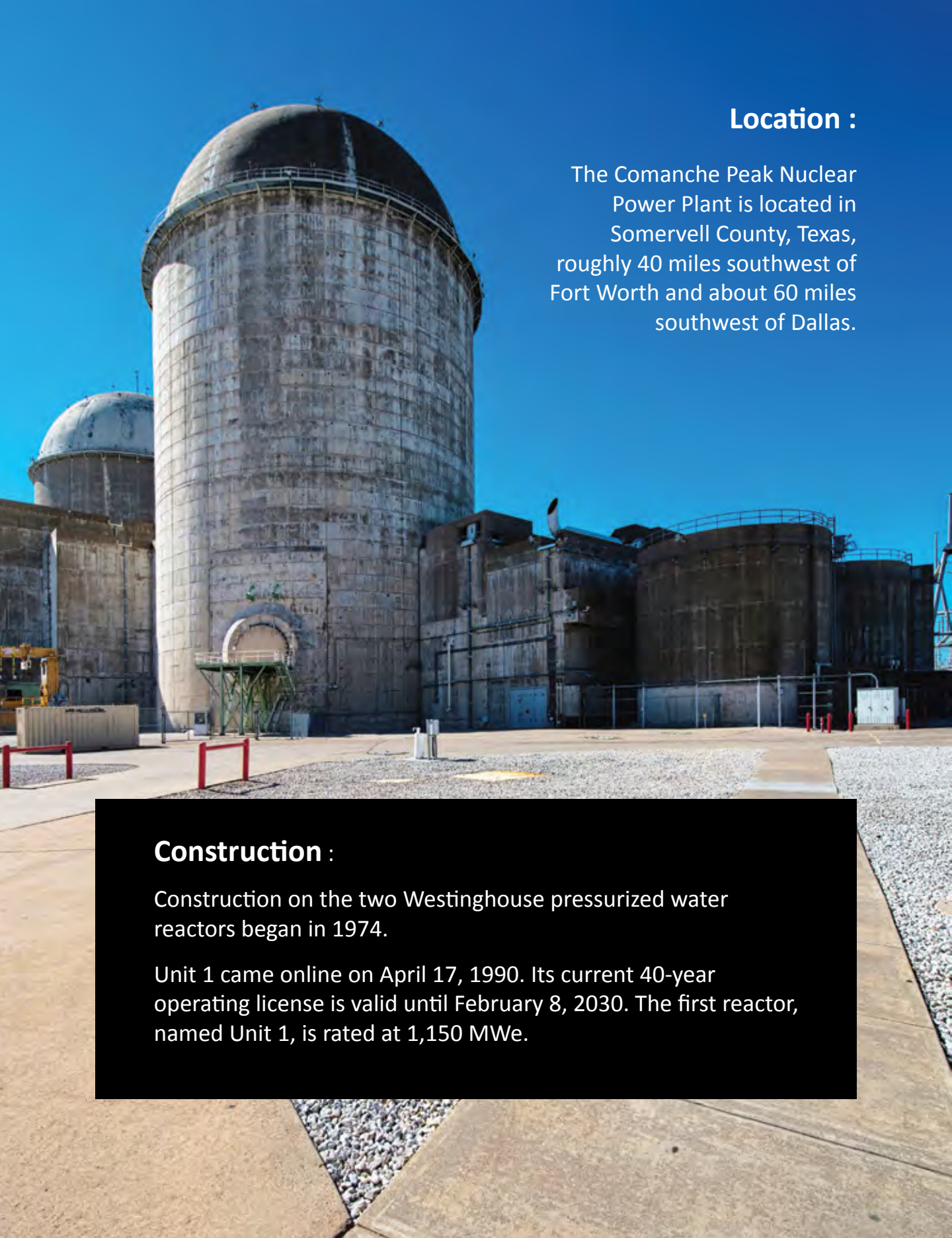
Title: CEO Date: 12/13/13

# CLIENT INTRODUCTION



COMANCHE PEAK NUCLEAR POWER PLANT





### **Location :**

The Comanche Peak Nuclear Power Plant is located in Somervell County, Texas, roughly 40 miles southwest of Fort Worth and about 60 miles southwest of Dallas.

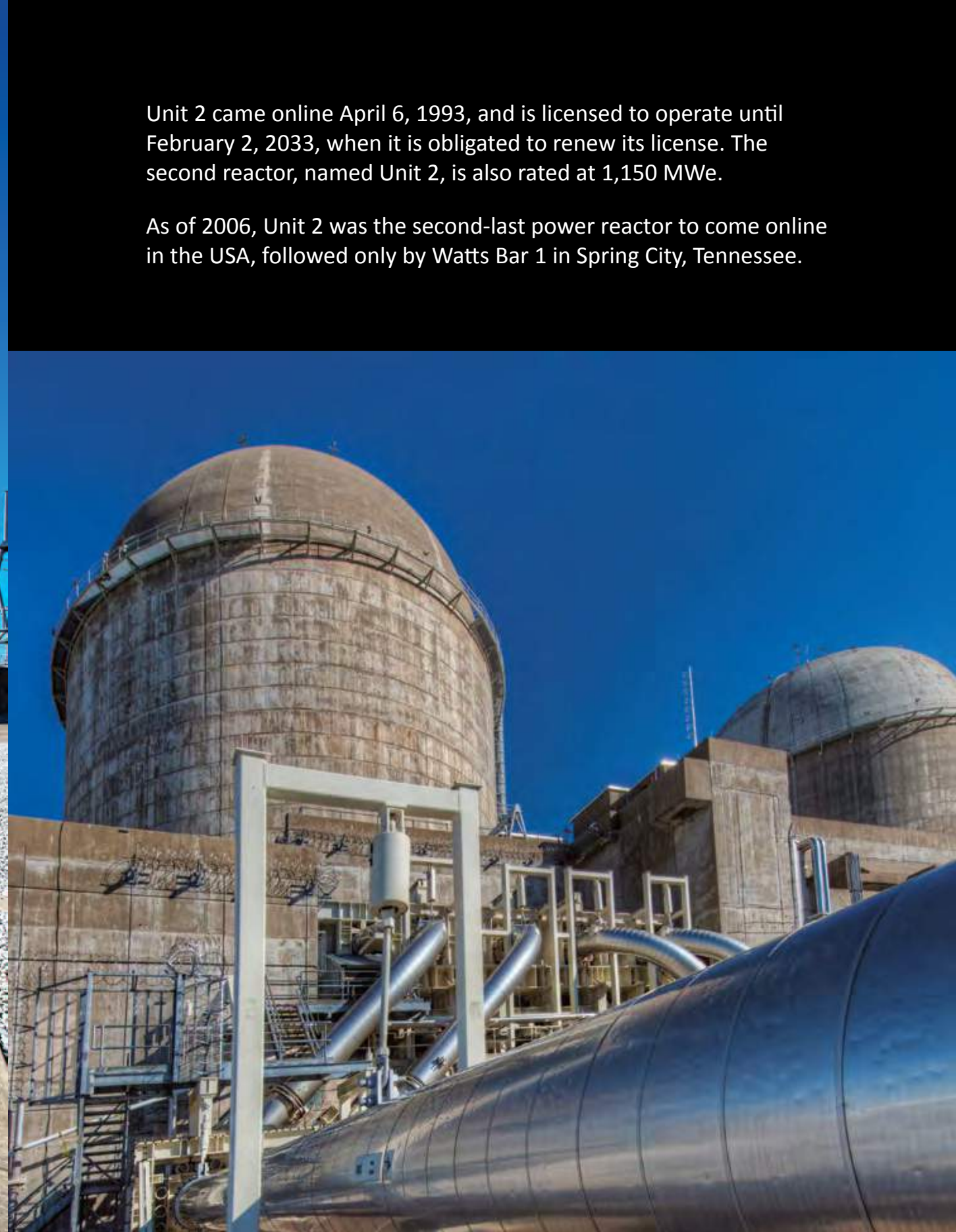
### **Construction :**

Construction on the two Westinghouse pressurized water reactors began in 1974.

Unit 1 came online on April 17, 1990. Its current 40-year operating license is valid until February 8, 2030. The first reactor, named Unit 1, is rated at 1,150 MWe.

Unit 2 came online April 6, 1993, and is licensed to operate until February 2, 2033, when it is obligated to renew its license. The second reactor, named Unit 2, is also rated at 1,150 MWe.

As of 2006, Unit 2 was the second-last power reactor to come online in the USA, followed only by Watts Bar 1 in Spring City, Tennessee.







## **Squaw Creek Reservoir :**

The Comanche Peak Nuclear Power Plant relies on Squaw Creek Reservoir for cooling water. The plant has about 1,300 employees and is operated by Luminant Generation, a subsidiary of Energy Future Holdings Corporation.



On this project, it was imperative the roof be replaced and restored to its original specifications — To achieve this, the project consisted of tearing off three of the existing gravel roof systems down to the structural concrete — A new BUR roofing system was then installed on a clean and primed deck consisting of two plies of premium fiberglass felt and 60 mil Hyload 150E, all adhered using Type IV hot asphalt — The roof was then finished with a flood coat and gravel using asphalt Type IV.



**CASTRO**  
ROOFING

**GENERAL INFORMATION**





## Roof System Type:

**Coal-Tar Elastomeric  
Fiberglass with Flood  
Coat and Gravel**

## Roof Assembly :

**Tear off and remove  
existing roof down to  
concrete deck**

- *Adhere two plies of  
Johns Manville GlasPly  
Premier fiberglass  
base sheet with hot  
asphalt*
- *Adhere one ply of  
60mil Hyload 150E  
elastomeric cap sheet  
with hot asphalt*
- *Flood coat ½" #4  
roof gravel in hot asphalt*



**CASTRO**  
ROOFING



# RECOMMENDATIONS



**RAVING  
FANS**





**Luminant Power**  
Community Relations - CPSES  
PO, Box 1002  
Glen Rose, TX 76043

December 16, 2013

Rudy Rodriguez  
Castro Roofing  
4854 Olson Dr.  
Dallas, TX 75277

Dear Mr. Rodriguez,

We would like to commend Castro Roofing for the great job that was done on our Safeguards building, at our Comanche Peak Nuclear Power Plant facility. All of our concerns and sensitivities regarding Castro Roofing doing a safe job, working with the security and personnel safety issues inherent in an operating nuclear power plant, were professionally handled and coordinated.

We were impressed with the company's work ethic and attention to detail. We would favorably consider using Castro Roofing again on site.

Thank you,

A handwritten signature in black ink that reads "Jan Caldwell". The signature is fluid and cursive, with the first name "Jan" and last name "Caldwell" clearly legible.

Jan Caldwell

Luminant - Community Relations Manager





uniqueness



# uniqueness

## Maximum Security — All Day, Every Day

In any United States power plant, security is first and foremost, especially at a nuclear power plant. The Comanche Peak Nuclear Power Plant is no different.

Background checks on all Castro Roofing personnel were performed and the roofing crews were escorted by several armed guards at all times. "It generally took us well over an hour just to get on the premises," exclaimed project foreman Marcos Perez, "I've never felt so safe in all my life."

The Comanche Peak Nuclear Plant guards and employees take their jobs very seriously, but the Castro Roofing crews did not mind the added security one bit.

"Our roofing crews understand the gravity of working in highly secured areas like the Comanche Peak Nuclear Power Plant," said Castro Roofing CEO Rudy Rodriguez, "We were happy to oblige the plant representatives in any way to help get the project done in a safe and expedient manner."







## Stay Clear of Spring-Loaded Shutdown Valves

Another unique aspect of working on this particular project was carefully maneuvering around the sensitive spring-controlled shutdown valves. Like many other boiler-type mechanical systems, Feedwater Control Valves are usually located throughout the plant. These valves are extremely delicate and are critical to the operations of any nuclear power plant. If accidentally bumped into, these valves will typically shut down the entire plant, including the nuclear reactor.

This shutdown is known as a SCRAM. Normally, a SCRAM will automatically and completely submerge the control rods into the reactor, absorbing all neutrons, and thus stopping the chain reaction in process. This would result in huge economic losses to the plant, even if it was only shut down momentarily.



## Multiple Roof Penetrations

Another unique characteristic of the Comanche Peak Nuclear Plant roofing project was the sheer number of roof penetrations that had to be dealt with.

"The seemingly endless amount of roof penetrations called for persistence and patience," commented project foreman Marcos Perez, "Roof penetrations were everywhere. In my 20 years of roofing I have never seen a roof with so many things coming in and out of it." On average, for every roof square, there were at least 15 penetrations, totaling over 400 penetrations on the entire roof.



CASTRO  
ROOFING









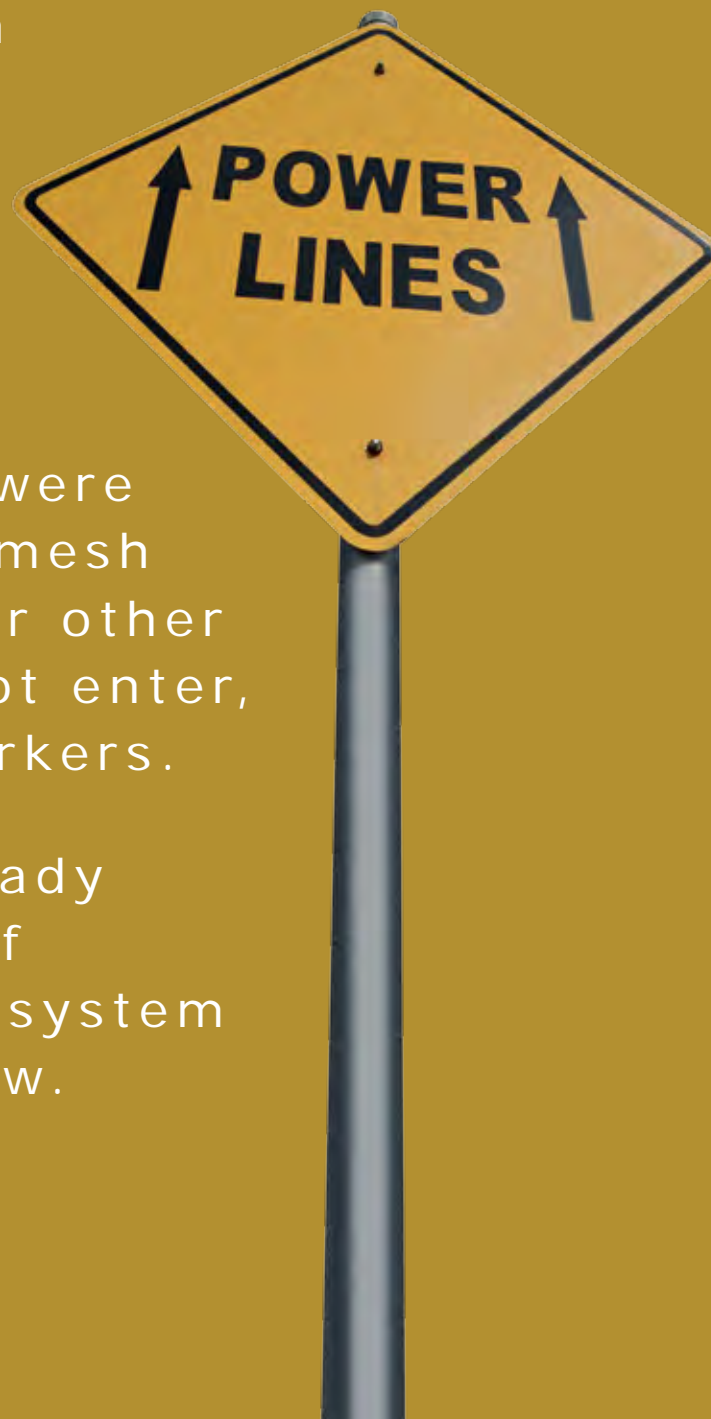
# Removal of Old Roofing System

The removal of the existing roofing system and the installation of the new one also posed a challenge.

Performing roof work on a nuclear facility obviously presented many challenges, from high-voltage wires to extremely hot steam pipes.

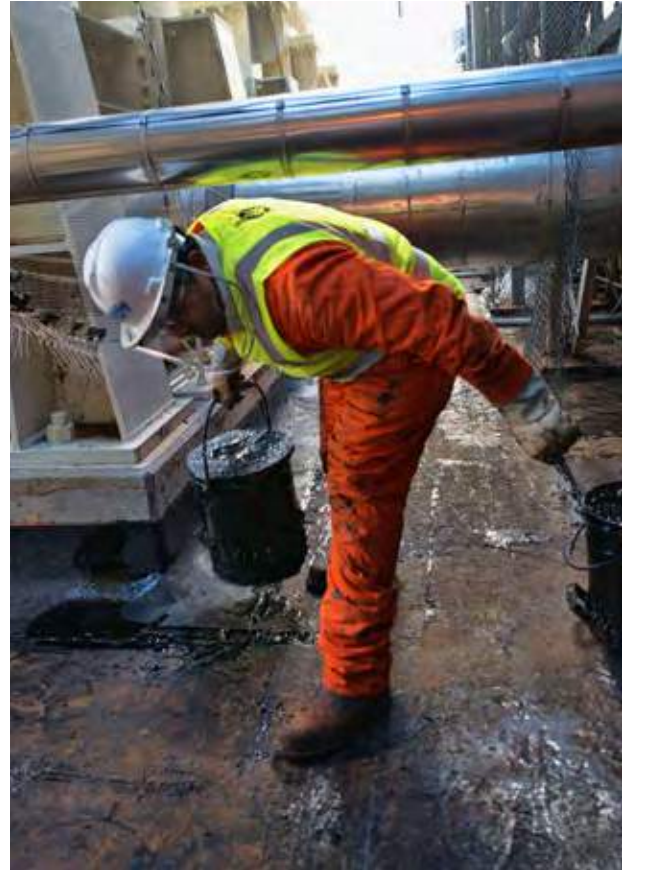
All of the areas of the project were also well protected. Some were covered with a heavy mesh system so that birds or other small animals could not enter, which impeded the workers.

This added to the already cumbersome method of removing the old roof system and bringing in the new.



CHALLENGES



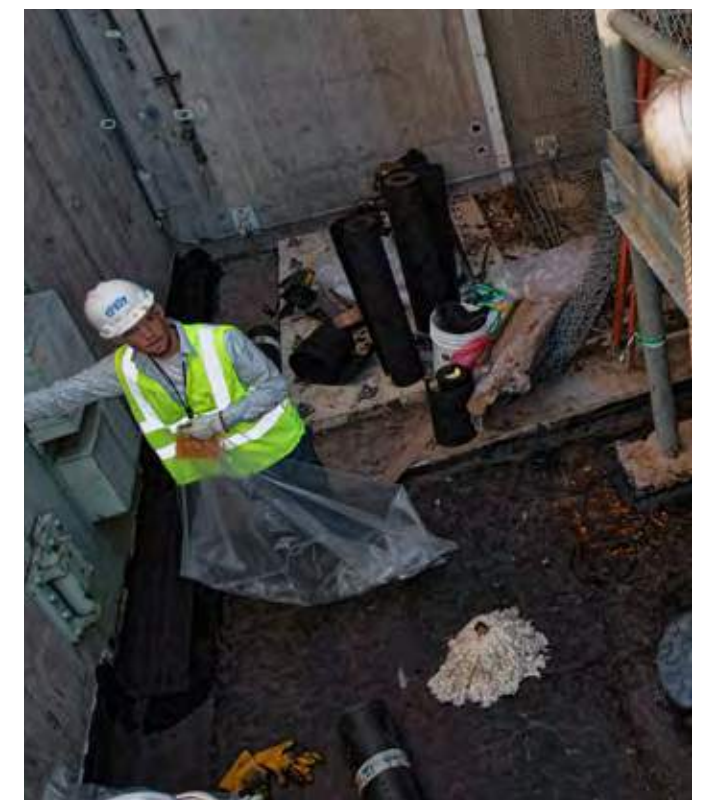
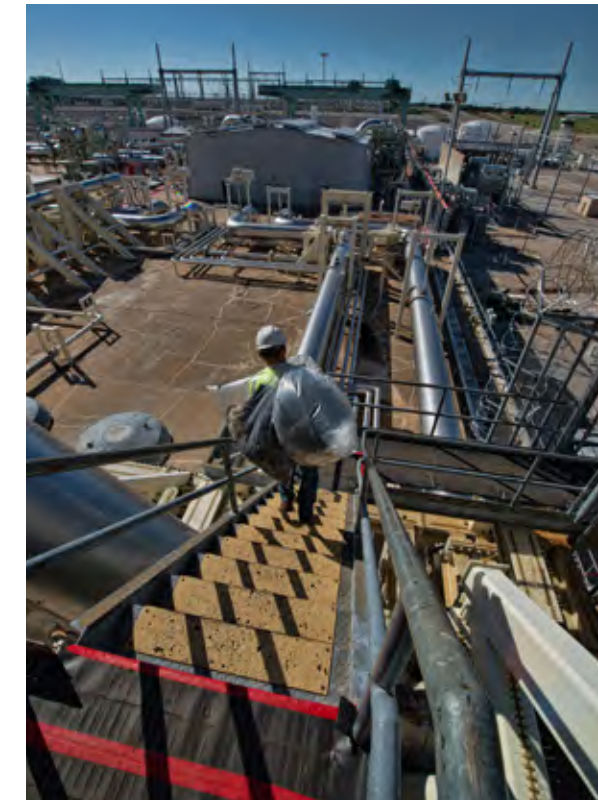
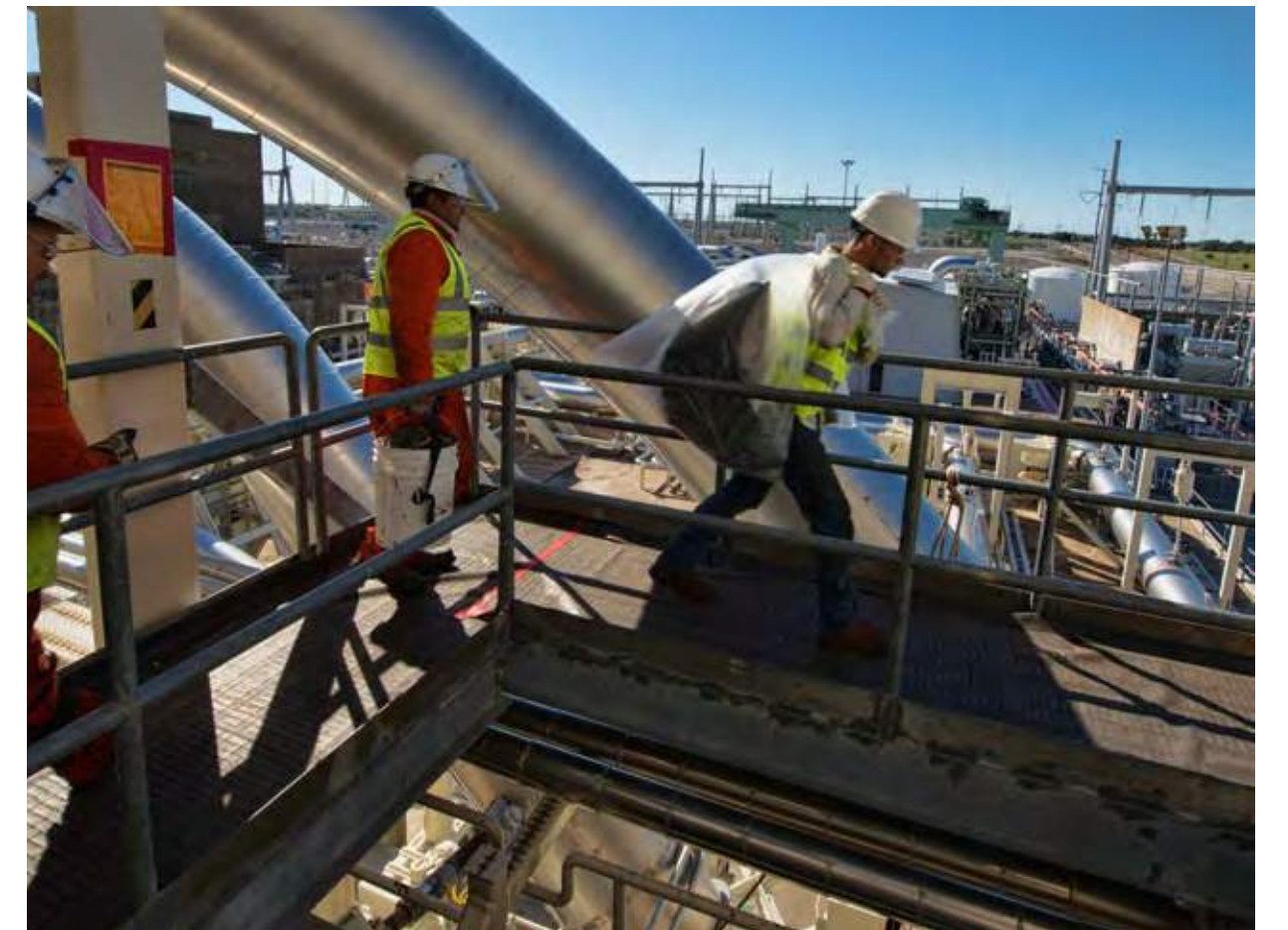
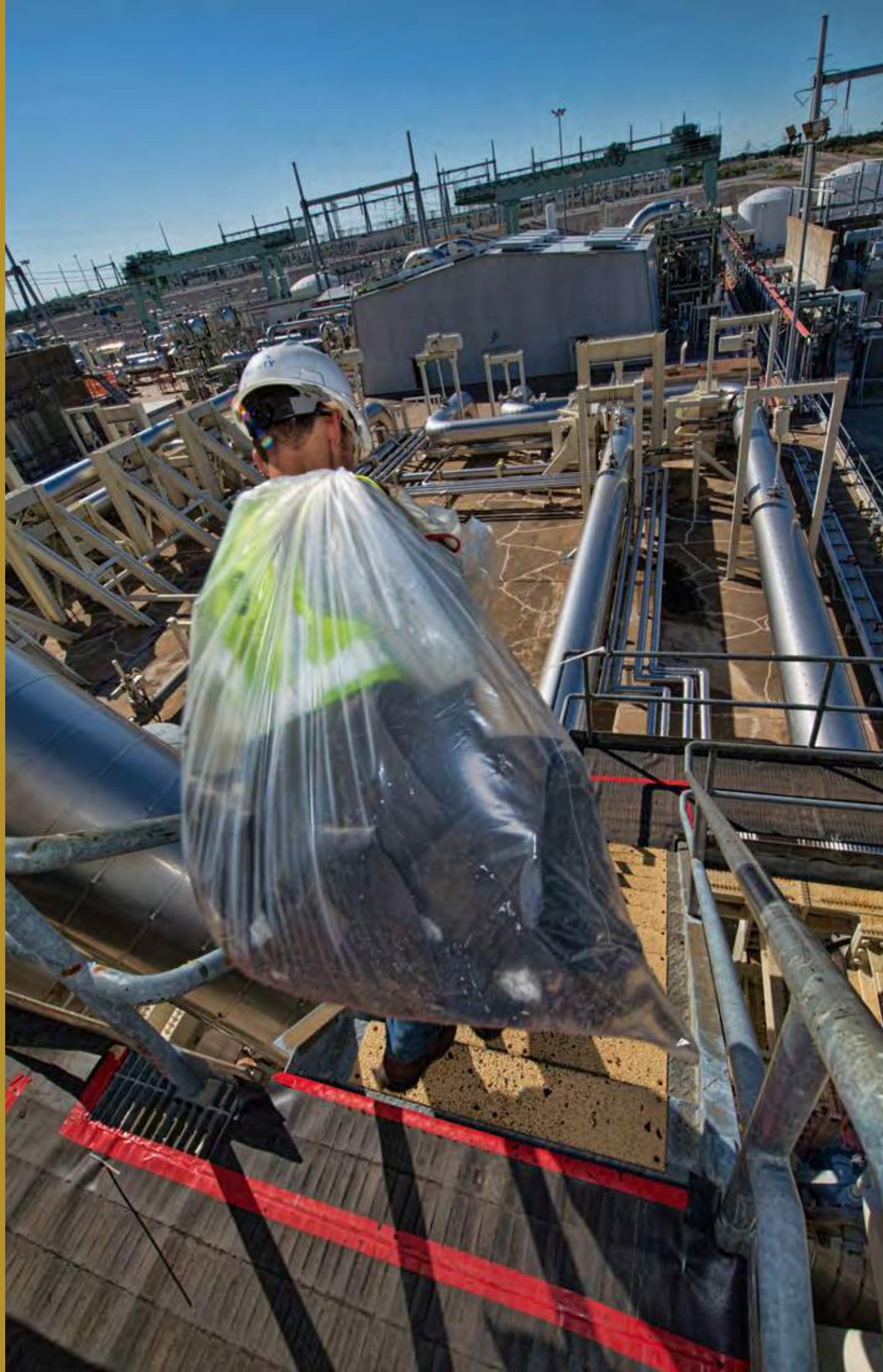




## TEARING IT OUT

No large machinery was allowed anywhere near the premises, so removal of the old roof consisted of carefully manually tearing out, cutting, and bagging three old layers of 4-PLY BUR. The bags were then hand-delivered to the dumpster on the ground.

The “maze”, as it came to be known, was made up of an “assembly line” of workers that would navigate through small crawl spaces, ladders, and stairs. The debris was removed and handed off to a worker who would put it in trash bags. The bags were then delivered to another worker who would crawl on all fours under large piping, go down a ladder, and give it to the next worker. This worker would place the trash bag in a bucket and lower it to the next level of the roof on a rope. Another worker would then get the bag and walk the trash down three flights of stairs and finally throw it in the dumpster.

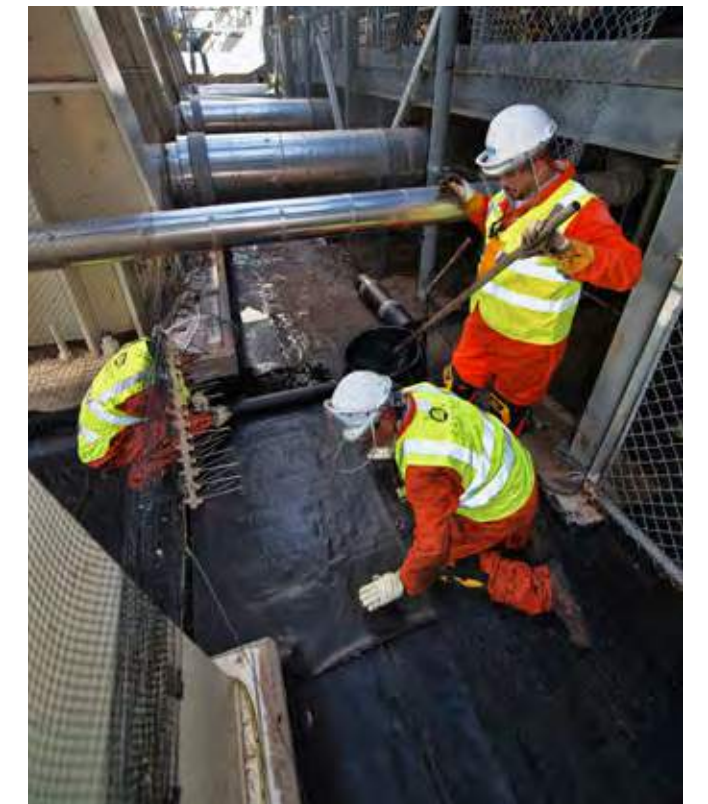
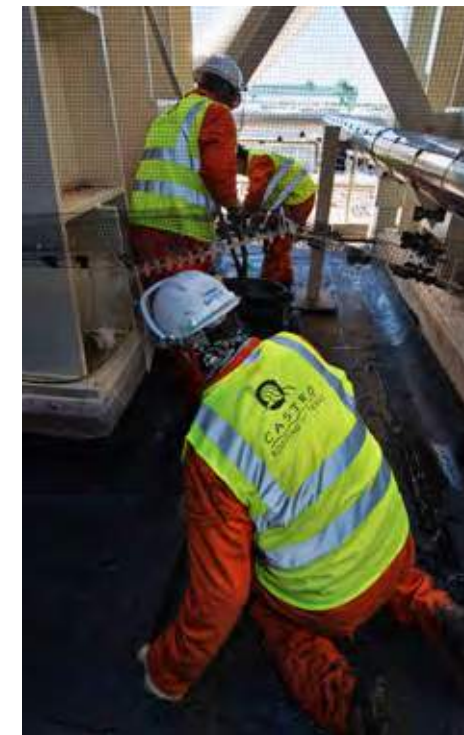
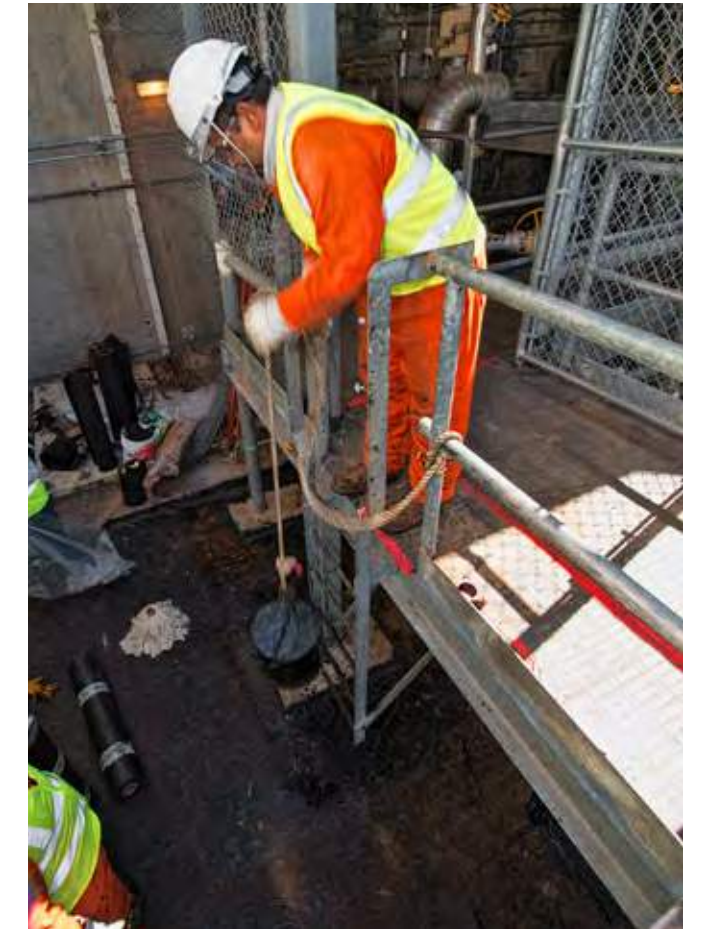




# OUT WITH THE OLD AND IN WITH THE NEW

The new roof was to be applied with the same technique that was used in the removal of the old roof – the maze had to be traversed once again. Bucket after bucket of gravel and hot tar were raised up the same way the trash was taken out. This assembly line method worked quite well and allowed the crew to continuously heat the tar at different intervals on the way up, which facilitated the nec-

essary process of maintaining the 300 degree temperature of the tar needed for proper application. Because the workers were carrying hot tar in buckets for extended amounts of time, all installation crew members were obligated to wear orange, burn-proof uniforms. Overall, an estimated 4,000 buckets of tar and gravel were moved during roof installation.





## NO BLOWING, JUST SUCK IT UP!

Due to the nature of the location that was being worked on, no blowers were allowed and all loose gravel had to be sucked up with large shop vacs, placed in bags, and given to workers who then scurried down the maze. All-in-all, hundreds of large trash bags of old roof material were removed and hauled off during several months.

## IMMACULATELY CLEAN

One of the main requests made by the plant representatives was to maintain the cleanliness of the areas being worked on without the use of tarps or covers. In other words, crew members were not allowed to cover stairwells or any other parts of the plant. This meant that crews spent a considerable amount of time cleaning up after themselves. At the end of the project, crews spent several days wiping down every inch of concrete and metal on which they had worked, and even performed some paint touch-ups.











# SAFETY

Just as the plant representatives were, we at Castro Roofing are dedicated to the safety of our workers.

Thus, Castro Roofing's safety protocol was in full effect from start to finish.

Daily safety meetings were held to reiterate the concerns of working on the roof of a nuclear power plant.

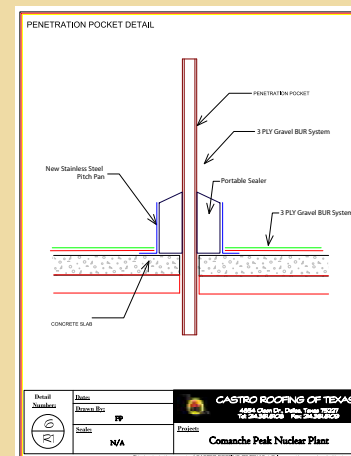
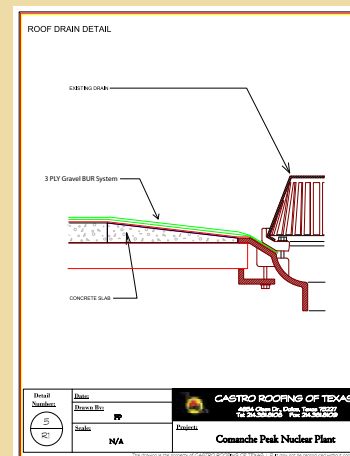
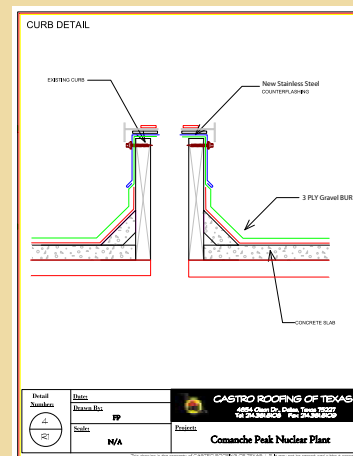
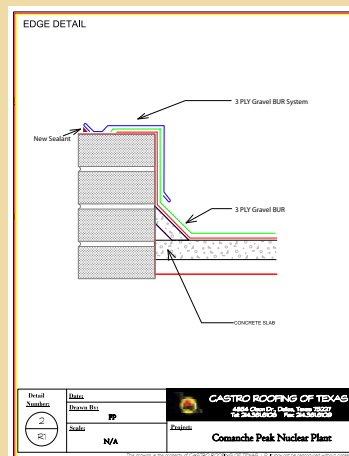
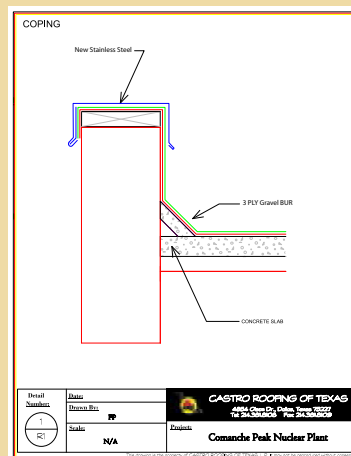
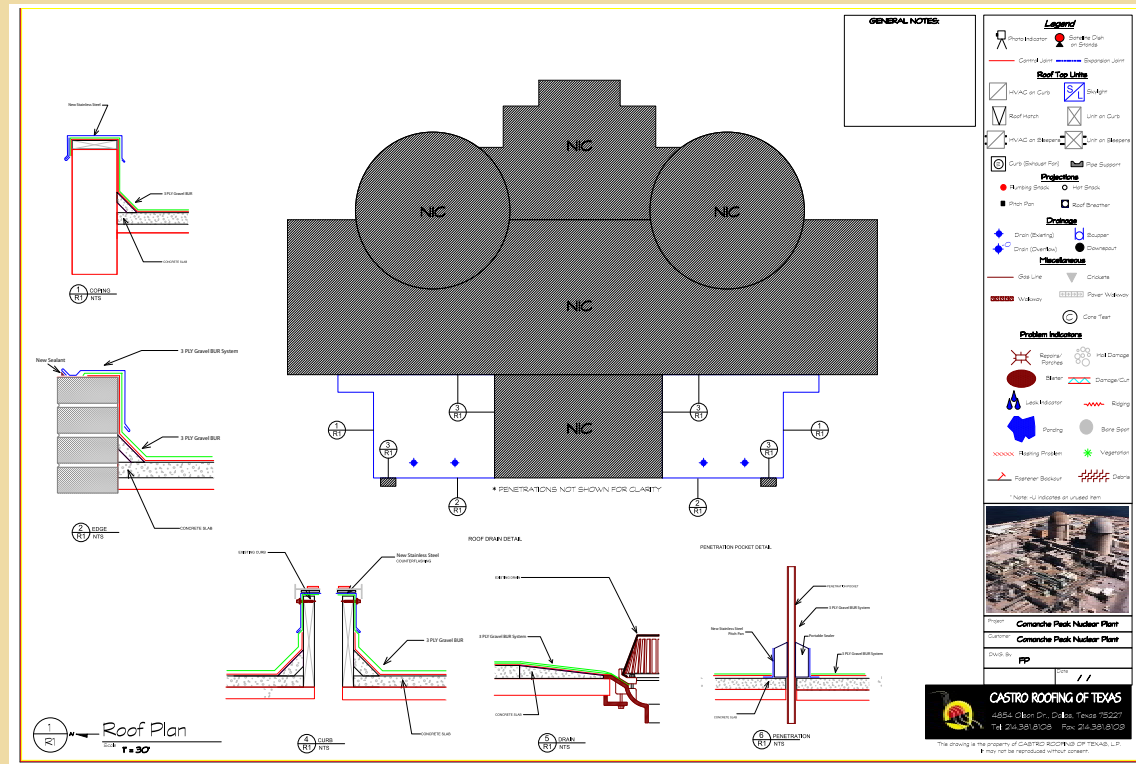
At the end of the project there were zero incidents and zero loss of time, just the way we like it!



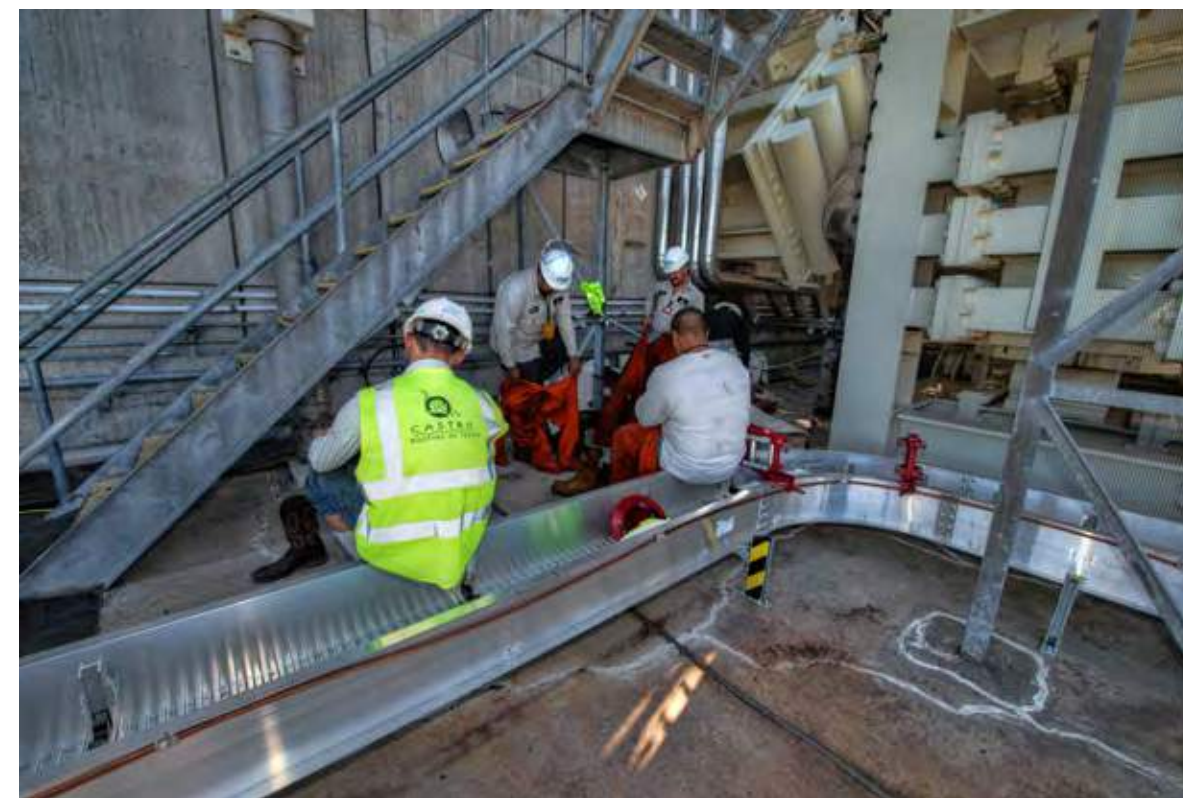
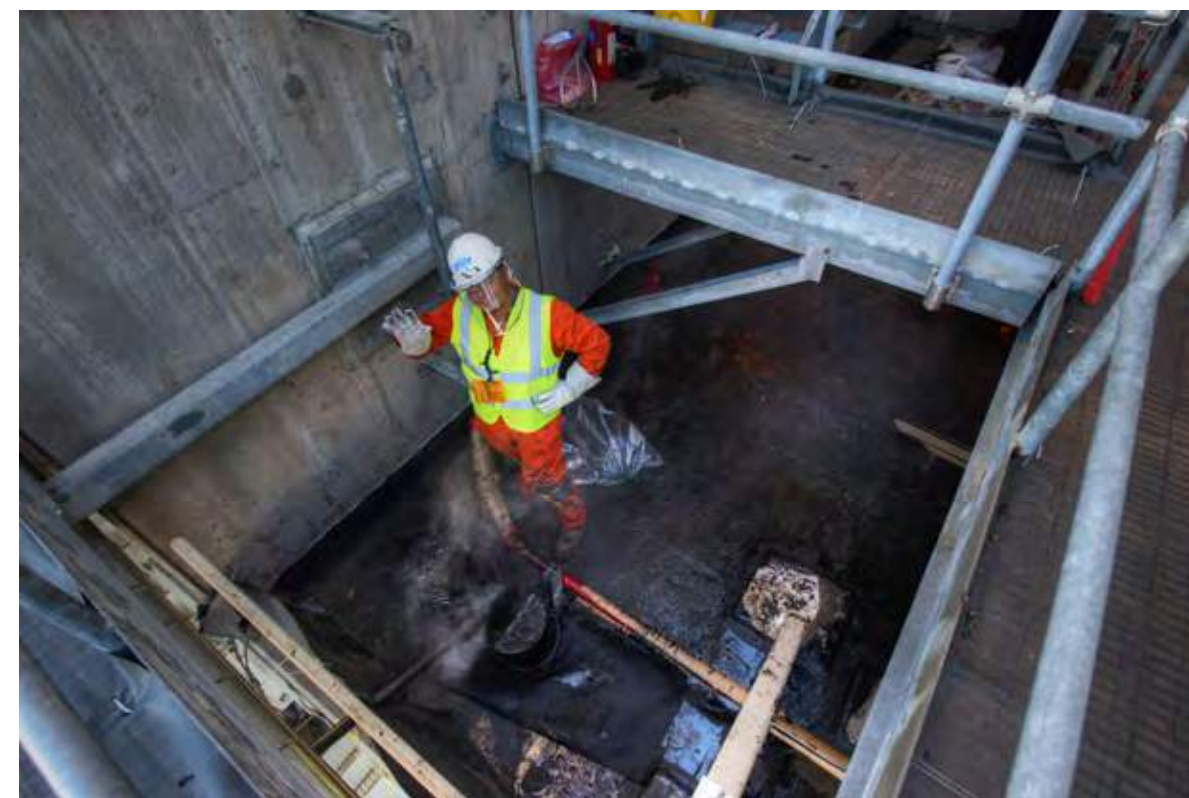
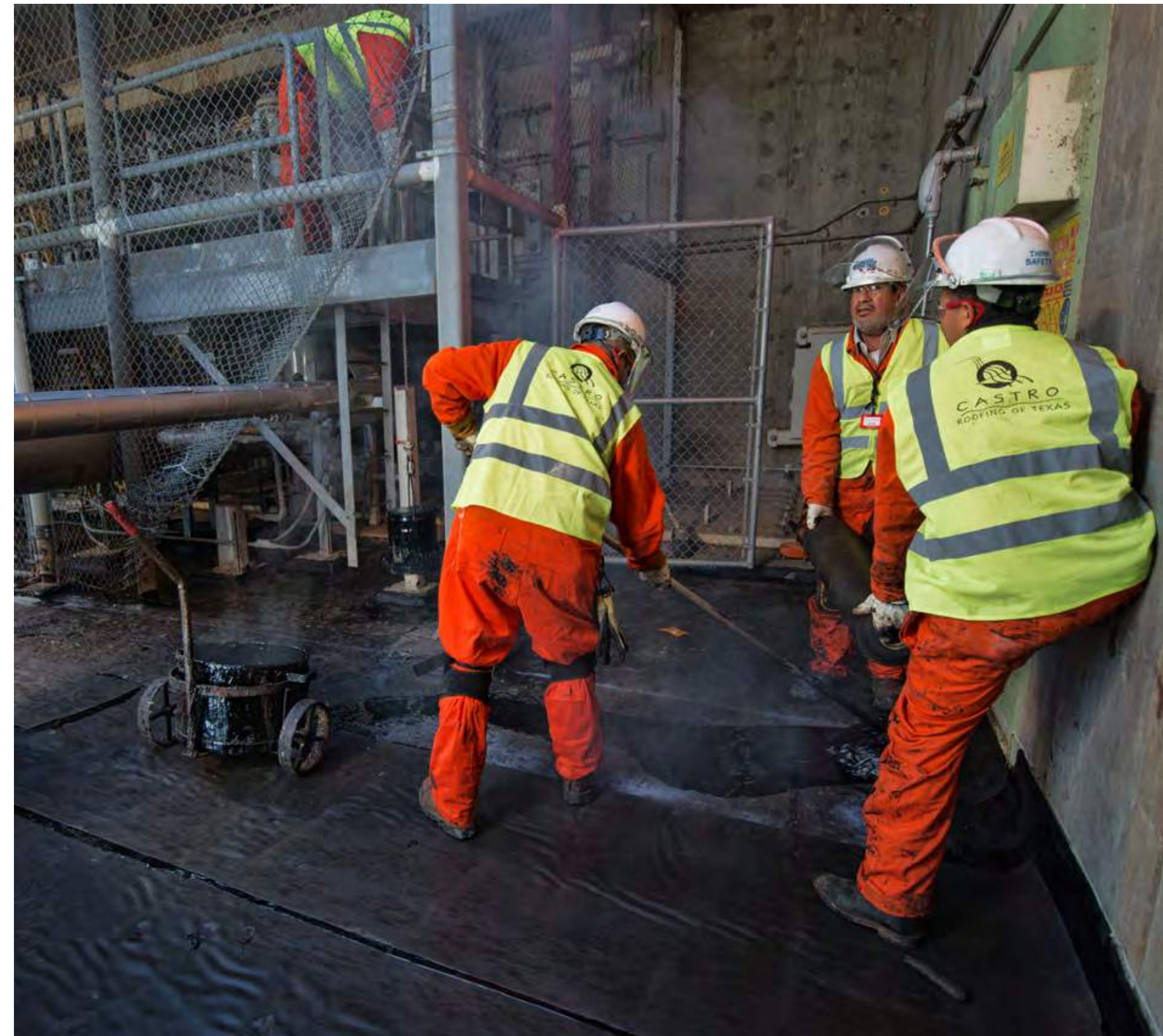
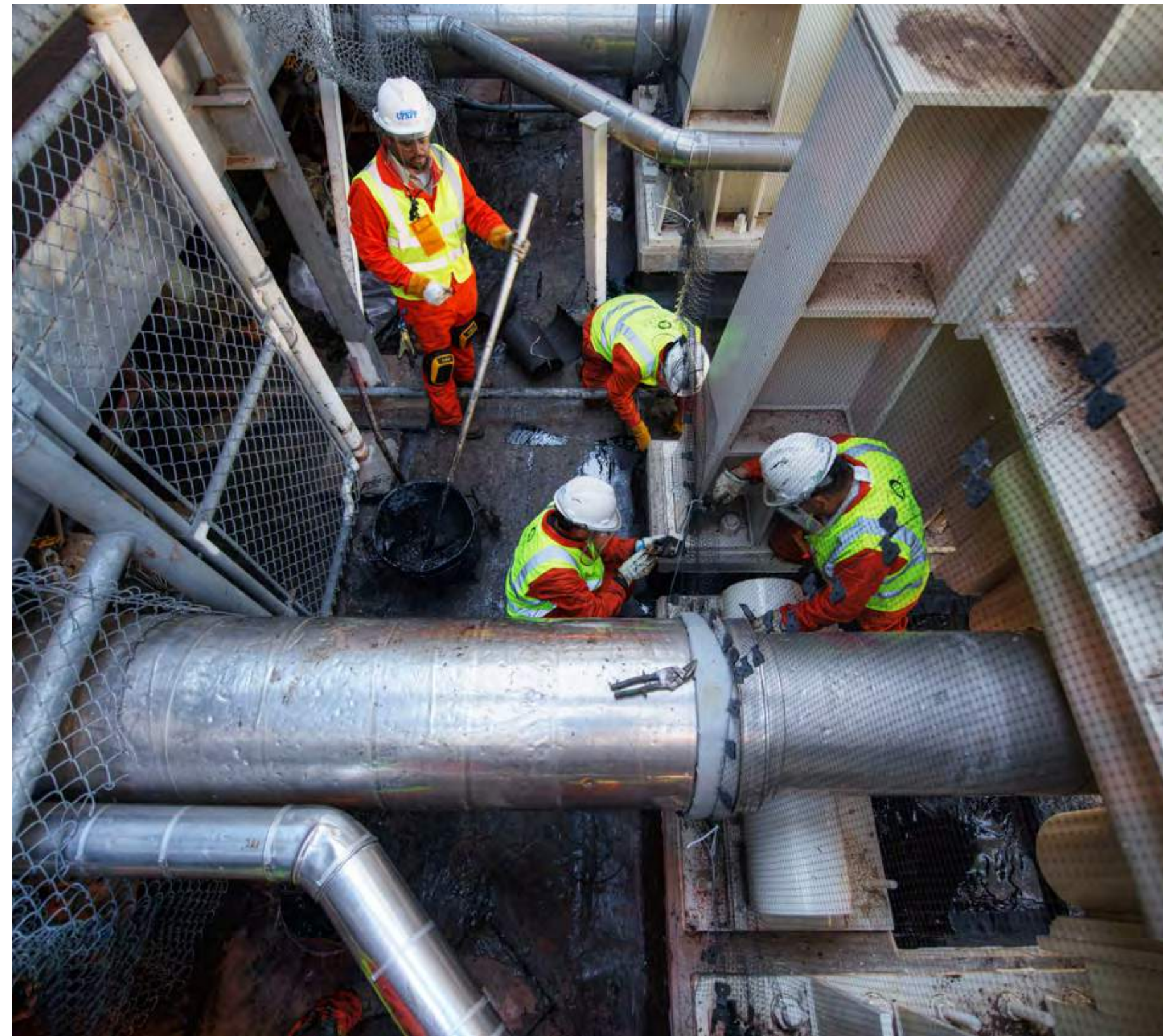
# COMANCHE PEAK NUCLEAR PLANT

# PROJECT DRAWINGS AND PHOTOS

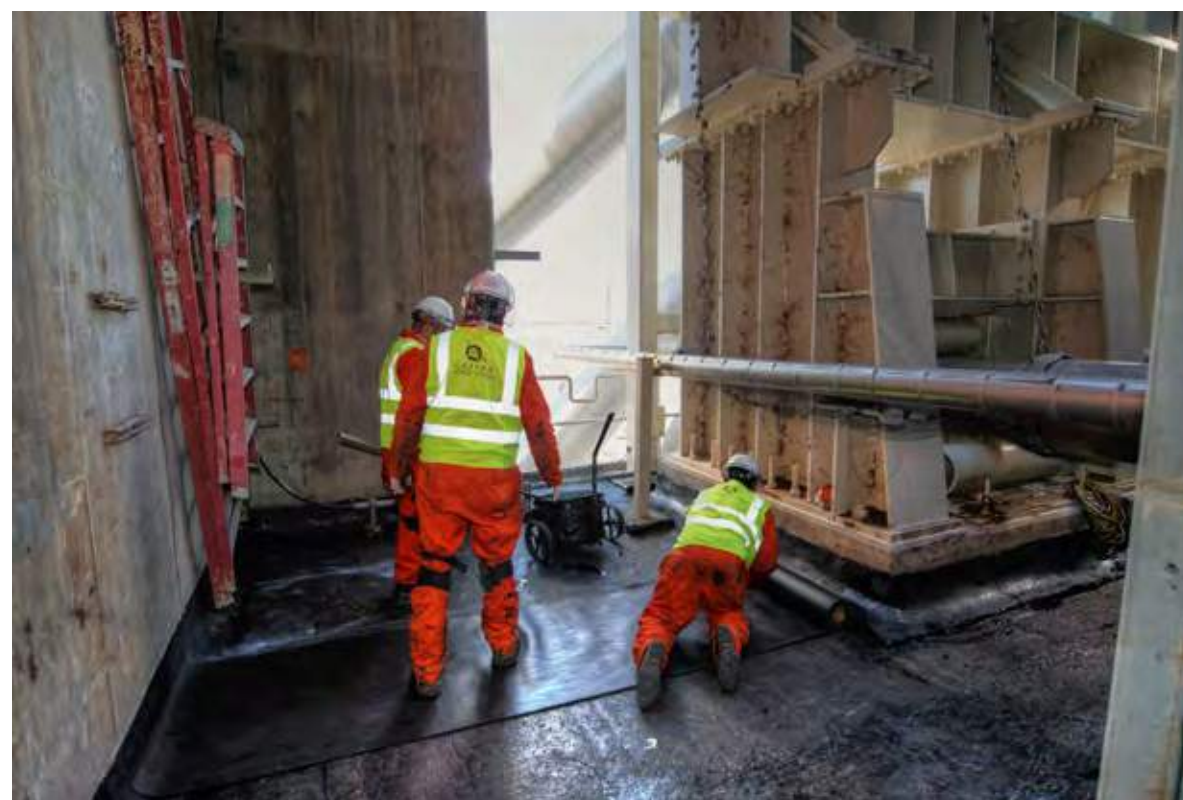
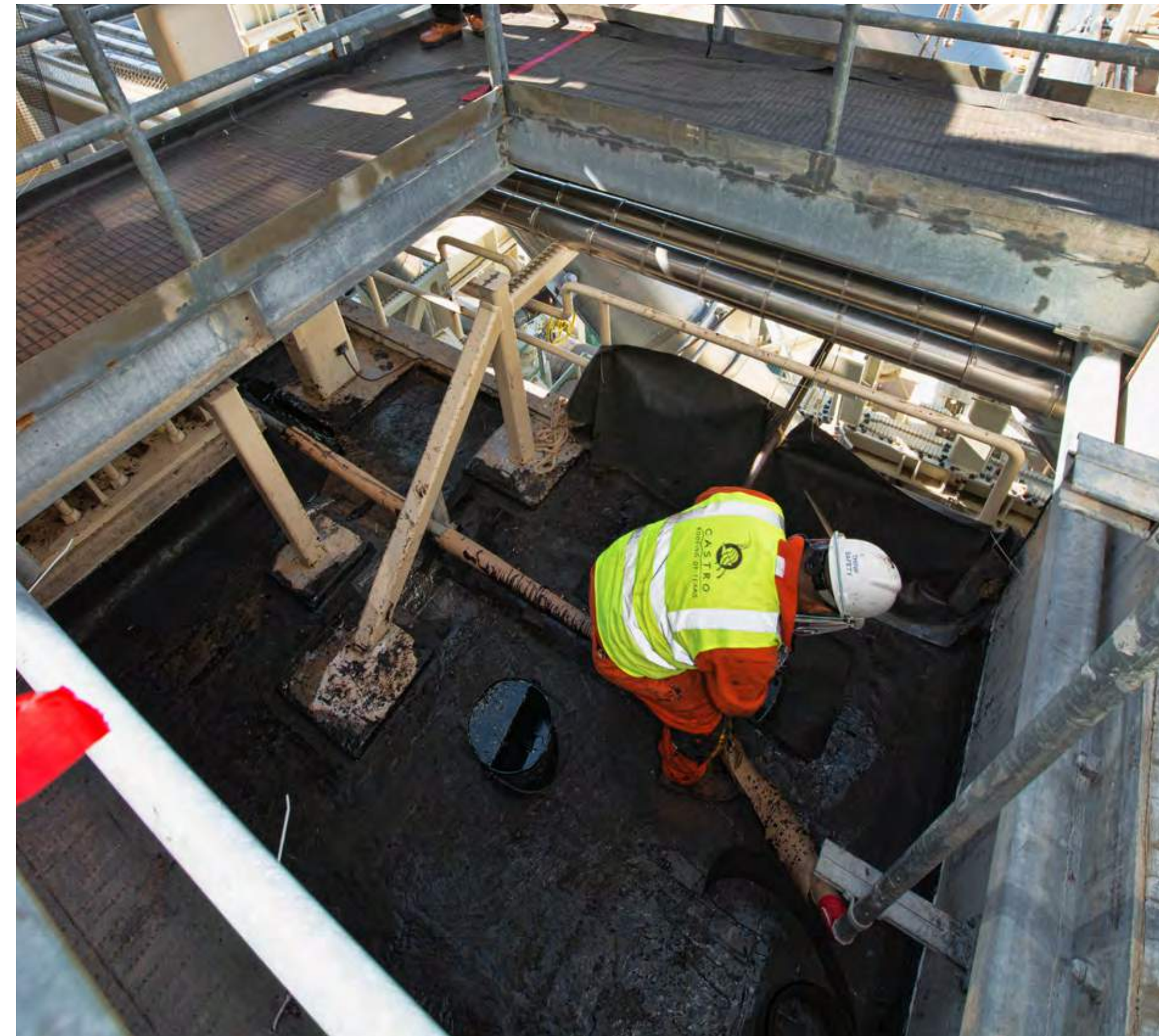
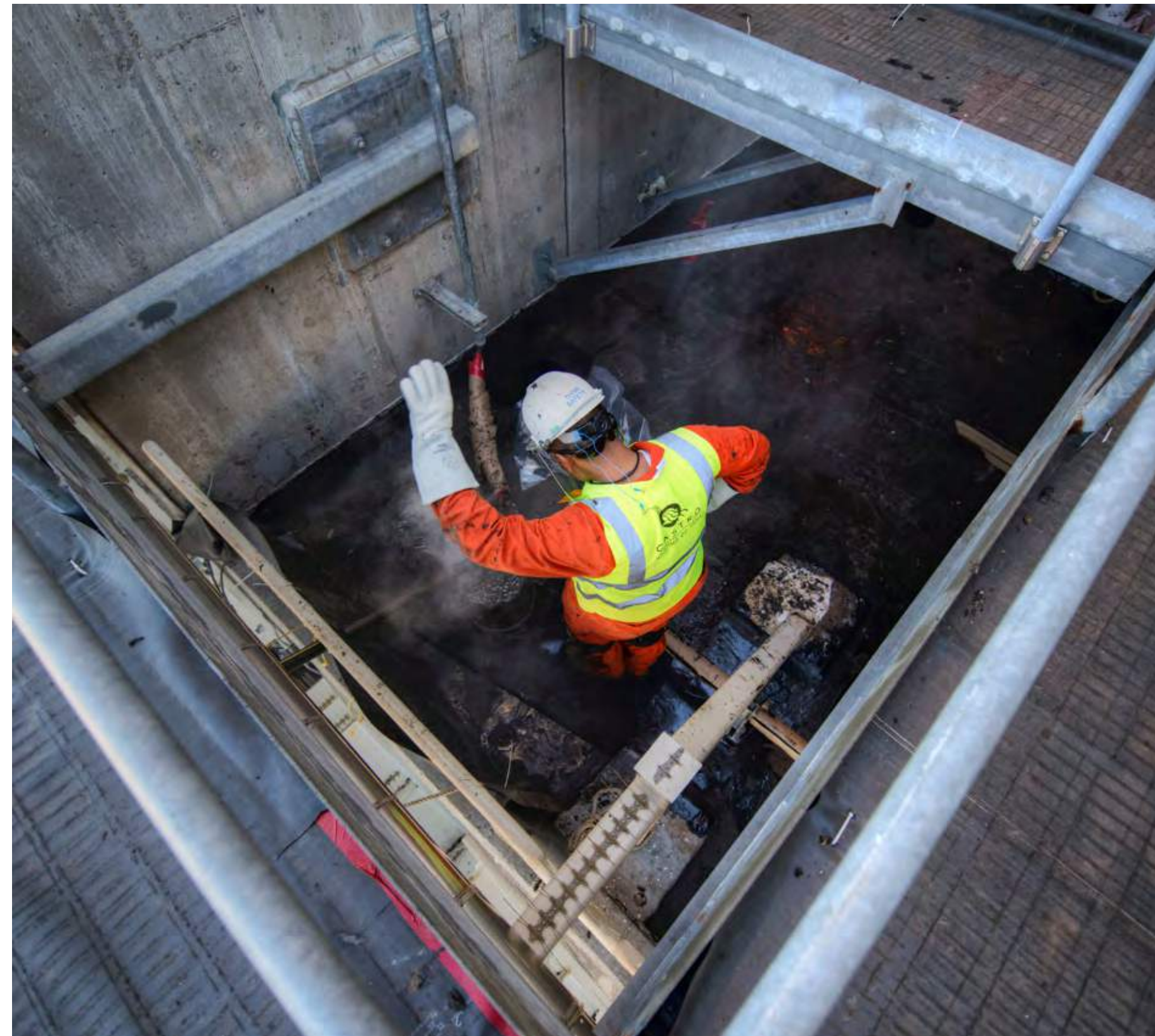
WE LOVE TO SHOW OTHERS OUR WORK, SO PLEASE ENJOY THE REST OF OUR PROJECT PHOTOS.



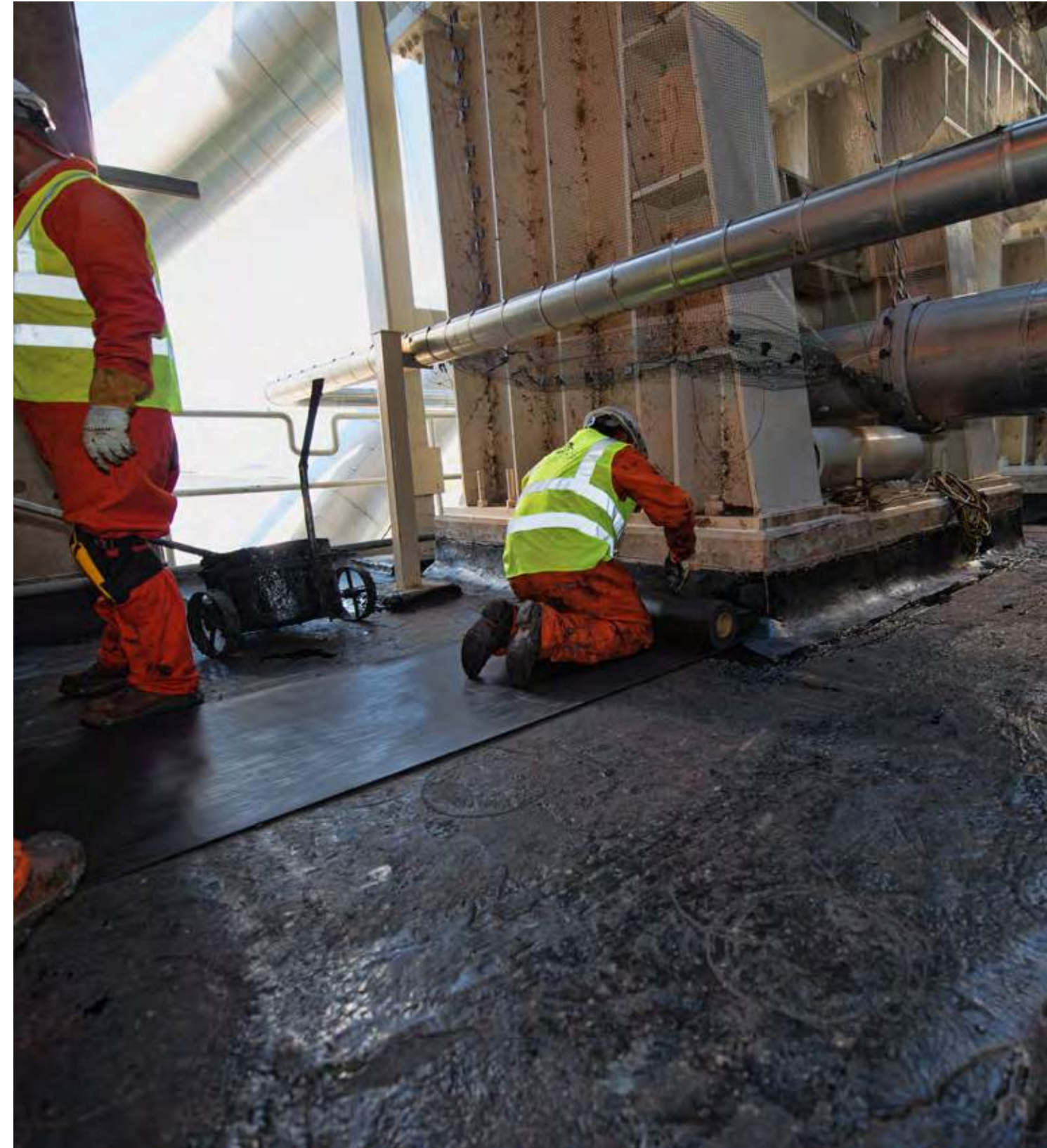
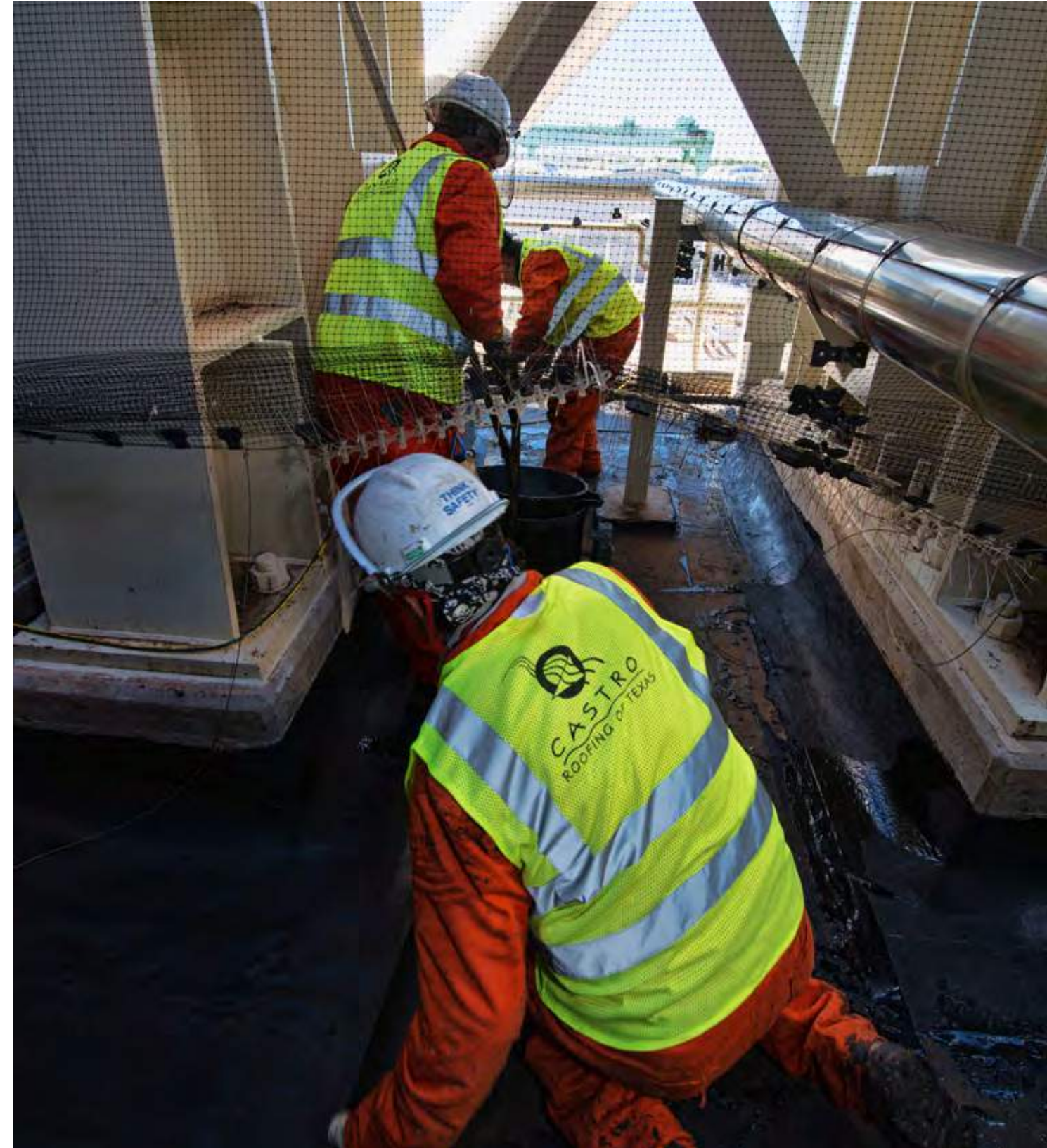
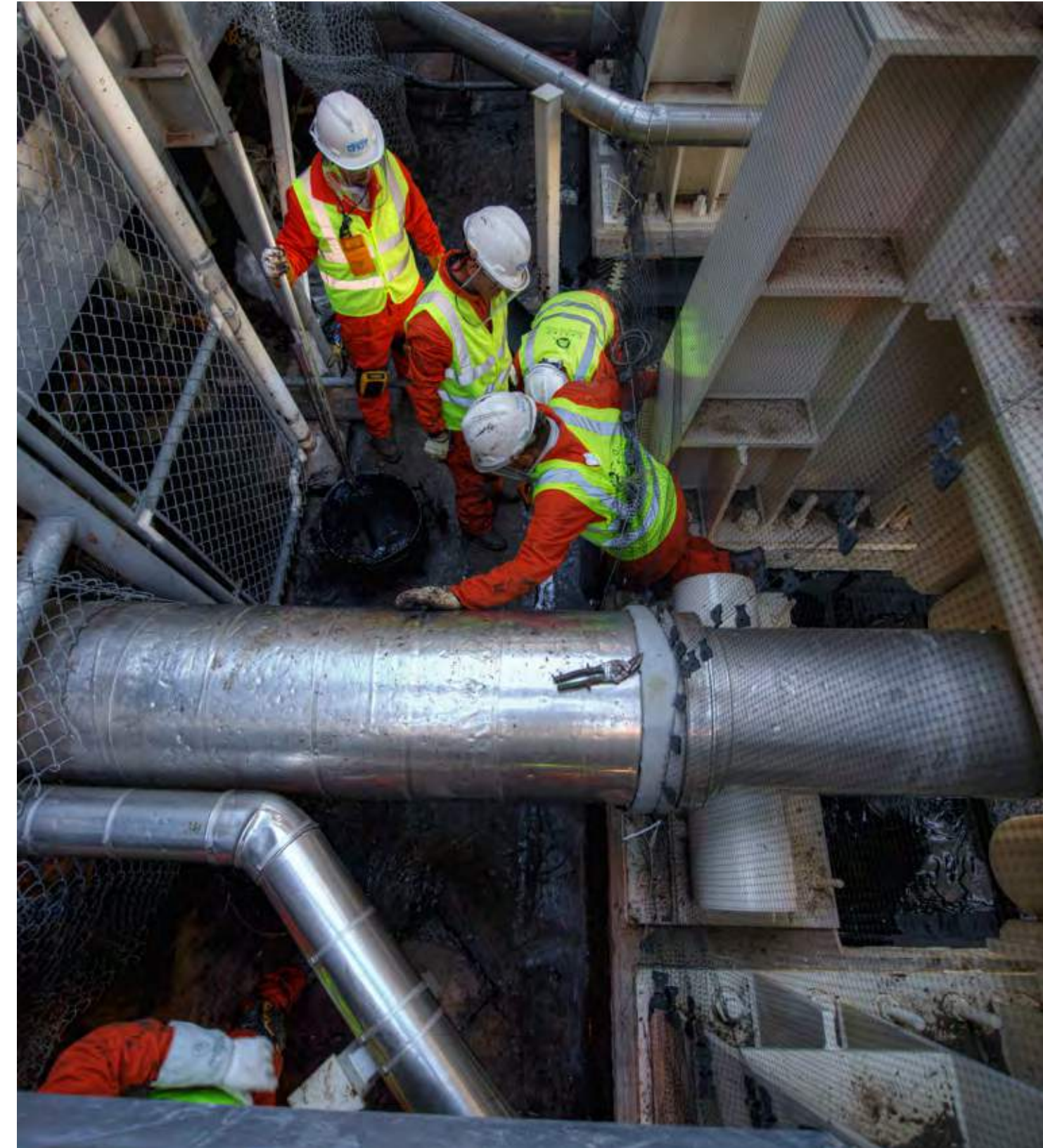




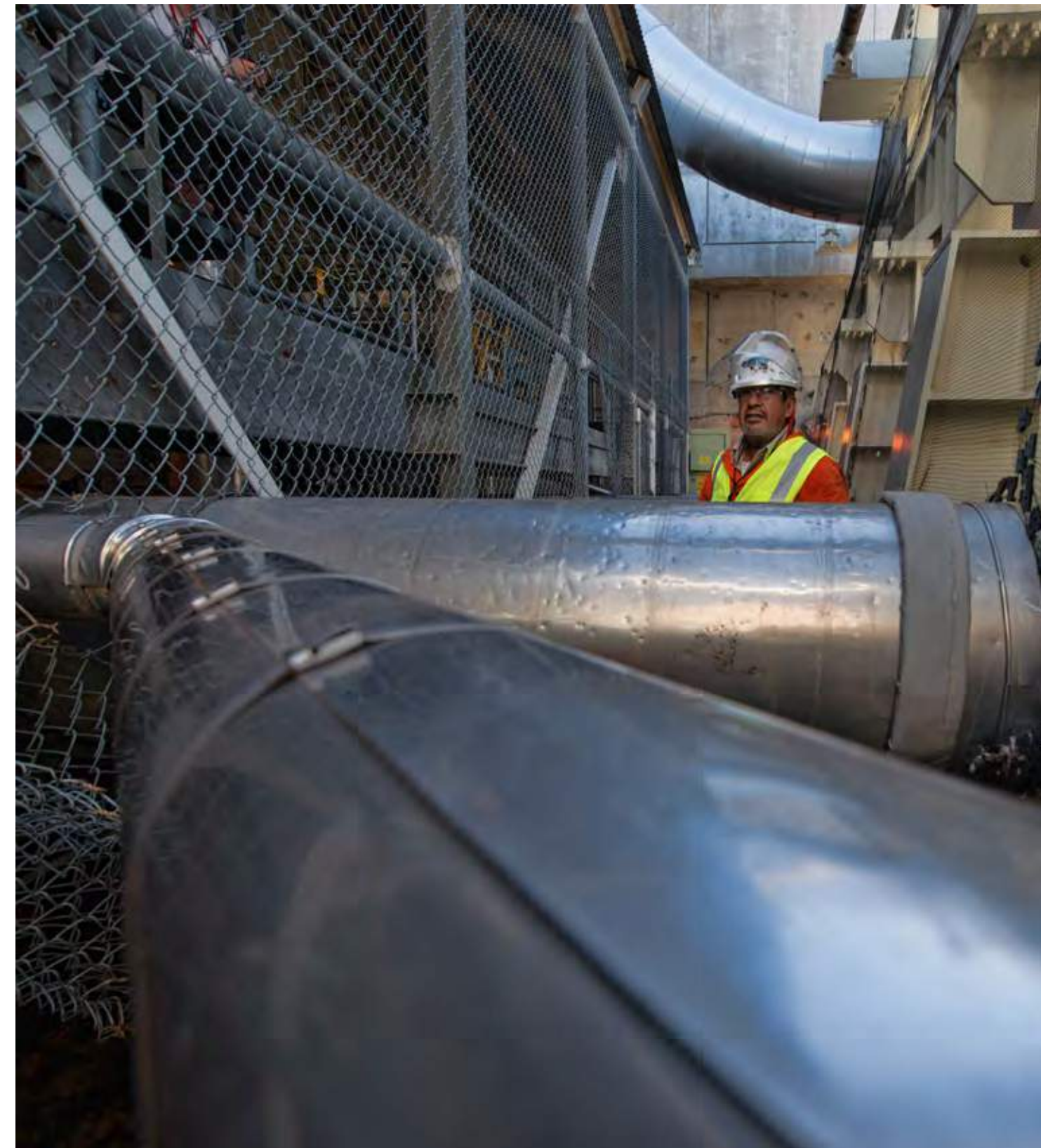
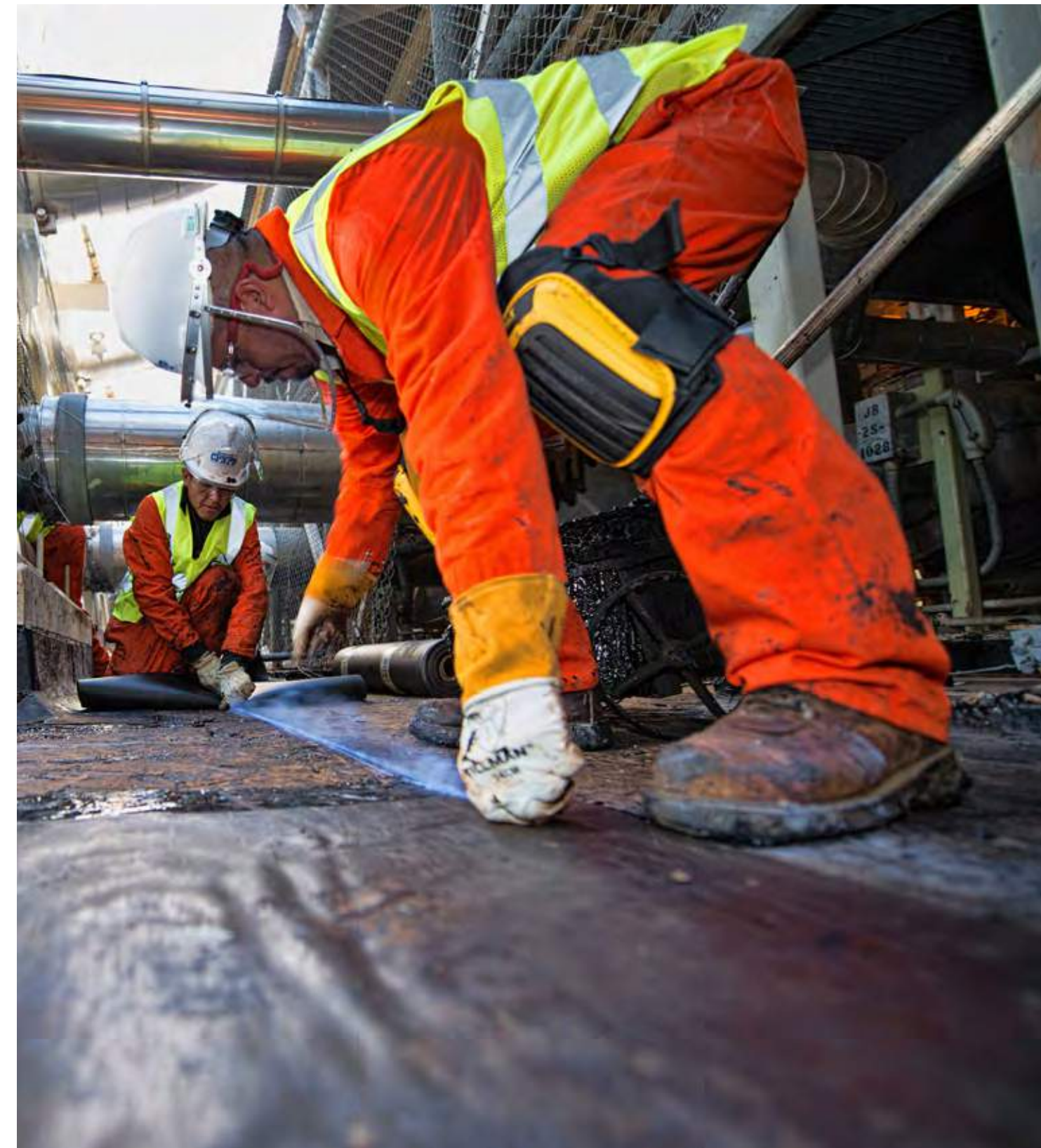
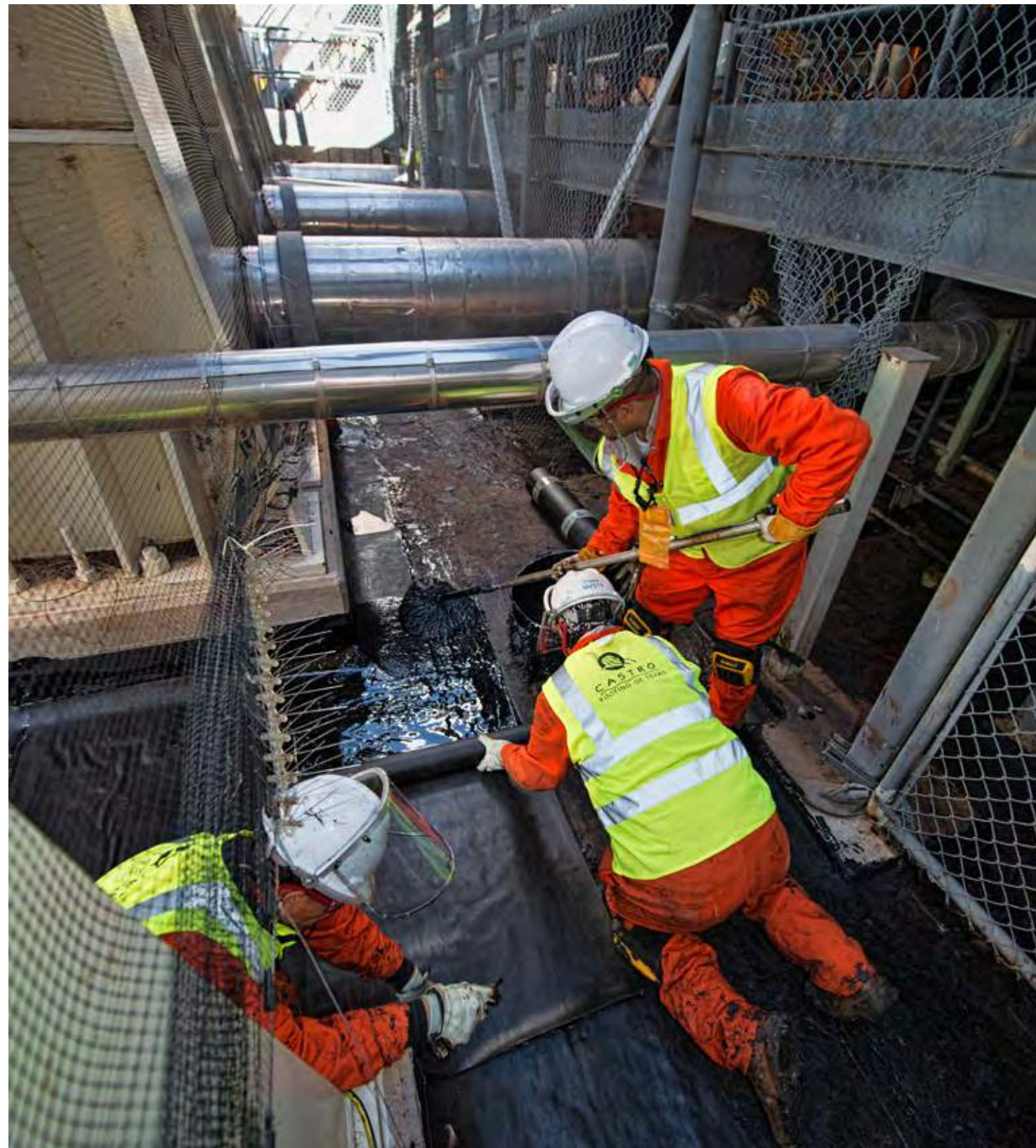




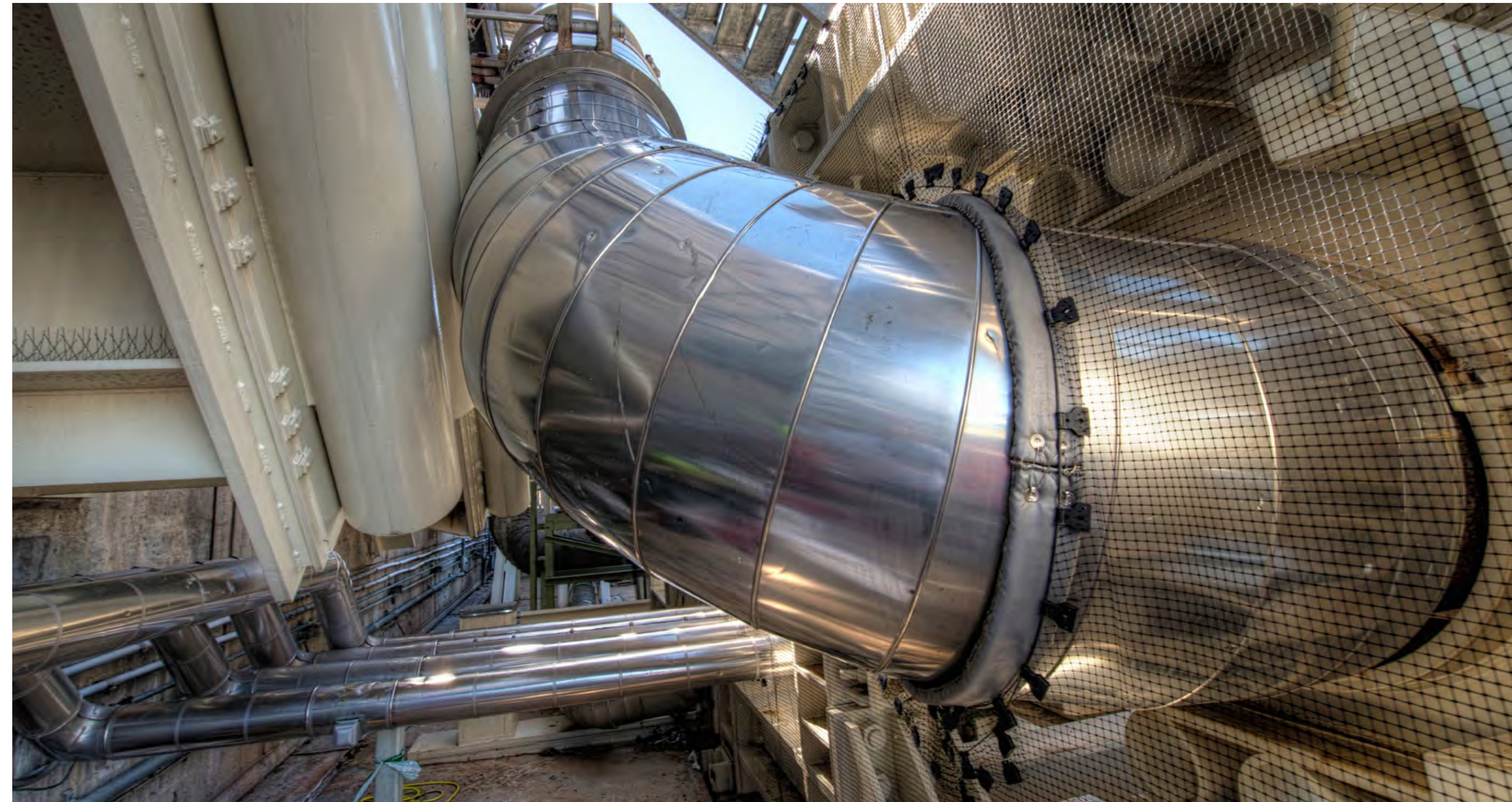


















s h o u t o u t t o o t h e r  
N R T C A m e m b e r s

m e m b e r  
i n v o l v e m e n t

**ABC Supply**

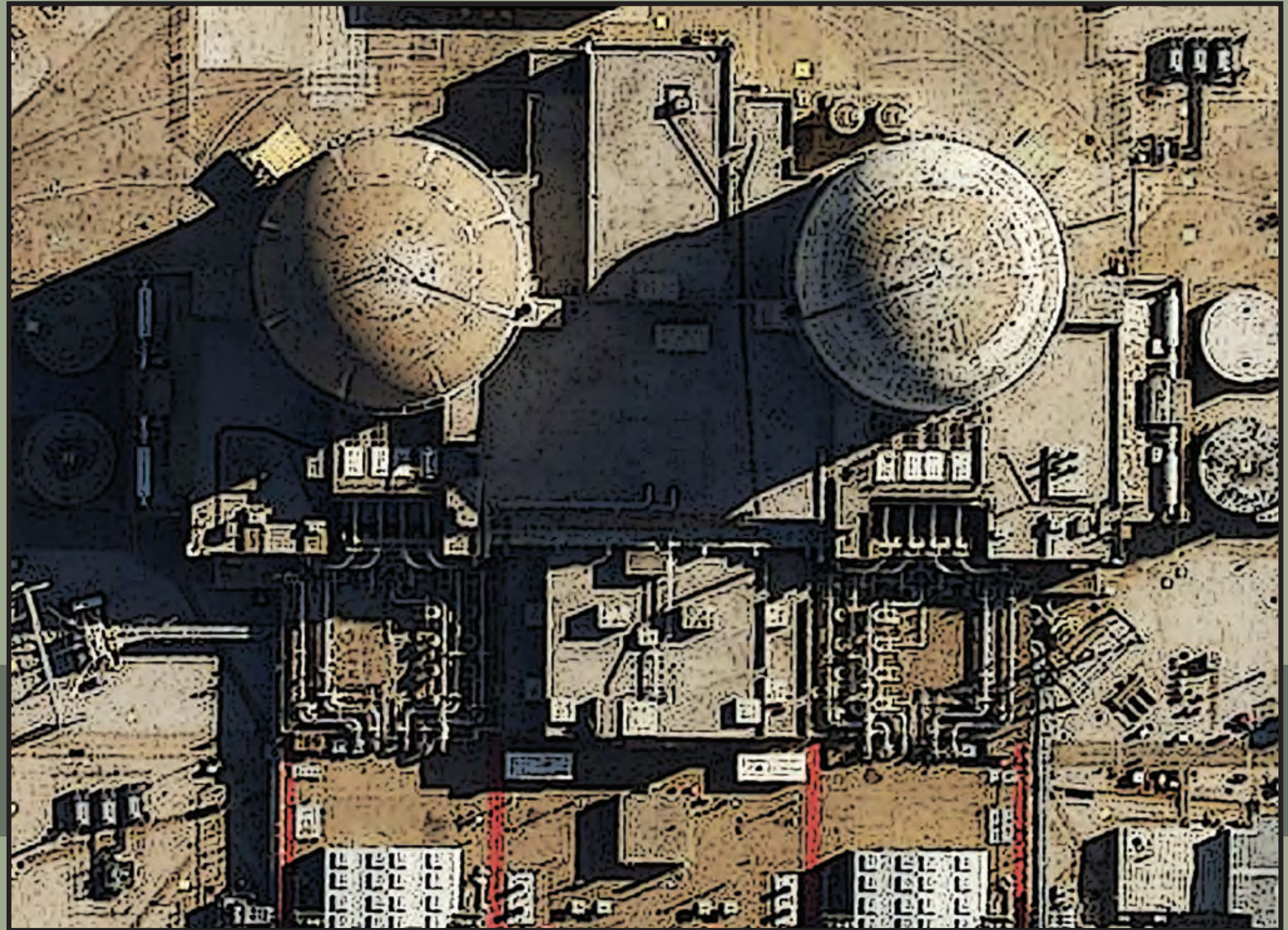
**Superior Equipment & Supply**

**Fastenal Company**





COMANCHE PEAK NUCLEAR POWER PLANT



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