BY MARK ANCONA

Florida contractors put a UHD machine to work on a demo project at the Kennedy Space Center.

Sunrise Systems of Brevard Inc., Cocoa, Fla., was selected to perform demolition of multiple structures at Kennedy Space Center and Cape Canaveral Air Force Station, through a Request for Technical Proposal early this year. This RFP presented multiple environmental challenges that could best be addressed by an environmental contractor. Having partnered with Pete Charamut of Frank-Lin Excavating, Melbourne, Fla., on many projects through the years, we knew that they were more than qualified to perform all of the structural demolition required by the RFP. In fact, Frank-Lin would perform 65 percent on this particular project.

THE DIRTY WORK

SAEF II is a facility used for assembling, fueling and

ALL SYSTEMS GO

encapsulating satellites prior to mounting them on various types of rockets. The primary structure is an 85-foot open high bay supported with 18-inch by 33.5-inch by 1.25-inch thick wide-flange structural beams, clad in two layers of insulated aluminum siding. Two attached ancillary structures are constructed of concrete columns with poured block infill, on either side of a two-story explosion-proof control center. This facility contained asbestos materials, PCB containing oils, lead-based paint and PCB containing paint. Prior to demolition, all of these materials had to be properly abated and disposed of. Sunrise Systems of Brevard performed all of the abatement operations and, as prime contractor, all project oversight.

AIMING HIGH

Pete Charamut, Frank-Lin president, decided to use a high-reach shear to perform dismantling operations on the high bay structure. Kuhn Equipment of Summerville, S.C., provided a ZX460 excavator outfitted with a high reach boom and stick from Jewell Attachments, Portland, Ore., equipped with a Genesis shear. This machine would reach 90 feet and could cut through all of the support members holding the primary structure together. Using the shear in concert with loaders and Caterpillar 320 and 321 track-mounted excavators equipped with demolition thumbs and grapples, Frank-Lin methodically dismantled the structure. As debris and metals hit the ground, they were separated, metals were segregated and graded and they were loaded out. One of the challenges faced at SAEF II was protecting the roadway that ran along the west and north sides of the structure.

To avoid destroying the asphalt with the ground pressure created by a 105,000-pound machine, we placed between 24 inches and 36 inches of friable soil over the [sloped] roadway. This also provided us the benefit of governing the slope on the west side, leveling the surface for the shear.

With the shell removed, and ancillary structures demolished and loaded out, we had to drop the high bay structural components in a controlled fall. Our goal was to drop all of the steel within the footprint of the building, allowing us to process the steel on a concrete surface. This approach also minimized the danger of fire while torch cutting.

There were four 3-inch threaded rods holding each structural column at the footer. These were torched off at the base plate, and the column sets were pulled over with a steel cable and bulldozer. Once on the ground, liquid oxygen and acetylene lances were used to cut the beams into manageable pieces for transport. It was our original intent to sell these beams for re-use, but they were custom sized, and could not be successfully marketed in the time frame allotted.

The high concentration of rebar in SAEF II was a challenge for the demolition team.

The most difficult part of this demo was the explosion-proof section of the ancillary structure. This part of the facility was constructed to withstand exploding hypergolic fuels such as monomethyl hydrazine and nitrogen tetroxide. This building was originally a hypergolic fuel manufacturing and loading facility. Constructed during the Cold War, the as-built drawings were sketchy at best. It appeared that many field mods were incorporated into the building without any corresponding changes to the drawings. Beginning at the top of slab elevation on the second floor, our thinking was that we could break the upper section loose and shove it off—we were wrong.

FINISHING TOUCHES

We discovered reinforcing bars at 8 inches on center, with

two pieces of No. 11 rebar [1.27-inch diameter] running in both directions. The walls were 12 inches thick, and the slab was 10 inches. When we finally broke this animal down, it was time to play with the footers. At 14 feet below grade, we found the footing bottoms and removed the last of the concrete. This monster took every bit of four weeks to drop and pull out of the ground.

It is interesting to note that we encountered several miles of abandoned conduits, duct banks and pipes below this 60-year-old part of the facility.

All of the metals recovered from this project were responsibly recycled. In addition to the commodities, we recovered two double-walled stainless steel hypergolic fuel storage tanks, which had never been used. Upon removal and inspection, we found that they had been completely shrouded in several layers of fiberglass, and connected to an active cathodic protection system, effectively preventing any corrosion.

Hangar "L" was used as a life sciences facility in support of the on-going Mars mission[s]. This hangar housed a series of plant growth chambers, operating theaters and dissection rooms. With its stated mission complete, the facility was mothballed and left to sit for several years.

Sunrise Systems employees constructed full negative pressure containments for the removal of thousands of square feet of asbestos-containing tiles, mastics insulation and wall/roof Transite panels.

We removed all PCB containing transformer oils, lighting ballasts and lead-based paints, and responsibly disposed of them. During abatement, we became suspicious of the cement panels used as a sub-roof base, and corrugated panels along the outside of the high bay. Testing showed that these materials do in fact contain 25 percent to 28 percent chrysotile asbestos. We are currently negotiating a substantial change order with the government to remove these materials prior to demolition of the structure.

While waiting for the change order, Frank-Lin Excavating moved in for the dismantling process. At the time of this writing, all work that can be completed on this facility has been finished, and we are waiting for word from our C.O. to start a large change order to remove an additional 28,000 square feet of asbestos containing Transite boards that were not identified in the pre-work survey. **C&DR**

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