

Exhaust intercoolers at AEDC's C-Plant upgraded



As part of an investments effort at Arnold Engineering Development Complex (AEDC), new cooling coils and mist eliminator pads were recently installed in two of the C-Plant exhaust intercoolers.

Planning played a key role in the success of the intercooler upgrade. Integration and scheduling of resources had to be carefully executed in order to eliminate delays and dead-times in the schedule while keeping workers safe.

The intercoolers are large structures and each has three banks of 20 coils for a total of 60 coils. A fourth bank houses 20 frames of mist eliminator pads. Both intercoolers were upgraded concurrently to reduce plant outage, utilizing two shifts of crews working 10-hour days, six days a week.

Those leading the project also tried to cut costs whenever possible. One unexpected cost saving was a result of the old coils being salvaged.

When the 120 old coils were removed, Aerospace Testing Alliance (ATA) requested bids to salvage these coils for scrap metal. Six vendors responded with bids, and the coils were sold for approximately \$332,000.

A decontamination chamber for the mist eliminator frames external to the intercoolers was also built to save time and money. By allowing the work to remove and replace the demister pads to be performed outside the cooler enabled the other work inside the cooler to continue at a much faster pace. It also reduced

the number of lifts with the crane down to one to remove the mist eliminators and freed up the crane for other work.

Cost-saving measures were employed throughout the project, such as upgrading material used for flashing and drain pans to heavier gauge steel. The flashing was attached using both sheet-metal screws and bolts and a 15-degree break was introduced to secure the flashing.

To improve the draining of the coils for freeze protection, the coils were specified with a 1/8-inch slope per foot and service air was incorporated to blow down the coils to remove any remaining water.

As another cost saving measure, instrumentation no longer required was removed eliminating the need for future calibrations. To reduce maintenance time, blow-down valves were installed on the raw water supply resulting in a one-step operation to clean the strainers. New isolation valves provide double-block-and-bleed protection eliminating the need for major raw water outages. In the future only a local outage will be required.

Worker and environmental safety were major concerns of this job. Several



Left: WC 11 Intercooler
Bottom: Worker inside Intercooler



potential hazards were identified prior to starting. The project team worked with Industrial Hygiene (IH) personnel in mitigating and removing hazards. With IH help, safety equipment, materials and training were provided. The job site was monitored daily to verify safe conditions existed inside and outside of the cooler.

Blood lead monitoring of each employee was performed. Not one employee showed signs of elevated levels during the execution of this project meaning safety procedures were followed correctly.

As a result of efficient planning on all levels, the intercooler job was successfully accomplished in under 18 weeks with no personnel injuries.