

Donald B. Riggs

On the morning of March 23, 1990, Mr. Don Riggs was interviewed. Mr. Riggs joined Rocketdyne in 1963 and worked as a mechanic and as an inspector at both Canoga and SSFL for almost 20 years. In 1981, he moved to the Defense Contract Administration Services (DCAS), the predecessor to AFPRO. Currently, he is a section supervisor on the Space Shuttle Main Engine program (SSME).

Mr. Riggs worked in several buildings at the Canoga facility in his years as a Rocketdyne employee. On a map of the facility, he identified several vapor degreasers. Perhaps more importantly, he distinguished the two major types of degreasers, aboveground and in-ground, and explained their corresponding operating procedures. The large in-ground units use metal baskets to lower the dirty parts into the degreasing pit. The heated solvent forms a vapor that condenses on the parts and cleans them. Solvent is also sprayed onto the parts. The liquid solvent drips into drains and flows into recycling units. The cleaned solvent then returns to the degreaser to be heated and reused.

The smaller aboveground units operate only slightly differently. These degreasers do not use baskets, but, rather, long metal poles with a hook on the end. An employee holds the part being cleaned over the degreaser and uses a wand to spray liquid solvent onto the part. The rest of the process is identical to that of the large degreasers.

Because of evaporation, the supply of solvent in the units needs to be replenished occasionally. This is done by hauling in 55-gallon drums of the solvent from a storage area. The drums are then emptied into the degreaser. After extended periods of use, or approximately twice a year, the entire unit is drained, cleaned, and refilled. Waste solvents were drummed and, he presumed, disposed of.

Mr. Riggs explained that in the Main Building and Manufacturing 1, where machining operations were conducted, the large machined parts were cleaned in vapor degreasers that were set in below the floor (F-5 and E-7). Mr. Riggs explained that the parts became soiled from machining coolant and metal chips. He recalled that the coolant used in the machining equipment was oil (time frame of reference 1963 to 1969). He stated that after a piece of hardware was machined it was cleaned prior to being sent for quality review. Mr. Riggs noted that parts could be machined several times, and were always degreased prior to a quality assurance review. Mr. Riggs stated that parts were also degreased prior to plating

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operations. According to Mr. Riggs, any place that had assembly activity would have had a small degreaser.

Mr. Riggs described the vapor degreaser unit and surrounding pit in the plant's process area in the Main Building. According to Mr. Riggs, the cleaning solvent was contained in a metal tank that was located in the concrete pits. The floor surrounding the degreasing tank was grated and any spillage from the degreasing operation was captured under the floor. Mr. Riggs stated that the subfloor containment areas were regularly cleaned out and that this spillage was removed from the process area for disposal. He noted that the subfloor containment areas also collected routine spillage from other cleaning and rinse tanks located in the process area.

Mr. Riggs stated that in the northeast corner of Manufacturing Building 1 prior to 1966 there was a degreaser, similar to but smaller than F-5 in the Main Building, set below the floor level. He recalled that this unit was removed and another vapor degreasing station was installed in the building. He was not sure if the first degreaser was relocated to where vapor degreaser F-7 is currently located or not.

Mr. Riggs recalled that engine assembly was conducted in Manufacturing Buildings 2 and 3, where small aboveground degreasers were located. In addition, he stated that Manufacturing Building 4 had a large vapor degreaser that was located below the ground and that this building housed the F-1 and J-2 turbopump and valve assembly operations from 1965 to approximately 1969.

Mr. Riggs recalled that the plant also had smaller vapor degreasing units, that were all aboveground. These units cleaned small engine parts and were located near clean room operations. Mr. Riggs cited 100,000 Class room as a standard for a fine clean room. He identified two fine clean areas, one in Manufacturing Building 4 and one in the Main Building. Parts going into a clean room were carefully cleaned in order to keep it a controlled dust-free environment (Riggs).

According to Mr. Riggs, in 1965 the Eton Building housed a Clean Room operation. A small, above-ground, vapor degreaser was located outside of the Clean Room in the southwest corner of the building. Mr. Riggs stated the building was occupied for assembly operations for a 5- to 6-month period.

Mr. Riggs recalled that the metal tank to a vapor degreaser required cleaning periodically. He stated that the solvent was pumped out of the tank into 55-gallon drums. He understood that the drums containing the spent solvent were sent out for recycling or disposal. After the solvent was removed, the metal tanks were transported to the L-Shed for cleaning. Mr. Riggs explained that the bottom of the tank generally had a one-half to one inch thick

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hardened sludge that had to be chiseled off the bottom of the tank. In the early years this sludge would contain machine oil coolant (identified by Mr. Riggs as oil in the early years) and metal chips cleaned from an engine part. Mr. Riggs understood that the removed tank bottom sludge was placed in a dumpster for disposal.

Mr. Riggs explained that other metal parts cleaning operations were conducted at the plant. He stated that the process area in the Main Building had other cleaning and rinse tanks, including tanks containing Turco. He noted that more recently, under the SSME contract, Freon has been used to clean parts in Manufacturing Building 1.

Mr. Riggs explained that there were large manufacturing machines, some extending below the building floor, in both the Main Building and Manufacturing Building 1. He stated that the larger machines had sumps to collect their machining coolant. The coolant was sprayed onto the machine's hardware, such as a drill bit, while it was being worked. Mr. Riggs stated that "in the old days" the machines used oil as a coolant. Mr. Riggs noted that the machines used in Manufacturing Building 1 are new and that now they use a mixture of water soluble oils, water, and rust retardants.

Material Building 009 is currently used for manufacturing operations on RIC's SSME Contract. According to Mr. Riggs, AFPRO, engine parts manufactured under the SSME program are cleaned with "Freon," since other solvents have a detrimental effect on the parts which contain titanium. Mr. Riggs, did not think that Freon was used for cleaning parts in the 1970's, or during the time period prior to the SSME. He speculated that if Freon was used in the 1970's, it would have been used in the Engineering Development Area, located on the north side of the Main Building. He noted that if it was used in this area during this time period, it would have been spray bottle and wipe cloth type cleaning.

Mr. Riggs described a penetrant inspection procedure used to detect cracks in the metal hardware. He stated that a dye was placed on the hardware and then cleaned off the surface of the hardware piece. A penetrant was sprayed on and surfacing dye would indicate cracks or flaws in the hardware. Mr. Riggs was not certain where the rinse waters from this process were disposed.

[Note: Another Interview Summary for Donald Riggs can be found in the January 1990 Interviews section of this Appendix.]