

Savannah River Site -- *Savannah River's Recycle Opportunities Expand*

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Award Category: Recycling

Nominee: Team Nomination: Recycle Team

WSRC: Al Snell, Tim Bowman, Joe Kinney, Sarita Berry, Mike Roper, Sandra Stallings, Tim Coffield

DOE-SR: Steve Mackmull, Rick Endler, Tim Armstrong.

Nomination Abstract:

Savannah River Site (SRS) employees continually evaluate opportunities to increase recycling by identifying unique means to recycle and reuse items not easily managed through the existing Site recycle programs. SRS recycle efforts were further improved in FY2005 with reuse of excess supplies from two DOE Closure Sites, Rocky Flats and Mound, and from the DOD. In addition, Site employees identified recycle opportunities for several unique process material streams. This nomination recognizes the significant efforts by the many employees who identified reuse and recycle opportunities not covered by the existing SRS industrial and office waste recycle programs. These efforts resulted in saving the government over \$1.3 million.

Nomination Description:

The Savannah River Site (SRS) has comprehensive industrial and office waste recycling programs inclusive of most un-needed materials that have salvage or recycle value. SRS recycled over 3,100 metric tons of hazardous and non-hazardous materials through Salvage and Recycle Operations in FY2005 and processed equipment with a cumulative acquisition value of over \$20 million through Excess Sales. The Site's recycling programs are highly visible programs that impact all employees and have served as useful tools to promote pollution prevention concepts and to encourage active employee participation in waste avoidance activities. In spite of the breath of these programs, some materials do not fit existing acceptance criteria. This nomination specifically recognizes those employees that went above expectations to identify recycle/reuse opportunities for unique materials not covered by the many existing Site programs. Summaries of these activities follow:

Reuse of Excess Supplies from Other DOE Sites

With the shutdown of Rocky Flats and Mound sites, excess supplies were made available for reuse within the DOE complex. Savannah River worked with these sites and also the Department of Defense (DOD) to acquire supplies for use at the SRS. These supplies were delivered for only the cost of transportation to SRS and avoided waste disposal at the donating facilities.

Rocky Flats Excess Facility program identified the equivalent of 9 semi-truck loads of material and supplies which could be utilized at SRS. The supplies were valued at \$890,639. All materials and items on the release transfer were items used in the Waste operations/Waste handling efforts at SRS. The final release of materials was received onsite at SRS on September 28th, 2005. In addition, Rocky Flats identified 18 TRUPACT standard waste boxes that will be delivered to SRS on December 5th, valued at about \$58,000. Total procurement savings from use of the Rocky Flats excess supplies is about \$950,000.

Mound identified 465 Type-A, 55-gallon drums with activated carbon filter vents and other hardware and 45 standard waste boxes that SRS has accepted for use. This material is used to transport legacy transuranic waste to the permanent repository at the Waste Isolation Pilot Plant in New Mexico. Acquisition value of these supplies was over \$110,000.

The DOD releases damaged intermodal containers used for the transportation of tactical war fighting material to the current middle-east conflict. SRS received 123 sea-land intermodal and 18 flat rack transport containers through the Defense Reutilization Marketing Office located in Charleston, South Carolina in FY05. A private vendor repairs these containers to meet Department of Transportation quality requirements for return to service and will be used by the DOE complex for waste packaging and disposal operations. This effort saved the taxpayers over \$61,000.

Recycle of Sodium Tetraphenyl Borate

Sodium tetraphenylborate (Na TPB) is a hazardous, specialty chemical that was identified and produced for use in the In-Tank Precipitation (ITP) process for the treatment of radioactive liquid waste prior to transfer to the vitrification process utilized for permanent treatment for disposal. This legacy waste was generated during the Cold War production of nuclear material to make strategic nuclear weapons. For both technical and safety reasons the decision was made to cancel the ITP process. This left H-Tank Farm High Level Waste Facility with responsibility for the disposition of 4,000 gallons of excess NaTPB. The HTF Team negotiated an agreement with a chemical manufacturer to accept the staged/stored inventory for reprocessing rather than H-Tank Farm disposing of it as a hazardous waste through another off-site vendor. The only cost incurred was for shipment of the material to the vendor. This effort saved the government over \$12,000.

Mercury Recycle to Process

Rather than purchase elemental mercury from an off-site vendor, both the H and F Tank Farms (HTF & FTF) and the Defense Waste Processing Facility (DWPF) were able to satisfy H-Canyon's mercury requirements through recycling/recovery operations, i.e. the reclamation of mercury from facility processes. In the case of HTF/FTF, this is accomplished via separation of mercury from the overheads in each of the facilities' evaporators. For DWPF, this is accomplished via mercury distillation and purification in the Chemical Process Cell (CPC). These reprocessing and recovery/transfers represents a win-win scenario in that H-Canyon has access to a ready supply of contaminated but useable mercury and HTF/FTF/DWPF do not have to dispose of this material as a RCRA and radioactive mixed waste product. Of the approximate 1,000 lbs mercury requirement, HTF/FTF was able to contribute ~ 367.5 lbs with the majority of the balance provided by DWPF avoiding a purchase cost of about \$46,000. An estimated savings in waste disposal costs of approximately \$65,000 for RCRA mixed waste was also realized by these mercury transfers for a total cost savings of about \$110,000.

Security Sensitive Circuit Board and Electronic Equipment Recycle

SRS has a recycle program for all electronic equipment and parts through its Excess Program. This Program was unable to accept 337 excess amplifiers from an SRS operation due to them being identified as security sensitive equipment. The owner was able to work with Excess and Security to dismantle and destroy property aspects that were of security concern. The amplifier housings were recycled through scrap metal vendors and the de-sensitized electronics were sent for electronic parts recycle. This effort not only protected sensitive nuclear weapon information but saved the government over \$50,000.

Silver Process Media Recycle

Silver-coated, berl saddle process media was used within the F-Canyon dissolver to support the production of required nuclear material for the nuclear weapons program. With the decision to deactivate and decommission F-Canyon came a concurrent requirement to disposition legacy materials, to include excess berl saddle media which contained silver in sufficient concentration to qualify them as a hazardous waste. Prior to finalizing the decision to declare these items as RCRA waste, the facility pursued and ultimately identified an off-site vendor with the ability to reprocess/recycle the saddles to recover the silver. To minimize shipping costs, facility waste handling personnel repackaged the 31 drums of berl saddle media reducing the total number of shipped drums to 22. By pursuing this recycle option, none of the saddles were "wasted" and all the potential waste volume and disposal costs were avoided. This saved the government about \$54,000.

Conclusion:

In spite of the comprehensiveness of SRS Recycle Programs, some opportunities will continue to fall outside of accepted norms and will require special efforts to disposition. SRS employees identified and implemented new means to recycle/reuse materials to

avoid cost and waste. These many unique efforts to continuously improve demonstrate a commitment to excellence and a dedication to optimizing opportunities for cost-effective, environmentally-preferred reuse and recycle in lieu of waste disposal. These recycling/reutilization efforts, beyond the “normal” recycling programs, saved the government and taxpayers over \$1.3 million.