

Sustainable Acquisition Success Story

Operations Spotlight on Y-12 National Security Complex

Y-12 Reduces Annual Waste by 12% with Innovative Paper Briquettes

The Y-12 National Security Complex (Y-12) solves security and recycling issues by turning paper into briquettes. Y-12 generates security sensitive materials that must be processed securely in compliance with DOE requirements. Security sensitive paper is sorted and then processed through a disintegrator located at the on-site Destruction and Recycle Facility (DAR). Non-sensitive paper was sent to an off-site recycling facility. However, when Y-12 began to experience issues with off-site recycling, experts determined that the best way to ensure adequate protection and handling of Y-12's

sensitive information was to destroy all paper at the DAR. The issues included non-conforming items being placed in with paper and the bags used to collect the paper increasing handling times for the vendor.

The decision to process all paper on-site posed many challenges. The existing DAR disintegrator had exceeded its design life and could not handle the added volume required to implement this drastic change. The change would also negatively impact site landfill diversion efforts since disintegrated paper cannot be recycled by traditional methods due to extremely short fiber lengths. Through the efforts of a cross-functional team, Y-12 was able to specify new equipment with required capacity to increase productivity in operations. Lean manufacturing techniques were utilized to increase efficiency and security in collection, delivery, and destruction of all site paper. The new paper disintegration system and collection methods allow the site to securely process all site paper thereby reducing or eliminating associated security risks.

Y-12 strives to integrate sustainability into all aspects of operations including the use and disposition of paper. As a part of focused source reduction efforts, the site has reduced paper use by more than 50% since 2008. The innovative new disintegration system supports sustainability goals by facilitating the off-site reuse of ~250,000 pounds of paper briquettes per year. The briquettes are being reused to create an industrial fiber additive. This project illustrates that security and sustainability are not mutually exclusive. The implementation of paper briquette reuse is projected to reduce site sanitary waste generation by approximately 12% per year.

The potential cost savings with the reduction in the use of paper still needs to be calculated and validated. There are no cost savings in the switch from the previous recycling system to the present disintegration system.



Group Photo: DAR Modernization Project Team

Keys to Success

Challenges

Y-12 began experiencing issues with off-site recycling and decided to disintegrate all paper on-site. The existing DAR disintegrator had exceeded its design life and could not handle the added volume required to implement this change.

Solution

- Destroy all paper at the DAR to eliminate potential risks posed by off-site recycling.
- Specify new equipment to increase productivity in operations.
- Reuse the resulting shredded paper in briquettes since shredded paper cannot be recycled.



Briquette: Each briquette contains approximately 50 sheets of disintegrated paper

Results/Benefits

- The new paper disintegration system and collection methods allow Y-12 to securely process all site paper, reducing or eliminating associated security risks.
- The system facilitates the off-site reuse of ~250,000 lbs. of paper made into briquettes per year.
- The briquettes are used as an industrial fiber additive in products such as asphalt sealants, roofing cement, driving coatings, etc.
- The reuse of paper briquettes is projected to reduce site sanitary waste generation by approximately 12% per year.

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