

# Beyond cost savings: using P2 as a Compliance and Risk Reduction Tool

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# Generator Set Aside Program

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- **LANL's Generator Set Aside Fund (GSAF)**
  - Established in the mid-90's
  - Placed a tax on waste, reinvested in reduction projects
  - Hugely successful: tens of millions of dollars in cost avoidance over time; high ROI
  - Tax aspect of fund discontinued in 2012; now project funding for reductions set aside from other funding sources

# GSAF Program

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- **GSAF Program (\$1.2M annual budget for projects)**
  - Annual call for proposals for prioritized pollutants and issues
  - Program and Line Management in generating orgs participate in proposal review and project selection
  - Peer-reviewed process to identify and reduce environmental risks to mission, scope, schedule and costs
  - Projects are not “R&D”, rather they are specific facility or program-related work
  - 20 – 30 solid and liquid prevention projects are funded annually – typically only 1/3 of the total that could be funded

# 50 Year Environmental Stewardship Plan

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- **Clean the Past**
  - Includes key site clean up, remediation and waste management goals; waste minimization key
- **Control the Present**
  - Includes compliance and prevention measures
- **Create a Sustainable Future**
  - Dramatically reduce material, energy and water use
  - Increase use of renewable and carbon neutral energy
  - As Low As Reasonably Achievable (ALARA) for all environmental impacts
  - Better planning to enhance operations and preserve the indoor and outside environment

# 94-95% of product winds up as pollution!

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## E- ALARA: As Low As Reasonably Achievable

- ALARA is applied to in terms of safety, usually as in terms of radiation safety; widely known by workers
- Supports the intent of the 1990 Pollution Prevention Act and DOE P2/SSP goals
- Promotes “right-sizing” material use and waste in all work.
  - Use only as much is needed (materials, energy, water)
  - Produce the least amount of pollution possible
  - Captures the Lifecycle and applies to all environmental media
- More palatable to non-believers than zero waste which many don't take seriously, but does not exclude the ultimate zero waste goal!

# P2 Program Accomplishments

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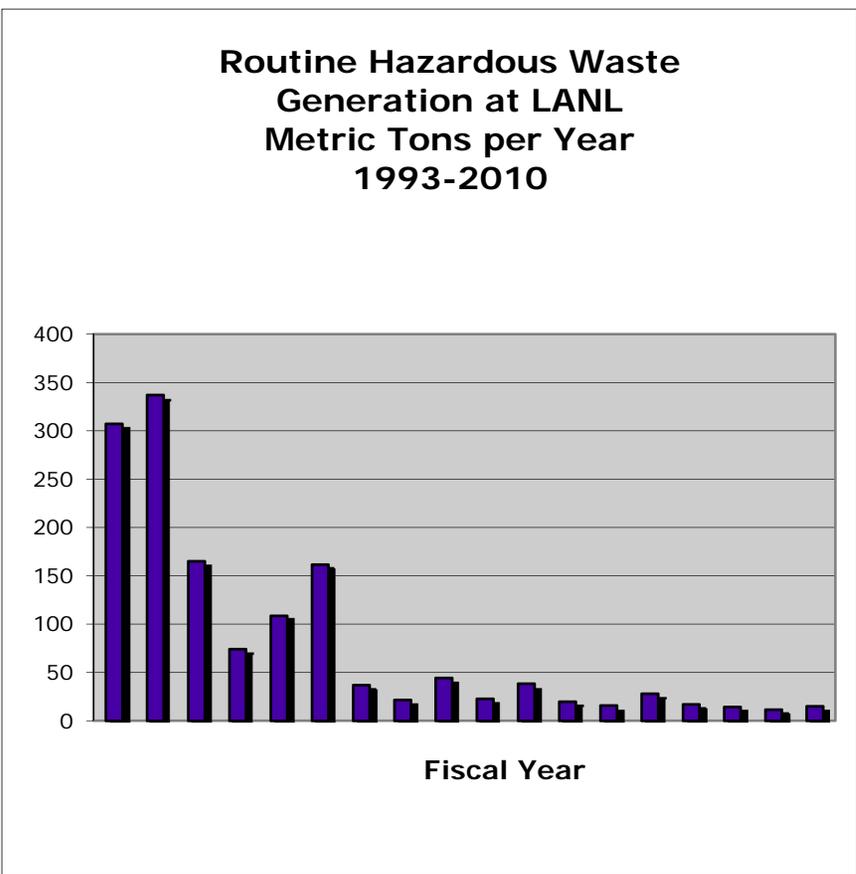
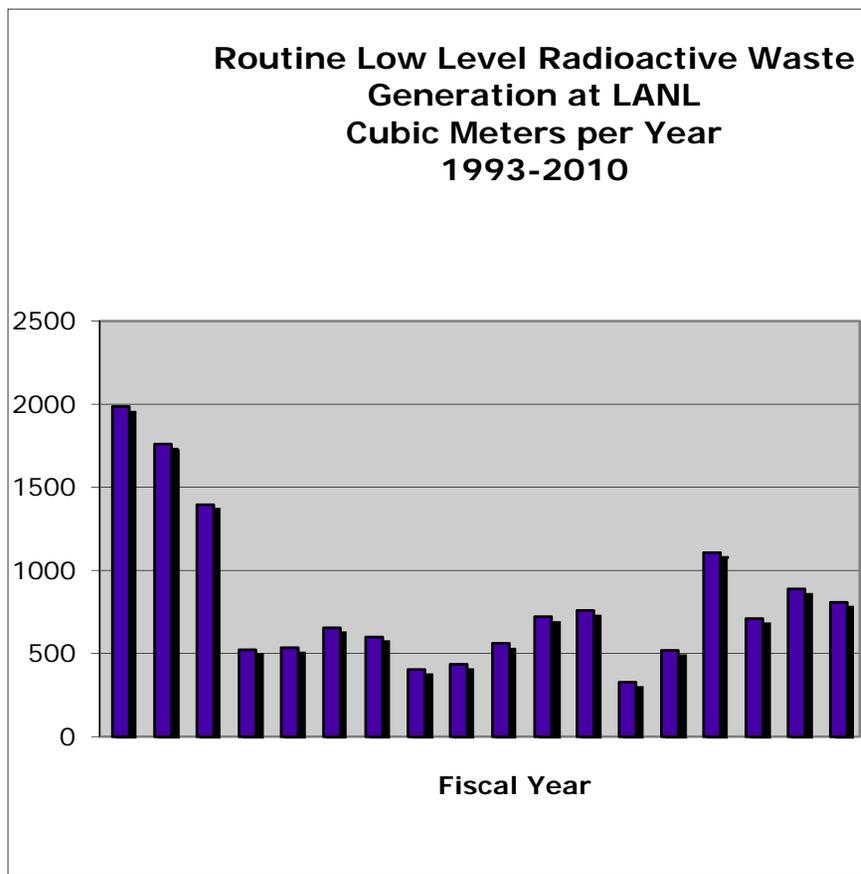
- **Cost Savings/Avoidance:**

- \$47M over the past five years
  - GSAF Projects
  - P2 Core Program efforts
  - LANL P2 Awards
- \$100M in avoided new facility construction/design costs for new RLWTF
- Cost savings very conservative; not all benefits captured

- **Waste generation trends are significantly reduced since 1993 while budgets have increased by a factor 2-2.5**

- Adding lots of new work and associated waste with increase in mission work
- Aggressive waste avoidance holds the institutional total generation in check
- Take pressure off the waste management system and conserves disposal capacity

# Significant Waste Reductions with a 2.5x budget increase



## P2 in support of key mission activities

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- **Designed Sanitary Effluent Reclamation Facility to enable construction of Supercomputing Center**
  - Originally a water conservation project
  - Now primary mechanism for PCB compliance and Outfall Reduction
- **Upstream Radioactive Liquid Waste influent reduction project initiated in 2006 – 2007**
  - Results in 75% reduction in effluent to RLWTF
    - Enabled mission-critical upstream operations to continue
    - Enabled continued operation of the existing facility
    - Enabled operations in existing facility meet new, tougher NPDES requirements
    - Reduced construction and operation costs of replacement facility
- **Using bio-diesel byproduct to improve Sanitary Waste System operation**
  - Glycol waste from local biodiesel production used to increase BOD of wastewater plant and increase capacity

## ...and more

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- **Improved chemical use, purchasing and sharing**

- Chemical Share Site
- Equipment and Materials Disposition Toolkit
- Chemical Alternative Database

- **Radiological Area lighting**

- LED lights in radiological areas: setting a new lighting standard
- Last 10X longer than fluorescent bulbs, fewer replacements

- **Covered storage to reduce stormwater permit liabilities**

- **Glovebox operations support**

- Fire Foe fire suppression in gloveboxes: addresses critical glovebox safety issue
  - Non-toxic; saves large quantities of water
- Hex Armor Wizard bags for size reducing ion exchange columns
  - Addresses oversized TRU waste handling issues, 5m<sup>3</sup> reduction in TRU volume; \$150K in reduced waste costs.



# Summary

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- **GSAF program is a *strategic reinvestment* program**
  - Investing today to ensure operational readiness tomorrow
  - Prevention-based with long term, far reaching benefits
  - ROI and cost savings and avoidance are significant and well documented
- **LANL has an outstanding record of using the EMS and prevention program to understand upcoming environmental vulnerabilities and address them through prevention.**
  - The purpose of EMS is to identify early shifts in environmental regulations and align with key business/mission priorities; then use prevention as the most cost effective approach to solve them.
- **LANL P2 program recognition**
  - EMS/P2 Program received DOE Environmental Sustainability Award in 2010
  - Successes results from a very deliberate, strategic use of EMS and P2 resources to address key problems that are critical to LANL mission accomplishment.



## NNSA Pollution Prevention Awards

**Dr. Donald Cook and David Huizenga present the 2010  
NNSA P2 Awards, Tuesday, September 13, 2011**



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