



309th Commodities Group



Machine Coolant Reduction Strategy

6 May 2009

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Report Documentation Page

Form Approved
OMB No. 0704-0188

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|--|------------------------------------|---|---|----------------------------------|---------------------------------|
| 1. REPORT DATE 06 MAY 2009 | 2. REPORT TYPE | 3. DATES COVERED 00-00-2009 to 00-00-2009 | | | |
| 4. TITLE AND SUBTITLE Machine Coolant Reduction Strategy | | 5a. CONTRACT NUMBER | | | |
| | | 5b. GRANT NUMBER | | | |
| | | 5c. PROGRAM ELEMENT NUMBER | | | |
| 6. AUTHOR(S) | | 5d. PROJECT NUMBER | | | |
| | | 5e. TASK NUMBER | | | |
| | | 5f. WORK UNIT NUMBER | | | |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) 309th Commodities Group, 309th CMXG/ENV, Hill AFB, UT, 84056 | | 8. PERFORMING ORGANIZATION REPORT NUMBER | | | |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) | | 10. SPONSOR/MONITOR'S ACRONYM(S) | | | |
| | | 11. SPONSOR/MONITOR'S REPORT NUMBER(S) | | | |
| 12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited | | | | | |
| 13. SUPPLEMENTARY NOTES Presented at the NDIA Environment, Energy Security & Sustainability (E2S2) Symposium & Exhibition held 4-7 May 2009 in Denver, CO. | | | | | |
| 14. ABSTRACT | | | | | |
| 15. SUBJECT TERMS | | | | | |
| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT Same as Report (SAR) | 18. NUMBER OF PAGES 14 | 19a. NAME OF RESPONSIBLE PERSON |
| a. REPORT unclassified | b. ABSTRACT unclassified | c. THIS PAGE unclassified | | | |



Mission Overview



HILL AFB UTAH

The 309th Commodities Maintenance Group provides Maintenance, Repair, and Overhaul of Landing Gear, Hydraulics, Armament, Power Systems, and Advanced Composites Products and Components

Four Squadrons

530th Power Systems Squadron

531st Commodities Squadron

532nd Landing Gear Squadron

533rd Technical Repair Squadron



Mission Overview



HILL AFB UTAH



Hydraulics



Chrome Plating



Structural Sup



Power Sys



Autoclave Cure



Ultrasonic Test



Wheels/Brakes



Machining



Composites



LO Testing



Landing Gear

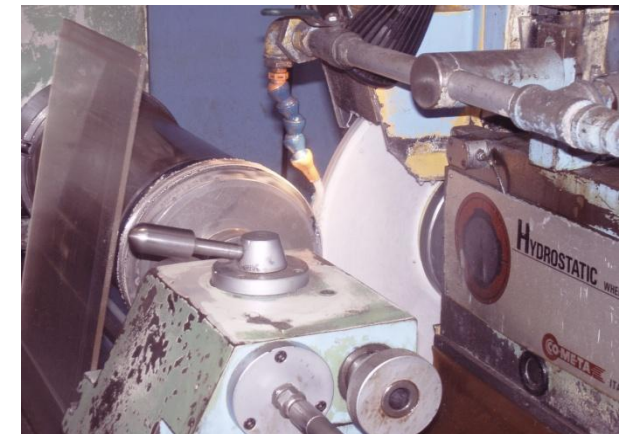
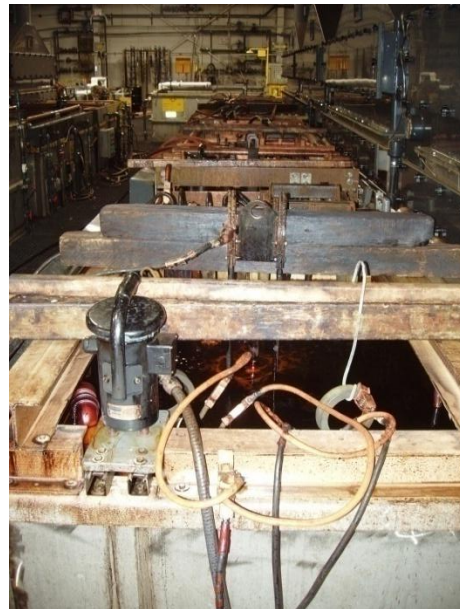


Background



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- **After manufacture & Chrome Plating:**
 - **Machining & grinding**
 - **Coolant is used to cool and lubricate**



Warfighter's First Choice



Background



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■ Coolant:

- Generated from six different machine shops
- Mixture of 90% water & 10% emulsified oil
- Degrades (tramp oils, bacteria, particles)
- Disposed of approximately 50,000 gallon annually





Problem



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- **Past Disposal Method Pumped to the Industrial Waste Treatment Plant (IWTP)**
 - Started causing problems with new Permit Limits
 - Banned discharge in 2006
- **Forced us to either Drum or Tank:**
 - Non RCRA cost of \$100K+





Solution



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- **Three prong Approach:**
 - Find a cheaper disposal contractor
 - Increase the coolant working life
 - Reduce volume of waste



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Solution



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■ Approach One:

- Contracted Safety Kleen - \$1.00 per gallon (Non-RCRA)
- Reduced disposal cost by 50%

■ Approach Two:

- Purchase 3 Freddy TOS Units
 - Filter
 - Kill bacteria
 - Remove tramp oil
- Doubled service life
- An additional cost savings of 50%





Solution



HILL AFB UTAH

■ Approach Three:

- Reduce volume even further
- Tested Sanborn UFV 250 Ultra filtration
- Membrane filtration of permeate (water)



Warfighter's First Choice



Solution



HILL AFB UTAH

■ Approach Three, Cont'd:

- Coolant transferred to UFV250
- Dehydrated with UFV250
- Concentrated to 10 – 15% of original volume





Solution



HILL AFB UTAH

■ Approach Three, Cont'd:

- Concentrate transferred to holding tank for processing to Safety-Kleen
- Oil recovery and final disposal
- 2K to 3K gallons annually, down from 50K





Cost\$\$\$



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- **Original Cost for Disposal** **\$100K**
- **Switching Disposal Contractor** **(\$50K)**
- **Implementation of Freddy TOS:**
 - **Equipment cost** **\$15K**
 - **Cost avoidance** **(\$25K)**
- **Implementation of UFV250:**
 - **Equipment/installation cost** **\$35K**
 - **Cost avoidance** **(\$20k)**



Cost\$\$\$



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Bottom Line!!

**95% Reduction in Coolant Waste (bulk)
Disposal and Costs**





Questions?



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