

2003 *PEO/SYSCOM* Conference

U.S. Army
Materiel
Command

Hilton Mills



Program Officer, Army
Corrosion Prevention and
Control

4 Dec 03

AGENDA

Opening Remarks **Army's Corrosion Program**

Past

Present

Future

Summary

Value

Leveraging

Army's POC



Opening Remarks

- **2003 Defense Authorization Act language**

Designate responsible Corrosion Prevention & Mitigation Office/Organization

Oversee and coordinate efforts of mitigation for equipment and infrastructure

Develop and recommend policy guidance on prevention & mitigation of corrosion

Review programs and funding – submit funding requests to Secretary of Defense

Monitor acquisition practices & develop a long-term corrosion reduction strategy

- **DOD *Corrosion Forums* show progress**

- **Policy & Guidance – a work in progress**

Implications on Acquisition and Logistics



Army Corrosion Program

"Past"

- **1996 Army Chief of Staff Challenge —**

“The largest Operations & Maintenance cost drivers for Army are Tires, Batteries and Corrosion...”

- **1997 redesigned the FMTV & approved 5 technologies for Army use**
- **1998 installed the Accelerated Corrosion Test Facility**
- **2000 Hawaii Corrosion Control Center (CCC)**
- **2003 began installation of a CCC at Fort Hood TX**



Present

"Challenges"

- **LEADERSHIP (communication, guidance & standards)**
- **METRICS (database, analysis, value)**
- **LEVERAGING (minimize duplication)**
- **Maximize use of safe, effective, high value CPCs**
- **FUNDING**



O&M Accomplishments

Corrosion Control Centers



**Effective,
safe, 4:1
ROI**

Accelerated Corrosion Test Facility, APG



**Deemed
World Class
by GM**

Corrosion Assistance Visits Worldwide



**On-site
Aviation
Training**

Aviation Corrosion Prevention and Control Center of Excellence

**Like new
at 5 yrs**



Good News !!!

- CCC Fighting Corrosion

- 10 Sep 03 Sample Findings...like new vs materiel degradation

TACOM Reported
- Preliminary CCC collected data indicates Corrosion Damage Arrested

Treated - Untreated

TRACT NO.	44991704-238	FACTORY NO.	0FW39
FACTURED BY	DAAE8792-C-204	FACTORY	STEWART & STEVENSON SERVICE
NO. SPW39	SEALY, TEXAS 77474	SYSTEM	TACTICAL VEHICLE SYSTEMS DIV
USA		DATE	SEALY, TEXAS 77474
1. SERIAL NO.		2. SERIAL NO.	
3. DATE		4. DATE	
DELIVERY DATE		5. DATE	
SPECIFIED		6. DATE	

Mfg Date: 1-98

Mfg Date: 4-98



Trailer Air Brake Interface



Cab Latch



Spare Tire Hydraulic Lift Assembly



Universal Joint/Drive Train



Entry Step Support



Hydraulic Brake Control Box



Air Tanks and Battery Box

Both FMTVs were fielded to USARPAC in FY99



RDTE Accomplishments

Redesigned Howitzers



*Previously,
41% of combat
aborts due to
corrosion*

Handheld Data Collection Tool



**Failure
Analysis**

Field Analysis – Army Bridge

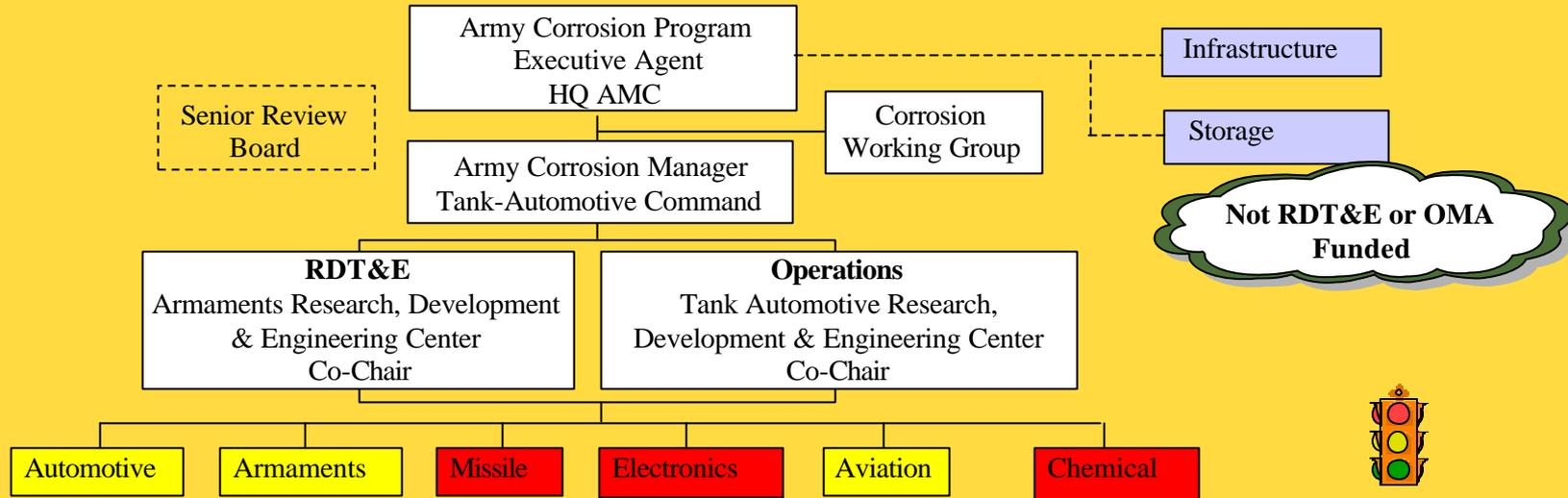


Automated Corrosion Service Center

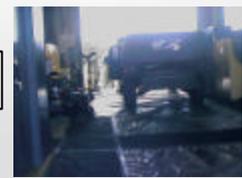
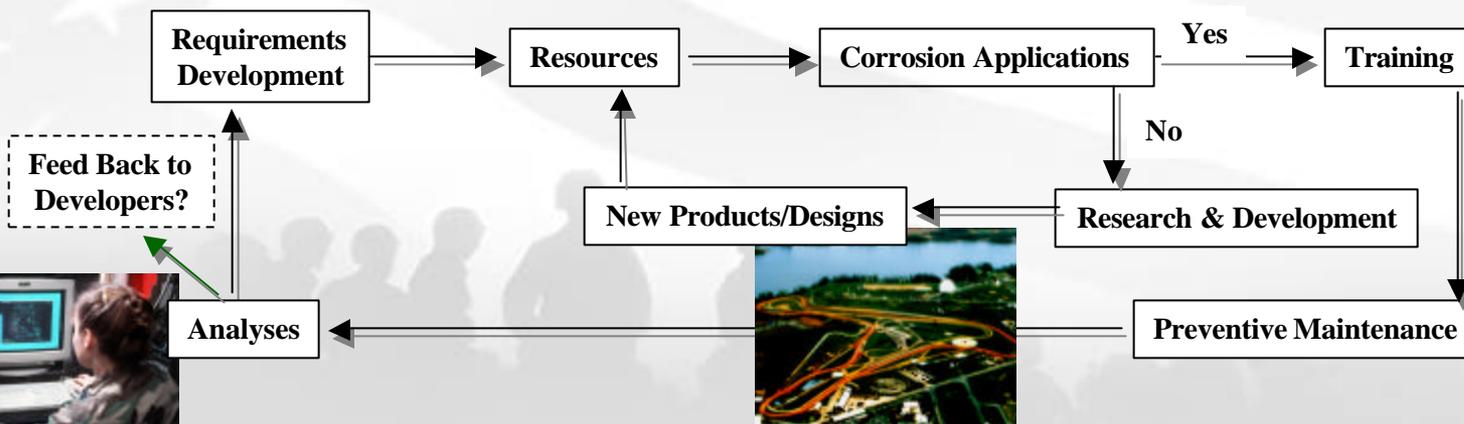


Today's Army Corrosion Program is Changing

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Future

- Partnership – Serve as a resource for systems developers
- Jointness – Army uses other service aircraft, ships, the AAV and communications
- Leveraging -- Army & Marine Corps use common CPCs, build Service Centers, share labs (Navy/Marines & Army)
- Standards for tests and applications reduces cost & speeds up delivery of effective, safe, low-cost CPCs to the field

Support Quality Control

Common Issues, i.e., marine exposure

Shared Resources, i.e., products & Labs

Increased READINESS!!!



Planned Projects

Corrosion Inhibiting Sprays
Clear Water Rinse Facilities
Aviation Corrosion Service Centers
Design Changes
Upgrades through Spares
Controlled Humidity Preservation
Acquisition Policy & Guidance
Reconstitution of Forces
Treat Prepositioned Equipment
RDT&E
Management Resources

*We Need
Your
Support*



Summary

The Army offers its technologies

Congress and DoD support our CPC efforts

This new support affords the opportunity to leverage our capabilities into a significant joint program

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*Our objective -- A Mobile, Lethal Force that is reliable,
durable and affordable.*

BACK UP

Top Priority Technologies Ready To Implement

*Our objective -- A Mobile, Lethal Force that is reliable,
durable and affordable.*

Aviation Locations With Highest Corrosion Cost CY 2000

- Ft. Campbell, KY \$36M
- Hunter Army Airfield, GA \$20M
- Wheeler AAF, HA \$18M
- Ft. Hood, TX \$17M
- Ft. Bragg, NC \$16M
- Camp Humphreys, Korea \$10M
- Ft. Drum, NY \$10M
- National Training Center, Barstow, CA \$5M+
- Ft. Polk, LA \$5M

CH-47D Right Main Fuel Cell Area



28 Day Wash Is Routine
7 Day Rinse Recommended

OH-58D Rotor Head



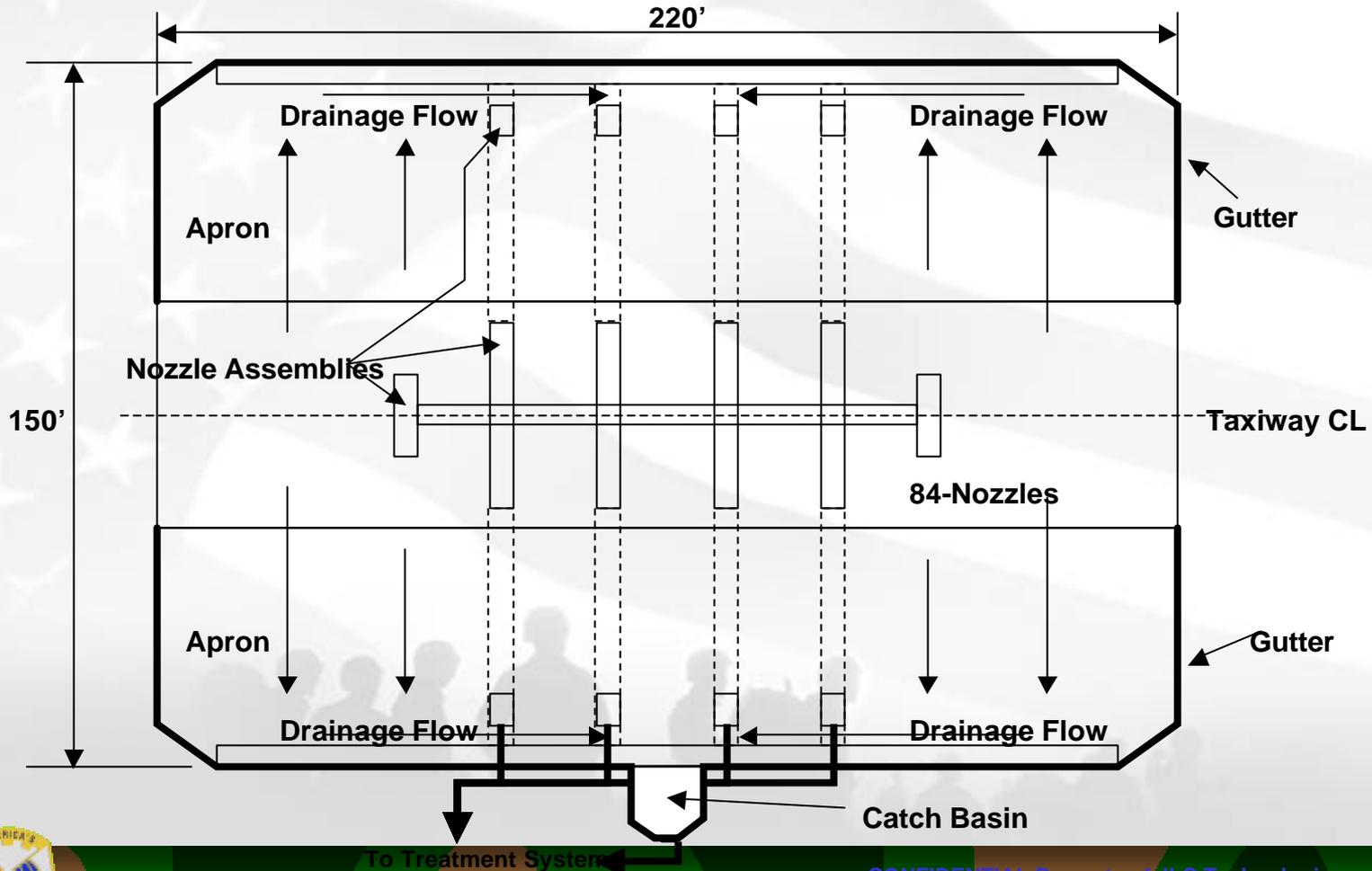
Closed Loop CWRF

- **Designed to Remove/Neutralize Salt and Pollution Contaminants As soon As Possible Between Wash Cycles**
 - Prevents Salt and Contaminants From Starting Corrosive Action
 - Keeps Components and Skin Free of Corrosive Materials (*the sooner the better!*)
- **Designed As A Post Mission Taxi Through Rinse After Final Flight of the Day Prior to Park and Shut Down**
- **Compliments Normal Wash Cycle**
 - Removes Chloride, Sodium, and Pollutants from Surfaces and Components
 - Taxi Through Operation to Minimize Time
- **The Only System Designed for Helicopter Rinse**
 - Smallest (OH-58D Kiowa) to Largest (C/MH-47 Chinook)
 - Can Rinse Small Fixed Wing (C-12 and C-23) and V-22 Osprey
- **Filtration is New Technology and Meets Surge Requirements**
 - Proven Technology
 - Filters Heavy Metals, Oils, Greases, and Salt
 - Potable Water Quality
 - Minimizes Disposal problems

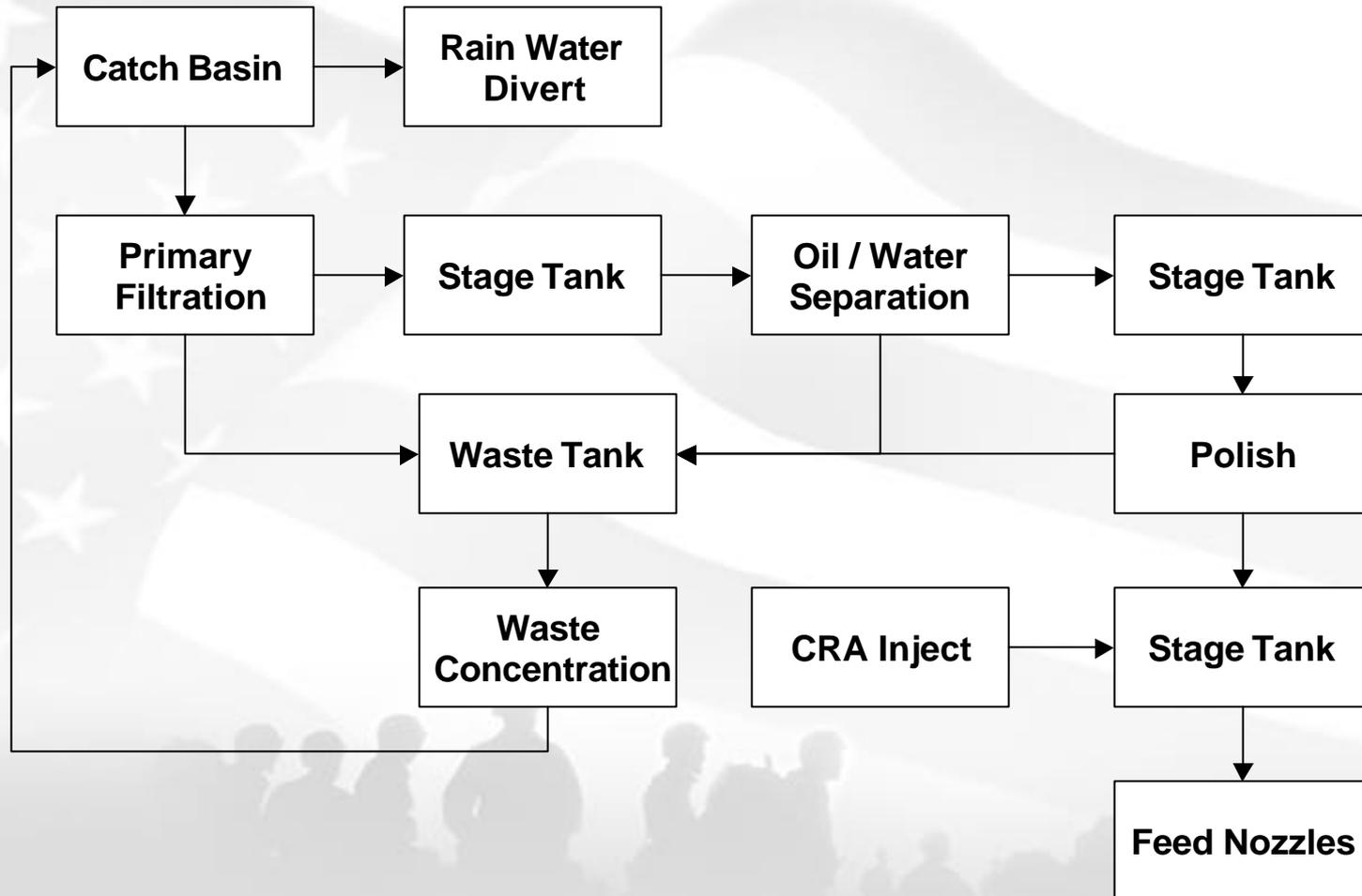


JLC Technologies-Defense Fluid Treatment Systems
Clear Water Rinse Facilities (CWRF)
Project Plan

- All Nozzles Not In Use Each Rinse, Depending on Helicopter Type
- Nozzle Control Settings Programmed for Each Helicopter Type
- All Helicopter and Army Fixed Wing



Process Chart



CWRF Benefits

- **Reduced Environmental Liability**
- **Mitigates Corrosion Issues Related to Readiness**
- **Hastalloy Hardware (Corrosion Resistant)**
- **Reduced Unit workload**
- **Reduced Number of Corrosion Events**
- **Reduced Depot Costs**
 - **Components**
 - **Airframe**
 - **Shipping and Transportation Costs**
- **Decreases Depot Through-Put Time**
- **Reduces Over & Above Costs During Major Modifications**
- **Reduced Weapon System Life Cycle Costs**
- **Extended Weapon System Life Cycle**





Results of Controlled Humidity Preservation



- **Readiness Reportable Systems Sustained**
- **30% to 40% RH Maintained Better Than 90% of the Time, Always Below 50% RH**
- **No Corrosion or Dry Rot While in CHP**
- **No Fuel or Fluids Deterioration While in CHP**
- **No Leaks While in CHP**
- **Batteries Sustained by Using Solargizers**
- **No Tech Inspection Upon Removal from CHP**
- **Usage Reporting Continues**
- **Achieving 3.6 to 1 Return on Investment, First 5 Years, Projected at 9.1 to 1 after 10-year Life Cycle**

Benefit/Investment Ratio Thru FY 01: 3.6/1
Benefit/Investment Ratio 10 year life: 9.1/1

Examples of Other Aviation Corrosion Solutions



Problem: Fuel Cell Connector Corrosion

Potential Solution: MIL-L-87177



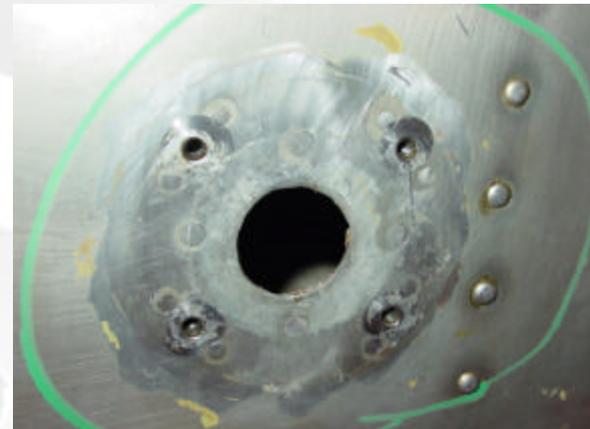
Problem: Interior Mildew on painted surfaces

Potential Solution: Navy Mildew Removal Kit



Problem: Magnesium Housing Corrosion

Potential Solution: CPCs, Touch-up Conversion Coating & Rockhard Protective Coating or Anodic Coating



Problem: Antenna Gasket Corrosion

Potential Solution: AvDec Antenna Gaskets

