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AIRCRAFT ENGINES - IDEAS TO SHARE

LOCATION: Rutland, Vermont

CONTACT: Frank John

PHONE: (802)773-9121 or 8*560-1732
FAX: (802)773-9837 or 8*560-1591

ISSUE:
Reduction of disposal costs.

SOLUTION:
Combine 55 gallon drums of speedi-dri/oil into one cubic yard boxes.

GE AIRCRAFT ENGINES - IDEAS TO SHARE

Location: ***Madisonville, KY***

Contact: ***Mike Roach***

Phone: ***502-825-6397 or 8*336-7397***
Fax: ***502-825-6306 or 8*336-7306***

ISSUE:

Waste water discharge quantity and contamination is an ongoing problem faced by most GE locations. Point source regulations make management of waste streams difficult. The x-ray process is a key contributor to waste water flow and to silver contamination. Even with a recovery unit to remove silver from the fixer solution, silver levels in the rinse water can push or exceed point source standards.

SOLUTION:

Discharges of rinse water can be eliminated by installing a rinse water recirculating system. Numerous advantages can be achieved:

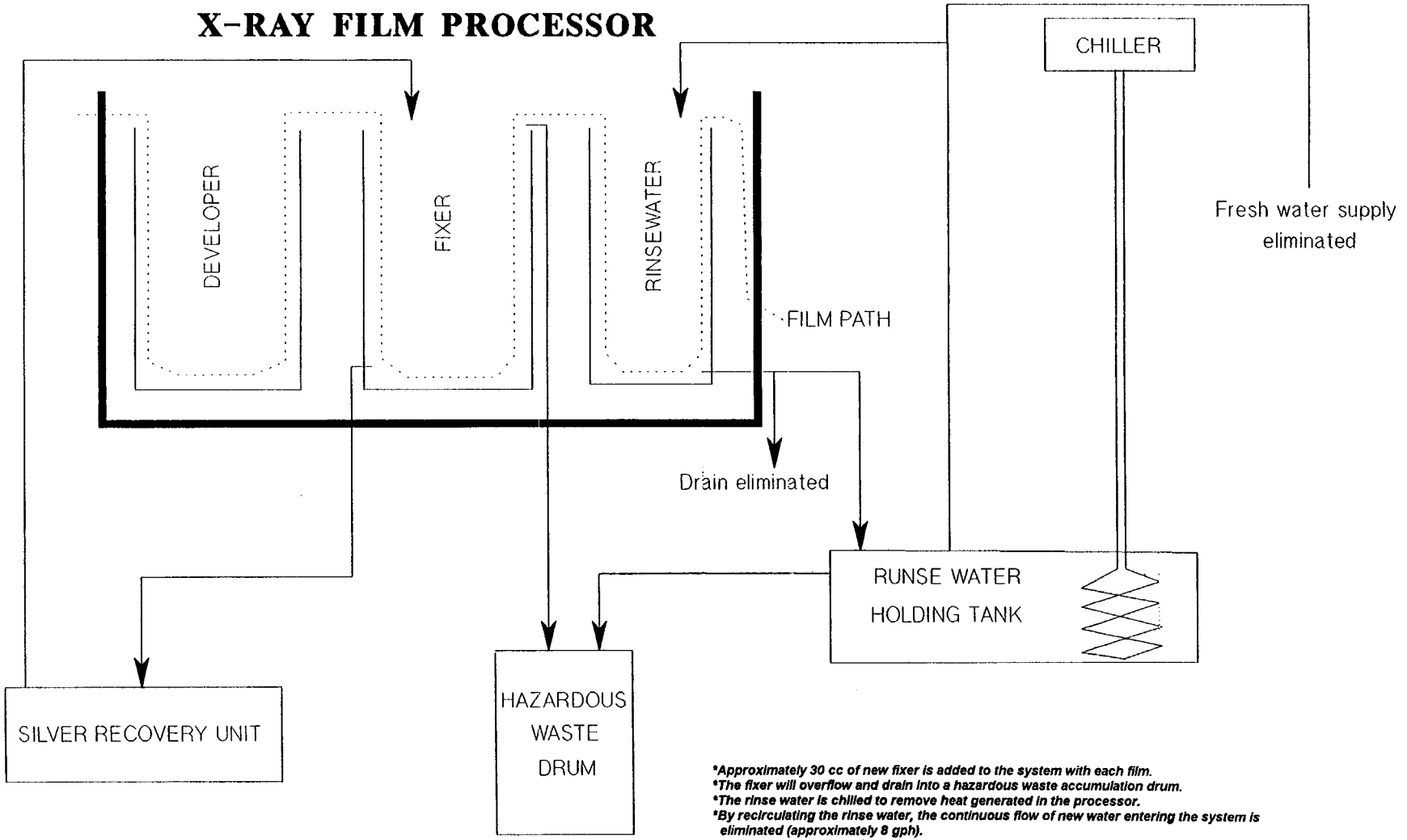
1. ***Cuts water usage***
2. ***Zero discharge to the drain***
3. ***All silver can be recovered, none lost to the drain***
4. ***Eliminates the need for continued waste water analysis***

A good recirculating system is available from several suppliers, or can be designed and installed by local maintenance personnel.

Attachment:

Sketch of a recirculating system in use at the Madisonville facility.

X-RAY FILM PROCESSOR



*Approximately 30 cc of new fixer is added to the system with each film.
*The fixer will overflow and drain into a hazardous waste accumulation drum.
*The rinse water is chilled to remove heat generated in the processor.
*By recirculating the rinse water, the continuous flow of new water entering the system is eliminated (approximately 8 gph).
*Rinse water is captured as a hazardous waste after it has become too heavily contaminated with silver.
*A fungicide additive is used in the rinse water holding tank to keep the rinse water "fresh".

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LOCATION: Rutland, Vermont

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ISSUE:
Reductions of chemical and hazardous waste disposal costs.

SOLUTION:
Use spent acid solutions from etching of steel parts as a source of iron to enhance coagulation of wastewaters.

Best Practices Exchange

Best Practice

Management of Petroleum Contaminated Soil

Business Name

GE Aircraft Engines

Location

Lynn, MA

Contact

Claude R. Brogunier

Address

MD164X9
1000 Western Ave.
Lynn, MA 01910

Phone

*(617) 594-5917 or 8*263-5917*

Problem Addressed

Over the past two years many planned and unplanned site excavation resulted in the accumulation of over 4,500 tons of petroleum-contained soil and over 4,000 tons of industrial debris (concrete, asphalt, steel rebar, and machine footings). This material was scattered over 200 acres throughout the GE-Lynn facility in many stock piles, most being less than 100 tons each. As a result, several key concerns had to be addressed:

1. *Disposal or re-use of the material*
2. *Regulatory compliance with respect to Massachusetts State Policy #WSC-400-89 (management procedures for excavated soils contaminated with virgin petroleum oils), and State draft policy Appendix D (on-site treatment of petroleum contaminated soils).*
3. *Identification of funding sources.*
4. *Compliance with applicable RCRA regulations.*

Details

A soil management program was established by Claude R. Borgunier, Manager – Solids & Hazardous Waste Programs GE-Lynn, to properly catalogue, sample, analyze, and manage the existing problems. Permits were secured from the Massachusetts Department of Environmental Protection to treat the soil and rubble on-site. An asphalt batching firm was hired to treat the petroleum contaminated soil and rubble (at GE-Lynn) by a state approved cold asphalt emulsion batching process.

Results

All the petroleum contaminated soil and rubble was processed on-site at GE-Lynn. The treated mixture was utilized as asphalt paving material to pave a three acre parcel south of the Gear Plant, which now serves as the new waste soils management area for future soil excavation projects.

Business Impact

Total disposal savings and avoided virgin paving material costs were in excess of $7.5 million. This was based on the 1991 management practice for this type of material, which was to landfill these soils as a hazardous waste.

Managing soil under the new Soil Management Program reduces the size of the area necessary to store material. Parking spaces and processing areas, which were un-usable due to the soil and rubble piles, are now productive. In addition, the processing of the industrial debris cleared a three acre area which can now be used for storing roll-offs for future soil projects.

The new soil management policy is currently being used as a tool by area managers to budget future projects which may generate petroleum contaminated materials.

Regulatory compliance with Massachusetts state policy minimizes the possibility of fines from the Massachusetts DEP inspectors.

Best Practices Exchange

Best Practice

Bar Code Technology - RCRA Information Management System (BT-RIMS)

Business Name

GE Aircraft Engines

Location

Lynn, MA

Contact

Claude R. Brogunier

Address

MD164X9
1000 Western Ave.
Lynn, MA 01910

Phone

*(617) 594-5917 or 8*263-5917*

Problem

Although GE-Lynn is currently an interim status RCRA TSDF (Storage and Treatment), our intent is to revert to 90-Day LQG-Only status. Due to the increasing number of accumulation areas (over 283) and expanding remediation project waste volumes, manual tracking posed an unacceptable risk exposure to the 90-Day rule. In addition to proper completion of RCRA Closure of 23 TSD units, the Massachusetts DEP's decision to grant us 90-Day LQG-Only status relies heavily on the facilities ability to demonstrate compliance with the 90-Day rule. Along with the 283 accumulation areas are a drum compaction facility and a 1-Year TSCA PCB Waste Storage Facility. All told, the GE-Lynn facility inventory of RCRA, TSCA, and State (Massachusetts) hazardous waste (in-storage or in-accumulation) ranges from 1,000 - 1,800 drums and 18 tanks. Non-standard in-plant hazardous waste labels (manually filled out) are also a problem. Elevated transportation and disposal costs also result from "rush" order drum pickups by waste vendors (when a 90-Day old drum is "suddenly" discovered.)

Details

To address the deficiencies of a manual inventory system, a computerized, bar code waste tracking system is proposed. Bar coding interacting with the relational database will provide the department with standardized label printing, cradle-to-grave tracking of waste shipments, and real-time drum inventory.

Result(s)

Intermec, Inc. (a bar code division of Litton Technologies) has been contracted to devise a bar code computer based software/hardware solution for the facility. Over 50 environmental coordinators, EH&S personnel, wastewater operators, plant maintenance, systems employees and on-site waste vendors were interviewed by Intermec to ensure a properly integrated solution. Installation of hardware (antenna, base stations, repeaters) is schedule for FW 25, with total system start-up slated for 4Q/93.

Business Impact

The benefits are projected to be multi-fold. The BT-RIMS will: provide standardized waste labeling, provide drum inventories (location, dates) on a real-time basis, trigger custom "pick-lists" for waste sampling and waste shipments, allow superior cumulative SARA 313 emissions tracking, provide Emergency Response personnel with real-time information on waste type, amounts, locations, container types, reduce transportation costs by cutting demurrage and on-site driver time, provide environmental coordinators with real-time inspection results of 283 accumulation areas.

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LOCATION: Rutland, Vermont

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ISSUE:
Cost reduction on virgin chemicals and hazardous waste disposal.

SOLUTION:
Use spent alkaline cleaners as a source of carbonate in Wastewater Pretreatment systems to enhance lead, nickel, and cadmium removal.

Aviation Component Service Center
General Electric Company
333 W. Seymour Avenue
Cincinnati, Ohio 45216
513 679-5000

GEAE Ideas To Share

Contact Person: Mark Wanek
dialcomm phone/fax: 623-6523/623-6636
external phone/fax: (513)670-6523/679-6636

Issue: Poor handling practices regarding hazardous waste at Seymour Avenue facility

Solution: A hazardous waste team was formed at Seymour Avenue which analyzes ways that wastes are accumulated and disposed of. Some improvements they have made include:

- Keeping all waste solvents, oil, coolant, and scrap metal under tool crib control. Employees take their waste materials to the crib where the crib keepers are trained to segregate them to prevent non-hazardous waste drums from being contaminated. This results in an annual savings of about $25,000.

- Recycling is also controlled through the tool crib. Seymour Avenue now recycles aluminum cans, white paper, cardboard and wood. This has resulted in a 50% reduction in solid waste accumulation, as well as a $12,000 annual savings for a dumpster.

- Scrap metal is sorted in the tool crib also. Scrap with high Nickel content can be sold for about $0.60 per pound when it is kept separate from other scrap metal, worth about $0.02 per pound.

- Instapak foam and other packing materials are saved by shipping & receiving to be used again. Instapak can be broken into chunks and packed around parts. This saves money and is good for the environment.

IDEAS TO SHARE SUMMARY

1. **Alternative to vapor degreasing for cleaning of brazed-in honeycomb.**

LOCATION: EVENDALE, OHIO
CONTACT NAME: CHUCK BROCK, STRUCTURES MANUFACTURING
DIALCOM: 332 7132 OUTSIDE: 513 243 7132

STATEMENT OF PROBLEM / ISSUE:

Replace methyl chloroform vapor degreasing for cleaning (removal of machining coolant and EDM oil) of 1/32" cell size metal honeycomb brazed-in to inner surface of metal rings.
Extremely tough cleaning problem due to honeycomb cell size and closed ends of cells preventing flow through of cleaning agent.

SOLUTION:

Dishwasher with outwardly directed radial flow nozzles to force cleaning solution, rinse water and drying air into the honeycomb cells. Equipment supplied by Better Engineering of Baltimore, MD. Contact Keith Hiss on 1 800 229 3380.

Initially used detergent in clean solution, but discovered that this was unnecessary if water heated sufficiently.

Deionized rinse water employed to prevent "spotting".

Heated high pressure air "knives" mean parts are dry upon removal from cabinet.

Cleaning quality comparable to vapor degreasing with similar cycle times.

No waste water produced. Only waste streams are tramp oil and filtrate.

2. **Modular self-closing lids for vapor degreasers**

LOCATION: GEAE, EVENDALE, OHIO

CONTACT NAME: TOM SISBARRO

DIALCOM: 332 8556 OUTSIDE: 513 243 8556

STATEMENT OF PROBLEM / ISSUE:

In 1990, GEAE needed short-term means to reduce use/emissions of TCA, CFC 113, while evaluating and implementing eventual alternatives.

Pareto analysis of use at Evendale indicated 6 vapor degreasers (of 27 at that time) responsible for > 50% of solvent use.

SOLUTION

Vapor degreasers fitted (in order of decreasing emissions) with internally designed modular lid system possessing following features:

Extended freeboard if needed.

Automatically closing sliding door. If left open longer than pre-set time, lights flash and door closes automatically. Door powered by shop compressed air.

Door edge sensors (similar to elevator doors) which prevent door closing on operator's hands or component being degreased.

Door is free-riding on tracks. If part being degreased is removed from degreaser while doors are still closed, doors will move out of way.

Door retrofit cost approximately $10k per degreaser.

Reduction in TCA use of up to 90% observed where new door system installed.
New system installed on degreasers across the business.

On degreaser at Evendale with highest emissions, door paid for itself (in raw materials value of solvent) in less than three months.

AIRCRAFT ENGINES - IDEAS TO SHARE

LOCATION: WILMINGTON

CONTACT: BEP DIEMEL

*PHONE: (919) 675-6301 or 8*292-6301*
*FAX: (919) 675-6576 or 8*292-6576*

ISSUE:
Resolving problem of plugged up aerosol cans.

SOLUTION:
Purchased AeroSolv deflating tool cans are properly emptied in proper waste barrel scrapped deflated aerosol cans are recycled as scrap iron.

AIRCRAFT ENGINES - IDEAS TO SHARE

LOCATION: EHS (EVENDALE, OHIO)

CONTACT: TROY OCHS

*PHONE: (513) 243-8661 or 8*332-8661*
*FAX: (513) 243-7588 or 8*332-7588*

ISSUE:
Identifying disposal costs for wastes by generating shop area.

SOLUTION:
Implemented waste "bill back" system to generators (Total $ and Qty. of drums).

ATTACHMENTS?
A copy of the disposal costs is attached.

Evendale White Drum Disposal Costs
Summary by Department, Section, and Waste Type
From 06/01/1992 To 06/22/1993

		# Drums	Cost
Department:			
Section	----------	799	69643
Department	totals:	799	69643
Department: 0			
Section 0	----------	17	734
Department 0	totals:	17	734
Department: 518			
Section	----------	2	580
Department 518	totals:	2	580
Department: AETD			
Section	----------	9	122
Department AETD	totals:	9	122
Department: AMPD			
Section MTL	----------	6	112
Department AMPD	totals:	6	112
Department: CMD			
Section AF	----------	781	32322
Section FAB	----------	239	33796
Section MPOS	----------	304	39754
Section RPO	----------	326	27021
Department CMD	totals:	1650	132893
Department: EASO			
Section AS	----------	22	1873
Section LG	----------	76	5283
Section MAINT	----------	11	1229
Section SM	----------	18	2164
Department EASO	totals:	127	10549
Department: EMTL			
Section	----------	75	21928
Department EMTL	totals:	75	21928
Department: EQO			
Section CMQ	----------	28	709
Section PETO	----------	144	5725
Department EQO	totals:	172	6434
Department: MOPFD			

Evendale White Drum Disposal Costs
Summary by Department, Section, and Waste Type
From 06/01/1992 To 06/22/1993

		# Drums	Cost
Section PEF	----------	197	30422
Department MOPFD	totals:	197	30422
Department: MQTD			
Section MTL	----------	102	14672
Section STO	----------	9	297
Department MQTD	totals:	111	14969
Department: PDED			
Section CT	----------	54	3439
Section DEAO	----------	3	99
Section DET	----------	35	969
Section ENG	----------	3	99
Section SSO	----------	36	3237
Department PDED	totals:	131	7843
Plant totals:		3296	296229