

The Russia-Canada Co-operative Environmental Decision Making Project- Pollution Prevention Component

Russia-Canada Project

- Started April 1998 - completed in 2000
- One goal was to improve water resources management in the Angara Basin of southern Siberia
- Irkutsk is a major city in this region

Russia-Canada Project Goals

- Develop environmental decision making process between state and NGO's, and encourage new approaches in resolving issues between these groups
- Promote different environmental management methods

Russia-Canada Project Goals

- Facilitate and promote sustainable development concepts
- Evaluate positive field experiences in the region and promote this experience to other regions of Russia

Pollution Prevention Component

- Undertake preliminary Site Assessment during first week, and evaluate and prepare report and presentation for the following week at the 5th Irkutsk Project Workshop
- Occurred last half of May 2000

Local Irkutsk Representative Industry

- Joint Stock Company - Irkutsk Aviation Repairs Plant
- Demonstration of Pollution Prevention approach at a local industrial facility
- Facility depainted and painted aircraft, repaired plane electronics and contents, and performed some vehicle repairs

Irkutsk P20A Goals

- Customize P20A approach to project, location, and facility constraints
- Ensure facility management support the proposed approach, site activities, and report
- Highlight benefits of this type of proactive approach

Irkutsk P20A Challenges

- Compressed timeframe
- Cultural and economic environments
- Language differences
- Skepticism

Irkutsk P20A Issues Addressed

- Facility activities
- Material purchases
- Waste generation
- Energy and water consumption
- Associated costs
- Facility constraints

Irkutsk P20A Steps

- Gather facility P20A information
- Site observations
- Analysis of gathered information
- Identification and evaluation of P2 alternatives
- Report preparation and presentation

Irkutsk Facility Activities

- Purchasing, warehouse, material distribution
- Plane body repair
- Plane mechanical repair shop
- Plane wash shop
- Plane paint stripping

Irkutsk Facility Activities

- Electroplating shop
- Paint shop
- Vehicle maintenance and repair
- Utility areas
- Material storage areas

Irkutsk Facility P2 Topics

- Inventory control
- Material handling
- Solvent waste management
- Material substitution
- Waste management

Irkutsk Facility P2 Topics

- Operation task scheduling
- Electroplating material substitution
- Electroplating process optimization
- Painting practices and optimization
- Utility optimization and energy conservation

Irkutsk Facility Existing P2 Activities

- Just-in-time purchasing
- Solvent reuse
- Mechanical depainting
- Chromium removal from wastewater
- Countercurrent electroplate bath flow

Irkutsk Facility Existing P2 Activities

- Material receipt quality control
- Metal and battery recycling
- X-ray silver recovery
- Car repair use of HVLP spray gun

P2 Recommendations - Paint Stripping (no and low cost)

- Recycle gel solvent
- Reclaim liquid solvent by distillation
- Contain and reclaim volatized solvent
- Closed-loop cabinet stripping for small parts
- Solvent substitution

P2 Recommendations - Painting (no and low cost)

- Reduce overspray area
- Proper spray gun orientation to surface
- Minimize inadvertent spray gun triggering
- Clean paint gun while wet, in dedicated bath
- Material substitution

P2 Recommendations - Electroplating (no and low cost)

- Properly monitor water hardness
- Improve floor plan to minimize drag-outs
- Improve tank circulation
- Optimize bath chromium concentration
- Minimize bath evaporation
- Material substitution and recovery

P2 Recommendations - Parts Washing (no and low cost)

- Solvent substitution (to water based if possible)
- Minimize evaporation from baths
- Capture vented material and prevent release

P2 Recommendations - Utilities (no and low cost)

- Leak prevention program and seal maintenance
- Implement natural gas when available
- Repair boiler and obtain more efficient compressors
- Optimize electroplating schedule

P2 Recommendations - Purchasing (no and low cost)

- Request suppliers to provide 'environmentally friendly' paint and solvent alternatives: find suppliers with these materials
- Implement affirmative procurement practices

P2 Recommendations - General Practices (no and low cost)

- Implement preventative maintenance program
- Operator training in efficient operating procedures
- Centralize waste management
- Spill prevention, control and counter measures program

P2 Recommendations - Higher Cost Options

- Plastic media blasting for fuselage depainting
- Use of HVLP paint gun for aircraft painting
- Alternative paint option (non-solvent based, such as high solid or powder)

P2 Recommendations - Higher Cost Options

- Aqueous based cleaners
- Water pre-treatment for electroplating
- Electroplating metal recovery from baths
- Alternative energy source (natural gas)

Cost Saving Estimate of Proposed No and Low Cost P2 Recommendations

- Preliminary estimate of annual reduction of approximately 12% of current costs
- Propose to use these cost savings to apply to the more expensive P2 alternatives

P2 Challenges Encountered

- Lack of availability of material substitution alternatives
- Shipping costs and lack of product support
- Lack of translated information material
- Economic constraints of local industry

Project Successes

- Within a very short time, prepared and presented pollution prevention opportunities that could, for no or little cost, be implemented and result in significant cost savings
- Facility management realized the advantages of the approach

Next Steps?

- Continue with the positive momentum developed through this project, and maintain the relationships established
- Work to develop Pollution Prevention Centers of Excellence that could meet the needs of the local industries