

Lean & Clean

Case Study

Prepared for
NRC IRAP



Facility: WestWinn Group Corp.

Location: Sylvan Lake, AB & Vernon, BC

Background

NRC IRAP is interested in helping Canadian industries to secure the economic, environmental, and social sustainability benefits associated with lean & clean assessment work. In March 2009, NRC IRAP retained Enviro-Stewards Inc. (Enviro-Stewards) and its subcontractor, Process Impact Inc. (PII), to undertake a Lean & Clean opportunities assessment of WestWinn Group Corp.'s (WestWinn's) boat building facilities.

Participants

WestWinn Group Corp.

The Harber family started manufacturing car top aluminum boats in 1959. With growth and sales demand from major department stores, a second manufacturing plant was built in the 70s near Vernon, B.C. In 2004, the Westwinn Group Corporation became the parent company for Harbercraft boats, marketing and investing further into new product development and improved technology. As a result of this effort, the Harbercraft brand has emerged as a distinct leader in all-welded aluminum boat building in Canada.

Process Impact Incorporated (PII)

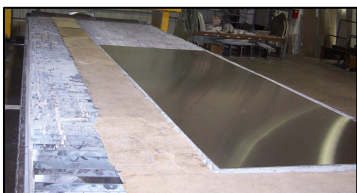
PII is a manufacturing consulting company specializing in Lean Manufacturing.

Enviro-Stewards Inc. (Enviro-Stewards)

Enviro-Stewards is an environmental engineering consulting firm specializing in Pollution Prevention (P2).

Process

WestWinn presently cuts and forms aluminum sheet stock at their Sylvan Lake facility and fits, welds, and cleans up boat hulls in a second (adjacent) facility in Sylvan Lake. The hulls are then transported to Vernon, BC where they are predrilled, painted, and fitted out for sale. WestWinn is presently constructing a consolidated production facility in Vernon, BC to accommodate all of the boatbuilding operations.



Methodology

The Lean & Clean assessment at the WestWinn facilities consisted of:

- A Lean & Clean training session, where the concepts of lean manufacturing and P2 were introduced;
- An in-plant process study and discussion of Lean & Clean opportunities with WestWinn staff; and
- A Lean & Clean Review study report.

Summary of Opportunities

Lean Opportunities

The consolidated production facility in Vernon will provide capacity for single-piece flow (based on product orders) from sheet stock through to final inspection. PII identified significant lean opportunities to facilitate this transition.

- Establish a Steering Committee to provide guidance and support to the Lean Implementation Teams
- The Steering Committee's role will be to ensure adequate time and training is available for all personnel
- The Team will also be available to remove barriers encountered by the implementation teams
- Establish an Implementation Team to develop and change or implement the specific new processes and procedures necessary to move toward a Lean organization
- It is recommended that the following Implementation Teams be formed with representation from fabrication, prep & paint, and finishing: Visual controls & Metrics, 5S Housekeeping, Value Stream Mapping, Process Improvement & Standard Work, and Scheduling and Synchronization

Clean Opportunities

Water Conservation

- Install water-efficient tap aerators, dual flush toilets, water efficient dishwasher in the new facility
- Investigate water conserving landscaping and watering practices
- Test higher efficiency rinse nozzle for hot water rinse following acid washing

Air Emissions

- Discontinuation of lacquer thinner for welding smoke removal from hulls (eliminate 97 kg/yr of toxics)
- Place covers over gun cleaner pre-rinse containers
- Investigate electrostatic painting (potential 15% reduction)
- Install drain for primer dispensing hose to drain back into drum
- Investigate water-based base coat (versus solvent based)
- Monitor progress of less toxic clearcoat & carpet glue.

Solid Waste

- Reassess nest patterns to reduce aluminum scrap rate (presently 20%)
- Receive Zolatone in drums or totes rather than pails to reduce waste to landfill and to reduce paint losses on container walls
- Investigate permanent masking (vs paper) for common mask jobs (such as below the water line)
- Segregate pallet waste from pressure-treated wood waste to facilitate reuse of the pallet waste (e.g. mulch or fuel)

Energy

Ventilation

- Mask off greater area of plasma bed and add timer controls
- Investigate hydro-cutting vs plasma to eliminate exhaust & increase precision
- Appropriately size welding smoke removal filters (to limit exhaust)
- Optimize flash off vent intakes to minimize use of wall exhaust fans
- Install two-speed fans or supplemental fans in spray booths (high velocity when spraying and lower velocity during flash off)

Lighting

- Replace T-12 lamps in small paint booth with T-5s
- Investigate "Staybright" HIDs (15% more light with 10% less power) compared to standard 400 watt bulbs

Compressed Air

- Implement procedure to find & repair leaks
- Reduce system pressure (loop supply line if necessary)
- Install timers & solenoids on air mixers (contact paint vendor)
- Install a lower capacity compressor in a lead function to reduce power consumption during periods without spray painting

Program Participants
