



Toyota Treasure Hunting Process



Toyota Treasure Hunt System Turns
Up Savings and Uses the Expertise of
Process Engineers
“Using People Resources for Energy Reduction”

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What is a Treasure Hunt?

- Internal Energy auditing process.
- Internal company resources (people and skills) identify energy reduction opportunities.



Treasure Hunt Operating Procedure

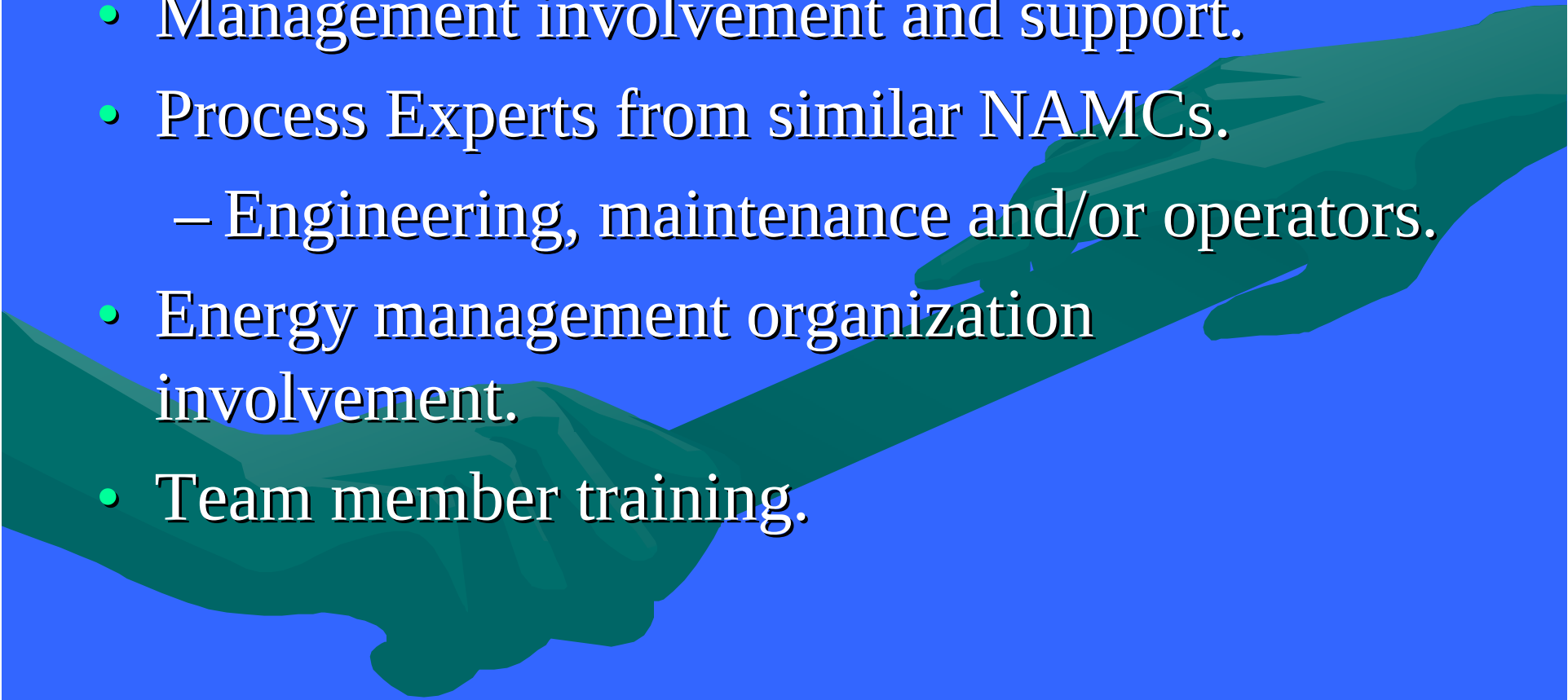
- The process start months before the actual event.
- Contact between the North American Manufacturing Company (NAMC) and TMMNA.
 - Set dates.
 - Brief senior management.
 - Identify NAMC participants.
 - Identify support NAMCs.
- Involve process engineering, maintenance and operations.
 - Process Engineering in charge of design.
 - Process maintenance personnel who repair the equipment.
 - Process Operators
- Make use of the existing energy management organization.

Facility Engineering OP for Treasure Hunts

VP	GM/AGM	MGR	Coord.	Orig.

		Preparation			Treasure Hunt			Follow up	
		- 4 mo	-3 to -1 months		Treasure Hunting: Day 1	Treasure Hunting: Day 2	Management Presentation	+ 4 wks	+ 3 to +6 months
TMMNA Facility Engineering	Schedule	Develop long range schedule	Set Date	Notify NAMCs and NA PE Shops of Date	Schedule Travel and lodging	Click off Schedule review TH History and Purpose	Click off Review Day 1 results Review Day 2 schedule	Schedule report review with NA and NAMC management	Schedule database and on site review
	Tools and Actions	Develop Std Agenda	Agenda Modify Agenda to NAMC needs	Send Agenda to participating NAMCs	Request host NAMC provide: Equipment schedules Prints Request support NAMC Provide list of attendees Review latest Kaizen Database progress reports with host NAMC. Review latest Quarterly and Non-Production reports with NAMC.	Introductions: Handouts: Data collection sheets Equipment schedules Prints Explain Detail Sheet Calculator features Need for accuracy Lead TH Teams (Assign leaders) Keep on goal ID energy reduction opportunities Create Detail Sheets	Lead TH Teams Keep on goal ID energy reduction opportunities Create Detail Sheets Work with all teams: Maintain focus on energy Assist in creating detail sheets. Explain concepts and energy determination to team members.	Consolidate Summary Sheets List all kaizens ID top 3 in each shop Lead management presentation: Total savings Production Non-Production Energy MMBTU MMBTU Dollars \$\$\$ \$\$\$ Awards/Certificate presentation: MMBTU/Unit T/H Attendee Certificate Best Group/Kaizen Certificate	Create Report Potential savings ID Focus items EAP percentage Review with: NAMC Mgtt NA Mgt Database Input ID as THYYYY Perform on site review of focus items. Pass Implementation information to support NAMCs Add suggested improvements to: Procedure Detail Sheets Data collection
Host NAMC	Schedule	Schedule confirmation	Set Date Schedule MCC Presentation on Treasure Hunt	Schedule Shop EMOs for participation	Schedule dining out locations			Plan Implementation Emphasis on Focus and operational items	
	Actions		Make Presentation to MCC on Treasure Hunt	Collect equipment schedules and prints.	Provide direction and in depth process knowledge ID energy saving Opportunities Create Detail Sheets Explain specifics of host NAMC operations and equipment. Liaise with host NAMC personnel to obtain required data	ID energy saving Opportunities Create Detail Sheets Liaise with host NAMC personnel to obtain required data	Support Summary Development List all kaizens ID top 3 in each shop Present: W/E and B/S energy reports. List of kaizens being worked on. Energy action plan and progress. Participate in presentation: Explain kaizens to management	Suggest improvements for: Procedure Detail Sheets Data collection Develop action plan for new kaizens: Implementation dates Progress	Update database. Schedule TMMNA FAC participation at EMO meetings
TMMNA Shop PE Groups	Schedule	Assign PE Engineer for each shop being Treasure Hunted to attend	Provide list of attendees to TMMNA FAC	Schedule Travel and lodging				Plan Yokoten of TH ideas to design. Reduce implementation cost Maximize energy reduction in process	
	Actions				Provide design expertise ID energy reduction opportunities Create Detail Sheets	Provide background data on host NAMC equipment design. ID specific features unique to the host NAMC. Create Detail Sheets	Support Summary Development List all kaizens ID top 3 in each shop Participate in presentation: Explain kaizens to management	Suggest improvements for: Procedure Detail Sheets Data collection	Liaise with appropriate TMC PE shop to yokoten concepts into design
Supporting NAMCs	Schedule	Schedule confirmation	Assign personnel from each shop being Treasure Hunted to attend	Provide list of attendees to TMMNA	Schedule travel and lodging			Plan Implementation of operational and low cost kaizens observed and ID'ed at the TH	
	Actions				Provide different perspective on the process ID energy saving opportunities Create Detail Sheets	Provide information on same process operations and equipment for support NAMC ID specific features or operations that could be yokoten'ed to the host NAMC.	Support Summary Development List all kaizens ID top 3 in each shop Participate in presentation: Explain kaizen to management	Carry back operational improvements to home NAMC. Carry back new kaizen ideas. Suggest improvements: Procedure Detail Sheets Data collection	Push for implementation of yokoten ideas.

Why Does a Treasure Hunt Work?

- Preparation and planning.
 - Management involvement and support.
 - Process Experts from similar NAMCs.
 - Engineering, maintenance and/or operators.
 - Energy management organization involvement.
 - Team member training.
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The Process: Day 1-Sunday

Kick Off Meeting

- Safety Training/Orientation
- Introduction to Toyota TH Tools
- Energy Training
- Audit selected shops for weekend energy use.
 - Identify all process and building equipment that is operating: need to run? turned it off?
 - Measure/meter consumption of equipment.
- Reconvene for Reflection Meeting
 - Discuss what was found.
 - Presents opportunities for other groups to review.



The Process: Day 2-Monday

- Kick Off Meeting prior to start of production
 - Review plan.
 - Describe desired activities.
- Audit selected shops for start up energy use.
 - Identify all process and building equipment that is operating.
 - Measure/meter consumption of equipment.

(Continued)



The Process: Day 2-Monday

- Continue audit after start up.
 - Observe process equipment operation.
 - Use team knowledge of process operation at the host NAMC and other NAMCs to identify opportunities.
 - Collect data:
 - Check for down flows, air flows, water flow rates, set points.
 - Compare host NAMC equipment against kaizen thought.
 - Equipment to operate in the mode desired?
 - What modifications might have to be made?
 - Observe process performance.
 - Identify process kaizen changes based on guest NAMC experience and knowledge.
 - Discuss with host NAMC operational and engineering

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The Process: Day 2-Monday

- Start detail sheet development.
 - Describe the current situation.
 - Quantify current consumption and cost.
 - Describe the proposed situation.
 - Estimate installation / modification costs.
- Daily Reflection meeting
 - Spokesperson tells the group what was found.
 - Identifies opportunities other groups may have missed.



The Process: Day 3-Tuesday

- Kick Off Meeting one hour prior to start of production
 - Review plan.
 - Describe desired activities.
- Continue to Audit selected shops.
- Review detail sheets and collect data.
- Continue detail sheet development.
 - Describe the current situation.
 - Quantify consumption and cost
 - Describe the proposed situation.
 - Estimate installation/modification costs.

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The Process Day 3-Tuesday

- Prepare for management presentation.
 - Totalize Savings.
 - Prioritize for implementation.
 - $A < 1$ year
 - $B < 2$ years
 - $C > 2$ years
 - Select three “best” kaizens.
- Management Presentation.
 - Introduce team.
 - Present total energy savings and cost reduction.
 - Three “best” items from each team.
- Closing statements.

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Post Treasure Hunt

- Prepare Summary Report.
- NAMC prioritizes identified opportunities.
- Follow up with NAMC on implementation.

June 2004 Treasure Hunt Summary Sheet

Shop	# Kaizens	NG MMBTU	Elec. kWH	Water kGal	Total MMBTU	MMBTU/ Veh	% Energy Target	Total CO2	CO2/ Veh.	Est.\$ Saving	Est. Cost Imple m	Simple Payba ck Period
Assy 1	36	-	299049	456	12070	0.0269	4.18%	809	0.011	\$\$	\$\$	0.49
Assy 2	25	-	364557	-	12439	0.0277	4.30%	987	0.014	\$ \$	\$\$	0.78

Summary:

Process Involvement

- Process engineering, maintenance and operations personnel.
 - From host NAMC
 - From associated NAMCs (Those with similar processes)
 - TMMNA PE engineers for shops being Treasure Hunted
- Compare and contrast process operations between plants.
 - Review how the local process operates.
 - Review how it operates at other NAMCs
- Develop a plan based on diverse experience and knowledge.
- Take home experience and knowledge to yokoten change.



Questions ???

