

Plant Survey Data Collection Worksheets



COOLANT

<i>Process Info</i>	Metallurgy of parts (specific #, i.e. 4140 Steel)			
	Machining Operations			
	Machine Tool OEMs			
	Current Fluid(s) in use			
	Customer fluid type preference			
	Water type and quality (send sample to lab)			
	Filtration types			
	Fluid analysis performed and frequency			
	Coolant pressure			
	Tooling types used (including coatings)			
	Problems (dermal, foam, mist, rust, residue, odor, bacteria, tool life, finish, service, high usage)			
	Customer needs / goals with coolant trial			
Cost details for Value Inside Calculator (VIC)		Current	Castrol	Comments
<i>Coolant Initial Fill Costs</i>	Avg # of Change-outs per Machine each Year			
	Number of Machines		n/a	
	Average Sump Size (Gallons)		n/a	
	Target Concentration %			
	Price per gallon			
	Freight (\$/gal)/ Surcharges			
	Labor Rate (\$/hour)		n/a	
	Number of people required to clean one machine		n/a	
	Number of hours / machine to clean		n/a	
<i>Turnover</i>	Total Annual Concentrate Usage (gal)			
	Turn over rate (Weeks)	n/a	n/a	
<i>Downtime</i>	Downtime Cost / Hour		n/a	
<i>Waste Treat</i>	Waste Treatment Cost/Gallon		n/a	
<i>Additive Costs</i>	Defoamer Cost / Gallon		n/a	
	# of Defoamer gallons / year			
	Biocide Cost / Gallon		n/a	
	# of Biocide gallons / year			
	Other Additive Cost / Gallon		n/a	
	# of Other Additive gallons / year			
	# of hours to handle all additions / year			
<i>Tooling Costs</i>	Annual Tooling Cost		n/a	
	Estimated Tool Life Improvement in %	n/a		

Plant Survey Data Collection Worksheets



CLEANERS

<i>Process Info</i>	Metallurgy of parts (specific #) and part description			
	Soil being removed			
	Current Fluid(s) in use			
	Washer OEM, type (spray, soak, etc), and # of stages			
	Rust protection needed (length of time after washer)			
	Fluid temperature and pressure			
	In-process or final washer? What is previous & next op?			
	Water type and quality (send sample to lab)			
	Filtration and skimmer types in use			
	Fluid analysis performed and frequency			
	Problems (cleanliness, residues, rust, foam, odor, bio)			
Cost details for Value Inside Calculator (VIC)		Current	Castrol	Comments
<i>Fluid Initial Fill Costs</i>	Avg # of Change-outs per Washer each Year			
	Number of Washers		n/a	
	Total Plant Sump Capacity (# washers x avg gal/wash)		n/a	
	Target Concentration %			
	Price per gallon			
	Surcharge (\$/gal)			
	Freight (\$/gal)			
	Labor Rate (\$/hour)		n/a	
	Number of people required to clean one washer		n/a	
	Number of hours / washer to clean		n/a	
<i>Turnover</i>	Total Annual Concentrate Usage (gal)			
	Turn over rate (Weeks)	n/a	n/a	
<i>Downtime</i>	Downtime Cost / Hour		n/a	
<i>Waste Treat</i>	Waste Treatment Cost / Gallon		n/a	
<i>Additive Costs</i>	Defoamer Cost / Gallon		n/a	
	# of Defoamer gallons / year			
	Biocide Cost / Gallon		n/a	
	# of Biocide gallons / year			
	Other Additive Cost / Gallon		n/a	
	# of Other Additive gallons / year			
	# of hours to handle additions / year			
<i>Energy Costs</i>	Gas or electric heating? PICK ONE ----->	Electric	n/a	
	Water Usage per year, gallons			
	Ambient Temperature, °F		n/a	
	Incoming Water Temperature, °F		n/a	
	Washer Bath Temperature, °F			
	Cost of Electricity (\$/kw-hr) or Cost of Gas (\$/therm)		n/a	
	Heater Efficiency		n/a	If unknown, use 73% for gas and 93% for electric.

RUST PREVENTIVES (RPs)

<i>Fluid Info</i>	Minimum fluid flash point required	
	Base fluid preference (solvent, oil, water)	
	Film on parts preferred (dry, oily, etc.)	
	Will parts be painted or welded prior to removal of RP? Please describe	
	Part drying time required	
	Current fluid(s) used	
	Current fluid concentration (water-based only)	
<i>Application Info</i>	Length of protection required	
	Details of how RP is applied (dip, spray, by hand, etc.)	
	Process prior to RP application (i.e. are parts wet when RP applied?)	
	Metallurgy of parts	
	Description/shape of parts	
	Final protection or in-process/short-term?	
	Details of how parts are stacked/stored	
	Location of part storage (indoor, outdoor, covered, etc.)	
	Atmosphere of storage (temp, humidity, etc.)	
	Problems or improvements desired	
No RP calculator at this time		

Plant Survey Data Collection Worksheets



HYDRAULICS

Process Info	Current Fluid(s) in use			
	System pressures			
	Operating temperatures			
	Type of pumps in use			
	Type of valves in use			
	Type of actuators in use			
	Filters (micron and beta ratio) and location on unit			
	Breather type			
	How is fluid transferred to machine?			
Oil Analysis Program	Systems sampled and frequency			
	Where, how, and who takes samples?			
	Tests run (review some of the reports)			
	Cost of samples			
Cost details for Value Inside Calculator (VIC)		Current	Castrol	Comments
Fluid Cost	Avg # of Change-outs per Unit each Year			
	Number of Units		n/a	
	Total Plant Sump Capacity (# units x avg gal/unit)		n/a	
	Total Annual Usage (gal)		n/a	
	Price per gallon			
	Surcharge (\$/gal)			
	Freight (\$/gal)			
	Labor Rate (\$/hour)		n/a	
	No. of people required to change-out one unit		n/a	
	# of hours / unit to change-out		n/a	
Waste Treat	Waste Treatment Cost / Gallon		n/a	
Equipment Life	Pumps - Failures per year			
	Pumps - Equipment cost per failure		n/a	
	Pumps - labor man-hours / failure		n/a	
	Pumps - downtime hours / failure		n/a	
	Valves - Failures per year			
	Valves - Equipment cost per failure		n/a	
	Valves - labor man-hours / failure		n/a	
	Valves - downtime hours / failure		n/a	
	Actuators - Failures per year			
	Actuators - Equipment cost per failure		n/a	
	Actuators - labor man-hours / failure		n/a	
	Actuators - downtime hours / failure		n/a	
	Downtime	Downtime Cost / Hour		n/a

Plant Survey Data Collection Worksheets



SLIDEWAYS

Process Info	Way oil in use	
	OEM required way oil	
	Lube System OEM	
	Lube System Type:	Single Line Resistance (orifice, Bijur-type)
		Single Line Series Progressive (Trabon-type)
		Single Line Parallel Injector (Lincoln-type)
		Dual Line Parallel (Farval-type)
		Circulating Oil System
	Orientation of ways (Horizontal/Vertical/Both)	
	Type of ways (Plain, Vee, Rolling Element, Hydrostatic)	
	Tramp oil levels in coolant systems (%)	
	% Tramp oil attributed to Way oil	

Cost details for Value Inside Calculator (VIC)		Current	Castrol	Comments
Fluid Cost	Number of Lubrication Units		n/a	
	Average Reservoir Capacity (gal)		n/a	
	Annual usage (gal)		n/a	
	Usage Reduction Potential (%)	n/a		
	Price per gallon			
	Surcharge (\$/gal)			
	Freight (\$/gal)			
	Labor Rate (\$/hour)		n/a	
	Refill Frequency (fills per month per unit)		n/a	Reduction based on usage reduction potential %
	# of hours / unit to refill		n/a	
Waste Treat	Waste Treatment Cost / Gallon		n/a	If calculated separate from the coolant system
	# of Gallons / year			Reduction in waste
Equipment Life	Lube System - Failures per year			
	Lube System - Equipment cost per failure		n/a	
	Lube System - Labor man-hours / failure		n/a	
	Lube System - Downtime hours / failure		n/a	
	Machine Ways - Repair/Replacements per year			
	Machine Ways - Equipment cost per failure		n/a	
	Machine Ways - Labor man-hours / failure		n/a	
	Machine Ways - Downtime hours / failure		n/a	
	Other Problems - Failures per year			
	Other Problems - Equipment cost per failure		n/a	
	Other Problems - Labor man-hours / failure		n/a	
	Other Problems - Downtime hours / failure		n/a	
Downtime	Downtime cost per hour		n/a	

Plant Survey Data Collection Worksheets



GEARS

<i>Process Info</i>	Current Fluid(s) in use			
	Gear type (spur, helical, worm, etc)			
	Operating temperatures			
	Gear load (in relation to rated load)			
	Possible contaminants (liquids and solids)			
	Lube method (pressure fed or splash)			
	Life of gears			
	Gearbox failure modes (gear wear, bearings, etc)			
	Filters (micron and beta ratio), if equipped			
	Breather type			
<i>Oil Analysis Program</i>	Systems sampled and frequency			
	Where, how, and who takes samples?			
	Tests run (review some of the reports)			
	Cost of samples			
Cost details for Value Inside Calculator (VIC)		Current	Castrol	Comments
<i>Fluid Cost</i>	Avg # of Change-outs per Unit each Year			
	Number of Units		n/a	
	Total Plant Sump Capacity (# units x avg gal/unit)		n/a	
	Total Annual Usage (gal)		n/a	
	Price per gallon			
	Surcharge (\$/gal)			
	Freight (\$/gal)			
	Labor Rate (\$/hour)		n/a	
	No. of people required to change-out one unit		n/a	
	# of hours / unit to change-out		n/a	
<i>Waste Treat</i>	Waste Treatment Cost / Gallon		n/a	
<i>Equipment Life</i>	Failures / rebuilds per year			
	Cost per gearbox failure / rebuild		n/a	
	Downtime hours / failure		n/a	
	Labor man-hours per failure		n/a	
<i>Downtime</i>	Downtime Cost / Hour		n/a	

BEARINGS / GREASE

<i>Process Info</i>	Current grease(s) in use			
	Type of equipment lubricated			
	Bearing type (ball, roller, spherical, etc)			
	Bearing number or size (OD, ID, width)			
	Shaft rotational speed (RPM)			
	Bearing temperatures			
	Bearing load (in relation to rated load)			
	Possible contaminants (liquids and solids)			
	Lube method (manual, automatic, electroluber)			
	If auto, type of system and timer settings			
	If manual, re-lubrication frequency and amount			
	Life of bearings			
	Bearing failure modes			
Cost details for Value Inside Calculator (VIC)				
		Current	Castrol	Comments
<i>Fluid Cost</i>	Usage, lbs/month			
	Price per lb			
	Surcharge (\$/gal)			
	Freight (\$/gal)			
	Labor Rate (\$/hour)		n/a	
	Manual or Automatic greasing? - CHOOSE ONE -->		n/a	
	# of times bearings are manually greased / year			If Automatic is chosen, LEAVE BLANK
	# of man-hours per greasing			If Automatic is chosen, LEAVE BLANK
<i>Waste Treat</i>	Waste Treatment Cost / Gallon			
	# of Gallons / year of grease waste treated			
<i>Equipment Life</i>	Bearing failures per year			
	Bearing equipment cost per failure		n/a	
	Man-hours to replace a bearing		n/a	
	Downtime hours per bearing failure		n/a	
<i>Downtime</i>	Downtime Cost / Hour		n/a	

Plant Survey Data Collection Worksheets



COMPRESSORS

Process Info	Compressor type (screw, vane, recip, centrifugal)			
	Compressor OEM and model			
	Current Fluid(s) in use			
	OEM fluid recommended			
	Operating temperatures (typical and max)			
	Compressor condition			
	Type of seals			
	PM schedule / frequency			
	Filters (micron and beta ratio) and location on unit			
Oil Analysis Program	Sample frequency			
	Where, how, and who takes samples?			
	Tests run (review some of the reports)			
	Cost of samples			
Cost details for Value Inside Calculator (VIC)		Current	Castrol	Comments
Fluid Cost	Avg # of Change-outs per Unit each Year			
	Number of Units		n/a	
	Total Plant Sump Capacity (# units x avg gal/unit)		n/a	
	Total Annual Usage (gal)		n/a	
	Price per gallon			
	Surcharge (\$/gal)			
	Freight (\$/gal)			
	Labor Rate (\$/hour)		n/a	
	No. of people required to change-out one unit		n/a	
	# of hours / unit to change-out		n/a	
	Waste Treat	Waste Treatment Cost / Gallon		n/a
Equipment Life	Equipment 1 - Failures per year			
	Equipment 1 - Equipment cost per failure		n/a	
	Equipment 1 - labor man-hours / failure		n/a	
	Equipment 1 - downtime hours / failure		n/a	
	Equipment 2 - Failures per year			
	Equipment 2 - Equipment cost per failure		n/a	
	Equipment 2 - labor man-hours / failure		n/a	
	Equipment 2 - downtime hours / failure		n/a	
	Unplanned Cleaning or PM - Times per year			
	Unplanned Cleaning or PM - Equip cost per event		n/a	
	Unplanned Cleaning or PM - labor man-hours / event		n/a	
	Unplanned Cleaning or PM - downtime hours / event		n/a	
	Downtime	Downtime Cost / Hour		n/a

DEFORMATION - Stamping and Drawing

<i>Process Info</i>	Metallurgy of parts (specific #) and part description			
	Metal from blanks or coils?			
	Stamping/drawing Operations			
	Material gauge (thickness)			
	Number of stages to complete operations			
	Machine OEMs and type (mechanical, hydraulic, etc)			
	Speed of operation (strokes/min, parts/min, etc)			
	Current Fluid(s) name and type; customer type preference			
	Fluid delivery type (once-thru, recirc) & system descrip			
	Die and Tooling types used (metallurgy, coatings, etc)			
	Parts handling process and challenges/costs			
	Part cleaning process and challenges/costs			
	Fluid analysis performed and frequency			
	Water type and quality (send sample to lab)			
	In-process rust protection - length of time needed			
Problems (dermal, mist, rust, residue, odor, bacteria, tool life, finish, high usage, part finish, cleaning, welding)				
No Deformation calculator at this time.		Current	Castrol	Comments
<i>Fluid Costs</i>	Avg # of Change-outs per Unit each Year			
	Number of Units		n/a	
	Total Plant Sump Capacity (# units x avg gal/unit)		n/a	
	Target concentration %			
	Price per gallon (including freight & surcharges)			
	Labor Rate (\$/hour)		n/a	
	Labor man-hours per machine cleanout		n/a	
	Total Annual Concentrate Usage (gal)		n/a	
<i>Downtime</i>	Downtime Cost / Hour		n/a	
<i>Waste Treat</i>	Waste Treatment Cost / Gallon		n/a	
<i>Additive Costs</i>	Defoamer Cost / Gallon		n/a	
	# of Defoamer gallons / year			
	Biocide Cost / Gallon		n/a	
	# of Biocide gallons / year			
	Other Additive Cost / Gallon		n/a	
	# of Other Additive gallons / year			
<i>Scrap</i>	Scrap / rework rates and cost			
<i>Tool & Die Costs</i>	Die Life			
	Annual Die cost			
	Die cleaning frequency and cost			
	Tool Life			
	Annual Tool cost			