LAYERED PROCESS AUDIT & SKILLS MANAGEMENT

Quality & Industrial Performance Version 3

"Going From Reactive to Proactive"

PSA

GROUPE

Reference Doc-Info: 01601_13_00154

Introduction

PURPOSE:

- Ensure consistent application and execution of standards.

- Improve built-in-quality and increase operator/leadership awareness facilitated by coaching/teaching interaction between leadership & operators

SCOPE:

- Assembly Area

- Manufacturing Operations

- Shipping / Receiving

- All Operations

- Other Support Functions

RESPONSIBILITY:
- Ownership
  - ✓ Plant/Operations Mgr

- Contingency Plan for All Situations

BENEFITS:

- Layered Process Audits provide a system to:
    - verify compliance to the documented process.
    - instill discipline.
    - improve communication.
    - improve overall quality.

- Ensures a high level of process control by identifying & controlling high risk/significant process elements.

- Maintains proper application of standards as defined & achieved through operational readiness process.

- Identify opportunities for improvement & provide a process for effective follow up.

Layered Process Audit Strategy, what are we searching for?

Item	Requirement	#Criteria	Criteria requirement
LPASK1	A generic Layered Process Audit (LPA) is established on whole activities.	LPASK11	Written Procedure which contain the rules of LPA in particular : - audit frequency (at least each operation audited once/month) - LPA check sheet with guidelines of audit, included. - qualification rules to qualify LPA performers. - all management level are involved (from team leader to top management) - first level shall be owned by operational teams (ex : manufacturing team for manufacturing area) - all shifts are audited - action plan included containments activities are defined
		LPASK12	Layered Audit Check Sheet is developed and applied for all operational areas(manufacturing, logistic, maintenance). Check sheet contain at minimum : - safety/ergonomic items: proper safety practices and PPE are being followed, - skills matrix : Only qualified people are working. - std work: it's being strictly followed, - start-up standard : strictly applied and escalated in case of failure. - workplace organization: standards are maintained, proper tools, gages and materials are available & used, quality checks, FIFO, material handling, standard in stock process are in place and being followed. - specific controls: related to CSEs product and process, customer issues, low capability process, special process are in place and being followed. - error proofing verification: out of control situations are identified and managed.
		LPASK13	People who perform LPA shall be trained and qualified.
		LPASK14	LPA is applied for standard processes of supporting functions.
		LPASK15	Internal Process specific audits are performed (i.e. Process/Commodity Specific Audit , CQI audits etc.).

Criteria of Requirement

Next Requirement

Process Overview Layered Audits

QSB+ Key Elements

- Safety – PPE
- Standardized Work
- In process Product Checks
- WPO,Visual Mgmt.
- Tool Maintenance
- Process Control Checksheets
- Etc.

Basis of Layered Audits

Plant Staff Audit

Shift Leader Audit

Group Leader Audit

Team Leader Audit
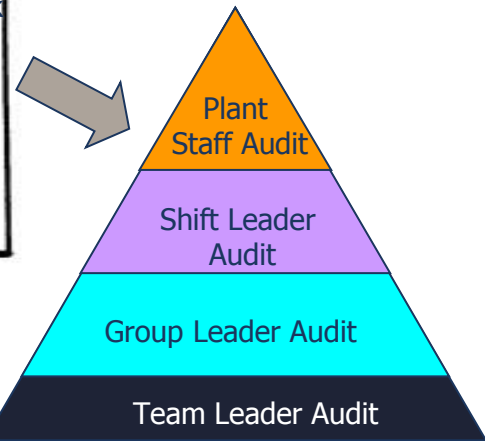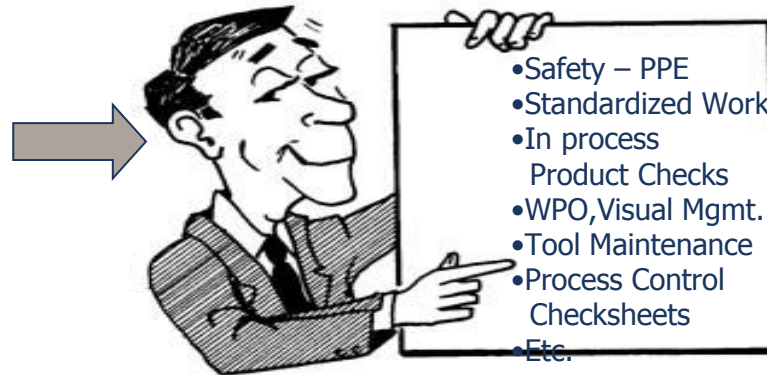
Layered Audit

Performance Reviewed in Plant Leadership Meeting

- Completion of audits to schedule
- Compliance

Non-conforming info - Countermeasures
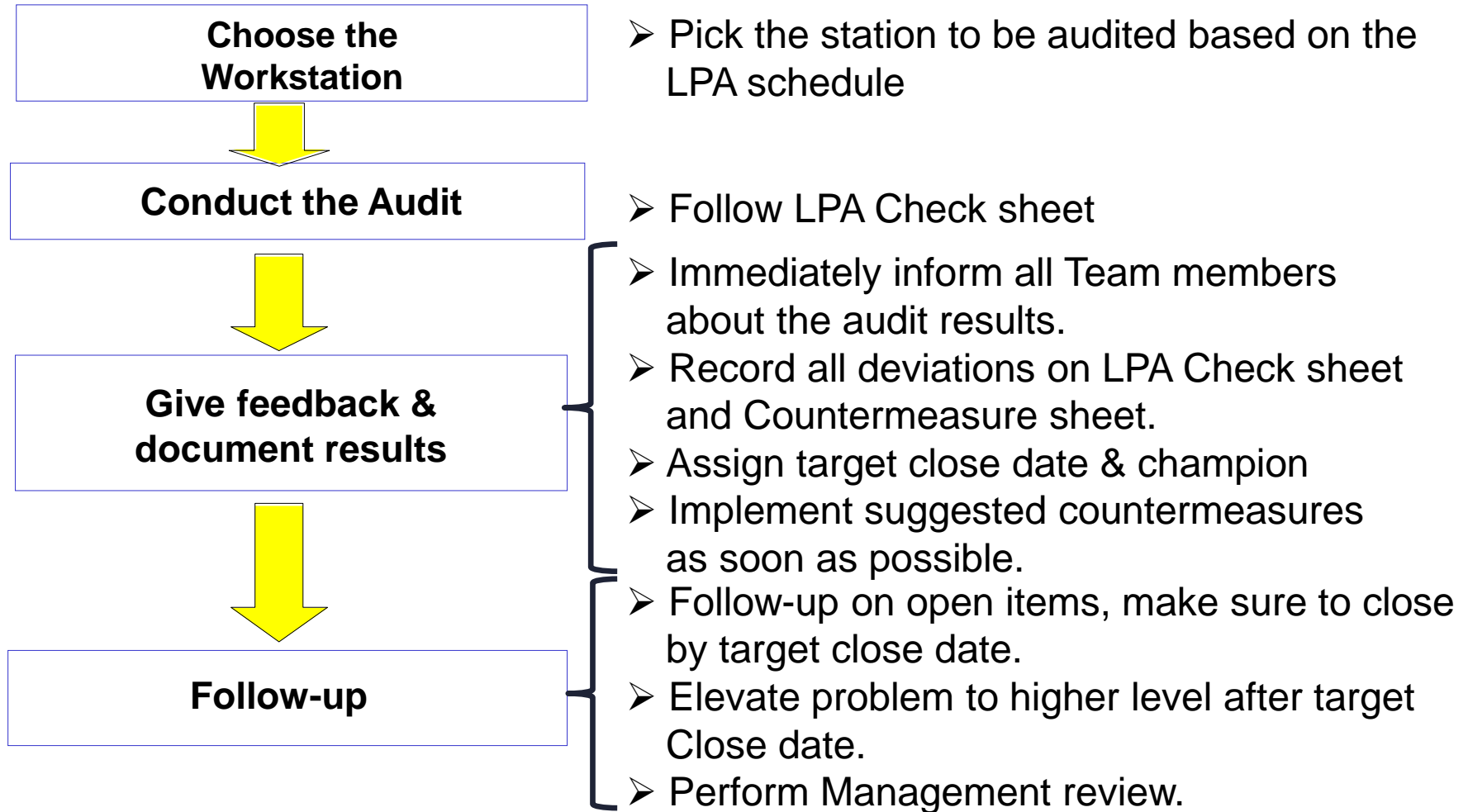
Performance Metrics
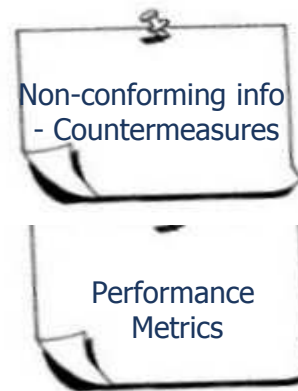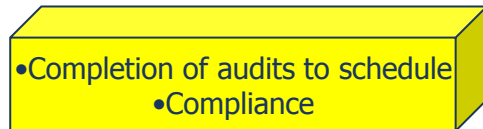
Process explanation

- Layered Process Audit (LPA) is a standardized audit performed on a regular, frequent basis by all layers of the organization to verify adherence to operational standards.

- LPA's are an industry standard.

- LPA's supplement ongoing control plan and job instruction checks.

- LPA's shall be owned by manufacturing leadership (Team Leader – Plant / Operations Manager).

- Quality and other functions will participate and support the LPA system.

Process explanation (continued)

- **The Layered Process Audit system includes:**

  – Schedule and tracking of audits.

  – Identifying high risk items for the LPA.

  – A LPA Checklist that evaluates current processes to established standards.

  – Identification of corrective action requirements and countermeasures.

  – Regular review process by senior management of the audit results and corrective actions.

Process explanation (continued)

Choose the Workstation	➤ Pick the station to be audited based on the LPA schedule
⬇	
Conduct the Audit	➤ Follow LPA Check sheet
⬇	
Give feedback & document results	➤ Immediately inform all Team members about the audit results. ➤ Record all deviations on LPA Check sheet and Countermeasure sheet. ➤ Assign target close date & champion ➤ Implement suggested countermeasures as soon as possible.
⬇	
Follow-up	➤ Follow-up on open items, make sure to close by target close date. ➤ Elevate problem to higher level after target Close date. ➤ Perform Management review.

LPA Check sheet

- **LPA results are documented on LPA Check sheet .**

    The intent is to have a single page LPA Check sheet form that is manually completed on production floor. The back side of the form is available to write down the non-compliance comments.

- **Establish LPA Check sheet questions from the high risk items.**

    - A LPA Check sheet should have two common sections (Workstation and Manufacturing System) and one section (Quality Specific), that is customized to a specific Product Line or Area of the Plant.

    - Workstation and Quality Specific sections of the LPA Check sheet shall be completed by all auditors. The Manufacturing System section shall be completed by the site leadership only.

    - A LPA Check sheet should be created for each unique processing area

LPA Check sheet (continued)

(Example)

HEADER: Enter the System Name Product line or an area of the Plant
1. Molding
2. Paint/Coating
3. Assembly
4. Warehouse/Shipping

Section #1:
COMMON Workstation Questions

Section #2:
UNIQUE Quality Focused Questions

Section #3:
COMMON Manufacturing System Questions

In this Example the Manufacturer would have (4) four unique one page audit forms/files, to cover all processes.

LPA Check sheet (continued)

Header & Work Station Specific

(Example)

LAYERED VERIFICATION CHECK SHEET			Date: _____
SYSTEM:	**INSTRUMENT PANELS**		Shift: _____
Reviewer: _____		Supervisor/Mgr.: _____	
Workstation: _____		Team Leader: _____	

Section #1:		WORK STATION SPECIFIC	
PI	1	Is the team member using all the posted Personal Protective Equipment?	
	2		
	3		
STD	4		
	5		
	6	Is standardized work being followed as defined by the the Standardized Work Documents at Workstation, (LBS/PADS) and does the Team Member have a good understanding of the WHAT-HOW-Key-Points-Reasons WHY - minimum 3 cycles	
	7	Is the Pink Tag Process being used for ALL repairs?	
	8	Are the correct tools and gages present, in use and in Standardized Work?	
BIQ	9	Are the product quality standards clear, available & followed? (Boundary samples, etc.)	
	10	Does the team member know the quality standards of the job, key points & reasons for major steps?	
	11	Do you know what the customer concers are? (What are the Q-stations checking for from your station)	
	12	Are Team Members working ehead out of footprint? (check for parts accumulating on the floor, racks.etc.)	
	13	Are all process checks being performed & documented? (Error proofing, torque gun & scanner validation)	
	14	Are Defective parts located in clearly visible containers (Taped or painted red all the way around the container, clearly tagged)	
SLT	15	Are the material flow racks, risers, lift & turn tables labeled with correct part numbers on the operator & aisle side and is the correct part in the container?	
	16	Check for MIN/MAX conformance & Is material being used in a FIFO (First In First Out) sequence?	
CI	17	Is the call for help (Andon) system working properly (e.g. station light, music, paging system, telephone, radio etc..)?	
	18	Are start up & end of shift checks defined and performed?	

Has the team member been qualified to requirements of the job and is this documented?

LPA Check sheet (continued)

Quality Specific & Manufacturing System   (Example)

		Section #2: SYSTEM SPECIFIC (CUSTOMER & PROCESS HIGH RISK ISSUES driven by the FAST RESPONSE REVIEWS)	
BIQ	1	**Marriage Station -** Verify that the Tunnel bracket error proofing is working and being verified on both shifts?	
	2	**Station #4 -** Verify that the wire harnesses are being installed correctly? (is PUSH-CLICK-TUG being performed)	
	3	**Station #6 -** Verify that the GPS antenna Standardized work is being followed? (Customer has found missing antennas)	
	4	**Station #12 -** Verify that the installation of glove box is following Standadized Work? (is Sponge Bob & force gage being used)	
	5	**Station #14 -** Verify that the Radio/harness connections are fully seated & marked? (is PUSH-CLICK-TUG being performed)	
	6	**Station #15 -** Verify that the installation of Ashtray is following Standardized Work? (does it open easily)	
	7	**Station #22 -** Verify that the Installation of Center Stack is being installed correctly? (Cracks, gap, etc.)	
		Section #3 MANUFACTURING SYSTEM SPECIFIC	
PI	1	Are the flexibility charts up to date? (Training Matrix)	
STD	2	Are the Layered Audits being performed by all levels of the organization?	
	3	Are work place organization standards being followed (e.g. all parts/tools/jigs in station have a designated space)?	
BIQ	4	Are the process control plans up to date & followed?	
	5	Randomly Audit past closed PR&R for corrective action implementation (Document PR&R#_____)	
	6	Is material properly identified in the work area with suspect/non-conforming material isolated?	
	7	Are **Fast Response meetings** taking place and all records up to date?	
	8	Does evidence (sign in sheet, data charts, etc) at the **verification station board** indicate that meetings are taking place as scheduled and that appropriate assignments / follow up is taking place?	
SLT	9	Is FIFO (First In First Out) material management being followed?	
	10	Are the minimum/maximum direct material quantities in compliance?	
CI	11	Is the call for help (Andon) system implemented to achieve communication of manufacturing problems?	
	12	Do people respond accordingly to the escalation process, and are VS station Immediate Response Logs being used?	
	13	Are call for help (Andon) system data posted & utilized in the problem solving process?	
	14	Are Business metrics on the Shop Floor properly marked & up to date (specify area that was audited)?	
	15	Do Business metrics countermeasures correspond to red items and are they tracked & show appropriate follow up?	
	16	Are problem solving forms posted, has team developed corrective actions & do forms show appropriate follow up?	
	17	Are layered audit results incorporated into the layered audit countermeasure process?	

Development of high risk items for auditing

High risk items shall be identified and included in the audit.

They **should be** organized in 3 main sections:

- Workstation Specific – 5S, Workplace organization, Safety, Ergonomic– list of checks, applicable to all workstations

- Quality Focused – checks are specific to operations and developed by product line or area, based on quality feedback(internal/external), process knowledge, and problem solving

- Manufacturing System Specific – Flexibility Charts up to date, Workplace Organization being followed, Process Control Plan up to date and followed, Material properly identified, Fast Response meeting are taking place and Exit Criteria is being followed in a proper way, Call for help system working, Business Metrics on the Shop Floor posted and up to date, Layered Audit being performed and actions are being implemented, etc. – list of checks applicable to an area/department/plant

Development of high risk items for auditing (Continued)

- The Workstation Specific section of the Layered Audit Check Sheet is used by all levels of the organization. This section looks at things such as:

  - Ensuring proper safety and ergonomic practices and PPE are being followed.

  - Ensuring proper tools, gages and materials are available & used.

  - Ensuring *standardized work* & quality standards are understood & followed.

  - Ensuring Andon system is functioning properly.

  - Ensuring Workplace Organization & Visual Management standards are maintained (e.g. according to the plant WPO   standards and Visual Management policy).

  - Ensuring compliance to Material Processes – FIFO/Min.-Max. Levels.

Development of high risk items for auditing (Continued)

- The Quality Focused section *(used in production areas)* covers all important quality issues for specific area/plant and is also used by all levels of the organization to support the team member**:**

  - Ensuring control of identified significant process elements which can impact:
    - Warranty
    - Customer (Internal/External)

  - Specific items regarding corrective action implementation to customer concerns. (e.g. *error proofing* verification, use of fixture added to complete *standardized work*

  - Ensure *error proofing* is functioning properly and identified high risk/ significant process elements are controlled to prevent known problems from reoccurring.

  - Ensure required quality inspection and/or documentation is being completed.

Development of high risk items for auditing (Continued)

- In addition to the Workstation Specific and Quality Focused sections, Managers/Directors/CEO also review an area/department using the Manufacturing System Specific audit for things such as:

(Note: Supervisor/Group Leader/Team Leader are not required to complete this portion of the Layered Audit.)

- Completion of safety talks & tours

- Compliance to Process Control Plans

- Conformance to Workplace Organization standards

- Proper use of the Andon System

- Effective Problem solving & countermeasure implementation

- Effective use of Layered Process Audits process for control and follow up

Verification that special process audits are performed shall be included as applicable. (e.g. CQI 9, 11, 12, Weld Audit, Chrome Audit, Paint Process Audit)

Auditor hints

- Verify if the LPA procedure define:

- Frequency

- who shall perform the LPA

- how to conduct the LPA (standard method)

- how to record and treat issues

Examples of fields in the LPA check sheet form:

Workstation

- PPE: the team member is using all the posted Personal Protective Equipment

- Work Instructions (for example: Standard Operation Sheet, Job Element Sheet).

- Proper tools, gages and materials available and used.

Auditor hints (Continued)

Quality Focused

- Specific Controls are in place in order to protect the customer and they are effective

- Ensure control of significant process elements which can impact areas such as Customer Satisfaction, PPM, Warranty.

- Ensure control of high risk elements including: Operator/ Process Sensitive Operations, Key Process Control Operations/Checks, Mandatory Assembly Sequence Operations.

Manufacturing System

- Visual Management: conditions out of target were identified and there's an action plan

- Errors Proofing Verification activity is being performed

- Flexibility Chart is up to date

- Verify that auditor understood the questions, LPA check list filled in properly: follow a team/group leader in a LPA. Verify if they use the Standard Method.

Levels and schedule, what are we searching for?

Item	Requirement	#Criteria	Criteria requirement
LPASK2	LPA which covers the whole operational activities is carried out and owned by manufacturing.	LPASK21	Each workstation is audited and schedule frequency is defined to ensure: - covering all the shifts, - each operation audited minimum once per month, - containment activities (e.g.: sorting, Controlled Shipping, GP12 etc.) are covered by LPA.
		LPASK22	LPA Schedule for several Levels (minimum of 2 levels) : showing participation of several Levels (from Team Leader to its managementl) with established frequency for all manufacturing areas.
		LPASK23	LPA schedule is tracked by manufacturing.
		LPASK24	LPA are perfomed regularly by TOP MANAGEMENT (Plant manager, manufacturing manager ...).

Criteria of Requirement

Prev. Requirement   Next Requirement

Scheduling and tracking

- Define the organization levels to perform audits.
- Define audits frequency for each level of the organization.

Layered Process Audits levels & frequency:

- Daily, the manufacturing supervisor or Team Leaders/team members shall perform audits (in all shifts).

- Weekly, the manufacturing area manager or Management Support Staff (i.e. Engineering, Maintenance, Quality) shall audit & verify that supervisor or Team Leader verification is being completed.

- Monthly, the site leadership (Plant Manager) shall conduct Layered Process Audits and review audit results and corrective actions.

- Quarterly, CEO shall audit and verify that previous levels LPA and process specific audits have been performed.

Scheduling and tracking (continued)

(Example)

CEO/Executive Managers / Directors **Quarterly / minimum**

**Plant Manager
1 time / month**

**Manager / Management support staff
1 time/week**

**Supervisor / Team Leader
Daily**
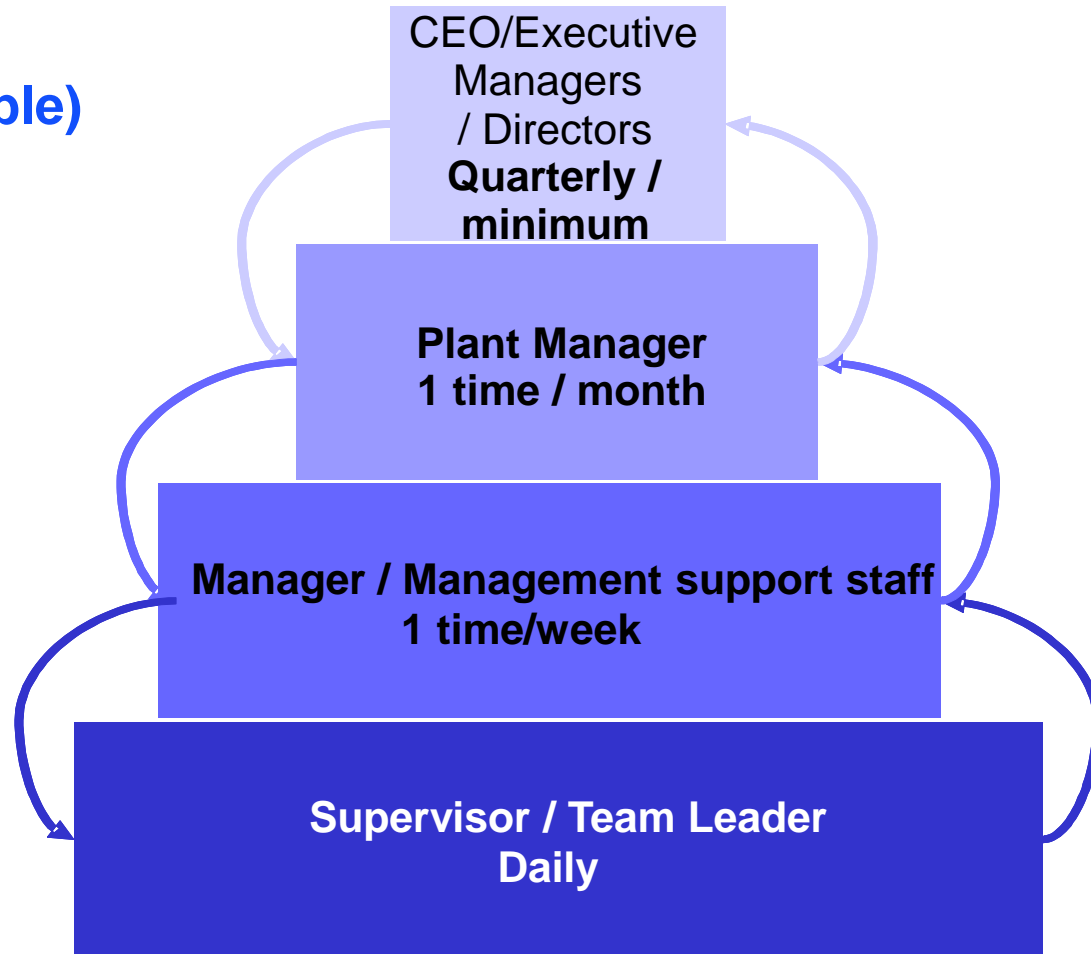
Scheduling and tracking (continued)

The example at the right is another way to ensure each station within a work area is evaluated at a minimum, on a monthly basis (including containment activities, rework areas and material handling). This chart is used by all auditors to determine which stations have not yet been audited and requires the auditor to write down their name, date, and shift for the stations they chose for the audit.

The goal is to audit each work station where a team member is present one time each month.

(Example)

Scheduling and tracking (continued)

(Example)

Identifying Audits to be completed by the leadership staff is essential to ensure that all areas on the shop floor interact with the management team. An example schedule at the right addresses both the required frequency by manager and the status of this interaction.

Leadership Staff Layered Audit Schedule and Status

Auditor hints

- In the shop floor, select a workstation and verify how the workstation is audited by LPA:

  - frequency is according to the plan,

  - once a problem is identified, how the team member is informed,

  - check if safety issues are detected by LPA,

  - verify if "top level" is conducting the audit.

- Check back LPA records, verify that audits were really performed according to schedule and all the operational activities were audited (not only manufacturing operations, but material handling, storage, shipping etc.).

- Verify if containment/rework activities are included in the LPA Plan.

Records and countermeasure, what are we searching for?

Item	Requirement	#Criteria	Criteria requirement
LPASK3	**A follow-up of the LPA and associated action plans are in place. Deviations are treated**	**LPASK31**	**LPA records: All the LPA results are documented including** **- no deviation found,** **- deviation found / not corrected during audit,** **- deviation corrected during audit,** **- not applicable.**
		LPASK32	**A countermeasure Sheet exists and address deviation found / not corrected during audit (non-conformances or operator claims as well as safety/ergonomic issue).**
		LPASK33	**The countermeasure Sheet is managed in order to define corrective action plans and to ensure the full implementation of all corrective actions.**
		LPASK34	LPA results are used to Continuous Improvement. Countermeasure Sheet is used for Continues Improvement too. (e.g.: if a best practice is discovered during the LPA it should be used as a driver to improve the current Standard Work).

Criteria of Requirement

◁ Prev. Requirement   Next Requirement ▷

LPA Check sheet Evaluation

- There are four results that can come out of each audit question:

    - Y – No deviation found

    - N – Deviation found / not corrected during audit

    - NC – Deviation corrected during audit – drive this behavior

    - N/A – Not applicable (established at Plant/Shift Leader level)

- All Deviations shall be recorded on the LPA Check sheet .

- Describe deviations in the detail section on the back of the LPA Check sheet

- Any Deviations that can be corrected immediately will have a letter 'C' next to N.

- Any Deviations that cannot be immediately corrected should have additional detail written and transferred to a Countermeasure Sheet.

- Reasons for non-compliance should be understood.

LPA Check sheet Evaluation

(Example)

LAYERED AUDIT CHECK SHEET		Date: _____
SYSTEM:	**INSTRUMENT PANELS**	Shift: _____

Reviewer: _____ Supervisor/Mgr.: _____

Workstation: _____ Team Leader: _____

Section #1: WORK STATION SPECIFIC

1	Is the team member using all the posted Personal Protective Equipment?	
2	Is the Job rotation log present & up to date? (Employee Station Shift Information)	
3	Has the team member been qualified to requirements of the job and is this documented? (operator certification/training)	**Y**
4	Is the work station safe, neat, clean & orderly? (everything in it's place per work place organization standards, 5S-WPO)	
5	Are all forms up to date at the workstation? (Standardized Work, Quality Alerts, etc..)	
6	Is standardized work being followed as defined by the the Standardized Work Documents at Workstation, (LBS/PADS) and does the Team Member have a good understanding of the WHAT-HOW-Key-Points-Reasons WHY - minimum 3 cycles	
7	Is the Pink Tag Process being used for ALL repairs?	
8	Are the correct tools and gages present, in use and in Standardized Work?	**NC**
9	Are the product quality standards clear, available & followed? (Boundary samples, etc.)	
10	Does the team member know the quality standards of the job, key points & reasons for major steps?	
11	Do you know what the customer concers are? (What are the Q-stations checking for from your station)	
12	Are Team Members working ahead out of footprint? (check for parts accumulating on the floor, racks etc.)	
13	Are all process checks being performed & documented? (Error proofing, torque gun & scanner validation)	
14	Are Defective parts located in clearly visible containers (Taped or painted red all the way around the container, clearly tagged)	
15	Are the material flow racks, risers, lift & turn tables labeled with correct part numbers on the operator & aisle side and is the correct part in the container?	
16	Check for MIN/MAX conformance & Is material being used in a FIFO (First In First Out) sequence?	
17	Is the call for help (Andon) system working properly (e.g. station light, music, paging system, telephone, radio etc..)?	
18	Are start up & end of shift checks defined and performed?	

Section #2: SYSTEM SPECIFIC (CUSTOMER & PROCESS HIGH RISK ISSUES driven by the FAST RESPONSE REVIEWS)

1	**Marriage Station -** Verify that the Tunnel bracket error proofing is working and being verified on both shifts?	
2	**Station #4 -** Verify that the wire harnesses are being installed correctly? (is PUSH-CLICK-TUG being performed)	
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6	**Station #15 -** Verify that the installation of Ashtray is following Standardized Work? (does it open easily)	
7	**Station #22 -** Verify that the Installation of Center Stack is being installed correctly? (Cracks, gap, etc.)	
8		
9		
10		

N = Deviation Found

Y = Meets Standard

If the item is Corrected Immediately

Countermeasure Sheet

All questions answered "N" on the LPA Checks sheet that cannot be resolved immediately will be entered on the Countermeasure Sheet as an open item.

- The Countermeasure Sheet tracks the specific open issues on an operation/workstation for each group.

- All questions answered "N" on the LPA Check Sheet that cannot be resolved immediately will be entered on the Countermeasure Sheet as an open item.

- The Countermeasure Sheet will be updated and signed off as issues are resolved.

Countermeasure Sheet (continued)

(Example)

Item #	Date	Location	Problem Description	Owner	Countermeasure	Target date	Initials	Complete Date
4	7/7/08	005R	New option Side marker lamp, parts don't have a standard marked location.	TL1	Re-layout work station to include one shift's requirement of lamps.	7/28/08	JC	7/26/08
6	7/7/08	005R	tool for installing drainplugs is different from standard, TM used replacement without informing TL	TL1	get standard tool from store, replace at workstation	8/3/08	RS	

Management Review Requirements

- LPA Review Process

  – Shift Leader is Process Owner

  – Regularly schedule review meeting

  – Review compliance & completion performance

  – Elevate past due countermeasures to next level

  – Review audit questions for Continuous Improvement (add, delete, revise as needed)

- When appropriate, the Layered Process Audit nonconformance shall be added to the *Fast Response* system and/or the *C.A.R.E.* checklist.

- Layered Process Audit results shall be added to the *Lessons Learned* database when appropriate.

- Audit results shall be summarized and reviewed by the manufacturing site leadership.

Auditor hints

- How organization apply the problem solving methodology for issues detected during the LPA and how the organization record the countermeasure (for example in the countermeasure sheet) and how they do the follow up of actions

- actions defined against root cause (e.g.: not only re-training)

- due dates kept

- implemented actions were verified.

- Check the involvement of the management (knowledge of the result, of the on-going action plan)

Continuous Improvement

- Flexibility Chart revised using the results of the LPA

- Problem Solving Methodology revised using the results of LPA

- Workstation Organization performed

- LPA used to capture a more efficient way to work and lead the standard work revision

Operator qualification process, what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
LPASK4	Operator qualification process for each job position and workplace is applied, including re-qualification if needed to ensure that only qualified people performs the job.	LPASK41	Qualification levels are established. For each one of them, measurable criteria are defined. 'only identified and qualified people are performing work.
		LPASK42	Flexibility Chart or equivalent posted at all operations or work area which: - contains numbers of qualified people per each workstation as well as workstation per person are targeted; associated action plans are implemented, - indicates the steps in training & skill qualification level achieved for each job, - has been updated.
		LPASK43	Criteria to revise qualification level are defined; they take into account the operational results at the specific workstation, the result of the layered audit, time off job etc.
		LPASK44	A calibration process is in place for all the people making check operations where results depend on subjective decision.
		LPASK45	If re-qualification failed, actions are implemented to reach required qualification level again including re-assessment or degrade qualification level.

Criteria of Requirement

EXPLANATION OF LEGEND

Qualification Levels
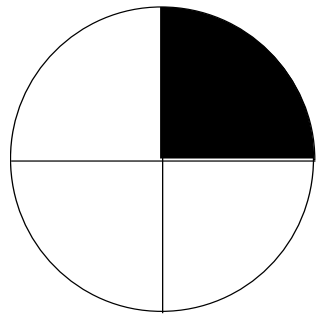
= **Knows Steps (in Training)**
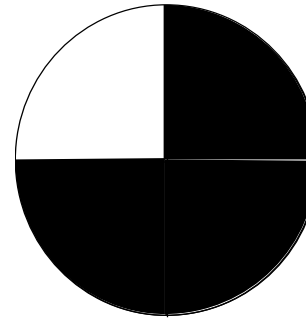
= **Can Perform Job to Quality, Safety and in Takt Time Without Supervision**
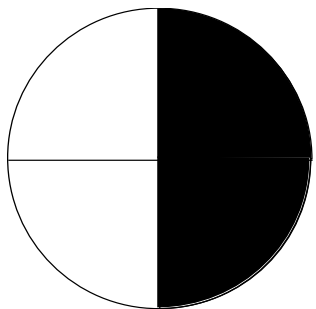
= **Can Perform Job to Quality and Safety but not in Takt Time**
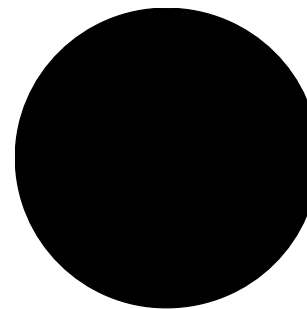
= **Can Train to Job Instruction Standard**

(Example) **FLEXIBILITY CHART**

OUTPUTS

- Helps Analyze Job Requirements (Illustrates the number of trained team members per job)

- Identifies Potential Workforce issues / Weaknesses

- Helps Plan Job Instruction Training needs to support job rotation.

- Supports Continuous Improvement

Qualification Level revision

- The Organization shall define a criteria to revise qualification level. It should take into account:
  - the operational results at the specific workstation
  - the result of the layered audit
  - time off job
  - etc.
- If re-qualification failed, actions shall be implemented to reach required qualification level again including re-assessment or degrade qualification level

Calibration Process

- The Organization shall identify all check operations where results depends on subjective decision and establish a Standardized Calibration Process in order to assure that there is a standardized assessment/check made by all operators (same way/same judgment). R&R method could be used (attributive method – refer MSA).

- This Calibration Process shall be conducted according to a scheduling defined (weekly, monthly, etc.) based on the severity (or RPN)

- The results of Calibration Process and Action Plans shall be recorded

Auditor hints

During the audit check:

- Check several operations where result depends on Subjective Decision. Check the record of calibration process, frequency, results and action plan.

- Chart showing cross training/certification level in a cell or work area such as a flexibility chart.

- Look for a job rotation plan or log. How often does team rotate?

- The number of Team Members certified per station should support the Job Rotation Plan.

- Check if the training procedure describe the Re-Qualification process

- Check if a Re-Qualification Process (Employee Performance Review) is in place. Evaluate if an action plan was generated in case of Low Performance .

LPA Effectiveness, what are we searching for?

Item	Requirement	#Criteria	Criteria requirement
LPASKE	LPA effectiveness are continuously monitored and analysed via LPA results in order to ensure keeping procedures.	LPASKE1	Tracking of audit results with visualization to share status on affected area (nb of non conformances per Department, pareto of non conformances,% of compliance).
		LPASKE2	Tracking of audit schedule & action plan implementation (open issues versus closed issues).
		LPASKE3	Flexibility on all the plant is managed by human ressources to identify risk of lack of ressources (absenteism, lack of skill, turnover, …).
		LPASKE4	Indicator of lack of training (internal and external issues, LPA deviation linked to lack of training are input

Criteria of Requirement

◁ Prev. Requirement   What goes wrong? ▷

LAYERED PROCESS AUDIT & SKILLS MANAGEMENT

(Example)

DEPT._____   LAYERED PROCESS AUDIT RESULTS
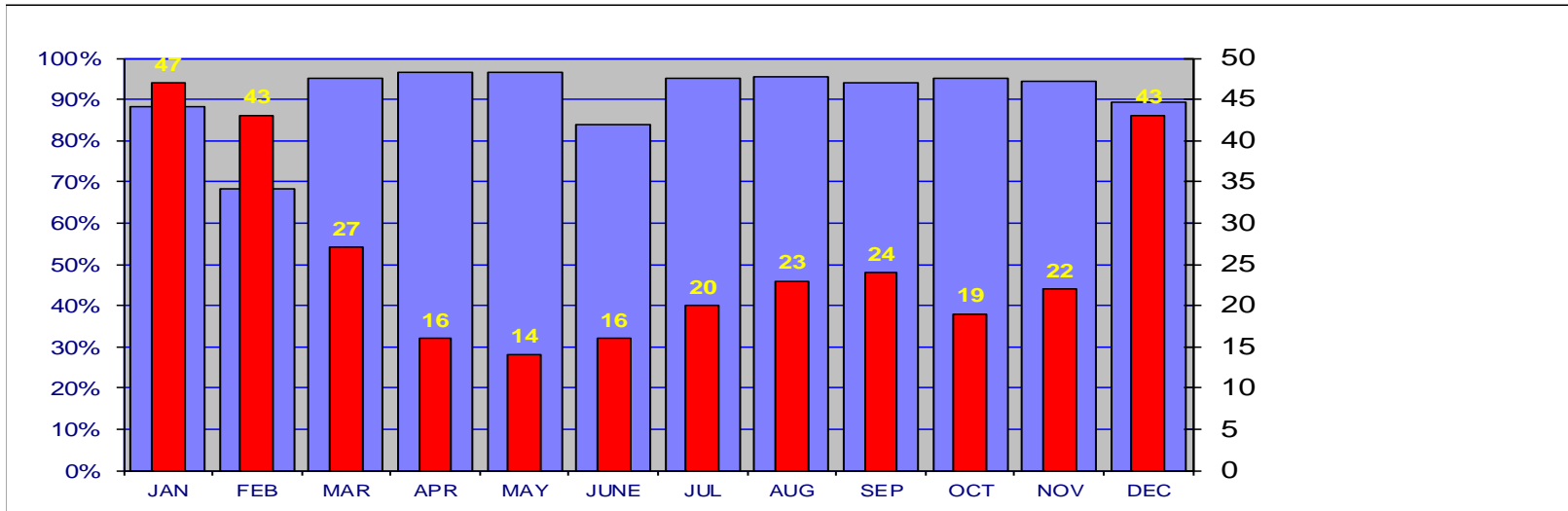
	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC
% IN COMPLIANCE:	88%	68%	95%	96%	97%	84%	95%	95%	94%	95%	95%	89%
# OF ITEMS ON ASSESSMENT:	20	15	20	30	20	10	20	25	20	20	20	20
# OF ASSESSMENTS	20	9	28	15	20	10	20	20	20	20	20	20
TOTAL # OF ITEMS ASSESSED:	400	135	560	450	400	100	400	500	400	400	400	400
# OF ITEMS IN COMPLIANCE:	353	92	533	434	386	84	380	477	376	381	378	357
NON CONFORMANCES	47	43	27	16	14	16	20	23	24	19	22	43

NON CONFORMANCES	NUMBER OF ITEMS NOT IN COMPLIANCE											
Safety	10	8	5	2	1	1	1	1	1	1	1	1
Missed Audits	10	8	3	2	3	4	5	2	1	1	1	10
5S Related	2	7	7	3	2	2	2	2	2	2	3	2
Product	10	4	3	2	1	1	1	1	1	1	1	10
Voice of Customer	6	4	2	2	3	4	4	4	3	2	2	10
Systemic	9	7	1	2	2	2	2	2	2	2	2	2
Gage Calibration		5	6	3	2	2	5	6	7	2	2	2
Poke Yoke									5	7	8	10	6

Audit Schedule & Tracking   (Example)

Leadership Staff Layered Audit Schedule and Status

Name:	August				September				October			
	1st Week	2nd Week	3rd Week	4th Week	1st Week	2nd Week	3rd Week	4th Week	1st Week	2nd Week	3rd Week	4th Week
	I/P 1st Shift				Doors 2nd				Over Heads 2nd			
			I/P 1st Shift	I/P 1st Shift	I/P 2nd Shift	I/P 1st Shift	Doors 1st Shift	Doors 2nd Shift				
			I/P 2nd Shift	I/P 2nd Shift	I/P 1st Shift	I/P 2nd Shift	Doors 2nd Shift	Dooors 1st Shift				
			I/P 1st Shift	I/P 1st Shift	I/P 2nd Shift	I/P 1st Shift	Doors 1st Shift	Doors 2nd Shift				
			I/P 1st Shift	I/P 1st Shift	I/P 1st Shift	I/P 1st Shift	Doors 2nd Shift	Doors 1st Shift				
			I/P 1st Shift	I/P 2nd Shift	I/P 1st Shift	I/P 2nd Shift	Doors 1st Shift	Doors 2nd Shift				
			I/P 1st Shift	I/P 1st Shift	I/P 1st Shift	I/P 1st Shift	Doors 2nd Shift	Doors 1st Shift				

STARTED ON THE INSTRUMENT PANEL LINE
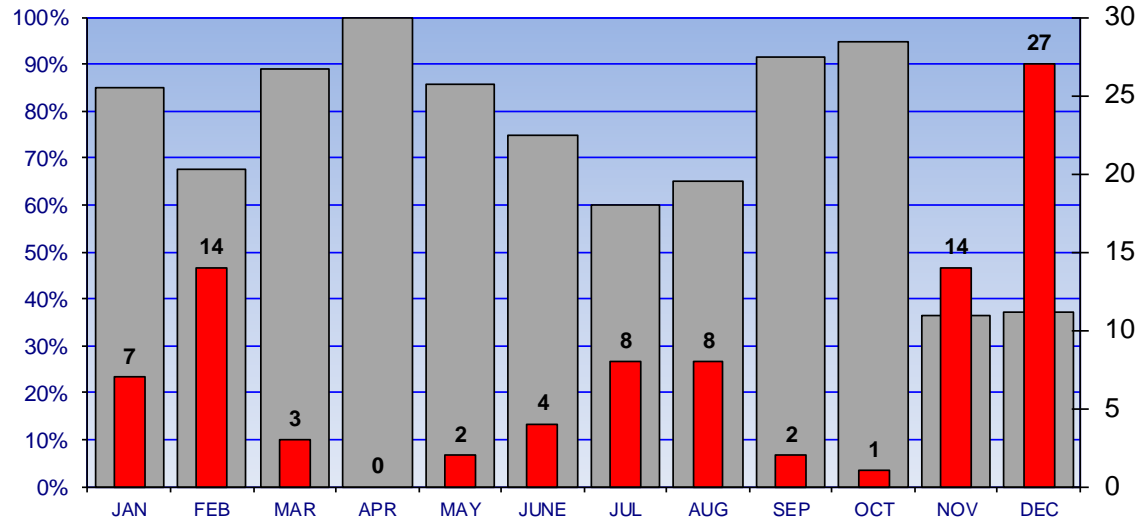
'- NOT STARTED

LEGEND:

- AUDIT COMPLETED

- AUDIT NOT COMPLETED

AUDIT CONDUCTED BY:	AUDIT FREQUENCY:
Executives	Quarterly
Plant Manager	Monthly
Manager	Weekly
Supervisors	Daily
Team Leaders	Daily

DEPT._____   LAYERED PROCESS AUDIT RESULTS

	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC
% ISSUES CLOSED:	85%	67%	89%	100%	86%	75%	60%	65%	92%	95%	36%	37%
TOTAL # OF NON CONFORMANCES:	47	43	27	16	14	16	20	23	24	19	22	43
TOTAL # OF CLOSE ISSUES:	40	29	24	16	12	12	12	15	22	18	8	16
TOTAL # OF OPEN ISSUES	7	14	3	0	2	4	8	8	2	1	14	27

NON CONFORMANCES	NUMBER OF ITEMS NOT IN COMPLIANCE											
Safety	10	8	5	2	1	1	1	1	1	1	1	1
Missed Audits	10	8	3	2	3	4	5	2	1	1	1	10
5S Related	2	7	7	3	2	2	2	2	2	2	3	2
Product	10	4	3	2	1	1	1	1	1	1	1	10
Voice of Customer	6	4	2	2	3	4	4	4	3	2	2	10
Systemic	9	7	1	2	2	2	2	2	2	2	2	2
Gage Calibration		5	6	3	2	2	5	6	7	2	2	2
Poke Yoke								5	7	8	10	6

Auditor hints

- Perform a Layered Audit together with team leader. Compare your results with team leader. In case of gap, identify reasons of different evaluation.

- At shop floor, verify in the visual management board (area or plant):

- LPA Plan

- LPA Tracking

- LPA Results

- LPA Action Plan/Effectiveness

What goes wrong ?

- Check sheet with no proper items to be checked

- Escalation (all levels) not in place

- Results of audit not recorded in a proper way

- Frequency of checking not respected

- Reaction plan is not defined / followed in case of verification failure

- Results Meeting Review not in place

- Workstation not being checked in different shifts

What goes wrong ?

- No standardized method for operator training

- No train the trainer program (certified trainer)

- No follow up of the training - 1 time event only

- Training not repeated in line with changes to part, process or quality reqts

- Latest work instruction change level for each job is not maintained

  (solution: e.g.: last page/back side of working instruction)

- Flexibility chart is not updated (printed once)

- Flexibility chart not posted at station – potential to use untrained labour

- No operator sign-off so does not feel accountability

- No refresher training – people become "blind" to issues

- Poor engagement of employee due to lack of leadership response