

Digging Deeper to Find the Root

United Auto Workers

Sam Orlando (LU 1637) Steve Mitchell (LU 974)



Digging deeper can have it's negative outcomes as well!



Good

Kjellan and Larsson Approach

A conceptual model for the practical investigation of occupational ~~accidents~~ incidents

- **Most Incidents can be attributed to:**
 - Determining Factors and
 - Deviations

Swedish Lesson

- Kjellan = Shellan
- Larsson = Larrson



Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 2012

U.S. Department of Labor Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Establishment name _____

City _____ State _____

Identify the person Describe the case Classify the case

You must record information about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an injury and illness incident report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Table with columns: (A) Case No., (B) Employee's Name, (C) Job Title, (D) Date of injury or onset of illness, (E) Where the event occurred, (F) Describe injury or illness, (G) Death, (H) Days away from work, (I) Job transfer or restriction, (J) Other recordable cases, (K) Away From Work (days), (L) On job transfer or restriction (days), (M) Injury, Skin Disorder, Respiratory Condition, Poisoning, Hearing Loss, All other illnesses.

Page totals 0 1 0 0 16 0 1 0 0 0 0 0

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

Injury Skin Disorder Respiratory Condition Poisoning Hearing Loss All other illnesses (1) (2) (3) (4) (5) (6)

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Establishment name _____

State _____

Identify the person

John Smith

(A) Case No.	(B) Employee's Name	(C) Job Title (e.g., Welder)	De or
13	John Smith	Wood Prep	

Check the "injury" column or choose one type of illness:

(M)	Injury	Skin Disorder	Respiratory Condition	Poisoning	Hearing Loss	All other illnesses
(1)	(2)	(3)	(4)	(5)	(6)	(6)
X						
Page totals	0	1	0	0	16	0

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Injury
Skin Disorder
Respiratory Condition
Poisoning
Hearing Loss
All other illnesses

(1)
(2)
(3)
(4)
(5)
(6)



OSHA's Form 300 (Rev. 01/2004)

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Form approved OMB no. 1218-0176

Establishment name _____

State _____

Identify the person

(A) Case No.	(B) Employee's Name	(C) Job Title (e.g., Welder)	Date of onset (m)
13	John Smith	Wood Prep	2/4

Wood Prep

Check the "injury" column or choose one type of illness:

(M)
 Injury
 Skin Disorder
 Respiratory Condition
 Poisoning
 Hearing Loss
 All other illnesses

(1) Injury	(2) Skin Disorder	(3) Respiratory Condition	(4) Poisoning	(5) Hearing Loss	(6) All other illnesses							
X												
Page totals	0	1	0	0	16	0	1	0	0	0	0	0

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(1) (2) (3) (4) (5) (6)

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Establishment name

State

Identify the person

Table with columns: (A) Case No., (B) Employee's Name, (C) Job Title (e.g., Welder), Date. Entry 13: John Smith, Wood Prep.

2/14/2012

Check the "injury" column or choose one type of illness:

Summary table with columns: (M) Injury, Skin Disorder, Respiratory Condition, Poisoning, Hearing Loss, All other illnesses. Total row: 1, 0, 0, 0, 0, 0.

Page totals 0 1 0 0 16 0 1 0 0 0 0

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(1) (2) (3) (4) (5) (6)



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Year 2012

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State _____

Identify the person

(A) Case No.	(B) Employee's Name	(C) Job Title (e.g., Welder) Do or
13	John Smith	Wood Prep

Parking Lot

Check the "injury" column or choose one type of illness:

n	Check the "injury" column or choose one type of illness:					
	(1) Injury	(2) Skin Disorder	(3) Respiratory Condition	(4) Poisoning	(5) Hearing Loss	(6) All other illnesses
(M)	X					
Page totals	0	1	0	0	0	0

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Injury (1) Skin Disorder (2) Respiratory Condition (3) Poisoning (4) Hearing Loss (5) All other illnesses (6)



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Year 2012

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Occupational Safety and Health Administration

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You must record information about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must complete an injury and illness incident report for each incident.

OMB no. 1218-0176

Identify the person

(A) Case No.	(B) Employee's Name
13	John Smitt

Intracranial bleed from fall in parking lot

or choose one type of illness:

Poisoning

Hearing Loss

All other illnesses

(4)	(5)	(6)

Page totals 0 1 0 0 16 0 1 0 0 0 0 0

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Injury Skin Disorder Respiratory Condition Poisoning Hearing Loss All other illnesses

(1) (2) (3) (4) (5) (6)

OSHA 300 Log Entry

- **Is this enough information for you to conduct a thorough incident investigation?**
- **What information is missing?**

Injuries and Illnesses Incident Report

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Information about the employee

- 1) Full Name John Smith
- 2) Street 901 3rd Street
- City Upnort State MI Zip _____
- 3) Date of birth 3/17/1962
- 4) Date hired 9/1/1985
- 5) Male
 Female

Information about the case

- 10) Case number from the Log 13 (Transfer the case number from the Log after you record the case.)
- 11) Date of injury or illness 2/4/2012
- 12) Time employee began work 6:00 AM AM/PM
- 13) Time of event 5:45 AM AM/PM Check if time cannot be determined
- 14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."

Mr. Smith had exited his automobile and was walking across the parking lot in the process of reporting for work.

Information about the physician or other health care professional

- 6) Name of physician or other health care professional Dr. Gregory House

What happened? Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."

- 15) **Mr. Smith slipped and fell on ice hidden below a light layer of snow.**

- 7) If treatment was given away from the worksite, where was it given?
Facility Blue Bay Medical Center
- Street 1205 Agnes Blvd.
- City Upnort State _____ Zip 48660

What was the injury or illness? Tell us the part of the body that was affected and how it was affected; be more specific than "hurt", "pain", or "sore." Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."

- 16) **Mr. Smith suffered a cranial bleed as a result of hitting the back of his head on the pavement when he fell in the parking lot.**

Completed by	<u>Mildred Pouffy</u>
Title	<u>CFO</u>
Phone	<u>989-345-6789</u> Date <u>2/11/2012</u>

- 8) Was employee treated in an emergency room?
 Yes
 No
- 9) Was employee hospitalized overnight as an in-patient?
 Yes
 No

What object or substance directly harmed the employee? Examples: "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.

Asphalt pavement

- 18) **If the employee died, when did death occur?** Date of death

Injuries and Illnesses Incident Report

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U.S. Department of Labor

Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Information about the employee

Information about the case

This *Injury and Illness Incident Report* must fill out when a recordable injury or illness occurred. Together with the *OSHA 300* and the accompanying employer and OSHA developed work-related incidents.

Within 7 calendar days of a recordable work-related injury or illness, you must fill out this form or an equivalent. This form or equivalent is considered an equivalent for information asked for on this form.

According to Public Law 96-510, recordkeeping rule, you must follow the year to which the injury or illness occurred.

If you need additional copies, use as many as you need.

material the employee
"daily computer key-

g across

was sprayed with chlorine

t layer of

"hurt", "pain", or "sore."

ing the back
ing lot.

Asphalt pavement

Completed by	Mildred Pouffy		
Title	CFO		
Phone	989-345-6789	Date	2/11/2012

Yes

No

9) Was employee hospitalized overnight as an in-patient?

Yes

No

17) If the employee died, when did death occur? Date of death

Asphalt pavement

18) If the employee died, when did death occur? Date of death

301 Form

- **Is this enough information for you to conduct a thorough incident investigation?**
- **What information is missing?**

Determining Factors:

- **Conditions in the work environment that tend to be stable over extended periods of time (weeks, months, years)**

Deviations:

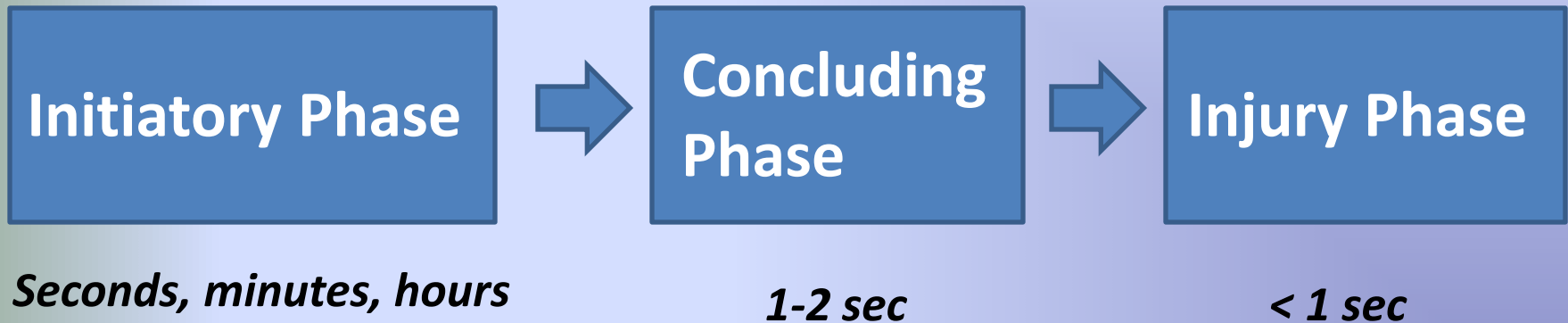
- **Conditions or events that exist for relatively short duration (seconds, minutes, days)**

Incident/Injury Sequence

Determining Factors

Days, weeks, months

Deviations



Determining Factors: Physical/Technical

- **Workplace Layout**
 - e.g., working at elevation, cramped or inaccessible space, poor line-of-sight
- **Equipment Design**
 - e.g., lack of anchor points, design of guards, interlocks, etc.
- **Physical Energy Hazard(s)**
- **Environmental**
 - Non transient, e.g., lighting, noise, air quality, etc.
- **Protective Equipment**
 - Non transient, e.g. availability and condition of equipment

Determining Factors: Physical/Technical

- **Work Intensity**
 - Pace, etc.
- **Work Method**
 - availability of Standard Operating Procedures (SOPs)
- **Work Material**
 - toxicity, temperature, energy

Physical/Technical SGAM

- **In your groups, discuss and list the Physical/Technical Determining Factors that could have contributed to this incident.**

Determining Factors: Organizational/Economic

- **Purchasing Decisions and Other Routine Decisions**
- **Maintenance Routines (preventive vs. reactive)**
- **Quality Control**
- **Work Organization and Staffing**
- **Activity Planning**
- **Education and Training Requirements for Workforce**

Determining Factors: Organizational/Economic

- **Systems of Remuneration, Bonuses, and Promotions**
- **Systems of Penalties and Sanctions**
- **Systems of Work Shift Scheduling and Duration**
- **Availability and Enforcement of Instructions and Rules**
- **Emphasis on Safety in Work Planning and Work Performance**
- **Availability and Quality of First Aid**
- **Relationships with Third Parties**

Determining Factors: Organizational/Economic SGAM

- **In your groups, discuss and list the Organizational/Economic Determining Factors that could have contributed to this incident.**

Determining Factors: Social/Individual

- **Management and Instructions Provided by Supervision**
- **Informal Information Flow Among Workers and Supervisors**
- **Workplace Attitudes Toward Safety**
- **Individual Attitudes Toward Safety**
- **Individual Knowledge and Experience**

Determining Factors: Social/Individual SGAM

- **In your groups, discuss and list the Social/Individual Determining Factors that could have contributed to this incident.**

“Generic” Deviations

- **Human error**
 - omission or co-mission in human-machine system
- **Intersection of parallel or concurrent activities**
- **Environmental conditions**
 - In this case, environment refers to transient conditions, often related to “outside” climate (rain, ice, etc.)
- **Removal of stationary guards**
- **Appropriate PPE**
 - (Not wearing)

“Generic” Deviations

- **Deviation in material flow**
 - Movement at unintended time, lack of containment, etc.
- **Deviation in “labor flow”**
 - Scheduling, training/skill set, fatigue from overtime, etc.
- **Deviation in flow of information**
 - Includes miscommunication, incorrect information, unusable information
- **Hardware failure in human-machine system**

Generic Deviations SGAM

- **In your groups, discuss and list the Generic Deviations that could have contributed to this incident.**

Incident Summary

Lathe Incident

- **A machinist reworking a part on a CNC lathe, mistakenly opened the chuck, causing a 300 lb. part to fall out. As he tried to stop the part from falling, it fell onto his arm, breaking it.**
- **The initial investigation said that he did not have his mind on the task, his eyes on the path and he did not keep himself away from a pinch point.**

Lathe Incident

- **Are you satisfied with the investigation results?**
- **What more do you want to know about the incident?**
- **What were the Determining Factors and Deviations that led to this incident?**
- **Ask away!**

When Is The Best Time To Prevent An Incident?

Before it happens!

An Incident is Really Like a Lock

- **A number of components have to be in place before it can happen.**
 - **Determining Factors can occur days, weeks or months prior to the incident**
 - **Deviations occur in the time immediately before the incident takes place**

One way to avert future incidents is to thoroughly investigate past incidents and prevent recurrence.

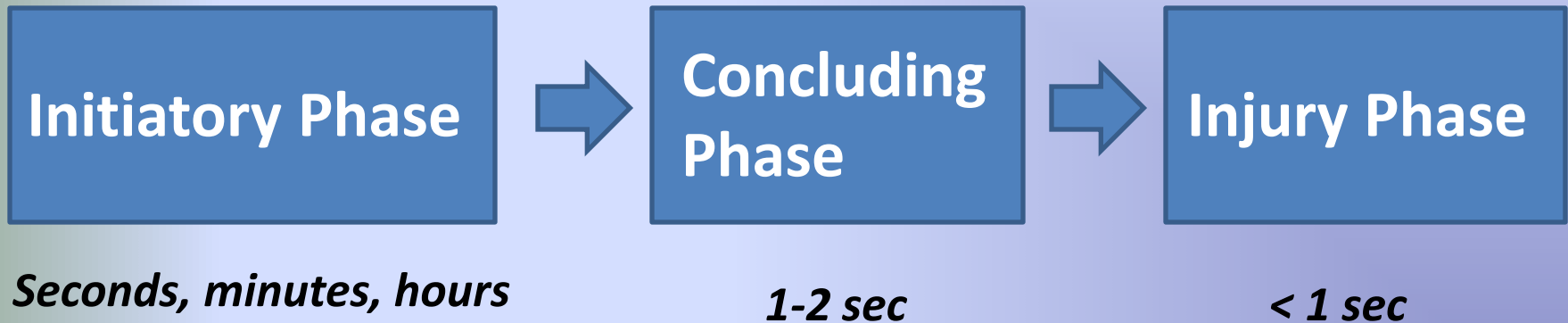
Key in Lock Video Removed

Incident/Injury Sequence

Determining Factors

Days, weeks, months

Deviations



In Conclusion

- **You can tell a lot about how seriously safety is taken by how incident investigations are conducted and the corrective measures that are taken.**
- **Application of this methodology requires time, a place to meet and access resources.**

In Conclusion cont'd

- **There is a benefit to use this approach periodically to identify system deficiencies**
- **The Kjellan and Larsson Approach will get to the root of many causal factors other methods will not.**

Special Thanks To:

Professor Monroe Keyserling, Ph.D.

**Industrial and Operations Engineering
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**Associate Director, Center for Occupational
Health and Safety Engineering**

University of Michigan

Special Thanks To:

Judith Daltuva MSW, MA

Research Specialist

Environmental Health Sciences Department

School of Public Health

University of Michigan

The End

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