

Assessment Report
Risk Assessment & Risk Reduction Methods for
Identified Hazards

Assessment: RA 0001

Version: 2

Date Printed: 3/5/2007 3:06:56 PM

Assessment Information

Assessment Name: RA 0001

Version: 2

Assessment Created: 01/13/2007

Date of Version: 01/13/2007

Version Close Date: 01/13/2009

Provided By: Industrial Safety Integration

Performed By: CIRSAM Administrator, Bill Smith, John Doe

Approved By: Plant Manager

Assessment Notes: Sample Assessment 1

**ALL RISK ASSESSMENTS
MUST BE PERFORMED AND
APPROVED BY QUALIFIED
PERSONNEL.**

Performed By Signature(s)

Approved By Signature

I, _____ as an authorized representative of the company listed below, by signing this document acknowledge that this document has been received and reviewed by the appropriate responsible parties.

Authorized Representative Signature

Resource Administrator: ABC Company

System ID: Robot 1

Version Reason: Sample Assessment This assessment is not to be used as an official evaluation for a robot cell. It has been created as a sample and is not to be used as an estimation of risk for an actual industrial installation.

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Assessment Information Continued..

Resource Administration

Name: ABC Company
Street: 123 ABC St
City: King City
State\Prov: Any state
Country: USA
ZIP\Postal Code: 12345
Contact: John Smith
Phone: 111-222-3333
Fax: 111-222-4444
E-mail: johnsmith@anywhere.com

System Resource

System ID: Robot 1
Date Purchased: 3/18/2005
Manufacturer of System: Robot Manufacturer
Function of System: Part handling
Picture:



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Executive Summary of Hazard Zones

1

Hazard Zone: 1.0 Robot cell setup

Activity: Robot setup

Residual risk OEM / Integrator:

Additional protective measures may be disproportionate to the benefit gained.

Residual risk assumed by facility:

Very Low risk / Minimal - Injury is a remote possibility

Additional protective measures may be disproportionate to the benefit gained.

2

Hazard Zone: 1.1 Robot cell clean up

Activity: Remove scrap material

Residual risk OEM / Integrator:

Additional protective measures may be disproportionate to the benefit gained.

Residual risk assumed by facility:

Very Low risk / Minimal - Injury is a remote possibility

Additional protective measures may be disproportionate to the benefit gained.

3

Hazard Zone: 1.2 Isles around robot cell

Activity: Casual exposure to personnel walking past the hazard zone

Residual risk OEM / Integrator:

Not Evaluated

Residual risk assumed by facility:

Low risk / Minimal - injury is highly unlikely

Additional protective measures may be disproportionate to the benefit gained.

4

Hazard Zone: 1.3 Robot 1 electrical cabinet

Activity: Trouble shooting control system.

Residual risk OEM / Integrator:

Not Evaluated

Residual risk assumed by facility:

Facility characteristics have not been evaluated

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Hazard Zone Details

1

Hazard Zone: 1.0 Robot cell setup

Hazard Zone Details

Activity: Robot setup

Hazardous Event: Impact due to robot motion

Hazardous Situation(s): Personnel could be struck by the robot while in the robot cell

Notes: Robot is equipped with a hand held pendant for the purpose of robot setup. The pendant includes an enabling device in order to permit motion. Provisions have been made to provide clearance between all obstacles in the cell and the robot, including the finished part by using mechanical hard stops on the first and second axis, (See layout drawing 111.222.333C) Sample for demonstration. This assessment is not to be used as an official evaluation for a robot cell. It has been created as a sample and is not to be used as an assessment of risk for an actual industrial installation.

Hazard Zone Picture:



Risk Estimation

Severity of potential injury caused by hazard:

Major - Normally irreversible injury

Frequency of exposure to the hazard:

Infrequent - Weekly or less

Possibility of hazard avoidance:

Impossible - injury is unavoidable

Probability of the occurrence to the hazard event:

Assessed risk if safety elements are not employed:

High risk / Inevitable - injury will occur

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Hazard Zone Details

2

Hazard Zone: 1.1 Robot cell clean up

Hazard Zone Details

Activity: Remove scrap material

Hazardous Event: Impact due to robot motion

Hazardous Situation(s): Product that has not been properly formed is regularly dropped by the robot and must be cleared. Personnel could be struck by the robot while in the robot cell.

Notes: Provisions have been made to provide clearance between all obstacles in the cell and the robot, including the finished part by using mechanical hard stops on the first and second axis, (See layout drawing 111.222.333C) Sample for demonstration. This assessment is not to be used as an official evaluation for a robot cell. It has been created as a sample and is not to be used as an estimation of risk for an actual industrial installation.

Hazard Zone Picture:



Risk Estimation

Severity of potential injury caused by hazard:

Major - Normally irreversible injury

Frequency of exposure to the hazard:

Occasional - Daily

Possibility of hazard avoidance:

Impossible - injury is unavoidable

Probability of the occurrence to the hazard event:

Assessed risk if safety elements are not employed:

High risk / Inevitable - injury will occur

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Hazard Zone Details Continued..

2

Hazard Zone: 1.1 Robot cell clean up

Risk Reduction Method

Control Circuit Performance based on:

ISO 13849-1:1999

Primary safety device used to reduce risk of injury (Mechanical):

Moveable Guards w/guard locking (Dual channel interlock / cross monitoring Category 3)

Primary safety device used to reduce risk of injury (Presence sensing):

None

Traditional guarding methods are not feasible at this point of operation:

Hold to Run Control(s):

None

Additional safety element

Safeguard bypass with administrative control

Residual Risk:

**Very Low risk / Minimal - Risk of injury has been reduced as far as practical
Additional protective measures may be disproportionate to the benefit gained.**

Characteristics of Facility

Nature of person exposed to hazardous area:

Third party casual exposure

Qualification / Education level of the person exposed to hazardous area:

Previous formal training provided by professional trainer

Personal Protective Equipment (Based on task hazard assessment(s)):

Task Hazard Document	Activity
Plant 001 Sample	Entry into all production areas Sample
Plant 002 Sample	Entry into stamping press department Sample
Plant 003	Work in stamping press department Sample

Work place safety policies, procedures, and instructions:

Corporate / Company Guidelines for all activities / written instruction / incremental penalties for

Lockout, Tagout, Test procedures apply to this activity.

Safeguard bypass with administrative control:

None

Residual Risk Assumed by Facility

**Very Low risk / Minimal - Injury is a remote possibility
Additional protective measures may be disproportionate to the benefit gained.**

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Hazard Zone Details

3

Hazard Zone: 1.2 Isles around robot cell

Hazard Zone Details

Activity: Casual exposure to personnel walking past the hazard zone

Hazardous Event: Struck by part released by robot.

Hazardous Situation(s): Personnel could be struck by product released by the robot due to a failure of the end of arm tooling.

Notes: Because this robot has a tendency to drop parts that have not been correctly formed, the possibility of parts being thrown out of the robot cell had to be considered. After completing the engineering calculations, fault tree analysis, and failure mode effects analysis, it was determined that a parts that could not be held by the robot due to improper shape, would be dropped before the robot began any upward motion. Therefore the probability of a part being thrown out of the cell was believed to be negligible.

Hazard Zone Picture:



Risk Estimation

Severity of potential injury caused by hazard:

Major - Normally irreversible injury

Frequency of exposure to the hazard:

Occasional - Daily

Possibility of hazard avoidance:

Unlikely - Unable to avoid

Probability of the occurrence to the hazard event:

Negligible possibility

Supporting Documents:

Engineered calculation(s)

Failure mode effects analysis

Assessed risk if safety elements are not employed:

Medium risk / Possible - injury is unlikely

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Hazard Zone Details Continued..

3

Hazard Zone: 1.2 Isles around robot cell

Risk Reduction Method

Control Circuit Performance based on:

ISO 13849-1:1999

Primary safety device used to reduce risk of injury (Mechanical):

None

Primary safety device used to reduce risk of injury (Presence sensing):

None

Traditional guarding methods are not feasible at this point of operation:

Hold to Run Control(s):

None

Additional safety element

Safeguard bypass with administrative control

Residual Risk:

Not Evaluated

Not Evaluated

Characteristics of Facility

Nature of person exposed to hazardous area:

Third party casual exposure

Qualification / Education level of the person exposed to hazardous area:

Previous exposure in similar environment (formal employee training)

Personal Protective Equipment (Based on task hazard assessment(s)):

Task Hazard Document	Activity
Plant 001 Sample	Entry into all production areas Sample
Plant 002 Sample	Entry into stamping press department Sample

Work place safety policies, procedures, and instructions:

Corporate / Company Guidelines for all activities / written instruction / incremental penalties for

Lockout, Tagout, Test procedures apply to this activity.

Safeguard bypass with administrative control:

None

Residual Risk Assumed by Facility

Low risk / Minimal - injury is highly unlikely

Additional protective measures may be disproportionate to the benefit gained.

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Hazard Zone Details

4

Hazard Zone: 1.3 Robot 1 electrical cabinet

Hazard Zone Details

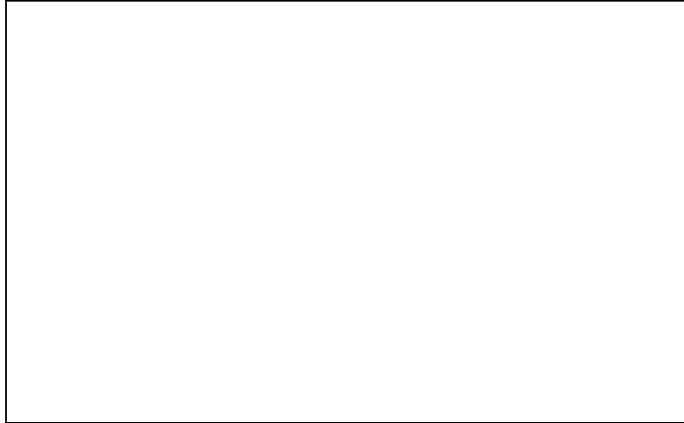
Activity: Trouble shooting control system.

Hazardous Event: Burn by arc flash, electrocuted.

Hazardous Situation(s): Exposed skin and clothing could be burned in the event of an arc flash.
Personnel could come in contact with unguarded live electrical parts.

Notes:

Hazard Zone Picture:



Risk Estimation

Severity of potential injury caused by hazard:

Fatal - Immediate or subsequent death

Frequency of exposure to the hazard:

Infrequent - Weekly or less

Possibility of hazard avoidance:

Unlikely - Unable to avoid

Probability of the occurrence to the hazard event:

Inevitable

Supporting Documents:

Incident history

Assessed risk if safety elements are not employed:

High risk / Inevitable - injury will occur

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Hazard Zone Details Continued..

4

Hazard Zone: 1.3 Robot 1 electrical cabinet

Risk Reduction Method

Control Circuit Performance based on:

ISO 13849-1:1999

Primary safety device used to reduce risk of injury (Mechanical):

None

Primary safety device used to reduce risk of injury (Presence sensing):

None

Traditional guarding methods are not feasible at this point of operation:

Hold to Run Control(s):

None

Additional safety element

Safeguard bypass with administrative control

Residual Risk:

Not Evaluated

Not Evaluated

Characteristics of Facility

Not Evaluated

Safeguard bypass with administrative control:

None

Residual Risk Assumed by Facility

Facility characteristics have not been evaluated