



INNOVATIVE

FALL PROTECTION

"YOUR LIFELINE TO SAFETY"

Dec 8, 2011

Working at Heights Hazard Assessment

CONDUCTED BY:

Richard Frost - Innovative Fall Protection Inc

Client: XXXXXXXXXXXXXXXX

Innovative Fall Protection Inc. was contacted and hired by XXXXXXXXXXXXXXXX to perform Working at Heights Hazard Assessment at their facility located in XXXXXXXX. The purpose of the assessments was to identify fall protection system requirements where XXXXXXXX employees and contractors are exposed to falls or injury, while working at heights on the pipe racks and railcars during everyday operations.

The on-site assessments took place XXXXXXXXXXXX 2012. A review of our findings, possible solutions and recommendations including:

- Elimination of the task/hazard
- Engineering controls
- Administrative controls
- PPE, equipment, fully engineered solutions

ASSESSMENT METHOD:

Through this formal process Innovative Fall Protection Inc. has drawn upon our knowledge, expertise and experience to provide a thorough to the point assessment. Solutions are emphasized in a hierarchy as follows:

1. Fall Prevention
2. Fall Restraint
3. Fall Arrest

BACKGROUND INFORMATION:

XXXXXXX employees have traditionally accessed and worked on the pipe racks and railcars at the facility and are in a position to fall more than 3 metres (10 feet) or into or onto something that could possibly cause injury or death.



INNOVATIVE FALL PROTECTION

"YOUR LIFELINE TO SAFETY"

HAZARD CHARTS AND RISK FACTOR MATRIX

SEVERITY CHART

DESCRIPTION	CATEGORY	OUTCOME
CATASTROPHIC	1	<i>Catastrophic injury, Death</i>
CRITICAL	2	<i>Severe injury, severe occupational injury.</i>
MARGINAL	3	<i>Minor injury, minor occupational injury.</i>
NEGLIGIBLE	4	<i>Less than minor injury, less than occupational injury.</i>

PROBABILITY CHART

LEVEL	RATING	FREQUENCY OF OCCURRENCE
FREQUENT	A	<i>This type of hazard or situation is either present at all times or likely to occur repeatedly.</i>
PROBABLE	B	<i>This type of hazard or situation is likely to be present or occur several times per year.</i>
OCCASIONAL	C	<i>This type of hazard or situation is likely to be present several times during one's lifetime.</i>
REMOTE	D	<i>Although this type of hazard or situation is unlikely to be present, it is still possible.</i>
IMPROBABLE	E	<i>One may reasonably assume that this type of hazard or situation will never materialize.</i>

HAZARD ASSESSMENT RISK FACTOR

Frequency of Occurrence	Hazard Categories			
	1 CATASTROPHIC	2 CRITICAL	3 MARGINAL	4 NEGLIGIBLE
(A) Frequent	1A	2A	3A	4A
(B) Probable	1B	2B	3B	4B
(C) Occasional	1C	2C	3C	4C
(D) Remote	1D	2D	3D	4D
(E) Improbable	1E	2E	3E	4E

RISK FACTOR MATRIX COLOR KEY

RISK ASSESSMENT CODE	SUGGESTED CRITERIA
1A, 1B, 1C, 2A, 2B, 3A	Unacceptable
1D, 2C, 2D, 3B, 3C	Undesirable (management decision required)
1E, 2E, 3D, 3E, 4A, 4B	Acceptable with review by management
4C, 4D, 4E	Acceptable without review



INNOVATIVE FALL PROTECTION

"YOUR LIFELINE TO SAFETY"

DESCRIPTION:	
Specific Location:	Refinery – Pipe Racks
Fall Hazard Identifier:	001 – North/South Piperacks
Severity:	1 – Catastrophic
Probability:	A – Frequent
Risk Factor:	1A - Unacceptable
Date of Assessment:	



Description of Hazard:

Workers access the pipe racks at least 50 times per year for inspection, machinery repairs, maintenance and cleaning. The pipe racks vary from 12’ - 20’ ft in height, the workers access the pipe racks from various access ladders and then walk on the pipes to get to work areas.

Possible Solutions:

Prevention	Engineering Controls	Administrative Controls	PPE/Equipment
X	X	X	✓

Comments and Recommendations:

- There is no suitable way to use existing structures as fall protection tie off points
- Installation of a engineered permanent fall protection system(s)

The fall protection system(s) should be designed and engineered as a complete turn key system(s) that include:

- Stainless steel cables and components
- Stainless steel/Galvanized steel end and intermediate cable anchors
- Full coverage system of all areas of the pipe rack
- Hands free usage (workers never need to disconnect while traveling the pipe rack)
- Ensure proper user training on the type of installed system(s)



INNOVATIVE FALL PROTECTION

"YOUR LIFELINE TO SAFETY"

DESCRIPTION:	
Specific Location:	Bulk Plant – Railcar Loading
Fall Hazard Identifier:	002 – Rail Loadout Facility
Severity:	1 – Catastrophic
Probability:	A – Frequent
Risk Factor:	1A - Unacceptable
Date of Assessment:	



Description of Hazard:

Workers access the tops of the railcars at least 150 times per year to open lids and load cars with product. The railcars are 13' ft high, the workers access the the railcars from an existing catwalk with retracting gangways. Once on top of the railcars the workers are unprotected while opening lids and maneuvering load out spout. The tops of the cars can be extremely slippery with oil, water, snow, and ice.

Possible Solutions:

Prevention	Engineering Controls	Administrative Controls	PPE/Equipment
X	✓	X	✓

Comments and Recommendations:

- Use engineering controls such as redesigned gangways with guardrails built in
- Installation of a engineered overhead permanent fall protection system(s)

The fall protection system(s) should be designed and engineered as a complete turn key system(s) that include:

- Aluminum retracting gangways with built in guard rails
- Structural single point anchor columns
- Full coverage fall arrest cable system(s) over of all the railcars



INNOVATIVE FALL PROTECTION

"YOUR LIFELINE TO SAFETY"

Example Photos:

Fall Hazard identifier #: 001 - Pipe Rack Fall Protection Cable Systems





INNOVATIVE FALL PROTECTION

"YOUR LIFELINE TO SAFETY"

Fall Hazard identifier #: 002 - Railcar Loadout Solutions



Should you require any further information or guidance, please do not hesitate to contact Innovative Fall Protection Inc. at (403) 257-1833.

Best Regards,
Richard Frost
Innovative Fall Protection Inc.
403.880.1871