

HIRA / JSA RADIOGRAPHY TEST OF BOILER JOINTS

Date:			Assessment Date:		
Type of Activity:			Next Assessment:		
Department:			Work Order Number:		
Job Title/Activity:			Client Name:		
Assessed by:			Signature & Date:		
Reviewed and approved by:			Assessor Signature & Date:		

S. N	Activities	Hazard	Initial Risk (E X S X P)				Priority	Safety Precautions	Final Risk (E X S X P)				Action by:	Ref./Standards
			E	S	P	Total			E	S	P	Total		
1.1	Shifting of Equipment and material to location (including source)	1. Falling of material	6	7	6	272	1	<ul style="list-style-type: none"> All material should be shifted through a trolley/Trailer and foremen must wear all PEEs All lifting tools must have a valid test certificate. Before starting work ensure that sling must be fixed properly with D-Shackle. 	1	4	1	4		
		2. Radiation leakages	3	15	6	270	1	<ul style="list-style-type: none"> A person should be trained and competent to operate the exposure device. The source container should be leakproof. Same should be insured by survey meter. Source capacity is 20 Curie so at least 20 Mets area all around should be barricaded. Inspection agency to be registered with the state's regulatory and compliance agencies/bodies. 	1	7	1	7		

1.2	Taking of films	1. Radiation leakages	3	15	6	270	1	<ul style="list-style-type: none"> • The source container should be leakproof. Same should be insured by survey meter. • Source capacity is 20 Curie so at least 20 Merts area all around should be barricaded. • All people should be evacuated from an all-around 20 Meters area around the source. • By survey meter continuous inspection is to be done all around the area. Radiation after the bracketing should be less than 2 MR. • The Survey meter should valid calibration certificate. • Ample supervisors/workers should be positioned to stop any unknown person from getting into the barricaded area. 	1	4	3	12		
		2. Fall of person	3	15	6	270	1	<ul style="list-style-type: none"> • Use fall protection equipment must be used as per the standard • Workmen must be trained and certified to work at heights. • Fall protection equipment must be tested valid test certificate available. 	1	7	1	7		
1.3	Safe storage of radiation material.	1. Radiation leakages	3	15	6	270	1	<ul style="list-style-type: none"> • The source container should be leakproof. Same should be insured by survey meter. 	3	1	6	18		

E = Exposure; S = Severity; P = Probability; R = Risk = EXSXP

* Have you briefed the Risk involved in the process to all the persons engaged: Y / N

* Have you obtained all necessary work permits: Y / N

Calculation Methods: HAZARD = Exposure x Severity: RISK = Exposure x Severity x Probability

Exposure	Factor
Very rarely (less than one per year)	0.5
Rarely (a few times per year)	1
Sometimes (once or twice)	2
Now and then (weekly)	3
Frequently (daily)	6
Continuous (more than two times per day)	10

Elimination

1. Lockout equipment
2. Install blind /blank
3. Modify the process to eliminate the need for hazardous activity (e.g., auto sampling)
4. Fully automate process

Substitution

1. Use alternate materials (e.g., lower flash point)
2. Use tools instead of handling with bare hands
3. Use trolley and truck (instead of carrying)
4. Automate process

Engineering Control

1. Installing interlocks
2. Modifying equipment
3. Use special tools for the job
4. Redesign workplace layout
5. Install noise enclosure
6. Machine guarding

Administrative Control

1. Implementing permit-to-work system
2. Barricading area
3. Job rotating (to reduce fatigue)
4. Following job procedures /work instructions
5. Working in pairs
6. Testing for hazardous atmosphere

Personal Protective Equipment

1. Wearing safety harness
2. Wearing Cut Resistant gloves
3. Wearing Heat Resistant coverall

Severity	Factor
Minor (injury without time/work restriction-FAC)	1
Major (injury with time/work restriction- MTC, RWC)	4
Serious (irreversible effect, handicap-LWC)	7
Critical (one fatality, instantly or afterwards)	15
Disaster (more than one fatality, instantly or afterwards)	40

Probability	Factor
Virtually Impossible: only theoretical case (once in a lifetime)	0.2
Conceivable but improbable: once in a career (once in 20 Y)	0.5
Improbable/borderline case (1/10Y)	1
Unusual: (once in 3y)	3
Possible (once every six months)	6
Can be expected (once per week)	10

Risk Score (R)	Interpretation (1)	Priority for the measures to be taken
<20	Very limited risk-acceptable	4
20 - 70	Measures required (in 6m)	3
70 - 200	Immediate measures required	2
>200	Stop work until measures are taken	1

4. Wear respirators