

Hazard Analysis and Risk Control Record										
Doc ref:		Task/Process Assessed:	Cold Straightening							
Revision:		Location:								
Date:		Assessment Team:								
Operation:	Straightening	Approved by:								
Activity Steps	HAZARD		INITIAL RISK			CONTROL MEASURES		RESIDUAL RISK		
	Hazard Description and Worst Case Consequences with no Prevention or Mitigation Measures in Place	Loss Category/ Population Affected	Likelihood	Severity	Risk Level	List all Current and Planned Control Measures, taking into Account all Contributing and Escalating Factors		Likelihood	Severity	Risk Level
						Current and Planned Prevention Measures to reduce Likelihood	Current and Planned Mitigation Measures to reduce Severity			
1. Manually transferred Mandrel to the 200 tonnage straightener station using mobile crane	1)Injuries to workers a)Pinch points b)Back strained 2)Damaged to asset a)Falling Mandrel	Assets Personnel	Possible (3)	Major (-3)	Undesirable (-9)	- Pre site survey to ensure all obstacles along the transported path are cleared - Pre check lifting gears such as slings, spreader bars, shackles for signs of deformation, stress, missing safety latches and pins prior to use - SWL clearly displayed on all lifting equipment - Weight of load to be established & does not exceed safe working load - Load to be fully fastened & secured - Position sling close to centre of gravity - Mandatory mechanical lifting level 1 training for operators - Loaded Mandrel to be test lifted to check the load balance prior to full lifting - Ensure the transported load is within the movable trolley safe working load - No entry to unauthorized personnel when lifting operation is in progress - Personnel not allow to be under the lifting load during the lifting operation	- First aid kit available & readily accessible on site - Mandatory PPE such as hard helmet, safety shoes, safety glasses & leather gloves	Unlikely (2)	Light (-2)	Acceptable (-4)

2)Unload the Mandrel from the trolley into the 200 tonnage straightener fixture	1)Injuries to workers a)Pinch points b)Back strained 2)Damaged to asset a)Falling Mandrel	Assets Personnel	Possible (3)	Major (-3)	Undesirable (-9)	- Barricade & cordoned off the work site when lifting operations is in progress - Pre check the straightener locking mechanism integrity & its physical condition prior to using them - Clear display of the straightener SWL - Pre check both the mandrel & the straightener for signs of pinch & nib points, hidden trap prior to unloading - Only trained operator can performed the straightener job - Mandatory mechanical level 1 training for operator - Operator trained on the locking mechanism of the straightener fixture - Adopt standback 5X5 when performing the task - Only trained operator can operate the mobile crane	- First aid kit available & readily accessible on site - Mandatory PPE such as hard helmet, safety shoes , safety glasses & leather gloves. - Signages to promote SIPP & standback 5x5	Unlikely (2)	Light (-2)	Acceptable (-4)
3)Jacking up the loaded mandrel on the straightener using the jack	1)Injuries to workers a)Pinch points b)Back strained 2)Damaged to asset a)Falling Mandrel	Assets Personnel	Possible (3)	Major (-3)	Undesirable (-9)	- Pre check that the loaded mandrel is secured & locked - Pre check that the jack is free from pinch & nib points or hidden traps - Adopt SIPP technique during jacking. - Seek assistance if the load is too heavy to be jacked up. - Ensure the jacking lever is free of grease and cleaned up if found - Adopt standback 5X5 when performing the task - Trained operator on the proper jacking technique	- First aid kit available & readily accessible on site - Mandatory PPE such as hard helmet, safety shoes , safety glasses & leather gloves - Signages to promote SIPP & standback 5x5	Unlikely (2)	Light (-2)	Acceptable (-4)
4)Transport the drift ID bar to the straightener station for straightening test	1)Injuries to workers a)Pinch points b)Back strained 2)Damaged to asset a)Falling Mandrel	Assets Personnel	Possible (3)	Major (-3)	Undesirable (-9)	- Pre check the transporting path and ensure it is freed of obstruction - Adopt SIPP technique during manual transporting - Adopt standback 5 x 5 - Seek assistance when the load is beyond one carrying ability. - Pre check the ID drift bar and ensure it is freed of grease and perform cleaned it when found - Pre check the ID drift bar for sign of pinch and nib points or hidden traps prior to transporting them This is a one man operation. Possible lower body waist strain injury	- First aid kit available & readily accessible on site - Mandatory PPE such as hard helmet, safety shoes , safety goggles & leather gloves - Signages to promote SIPP & standback 5x5	Unlikely (2)	Light (-2)	Acceptable (-4)

5)Positioned the supporting block on end column of the mandrel	1)Injuries to workers a)Pinch points b)Back strained 2)Damaged to asset a)Slipped supporting block	Assets Personnel	Possible (3)	Major (-3)	Undesirable (-9)	- Pre check the supporting block for sign of pinch & nib points or hidden traps prior to using them - Ensure the supporting block is freed of grease and cleaned them if found - Adopt SIPP technique & standback 5x5 during the supporting block positioning - Secured the supporting block prior to the ID test There is no locking mechanism to lock the supporting block..... Slipping hazard	- First aid kit available & readily accessible on site - Mandatory PPE such as hard helmet, safety shoes , safety goggles & leather gloves - Signages to promote SIPP & standback 5x5	Unlikely (2)	Light (-2)	Acceptable (-4)
6)Manual carry the ID drift bar and insert them into the mandrel ID for parallelism & eccentricity	1)Injuries to workers a)Pinch points b)Back strained 2)Damaged to asset a)Falling Mandrel	Personnel Asset	Possible (3)	Major (-3)	Undesirable (-9)	- Pre check the ID drift bar for sign of pinch & nib points or hidden traps prior to using them - Ensure the ID drift bar is freed of grease and cleaned them if found - Adopt SIPP technique & standback 5x5 during the ID test	- First aid kit available & readily accessible on site - Mandatory PPE such as hard helmet, safety shoes , safety goggle & leather gloves - Signages to promote SIPP & standback 5x5	Unlikely (2)	Light (-2)	Acceptable (-4)
7)Using hot heating torque to test on mandrel parallelism & eccentricity	1)Injuries to workers a)scalded b)Pinch points c)Electrocution 2)Damaged to asset a)fire hazard	Personnel Asset	Possible (3)	Major (-3)	Undesirable (-9)	- Barricade & cordoned off work area whenever the heating torque is in used - Guide markers are identified on all the gases pressure gauge - Trained operator on the proper technique to use the heating torque - Operator to keep a distance away from the mandrel once it is heated - No entry to unauthorized personnel during the ID test - Trained operator on the correct technique & method on pressure valve opening & closing - Designated place to hang the heating torque after use	- First aid kit available & readily accessible on site - Mandatory PPE such as hard helmet, safety shoes , safety goggle & leather gloves & heat resistant coveralls - Signages to promote SIPP & standback 5x5 - Signage to indicate hot surface	Unlikely (2)	Light (-2)	Acceptable (-4)