



SITE INSPECTION

Cleveland, OH USA
Phone: 216-265-9000 Fax: 216-265-9030
E-Mail: sparky@postle.com

www.hardbandingsolutions.com

Postle Industries, Inc.

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Site Inspection/Hardbanding Application Inspection and Evaluation Procedure

Hardbanding Solutions by Postle Industries believes strongly in customer communication, support, and technical assistance. To reinforce that idea with our hardbanding products, we have established a procedure that assures hardband applicators that you have entrusted to apply our products, are doing it in accordance with the Hardbanding Solutions procedure manual.

The first thing we do to get the process started is get the “general” approval from the Drilling Contractor that allows Hardbanding Solutions or assigned Technical Center to do on-site inspections of the Applicator specifically related to a hardbanding job the Applicator is currently undertaking. (see page 3).

Once approval is granted for a specific job, Hardbanding Solutions or assigned Technical Center, without the Applicator’s prior knowledge, would visit the site to verify that the hardbanding material is being applied as per the Hardbanding Solutions “Hardbanding Applications” manuals. The site inspector will use the Procedure Qualification Report (see page 4) to evaluate the hardbanding company.

If the Applicator is in conformance to proper welding procedures as per the Hardbanding Solutions manuals, a “*Site Inspection Certificate of Compliance*” will be issued to the Applicator and a copy will be sent to the Drilling Contractor. (see page 5)

If the Applicator is not in conformance, a Non-Conformance Report (NCR) would be issued to the Applicator and a copy would be sent to the Drilling Contractor. (see page 6)

Hardbanding Solutions would determine the reason for the NCR and would issue a Corrective Action Plan (CAR) to the Applicator on how to rectify the NCR. The Applicator would have to sign the CAR signifying they understand the NCR and will undertake the corrective actions to rectify the NCR. A signed copy of the CAR will be forwarded to the Drilling contractor. (see page 6)

Hardbanding Solutions would then do follow-up un-announced visit to verify that the corrective actions have been followed.

If the Applicator refuses to sign the CAR, Hardbanding Solutions would de-certify the Applicator as they are not in conformance to proper welding procedures. Hardbanding Solutions would then send out a letter notifying all drilling contractors that the specified Applicator no longer has the rights to apply our products.

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Hardbanding Application Inspection and Evaluation

At Hardbanding Solutions by Postle Industries, we believe in customer communication and support. and we are always available for technical assistance. To reinforce that idea with our hardbanding products, we have established Technical Centers to help drilling contractors, operators, pipe suppliers and manufacturers whenever there is a question concerning hardbanding and/or casing wear.

As part of its quality commitment to users of our hardbanding products, we would like to offer you an additional service to insure that our products are being applied to your drill pipe according to the correct procedures. With your permission and at your request, when one of our products is being applied to your drill pipe, Hardbanding Solutions by Postle Ind. or its appointed Technical Center will visit the job site to evaluate the work being done.

We will provide you with a complete report of whether or not the Applicator is in compliance with weld hardband procedures, along with a Non-Conformance Report and Corrective Action Report if necessary. Copies of the report(s) will be sent to the Hardbander/Applicator.

If you are in agreement to the above, please sign below.

I _____ (personal name) of _____ (company) have read the above "Hardbanding Application Inspection and Evaluation" and being in a position to approve the above request, do so give that approval to Hardbanding Solutions by Postle Ind. and/or its appointed Technical Center.

Signature

_____/_____/_____
Date

PLEASE FAX THIS FORM BACK TO 1-216-265-9030 OR EMAIL TO sstefancic@postle.com

WELDING PROCEDURE SPECIFICATION (WPS): _____

DATE _____
 COMPANY: _____
 ADDRESS: _____
 (Test Location)

 CERTIFIER: _____
 WELDER'S NAME: _____
 SUPERVISOR'S NAME: _____

WIRE: Duraband Tuffband LOT NO: _____
 TOOL JOINT OD: _____
 (Tool Joint Outside Diameter)
 POST WELD HARDBAND OD: _____
 (Hardband Outside Diameter)
 APPLICATION TYPE: BOX RAISED
 BOX FLUSH 18° TAPER BOX SEMI
 PIN RAISED PIN SEMI PIN FLUSH

TYPE OF STEEL:
 Drill Pipe (4137) _____
 HWDP (4145) _____
 Drill Collar _____
 Other _____

Hardbanding Unit	Stationary	Portable
Serial No.		
Temp Measurement		
Power Supply		
Application	New	Re-Application
Re-Applied Over		

SURFACE PREPARATION _____

POLARITY: ELECTRODE POSITIVE _____

AMPERAGE: _____ VOLTS: _____

SHIELDING GAS: MIXTURE _____% _____ / _____%

FLOW RATE _____

TORCH SETTINGS:

ANGLE _____ OFFSET _____ STICKOUT _____

OSCILLATION: WIDTH _____ SPEED _____
 Per Minute

ROTATIONAL SPEED: _____
 Minutes/Seconds per Revolution

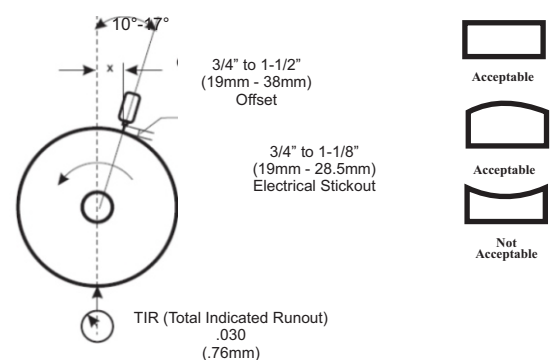
PREHEAT TEMPERATURE: _____
 INTERPASS TEMPERATURE: _____
 Max Allowed 850°F (454°C)
 COOL DOWN METHOD: _____
 WELD BEAD: Width _____ Band Profile _____
 Voids/Porosity/Cracking _____ If Yes - Explain _____

NOTES _____

TYPICAL WELDING PARAMETERS
 Process: Gas Shielding GMA
 Current: Electrode Positive - DCEP/Reverse
 Amperage: Tuffband 330 (300 to 380)
 Duraband 320 (300-365)
 Volts: 30 (29-33)
 Gas Mix: 98% Argon/2% Oxygen (100% Argon, 95/5)
 Flow Rate: 35 CFH (16.5 LPM) 32-37 CFH (15-17.5 LPM)
 Preheat: (see table above)
 Offset: 1" (25mm) (3/4 to 1-1/2" 19-38mm)
 Stickout: 1" (25mm) (3/4 to 1-1/8" 19-28.5mm)
 Oscillation Width: 1" (25mm) (3/4 to 1-1/4" 19-32mm)
 Oscillation Speed: 80 per minute (60 to 100)
 Max Interpass Temperature: 850°F (454°C)
 Cooling Rate: 50°F to 75°F Ave/Hour over 8 hour period
 10°C to 24°C Ave/Hour over 8 hour period

Tool Joint OD (Inches)	Preheat Temperature °F	
	150 to 200	66 to 93
3-1/8 to 4-3/4	150 to 200	66 to 93
4-3/4 to 5-1/4	200 to 250	93 to 121
5-1/2 to 6-1/4	400 to 450	204 to 232
6-3/8 to 6-7/8	450 to 550	232 to 288
7 to 7-3/8	550 to 600	288 to 316
8 to 8-1/2	650 to 700	343 to 371
8 to 8-1/2 (W 5" ID)	550 to 600	288 to 316

Level _____ Certification
 Duraband _____ Tuffband _____
 Site Inspection _____
 Office Use Only



Site Inspection

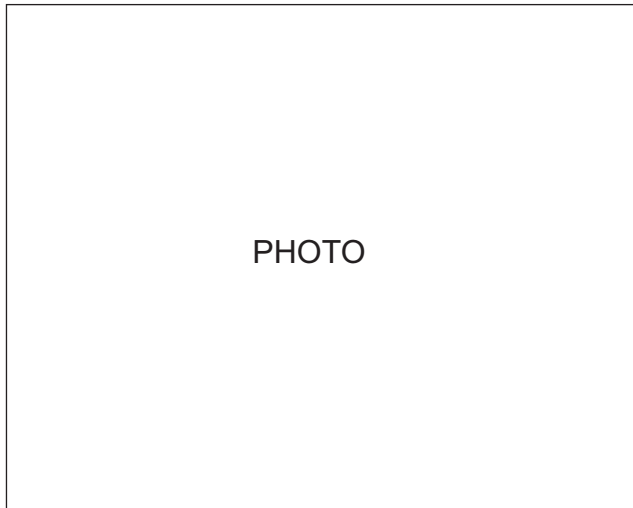
Date: _____

Project: _____ Issued to: _____

Product Used: _____ Location: _____

The product listed above was inspected at the above location by a Hardbanding Solutions or assigned Technical Center representative and found to be in compliance with the welding procedures found in the Hardbanding Solutions application manual. A copy of the site visit is shown below.

 John Postle
 President
 Postle Industries, Inc.



HARDBANDING SOLUTIONS Procedure Qualification Record (PQR) PQR Number

WELDING PROCEDURE SPECIFICATION (WPS): _____

DATE: _____ WIRE: Duraband Tuffband LOT NO: _____

COMPANY: _____ TOOL JOINT OD: _____ TYPE OF STEEL: _____
(First Joint Outside Diameter)

ADDRESS: _____ POST WELD HARDBAND OD: _____ HWDP (4145) _____
(Hardband Outside Diameter)

CERTIFIER: _____ APPLICATION TYPE: BOX RAISED _____ BOX SEMI _____
 BOX FLUSH _____ 18" TAPER _____ PIN SEMI _____
 PIN RAISED _____ PIN FLUSH _____

WELDER'S NAME: _____ SURFACE PREPARATION _____

SUPERVISOR'S NAME: _____ POLARITY: ELECTRODE POSITIVE _____

Hardbanding Unit	Stationary	Portable
Serial No.		
Temp Measurement		
Power Supply		
Application	New	Re-Application
Re-Applicat Over		

AMPERAGE: _____ VOLTS: _____

SHIELDING GAS: MIXTURE _____ % _____ / _____ %

FLOW RATE _____

TORCH SETTINGS: _____

ANGLE _____ OFFSET _____ STICKOUT _____

OSCILLATION: WIDTH _____ SPEED _____

ROTATIONAL SPEED: _____ For Minute
Minutes/Seconds per Revolution

PREHEAT TEMPERATURE: _____

INTERPASS TEMPERATURE: _____
Max Allowed 850°F (454°C)

COOL-DOWN METHOD: _____

WELD BEAD: Width _____ Band Profile _____

Voids/Porosity/Cracking _____ If Yes - Explain _____

NOTES _____

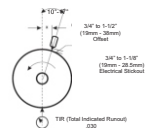
TYPICAL WELDING PARAMETERS

Process: Gas Shielding GMA
 Current: Electrode Positive - DCEP/Reverse
 Amperage: Tuffband 101 (100 to 105)
 Duraband 120 (100-165)

Wires: 30 (20-35)
 Gas Mix: 90% Argon/10% Oxygen (100% Argon, 95%)
 Flow Rate: 5-15 CFH (1.5-4.2 PM) 15-27 CFH (4.2-7.5 LPM)
 Pulse: (see table above)
 Offset: 1" (25mm) (1.5 to 1.2" (38-32mm))
 Stickout: 1" (25mm) (1.5 to 1.8" (38-45mm))
 Oscillation Width: 1" (25mm) (1.5 to 1.4" (38-32mm))
 Oscillation Speed: 80 per minute (10 to 10)
 Max Intermittent Temperature: 1600 (1450)
 Cooling Rate: 50°F in 2°F Area/Inch over 8 hour period
 100% in 24" Area/Inch over 8 hour period

Tool Joint Size (Outside Diameter)	Electrode Diameter	Electrode Length	Electrode Stickout
1.5 to 2.0	1/8 to 3/16	100 to 200	10 to 15
2.0 to 2.5	3/16 to 1/4	100 to 200	10 to 15
2.5 to 3.0	1/4 to 5/16	100 to 200	10 to 15
3.0 to 3.5	5/16 to 3/8	100 to 200	10 to 15
3.5 to 4.0	3/8 to 7/16	100 to 200	10 to 15
4.0 to 4.5	7/16 to 1/2	100 to 200	10 to 15
4.5 to 5.0	1/2 to 9/16	100 to 200	10 to 15
5.0 to 5.5	9/16 to 5/8	100 to 200	10 to 15
5.5 to 6.0	5/8 to 3/4	100 to 200	10 to 15

Level _____ Certification _____
 Duraband _____ Tuffband _____
 Site Inspection _____



REV 02 2014



CORRECTIVE ACTION REPORT

CAR No. _____ REF. NCR No. _____ DATED ISSUED ____/____/____

CUSTOMER _____ CONTACT _____

PHONE No. _____ FAX No. _____ Email _____

CONDITION REQUIRING ACTION _____

CORRECTIVE ACTION _____

TAKEN BY _____ SIGNATURE _____
Customer Representative - Print

APPROVED BY _____ SIGNATURE _____
Postle Representative - Print

Page 2 to be filled out by Quality Assurance Department

Page 1 of 2



CORRECTIVE ACTION REPORT

QUALITY ASSURANCE DEPARTMENT

1. Is this the first or only CORRECTIVE ACTION REPORT issued for incident identified? YES ___ NO ___
2. Was this CORRECTIVE ACTION REPORT completed by receiver? YES ___ NO ___
3. Did the CORRECTIVE ACTION taken result in a change in or initiation of a procedure? YES ___ NO ___
4. Is Quality Assurance Department satisfied that the CORRECTIVE ACTION taken by the receiver is effective and appropriate? YES ___ NO ___
5. Are further CORRECTIVE ACTIONS required? YES ___ NO ___

"NO" responses to questions 1, 2, 3 or 4 require an explanation. Include any further action planned.

ADDITIONAL COMMENTS _____

SIGNED _____ DATE ____/____/____
Quality Assurance

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