	<b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b>	
Issue Date: 07-25-2008		Section # 38
Page: 1 of 5		Doc # SWP - 38
Approver: Joe Berry		Revision: 2
<b>HOT BOLTING PROGRAM</b>		

CONTENTS	SUBPART
<b>PURPOSE/SCOPE</b>	<b>A</b>
<b>PROCEDURES</b>	<b>B</b>

### **SUBPART A – PURPOSE / SCOPE**

The purpose of this Safe Work Practice is to outline the steps / requirements for conducting safe Hot Bolting operations. Before performing any Hot Bolting work, Management will be notified and a thorough JSEA along with a Hazard Assessment / Identification will be completed and communicated to Management and all crew members before performing the Hot Bolting Procedures.

### **SUBPART B- PROCEDURES**


This procedure allows for the replacement of one stud at a time until all the studs have been replaced on a weld neck flange. This allows for the preventative maintenance of corroding studs and nuts while the line is in service. Consideration must be given to studs and nuts with excessive corrosion. Hot bolting of severely corroded nuts and studs is prohibited.

When removing and replacing nuts / studs they are removed one at time, in a specified cross-bolting sequence or pattern.

The procedure enables personnel to quickly remove and replace studs and nuts when removal is preferred or necessitated by specific projects.

#### **WARNING:**

1. Prior to removing any nut / stud, all existing nuts / studs shall be checked for tightness by torquing the flanged joint to the manufacturer specifications.
2. Hot bolting and hot work are not allowed within 100 feet of each other.

	<b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b>	
Issue Date: 07-25-2008		Section # 38
Page: 2 of 5		Doc # SWP - 38
Approver: Joe Berry		Revision: 2
<b>HOT BOLTING PROGRAM</b>		

All new nuts / studs shall be torqued according to the manufacturer's specifications and a company representative should be present during all hot bolting activities.

NOTE: Before Hot Bolting commences, the location of the nearest upstream and downstream isolation valve relative to the joint shall be located and identified prior to commencing any work.

NOTE: Hot work (cutting or burning) of seized nuts / studs is strictly prohibited on flanges that are still in service. Cold cutting is permissible and should be considered if necessary.

The practice of hot bolting will only be allowed for those weld neck flanges indicated in table 1.

**NOTE:**

Several flanges require a decreased pressure rating during hot bolting (from 9% to 40% less than normal pressure rating). Use Table 1 in conjunction with local hot-bolting safety practices to enhance personnel safety as well as code compliance.

**SEE TABLE 1 ON THE FOLLOWING PAGES**

- Ratings are for ANSI B16.5 flanges made of ASTM A-105 material at - 20°F to 200°F, and with A193 Grade B7 bolts. Calculations are in accordance with ANSI B31.3.
- Temporarily is defined as no more than 10-hours at any one time, and no more than 100 hours per year, per ANSI B31.3 code for "Occasional Variations."
- Only a single flange bolt can be removed at a time.
- RF is raised face type, and RJ is ring joint type. All flanges are weld neck.



	<b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b>	
Issue Date: 07-25-2008		Section # 38
Page: 3 of 5		Doc # SWP - 38
Approver: Joe Berry		Revision: 2
<b>HOT BOLTING PROGRAM</b>		

**TABLE 1**

Flange Pressure Ratings During Hot Bolting 1  
(Temporary removal 2 of Only One Bolt at a Time 3 under Operating Pressure)

Normal Pipe Size	ANSI Class	Flange Type	Normal Bolt Count	Normal PSI Max.
2"	150	RF	4	285
2"	300	RF	8	740
2"	600	RF	8	1480
2"	900	RJ	-	-
2"	1500	RJ	8	3705
2"	2500	RJ	8	6170
3"	150	RF	4	285
4"	150	RF	8	285
4"	300	RF	8	740
4"	600	RF	8	1480
4"	900	RJ	8	2220
4"	1500	RJ	8	3705
6"	150	RF	8	285
6"	300	RF	12	740
6"	600	RF	12	1480
6"	900	RJ	12	2220
6"	1500	RJ	12	3705
8"	150	RF	8	285
8"	300	RF	12	740
8"	600	RF	12	1480
8"	900	RJ	12	2220
8"	1500	RJ	12	3705
10"	150	RF	12	285
10"	300	RF	16	740
10"	600	RF	16	1480
10"	900	RJ	16	1480
12"	150	RF	12	285
12"	300	RF	16	740
12"	600	RF	20	1480
12"	900	RJ	20	1480

- Ratings are for ANSI B16.5 flanges made of ASTM-A105 material @ - 20°F to 200°F, and with A193 Grade B7 bolts. Calculations are in accordance with ANSI B31.3



	<b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b>	
Issue Date: 07-25-2008		Section # 38
Page: 4 of 5		Doc # SWP - 38
Approver: Joe Berry		Revision: 2
<b>HOT BOLTING PROGRAM</b>		

- Temporary is defined as no more than 10-hours at any one time, and no more than 100-hours per year, per ANSI Ba31.3 code for "Occasional Variations."
- Only a single flange bolt can be removed at a time.

Hot Bolt PSI Max	Hot Bolt Allowed	Comments
-	No	Insufficient gasket-seating force
740	Yes	
1480	Yes	Not available. Use 2ANSI 1500 23% pressure reduction 40% pressure reduction
-	-	
2850	Yes	
3700	Yes	
-	No	Insufficient gasket-seating force
285	Yes	9% pressure reduction
740	Yes	
1350	Yes	
2220	Yes	
3705	Yes	
-	No	Insufficient gasket-seating force
740	Yes	10% pressure reduction
1325	Yes	
2220	Yes	
3705	Yes	
-	No	
740	Yes	Insufficient gasket-seating force
1480	Yes	
1480	Yes	
-	No	Insufficient gasket-seating force
740	Yes	Insufficient gasket-seating force
1480	Yes	
1480	Yes	

- RF is raised face type, and RJ is ring joint type. *All flanges are weld neck.*



	<p style="text-align: center;"><b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b></p> <p style="text-align: center;"><b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b></p>	
Issue Date: 07-25-2008		Section # 38
Page: 5 of 5		Doc # SWP - 38
Approver: Joe Berry		Revision: 2
<b>HOT BOLTING PROGRAM</b>		

Revision Date: \_\_\_\_\_ 10-05-14, 2-21-2017

\_\_\_\_\_

Approved By: Joe Berry & Safety Committee

\_\_\_\_\_

\_\_\_\_\_