

BIG BEND STATION

PROCEDURE FOR DESLAGGING BOILER WITH EXPLOSIVES

INTRODUCTION:

This procedure involves the removal of slag from the boiler by the use of explosives. The purpose of this procedure is to coordinate the responsibilities of the Explosives Contractor Personnel, and the Big Bend Personnel so that this operation may be performed in a safe and efficient manner.

Roles and Responsibilities:

Maintenance Supervisor – TECO Maintenance Supervisor on duty. Responsible to assure that the team performing the deslagging operations follows the checklist provided and initials off same as items are completed.

SPO – Supervisor of Plant Operations on duty. Signs off on checklist when blasting operations are complete.

Man in Charge – Lead Craftsman assigned to perform tasks associated with the set up and execution of the boiler deslagging operations. Man in Charge for each shift is responsible to assure that job briefings are conducted and a complete turn-over is done with the Maintenance Supervisor and the Lead Craftsman that is picking up the job at the end of each shift. All paperwork will be completed and attached to the work order.

Blasting Supervisor – Supervisor for the contract blasters on site.

Confined Space Attendant – Employee performing the functions of a confined space attendant. This cannot be performed by the TECO Man in Charge on the blasting job.

PROCEDURE: Follow the instructions in this procedure and fill out all documents required by the procedure. Print legibly and sign the Sootblower walk down sheet and the TECO Man in Charge Checklist as those items are completed.

As the boiler is cooling down, stage the following materials as needed on the 8th floor by the boiler.

2-Rolls Safety Tape - RED DANGER TAPE (TECO Stock # 2007620)

1-Air Horn & Refill (TECO Stock # 2019478)

Water Cooler with Ice & Cups (Tool Room)

If blasting crew requests, the following items are at Warehouse 023:

Broom Handles (TECO Stock # 2007369)

Aluminum Conduit - 3/4" x 10' (TECO Stock # 200879)

3" Duct Tape (TECO Stock # 2008321)

Fiberglass Extension Poles (TECO Stock # 2006928)

1. CAUTION signs will be posted in all elevator cabs, and on the 1st floor landings of Units 1, 2, 3, 4, FGD, FGD Control Room, and the office elevators. Signs will read: CAUTION, BLASTING IN # _____ BOILER TODAY
2. A walk down of the furnace sootblowers must be conducted to make sure that there are no lances stuck in the boiler. Check to be sure the travel carriage is in the parked position and the lance is fully retracted. Record findings on the attached sheet and notify the supervisor. Write work orders as appropriate. **The lance must be removed or secured before any personnel may enter the furnace.**
3. Upon arrival of the blasting contractor and prior to commencing blasting, the Man in Charge will verify the number of blasting charges, cases of dynamite, electric & non electric blasting caps, amount of detonating cord, shotgun shells & shotguns brought on site by the Blasting Contractor. This information will be logged on blasting check list. If additional equipment or supplies are brought to the site, the Man In Charge will note this on the Blasting Inventory Sheet.
4. Construct the nose arch scaffold if needed for blasting. Be sure to install ladders in both the East, & West doors. **NOTE: On Units 1 and 2 do not enter the boiler until the unit has been isolated completely from the 1&2 FGD System.**
5. The Responsibility for the initial inspection of the boiler (prior to blasting), and the final inspection of the boiler (when blasting is completed) is the duty of the Maintenance Supervisor or his designee on that shift.
6. A responsible maintenance person will be assigned to work with the blasting contractor to act as a TECO Big Bend Station representative. He will be the Man in Charge. This man is ultimately responsible to insure that the blasting procedure is carried out in a safe and efficient manner. **The man in charge may suspend blasting at any time until any hazards are abated.**
7. The SPO will contact each supervisor or lead craftsman on duty and inform them that blasting will be taking place. It is the responsibility of each supervisor/lead to individually notify each man in his crew that blasting is taking place. Work near boiler openings shall be evaluated for potential dust/debris hazards by the supervisor. Barricade tape shall be erected around the area based upon the potential level of hazard. The supervisor will then notify the SPO on duty when this is completed.
8. The Man in Charge will complete the pre-blast portion of the TECO Man in Charge Checklist. The check sheet provides a record of the supervisory personnel that are coordinating the blast should any questions arise about the blasting operations. .
9. The Man in Charge will verify that the Contract Blaster is in compliance with the **TECO Hazardous Energy Control procedures, The Confined Space procedures, PPE REQUIREMENTS and the fall protection requirements.**

10. A RED tape barricade clearly tagged **“DANGER: BLASTING IN PROGRESS”** will be erected around the area where the blasting crew is working, as deemed necessary by the Man In Charge and the Blasting Supervisor. No one is to be in this area without the consent of the Man in Charge. No burning or welding will take place above where blasting contractors are working. All boiler doors that have been opened shall be closed, and barricade tape installed with a note tag affixed stating **“Blasting in Progress”** and the date, time, & the name of the person who affixed the tag clearly visible.
11. The Man in Charge will maintain the TECO – Big Bend Shot Log. The Explosives Blasting Log will provide the following information:
- Date/Time
 - Area of detonation
 - Amount of Detonating Cord (in feet) or number of charges and number of blasting caps used per shot.
 - If a stick is dropped in the furnace, the blasting contractor will immediately Notify the Man in Charge, and it must be logged that it was dropped, retrieved, or left until blasting is completed. The duty supervisor will be notified.
12. The Man in Charge will contact the SPO on duty to assure that one fan train (1 FD Fan and 1 ID Fan) is still in service and the PPTR is energized to facilitate dust removal during blasting.
13. Before each blast the Man in Charge, upon request of the contractor Blasting Supervisor, will announce over the plant P.A. system - **“STAND CLEAR OF NUMBER ___ BOILER – BLASTING IN PROGRESS”**, and then give three (3) blasts on an air horn. He will then give clearance to the blasting supervisor to fire the charge. The supervisor will then announce “Fire in the Hole” and the charge will be detonated.

In the event that the PA System does not work the following steps will be taken while performing the blasting operations.

1. Notify the SPO and the Maintenance Supervisor on duty that the PA System is not working and to stay clear of the unit being blasted that day/shift. They will inform their respective crews that blasting is being performed.
2. A radio will be used to communicate on the Operations Frequency and make the announcement that boiler blasting is in progress. This will be accompanied by three (3) blasts on an air horn. The blasting supervisor will then announce “Fire in the Hole.” and the charge will be detonated.

14. When blasting operations have been completed, the Man in Charge, and the Blasting Supervisor will:

- Account for all explosives, shotgun shells & shotguns brought on site through inventory of remaining blasting caps, explosives, shotgun shells & shotguns versus the actual shot log
- The Maintenance Duty Supervisor or his designee, and a contractor blasting representative will conduct a thorough inspection of the boiler furnace & surrounding area. They will be looking for un-detonated blasting caps, charges, Shotgun Shells, unusual conditions or damage due to the blasting operation, and to verify that all required build-up has been removed. Representatives will sign off on the blasting checklist.

15. Notify the SPO on duty that blasting operations have been completed.

- Announce over the PA “Blasting in Unit ____ has been completed.”.

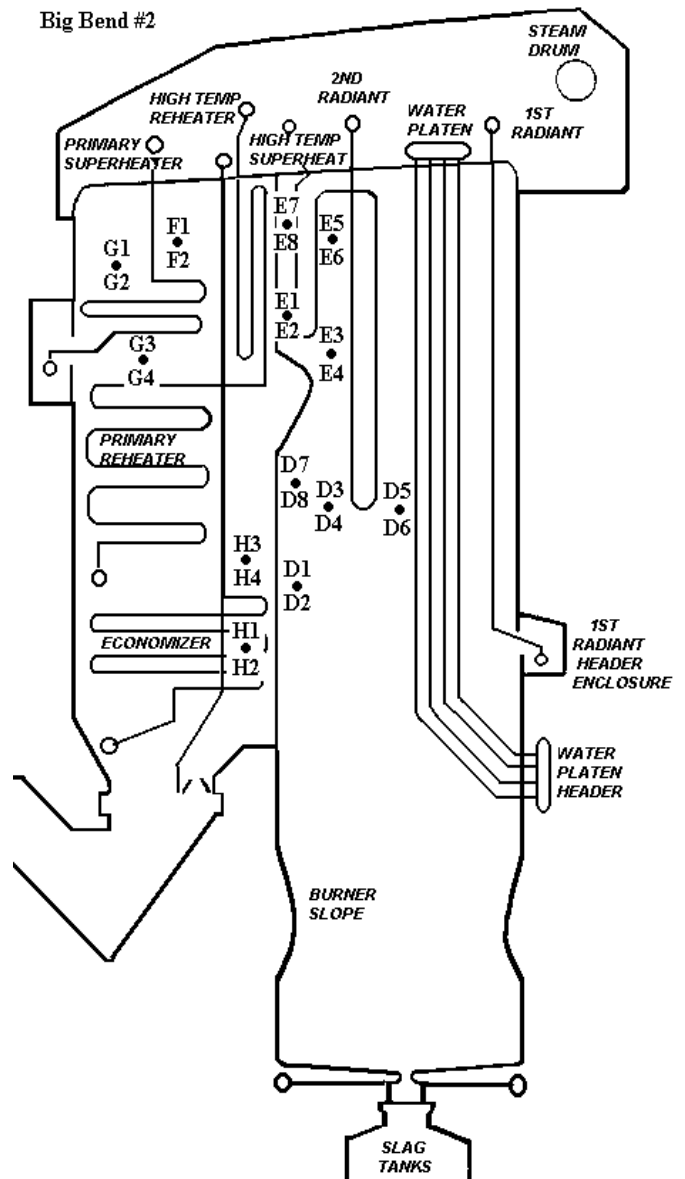
16. The Man in Charge and the Blasting Supervisor will complete the post-blast portion of the TECO Man in Charge Checklist. The checklist must be signed by the Man in Charge, the Blasting Supervisor and the SPO on duty.

17. **This environmental procedure must be followed.** Whenever shotgun shells are used during deslagging, all used shells must be collected, counted and placed in a labeled five (5) gallon container. This container must be labeled with the date, material and number of spent shells. Take the container(s) to the waste oil shed for proper disposal. Place a copy of the Explosives Blasting Log and the number of used shells in Karen Zwolak’s/Environmental mailbox. Include the number of containers if there is more than one. No spent shells are to be taken off site.

Unit 2 Sootblowers – Furnace Area

Walk boiler down prior to the commencement of Slag Blasting to assure that none of the furnace sootblowers are stuck in the furnace. Make sure the travel carriage is in the parked position and the lance is full retracted. Write a work order to secure/remove the lance if one is found. Record the work order below and notify supervision so lance can be removed or secured prior to entry into the boiler.

	Lance in Boiler ?	WO Number
2E1	yes / no	
2E2	yes / no	
2E3	yes / no	
2E4	yes / no	
2E5	yes / no	
2E6	yes / no	
2E7	yes / no	
2E8	yes / no	
2D1	yes / no	
2D2	yes / no	
2D3	yes / no	
2D4	yes / no	
2D5	yes / no	
2D6	yes / no	
2D7	yes / no	
2D8	yes / no	



Print name/Signature _____

Date _____

TECO MAN-IN-CHARGE CHECK LIST

Pre-Blast: (Man in Charge will verify & initial all requirements)

- _____ Caution signs in Elevators, Danger signs & barricade tape in place
- _____ Supplies staged as needed at 8th floor (See list in instructions)
- _____ Walk down boiler to see if any sootblower lances are stuck in the boiler.
- _____ Closed necessary boiler doors, hang RED danger tape, & note tags prior to blasting.
- _____ Fan Train in operation (1 – FD Fan/1 – ID Fan) for dust removal/collection during blasting
- _____ Blasting Inventory Sheet filled out
- _____ Checked P.A. system for proper operation, and obtained functional air horn
- _____ Shot Log filled out & in place
- _____ Confined Space Entry Permit in place and attendant on duty.

Print name/Signature _____

Date _____

Post - Blast: (Man in charge, & Blasting Supervisor will verify & initial on each line)

- _____ _____ Post blast boiler furnace/area inspected.
- _____ _____ Post blast inventory completed.
- _____ _____ Danger/Caution signs and barricade tape removed.
- _____ _____ Inspect for unusual conditions or problems (use back of form to describe).
- _____ _____ Announcement has been made that blasting is completed.
- _____ _____ Spent shotgun shells have been counted and taken to the Waste Oil Shed.

TECO Man in Charge

Big Bend SPO

Blasting Supervisor

Today's Date: _____

Work Order# _____

Explosives Inventory

Work Order _____

Date _____ Time _____

Blasting Area _____

Man-in-Charge _____

Blasting Supervisor (Contr.) _____

Duty SPO _____

Duty Supervisor _____



Inventory:

	Pre-Blast	Post-Blast
Charges	_____	_____
Blasting Caps	_____	_____
Detonation Cord	_____	_____
Shotgun Shells	_____	_____

Explosives Blasting Log

Shot #	# of Charges or Det Cord (in ft.) Shotgun Shells	# of Caps	Time	Elevation/Location of shot		Shot #	# of Charges or Det Cord (in ft.) Shotgun Shells	# of Caps	Time	Elevation/Location of shot
1						51				
2						52				
3						53				
4						54				
5						55				
6						56				
7						57				
8						58				
9						59				
10						60				
11						61				
12						62				
13						63				
14						64				
15						65				
16						66				
17						67				
18						68				
19						69				
20						70				
21						71				
22						72				
23						73				
24						74				
25						75				
26						76				
27						77				
28						78				
29						79				
30						80				
31						81				
32						82				
33						83				
34						84				
35						85				
36						86				
37						87				
38						88				
39						89				
40						90				
41						91				
42						92				
43						93				
44						94				
45						95				
46						96				
47						97				
48						98				
49						99				
50						100				

Explosives Blasting Log

Shot #	# of Charges or Det Cord (in ft.) Shotgun Shells	# of Caps	Time	Elevation/Location of shot	Shot #	# of Charges or Det Cord (in ft.) Shotgun Shells	# of Caps	Time	Elevation/Location of shot
101					151				
102					152				
103					153				
104					154				
105					155				
106					156				
107					157				
108					158				
109					159				
110					160				
111					161				
112					162				
113					163				
114					164				
115					165				
116					166				
117					167				
118					168				
119					169				
120					170				
121					171				
122					172				
123					173				
124					174				
125					175				
126					176				
127					177				
128					178				
129					179				
130					180				
131					181				
132					182				
133					183				
134					184				
135					185				
136					186				
137					187				
138					188				
139					189				
140					190				
141					191				
142					192				
143					193				
144					194				
145					195				
146					196				
147					197				
148					198				
149					199				
150					200				

Explosives Blasting Log

Shot #	# of Charges or Det Cord (in ft.) Shotgun Shells	# of Caps	Time	Elevation/Location of shot		Shot #	# of Charges or Det Cord (in ft.) Shotgun Shells	# of Caps	Time	Elevation/Location of shot
201						251				
202						252				
203						253				
204						254				
205						255				
206						256				
207						257				
208						258				
209						259				
210						260				
211						261				
212						262				
213						263				
214						264				
215						265				
216						266				
217						267				
218						268				
219						269				
220						270				
221						271				
222						272				
223						273				
224						274				
225						275				
226						276				
227						277				
228						278				
229						279				
230						280				
231						281				
232						282				
233						283				
234						284				
235						285				
236						286				
237						287				
238						288				
239						289				
240						290				
241						291				
242						292				
243						293				
244						294				
245						295				
246						296				
247						297				
248						298				
249						299				
250						300				

CAUTION

Blasting Slag in Unit _____ Boiler

Date _____

CAUTION