Acme Coke
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Work Instruction: Ovens
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Acme Steel Company

Work Instruction

STATUS: REVISED

DEPARTMENT: Coke Ovens
TITLE: Door Machine (Coking Process)
EFFECTIVE: 7/31/96

Number: CPWI.007
Pages: 2

Purpose To obtain consistent work practices and comply with emission standards.
To achieve a consistent operating procedure for the door machine operator.

Scope Applies to all door machine operators.

Required tools	Broom - Shovel - Latching Hook - Sledge Hammer - Scraper Bars.

Step	Description of Work Activity	Record of Activity
1	Door machine operator removes the oven door.	Door machine schedule Door machine report
2	The operator spots up and racks in coke guides and makes sure the hood car is spotted correctly.	No Record
3	The Door Machine Operator cleans the bottom of the oven door and the North side of the plug, using the scraper bar to clean the plug, gas channel and knife edge.	No Record
4	The operator makes sure the quench car is spotted up and calls for the push.	No Record
5	After the oven is pushed the door machine operator cleans the jamb using the jamb cleaner and replaces the door. • If the door doesn't latch properly when replacing it, use the latching hook and sledge hammer to secure the door.	No Record

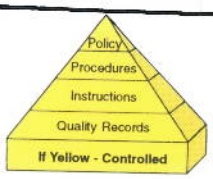
Note* never attempt to mount or dismount any moving equipment

Measures Consistency in operation procedures.

Records Door Machine Operators report.

Revision #: 001	*Revision Date: 10/13/96*	*Author :* B. Moyers
Last Review Date: 10/13/96	*Date of Next Review:* 7/1/97	*Issued By:* J. Garzella
Approval & Date *Dept. Hd.* 10/21/96	*Approval & Date* *Dir M&QS* 11/19/96	*Approval & Date* *Other Party* 10/24/96

Rev#	Rev Date	Reason for Document Change
001	8/13/96	Added Step #3 and Changed the existing Steps 3 and 4 to steps 4 and 5. Added required tools list. Changed title to key to process flow chart. Added a statement to step 5. Added statement to Purpose



Acme Steel Company

Work Instruction

STATUS: REVISED

DEPARTMENT : Coke Ovens
TITLE: Pusher Machine (Coking Process)
EFFECTIVE: 7/31/96

Number: CPWI.008
Pages: 2

Purpose To achieve a standard operating procedure for the Pusher Machine and comply with emission standards.

Scope Applies to all Pusher Machine Operators.

Required tools	Scraper bar - Hook - Chuck Door Locking Device - Sledge Hammer - Shovel.

Step	Description of Work Activity	Record of Activity
1	The pusher operator removes the oven door to be pushed, cleans the top of the door, including the gas channel, door plug and knife edge with the scraper bar. The door can be cleaned at various times; • Before the push • After the push (when the ram is coming back) • During the jamb cleaning.	Pusher schedule and report.
2	The Door Machine Operator calls for the oven, the pusher machine operator responds to verify and then pushes the oven out.	Pusher report
3	After the oven is pushed, the pusher operator cleans the jamb using the jamb cleaner, then replaces the door.	Pusher Report
4	When the Larry Car Operator signals the pusher operator to level the oven that is being charged, the Pusher Operator opens the chuck door and proceeds to level the oven a minimum of 1 1/2 strokes.	Pusher Report
5	The Pusher Machine Operator cleans the chuck door with the scraper bar and then closes it.	Pusher Report

Note* never attempt to mount or dismount any moving equipment

Measures Consistency in operator procedures.

Records Operators pusher report.

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Rev#	Rev Date	Reason for Document Change
001	10/13/96	Change the instruction in steps 1 and 5. Added required tools list. Changed title to key to process flow chart. Changed Purpose

Acme Steel Company

Work Instruction

STATUS: REVISED

DEPARTMENT : Coke Ovens
TITLE: Quench Car (Coking Process)
EFFECTIVE: 7/31/96

Number: CPWI.009
Pages: 2

Purpose To outline the procedure used for Catching and quenching a load of coke, and comply with emission standards

Scope Applies to all coke produced.

Required tools	Broom - Shovel - Sill Brush.

Step	Description of Work Activity	Record of Activity
1	Use mechanical spotting device to spot the Quench Car, set brakes to prevent car from rolling. • If travel failure occurs, use Femco to call for the stop of the push. • If vision is obstructed, get help from the Door Machine Operator to spot up the quench car.	No Record
2	Visually monitor the coke falling into the quench car, catching the load evenly across the length of the quench car.	No Record
3	Travel at a safe speed to the Quench Station.	No Record
4	Spot the car properly under the sprays before initiating the quench cycle. • Determine if tank is fully recovered by visually looking at the overflow pipe, this will give you maximum pressure for quenching.	No Record
5	After drain cycle is complete, travel at a safe speed to drop the load evenly onto the wharf.	No Record
6	When a series of ovens are brought to a designated area to be cleaned, the Quench Car Operator will clean the sill plates using a sill brush and clean the bench using a shovel and a broom.	No Record

Note* never attempt to mount or dismount any moving equipment

Measures Consistency in operation procedures.

Records Pushing schedule

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001	10/13/96	Added required tools list. Changed title to key to process flow chart. Added Step #6 Changed Purpose

Acme Steel Company

Work Instruction

STATUS: REVISED

DEPARTMENT : Coke Ovens
TITLE: Lidperson (Coking Process)
EFFECTIVE: 7/31/96

Number: CPWI.010
Pages: 2

Purpose To obtain consistent charging and comply with emission standards. To produce quality coke and protect the integrity of the battery.

Scope Applies to all ovens charged

Required tools	Broom - Shovel - Lid Bar - Sealant - Disk - Water Blaster Gun - Chipping Bar.

Step	Description of Work Activity	Record of Activity
1	Open the Oven • Lidperson is to verify pushing and charging schedule with the Charging Shift Manager prior to the start of the shift. • Lidperson will pull down damper arms of ovens to be pushed and charged as indicated on pushing schedule. • Lidperson will insert side steam pipe into stand pipe with cross "T" in direction desired. (Make sure your face shield is in place). • Lidperson will open the riser cap, then using lid bar tap specified charging lid to relieve pressure and decrease popping, then remove lid slowly.	Lidperson Report
2	Clean the goosenecks • Insert sizing disks into gooseneck opening, move disk toward back of gooseneck. Pull disk back toward you, turn disk 1/4 turn and repeat 3 times. If sizing disks will not go into the back of the gooseneck the Lidperson is required to do one of the following, A). Water blast gooseneck. B) Chip gooseneck with chipping gun. C) chip gooseneck with air knocker. • Inspect gooseneck liquor spray pattern. If spray is plugged or pattern is abnormal notify the Charging Shift Manager.	Lidperson Report
3	Ream the steam jets • Be sure aspiration steam is off before removing steam plug. • Remove aspiration steam plug with wrench. • Insert reamer, turn as reamer advances through back of steam jet. • Remove reamer when steam jet is cleaned • Replace steam plug and tighten.	Lidperson Report

4	Cleaning stand pipes • Inspect stand pipe from collector main area, remove fluff carbon and excessive carbon build up with sixteen foot air lance. If standpipe requires decarbonizing, notify Charging Shift Manager immediately.	Lidperson Report
5	Inspect charging holes • Direct side steam pipe to blow up on oven, turn on the steam. • Inspect all charging holes for excess carbon. • Remove carbon with chipping bar, or lid bar. • If charging hole is plugged, use air lance to unplugged. • Turn steam off and remove blow pipe, use a small piece of Kao-wool to cover side steam plug opening, close side steam plug and tap with lid bar to insure a good seal which will prevent any emissions from escaping.	Lidperson Report

Measures Recorded level of emissions and visual inspection.

Records Lidperson Report

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Rev#	Rev Date	Reason for Document Change
001	10/13/96	Added required tools list. Changed title to key to process flow chart.

Acme Steel Company

Work Instruction

STATUS: REVISED

DEPARTMENT : Coke Ovens
TITLE: Larry car (Coking Process)
EFFECTIVE: 7/31/96

Number: CPWI.011
Pages: 2

Purpose To achieve a consistent operating procedure for charging ovens and comply with emission standards.

Scope Applies to all ovens charged.

Required tools	Aluminum Conduit Of Various Lengths - Air Lances Of Various Lengths - Sledge Hammer - Scraper Bars.

Step	Description of Work Activity	Record of Activity
1	Use spotting device to spot Larry Car before filling hoppers. Make sure all hoppers are full by visual inspection. • If coal gets stuck in the bin, alert the Charging Shift Manager before probing for coal.	No Record
2	Larry Car Operator spots car over oven charging holes, drops the sleeves, cleans the riser cap with a scraping bar, closes riser cap, lifts damper, puts steam in the oven, then checks the uptakes to make sure the door is in place on the coke side of the battery.	No Record
3	Larry Car Operator charges coal into the oven following proper stage charging procedures. Drop the East hopper completely. Drop the West hopper completely. Drop the center hopper to "eye sight".	No Record
4	Alert Pusher Machine Operator to level oven by us of Femco. As Pusher Operator is leveling oven drop the remaining coal from the center hopper. • Insure pusher operator levels oven properly (1 1/2 strokes minimum). • When the center hopper is empty use Femco to signal Pusher person to remove leveling bar completely from oven.	No Record

5	After Pusher Machine Operator closes the Chuck Door the Larry Car Operator raises the sleeves and proceeds for another load of coal. • If coal is wet notify the Charging Shift Manager.	No Record

Note* never attempt to mount or dismount any moving equipment

Measures The quality of coke produced.

Records N/A

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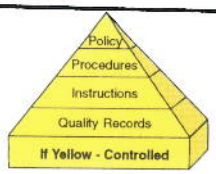
001	10/13/96	In Step 2, changed wording chipping bar to scraper bar. Added required tools list. Changed title to key to process flow chart. Changed Purpose



Acme Steel Company

Work Instruction

STATUS: REVISED

DEPARTMENT : Coke Ovens
TITLE: Coke Side Door Cleaner (Coking Process)
EFFECTIVE: 7/31/96

Number: CPWI.012
Pages: 1

Purpose To assure proper cleaning and maintenance of oven doors, and comply with emission standards.

Scope Applies to all Coke Oven doors.

Required tools	Broom - shovel - Sill Brush - Scraper Bar.

Step	Description of Work Activity	Record of Activity
1	After removal of the oven door, clean the top of the door using a scraper bar for the South side of the door plug, gas channel and knife edge.	No Record
2	The Door Cleaner cleans the bottom of the door jamb and knuckle with the scraper bar and shovels the scrap back into the oven.	No Record
3	The Door Cleaner signals the Door Machine operator to let the operator know when to replace the door.	No Record
4	Clean the sill plate and makes sure the bench is swept clean	No Record

Measures The amount of door leakage

Records N/A

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001	10/13/96	Revised instructions in steps 1 through 4. Added required tools list. Changed title to key to process flow chart. Changed Purpose

Acme Steel Company

Work Instruction

STATUS: REVISED

DEPARTMENT : Coke Ovens
TITLE: Heater (Coking Process)
EFFECTIVE: 7/31/96

Number: CPWI.013
Pages: 2

Purpose To maintain consistent heating temperatures to make quality coke.

Scope Applies to underfiring system operations.

Required tools	Pipe Wrench - Open End Wrench - Steel Wool- Locks - Various Size Brushes - Throat Cleaning Tool - Steel Rod - Computer- Monitor - Printer - Gas Analyzer - Grease Gun - Pyrometer - Portable Data Bank.

Step	Description of Work Activity	Record of Activity
1	Take flue temperatures every shift on every wall plus 4 cross walls.	Department Charts
2	Process data and make entries on the computer.	Computer files
3	Monitor panel board. • Make adjustments as needed.	Department log book
4	Observe oven pushes.	Pushing Schedule
5	Routinely cleans metering pins, orifices, orifice throats, swabs emergency and reversing cocks, rods gas riser and flues.	Department log book
6	Take monthly flue temperatures of #1 and #2 pusher side / coke side flues.	Span File
7	Make master schedule 24 hours in advance. • Calculate coking time. • Prepare schedules for the shifts. • Initiate remedial action in the event of a pushing delay.	Master Schedule File
8	Inspect basements and alleys for gas leaks or reversal malfunctions.	Department Log Book

9	Initiate proper procedures in the event of a gas supply or air failure.	Department Log Book
10	Inspect collector main for proper back pressure regulation and temperatures. • Maintain back pressure and temperature manually as necessary. • Assist oven top Charging Shift Manager during emergencies.	Department Log Book Collector Main Chart

Measures The quality of coke produced.

Records Heating department log book.

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001	10/13/96	Added required tools list. Changed title to key to process flow chart.

Work Instruction

Coke Steel Company

STATUS: REVISED

DEPARTMENT : Coke Ovens
TITLE: Heater Helper (Coking Process)
EFFECTIVE: 7/31/96

Number: CPWI.014
Pages: 2

Purpose To maintain consistent heating temperatures to make quality coke.

Scope Applies to underfiring system operations.

Required tools	Cap Pulling Hook - Pipe Wrench - Open End Wrench - Locks - Various Size Brushes - Steel Wool - Steel Rod - Grease Gun - Throat Cleaning Tool - Gas Analyzer

Step	Description of Work Activity	Record of Activity
1	Remove flue inspection caps.	No Record
2	Routinely monitor panel board, on 11 / 7 shift, change charts and calculate gas flow	BTU File
3	Assist in the routine cleaning of metering pins, orifices, orifice throats, swabs emergency and reversing cocks and rod gas risers and flues.	Department Log Book
4	Clean air boxes and grease air box leakage. • Grease reversing and emergency cocks and reversing machine. • Clean all coke oven gas distribution headers once a year. • Disassembles, cleans and re-assembles all reversing cocks once a year.	Department Log Book
5	Inspect basements and alleys for gas leaks and reversal malfunctions. • Follows proper procedure in the event of a gas supply or air failure.	Department log book
6	Drain drip legs every shift.	No Record
7	Inspect collector main for proper regulation of back pressure and temperature . • Maintain back pressure and temperatures manually as necessary. • Exercises #1 and #2 battery throttle valve. • Assist oven Charging Shift Manager during collector main emergencies.	Collector Main Charts

Measures The quality of coke produced.

Records Heating department log book.

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Rev#	Rev Date	Reason for Document Change
001	10/13/96	Added Required Tools List. Changed title to key to process flow chart.

Acme Steel Company

STATUS: *NEW*

DEPARTMENT : Ovens Department
TITLE: Pusher Side Door Cleaner (Coking Process)
EFFECTIVE: 10/18/96

Number: CPWI.016
Pages: 1

Purpose To assure proper cleaning and maintenance of oven doors

Scope Applies to all pusher side coke oven doors

Required tools	Broom - Shovel - Sill Brush - Sledge Hammer - Scraper Bars.

Step	Description of Work Activity	Record of Activity
1	After removal of the oven door, turn on safety switch. The Door Cleaner cleans the bottom door gas channel, door plug, and knife edge with the scraper bar.	No Record
2	The Door Cleaner cleans the bottom of the door jamb and knuckle with a scraper bar.	No Record
3	The Door Cleaner cleans the sill plate with the sill brush and shovels scrap back into the oven.	No Record
4	The door cleaner signals to let Pusher Machine Operator know when to replace the door. When the door is replaced the Door Cleaner signals the Puher Machine Operator once again to let the pusher operator know that the locking bars are locked. The door cleaner signals two or more times if the locking bars are not locked.	No Record
5	The Door Cleaner makes sure that the bench is swept clean.	No Record

Measures The amount of door leakage

Records N/A

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Acme Steel Company

Work Instruction

STATUS: New

DEPARTMENT : Coke Plant
TITLE: Sprayman
EFFECTIVE: 01/07/97

Number: CPWI: 026
Pages: 1

Purpose To maintain a open passage on the collector main and to make sure the dampers, valves, and sprays work properly.

Scope Applies to oven collector main operation.

Required tools	Steam lance, air lance, punch rod, pipe wrench, crescent wrench, grease gun, steam hose, and air hoses.

Step	Description of Work Activity	Record of Activity
1	Punch out all liquor sprays daily. • Cut the liquor line off and remove pin and use a punch rod to open passage.	No Record
2	Inspect the collector main for tar depth once a week. (Sounding the main) • If tar depth is 3 inches or more sprayperson will spoon the main. • Spooning the main see step 3.	Sounding of the main report
3	For proper flow of tar, spoon the main by using a steam lance to loosen the tar.	No Record
4	Routinely grease all dampers.	No Record
5	Routinely exercise all mill water valves by opening and closing valves.	No Record
6	Routinely exercise collector main throttle valves by opening and closing valves.	No Record
7	Change pressure gauges as needed . • cut off liquor valves and replace pressure gauge. • Keep work area clean.	No Record

Measures Accuracy of equipment operation

Records Department records and instrument labels

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