Summary of OSHA Regulations for Coke Oven Facilities

1. **Permissible Exposure Limit**
   a. To protect worker safety and health, OSHA sets a permissible exposure limit.
   b. The limit is 150 micrograms per cubic meter of air, averaged over any 8-hour period. This is measured in regulated areas, without regard to protective equipment.
   c. At least every three months, the employer is required to conduct monitoring and take measurements of air within regulated areas, and provide notice of the results to employees.

Citations: 29 C.F.R. §1910.1029(c),(e)

2. **Engineering Controls**
   a. For charging operations, the employer must equip and operate coke oven batteries with engineering controls specified in the regulations, to control coke oven emissions.
   b. For coking operations, the employer must equip and operate coke oven batteries with engineering controls specified in the regulations, to control coke oven emissions.

Citations: 29 C.F.R. §1910.1029(f)(2)(i) (charging),(ii) (coking)

3. **Work Practice Program**
   a. For charging operations, the employer shall operate existing coke oven batteries with all of the following work practices to control coke oven emissions during the charging operation:
      i. Establishment and implementation of a detailed, written inspection and cleaning procedure for each battery consisting of at least the following elements:
         1. prompt and effective repair or replacement of all engineering controls,
         2. Inspection and cleaning of goosenecks and standpipes prior to each charge to a specified minimum diameter

sufficient to effectively move the evolved gases from the oven to the collector mains,

3. inspection for roof carbon build-up prior to each charge and removal of carbon as necessary to provide an adequate gas channel so that the gases are effectively moved from the oven into the collector mains,
4. inspection of the steam aspiration system prior to each charge so that sufficient pressure and volume is maintained to effectively move the gases from the oven to the collector mains,
5. inspection of steam nozzles and liquor sprays prior to each charge and cleaning as necessary so that the steam nozzles and liquor sprays are clean,
6. inspection of standpipe caps prior to each charge and cleaning and luting or both as necessary so that the gases are effectively moved from the oven to the collector mains,
7. Inspection of charging holes and lids for cracks, warpage, and other defects prior to each charge and removal of carbon to prevent emissions, and application of luting material to stand-pipe and charging hole lids where necessary to obtain a proper seal.

ii. Establishment and implementation of a detailed written charging procedures, designed and operated to eliminate emissions during charging for each battery, consisting of at least the following elements:

1. Larry car hoppers filled with coal to a predetermined level in accordance with the mechanical volumetric controls required under paragraph (f)(2)(i)(d) of this section so as to maintain a sufficient gas passage in the oven to be charged,
2. the larry car aligned over the oven to be charged, so that the drop sleeves fit tightly over the charging holes,
3. the oven charged in accordance with the following sequence of requirements:
    a. the aspiration system turned on,

b. coal charged through the outer-most hoppers, either individually or together depending on the capacity of the aspiration system to collect the gases involved,
c. the charging holes under paragraph (f)(3)(i)(b)(3)(ii) of this section relidded or otherwise sealed off to prevent leakage of coke oven emissions…

iii. The establishment and implementation of a detailed written charging procedure, designed and operated to eliminate emissions during charging of each pipeline or enclosed charged battery.

b. For coking operations, the employer shall operate existing coke oven batteries pursuant to a detailed written procedure established and implemented for the control of coke oven emissions during coking, consisting of at least the following elements:
   i. Checking oven back pressure controls to maintain uniform pressure conditions in the collecting main
   ii. Repair, replacement and adjustment of oven doors and chuck doors and replacement of door jambs so as to provide a continuous metal-to-metal fit
   iii. Cleaning of oven doors, check doors and door jambs each coking cycle so as to provide an effective seal
   iv. An inspection system and corrective action program to control door emissions to the maximum extent possible
   v. Luting of doors that are sealed by luting each coking cycle and reluting, replacing or adjusting as necessary to control leakage.
c. For pushing operations, the employer shall operate existing coke oven batteries with the following work practices to control coke oven emissions during pushing operations:
   i. Coke and coal spillage quenched as soon as practicable and not shoveled into a heated oven
   ii. A detailed written procedure for each battery established and implemented for the control of emissions during pushing consisting of the following elements:

1. dampering off of the ovens and removal of charging hole lids to effectively control coke oven emissions during the push,
2. heating of the coal charge uniformly for a sufficient period so as to obtain proper coking including preventing green pushes,
3. prevention of green pushes to the maximum extent possible,
4. inspection, adjustment, and correction of heating flue temperatures and defective flues at least weekly and after any green push, so as to prevent green pushes,
5. cleaning of heating flues and related equipment to prevent green pushes, at least weekly and after any green push.

d. For maintenance and repair, the employer must operate existing coke oven batteries pursuant to a detailed written procedure of maintenance and repair established and implemented for the effective control of coke oven emissions consisting of the following elements:
    i. Regular inspection of all controls, including goosenecks, standpipes, standpipe caps, charging hold lids and castings, jumper pipes and air seals for crack, misalignment or other defects and prompt implementation of the necessary repairs as soon as possible;
    ii. Maintaining the regulated area in a neat, orderly condition free of coal and coke spillage and debris;
    iii. Regular inspection of the damper system, aspiration system and collector main for cracks or leakage, and prompt implementation of the necessary repairs;
    iv. Regular inspection of the heating system and prompt implementation of the necessary repairs;
    v. Prevention of miscellaneous fugitive topside emissions;
    vi. Regular inspection and patching of oven brickwork;
    vii. Maintenance of battery equipment and controls in good working order;
    viii. Maintenance and repair of coke oven doors, chuck doors, door jambs, and seals, and

ix. Repairs instituted and completed as soon as possible, including temporary repair measures instituted and completed where necessary, including but not limited to:
    1. prevention of miscellaneous fugitive topside emissions, and
    2. check door gaskets, which shall be installed prior to the start of the next coking cycle.

Citations: 29 C.F.R. §1910.1029(f)(3)

4. **<u>Compliance Program</u>**
    a. The facility must have a written compliance program to reduce emissions solely through engineering controls and work practice controls.
    b. The written program shall include at least the following:
        i. A description of each coke oven operation by battery, including work force and operating crew, coking time, operating procedures and maintenance practices.
        ii. Engineering plans and other studies used to determine the controls for the coke battery.
        iii. A report of the technology considered in meeting the permissible exposure limit.
        iv. Monitoring data obtained in accordance with the requirements of the standard.
        v. A detailed schedule for the implementation of the engineering and work practice controls required by the standard; and
        vi. Other relevant information

Citations: 29 C.F.R. §1910.1029(f)(6)

5. **<u>Compliance Program - Training in compliance procedures</u>**
    a. The employer shall establish and implement a written program to reduce exposures by means of the engineering and work practice controls required by the regulation.
    b. This written program requires a description of each coke oven operation, including operating procedures and maintenance practices, engineering plans and other studies used to determine

controls, a report of the technology considered in meeting the permissible exposure limit, monitoring data obtained, and a detailed schedule for the implementation of the engineering and work practice controls required by the standard.

Citations: 29 C.F.R. §1910.1029(f)(6)

6. **Respiratory Protection**
   a. The employer must provide an appropriate respirator to each employee using respirators required by the OSHA standard, and require its use during periods of time when engineering or work-practice controls are not feasible or sufficient to reduce exposure below the permissible exposure limit.
   b. These include the following periods of time:
      i. Periods necessary to install or implement feasible engineering and work practice controls.
      ii. Work operations, such as maintenance and repair activity, for which engineering and work-practice controls are technologically not feasible.
      iii. Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the permissible exposure limit.
      iv. Emergencies.

Citations: 29 C.F.R. §1910.1029(g)

7. **Protective Clothing and Equipment**
   a. The employer must provide and assure use of appropriate protective clothing and equipment, as set forth in the standard.
   b. The employer responsible for cleaning, disposal, repair and replacement of such clothing, and communicating information regarding the potentially harmful effects of exposure, to persons who clean or launder such clothing.

Citations: 29 C.F.R. §1910.1029(h)

8. **Hygiene Facilities and Practices**
   a. The employer must provide change rooms with storage facilities for clothing, and assure that employees shower in employer-provided shower facilities at the end of the shift.

Citations: 29 C.F.R. §1910.1029(i)

9. **Medical Surveillance**
   a. The employer must institute a medical surveillance program for employees employed in a regulated area for more than 30 days per year, and provide such employees with an opportunity for annual medical examination, at no cost to the employee.
   b. The employer must provide this opportunity for employees over 45 years of age, and for employees with five or more years employment in a regulated area.
   c. The regulations set forth specific requirements for such examinations, as well as requirements for information that the employer must provide to the examining physician.

Citations: 29 C.F.R. §1910.1029(j)

10. Employee Information and Training
   a. The employer must institute a training program for each employee employed in a regulated area, and ensure employee participation in it.
   b. The training program must be provided at least annually.
   c. It must include information regarding the following information:
      i. substance information sheet for coke oven emissions,
      ii. respiratory protective devices,
      iii. the medical surveillance program,
      iv. hazardous associated with exposure to coke oven emission,
      v. written procedures and schedules for engineering controls, work practice controls, compliance program, and review of the OSHA standard.

Citations: 29 C.F.R. §1910.1029(k)

11. <u>Communication of Hazards</u>

a. Any employer with a business affecting commerce has a general duty to communicate the nature of hazards to employees, under the OSHA Hazardous Communication Standard.
b. For coke ovens, there are additional specific requirements that must be incorporated into the employer's program. The employer must include coke oven emissions in the program.
c. In addition, the employer must ensure that each employee has access to labels on containers, and is trained in the Hazard Communication Standard.
d. There are specific requirements for the language on signs and labels, for regulated areas and containers.

Citations: 29 C.F.R. §1910.1(c),(d), §1910.1029(l)

12. **<u>Recordkeeping</u>**

a. The employer must establish and maintain an accurate record of measurements for monitoring for employee exposure to coke oven emissions, for medical surveillance.
b. The employer must provide employee exposure measurement records and employee medical records to employees, upon request.

Citations: 29 C.F.R. §1910.1029(m)

13. **<u>Observation of Monitoring</u>**

a. An employer must provide affected employees with an opportunity to observe any measuring or monitoring of employee exposure to coke oven emissions.
b. Employees are entitled to an explanation of measurement procedures, an observation of all steps related to the measurement of employee exposure, and a record of the results obtained.

Citations: 29 C.F.R. §1910.1029(m)