

**OHIO VALLEY ELECTRIC CORPORATION /
INDIANA-KENTUCKY ELECTRIC CORPORATION
SUPPLEMENTAL SAFETY TERMS AND CONDITIONS
Effective: 01/01/2010**

The following Safety Terms and Conditions shall supplement the Safety and Security provisions in the various OVEC/IKEC General Terms and Conditions and Service Agreement General Terms and Conditions.

These Supplemental Terms and Conditions shall also apply to any subcontractor that Contractor may use for the work. Contractor is responsible for ensuring that its subcontractors comply with these Supplemental Safety Terms and Conditions.

Contractor's failure to comply with these Supplemental Safety Terms and Conditions is cause for the Contract to be terminated and will prevent eligibility for future work.

1.0 TRAINING REQUIREMENTS

1.1 FOR SUPERVISION

Contractor's site supervision shall have successfully completed the OSHA 30 hour training on the construction standards. Supervision is defined as personnel with responsibility for making site work assignments and overall responsibility for the work including but not limited to project manager and superintendent. In addition to the requirement to have successfully completed the OSHA 30 hour training, Contractor's site supervision is required to attend Owner's required training for supervision that will be specific to the type of hazards Contractor may encounter in the performance of its work (e.g. Confined space, electrical line and equipment clearances, housekeeping process, etc). For work being performed on a firm price basis, the specific training and time required to complete the training will be identified in the bid specifications. At the completion of Owner required training, Contractor shall provide Owner documentation of having completed training.

1.1.1 Contractor shall provide documentation to Owner that its site supervision as required above has a valid card or certificate showing they have completed the OSHA 30 hour training. In addition, Contractor shall provide documentation of having completed Owner's specific training for hazards it may encounter in the performance of its work. All Owner provided training will require renewal based on OSHA specified requirements such as HAZCOM training once per year.

1.1.2 Any of Contractor's supervision as required that have not completed the OSHA 30 hour training but have completed the OSHA 10 hour training will be allowed to begin work. However they shall obtain the OSHA 30 hour training at the earliest possible date, but no later than two weeks after arrival at Owner's site. OSHA 30 hour training shall be at Contractor's expense.

1.1.3 Any of Contractor's supervision that has not completed Owner's training or requires additional training due to the hazards it may encounter will have no later than two weeks after arrival at Owner's site to complete this training.

1.2 FOR CRAFT WORKERS

Contractor's on-site personnel shall have successfully completed the OSHA 10 hour training on the construction standards.

- 1.2.1 Contractor shall document to Owner that its site personnel have a valid card or certificate. Contractor will not be allowed to bring on site any personnel who have not completed the training.
- 1.2.2 If Contractor's personnel have training that is equivalent to the OSHA 10 hour training, Contractor is permitted to submit documentation of this training to Owner for Owner's review and approval. Training offered under the building trades "LEAD", "MOST" or "BEST" programs are acceptable.
- 1.2.3 If Contractor hires craft personnel from outside the area craft local "travelers" they will be allowed to begin work but shall obtain the OSHA 10 hour training at the earliest possible date, but no later than two weeks after arrival at the site. Contractor shall be responsible for the cost of the required OSHA training.

1.3 SITE SPECIFIC SAFETY AND HEALTH ORIENTATION AND HAZARD RECOGNITION TRAINING

Contractor's on-site personnel and supervision are required to attend Owners Safety and Health Orientation and "Hazard Recognition" training. This training is required before any of Contractor's personnel are allowed to begin work at Owner's site. Any sub standard processes observed or reviewed during the actual site work shall be corrected immediately and retraining of Contractor's personnel shall be performed as necessary.

- 1.3.1 This training will take between 3 to 4 hours to complete.
- 1.3.2 Contractors shall establish their own HAZARD Recognition Program.
- 1.3.3 Owners training will be valid for the term of one year from the date completed at any of Owner's work sites. However Contractor's supervision and safety representatives are required to attend Owner's site specific Safety and Health Orientation training at each site.
- 1.3.4 Every 12 months after having taken the initial training, and every year thereafter, Contractor's on-site personnel and supervision are required to attend Owner's refresher training. This training will take approximately 2 hours to complete. Any of Contractor's on site personnel who have not had the refresher training within 12 months of the initial training will be required to retake the initial training.
- 1.3.5 Owner will reimburse Contractor the cost of its personnel attending the initial training and any refresher training if the work is being performed on a cost reimbursable or cost plus basis. If the work is being performed on a firm price basis, Contractor shall include the cost associated with attending this training in its fixed price.

2.0 COMMENCEMENT OF WORK

- 2.1 Contractor shall not begin any Work until receiving written authorization from Owner's designated site representative. Contractor's superintendent shall sign off on Owner's work authorization before beginning work. If either Owner's designated site representative or Contractors superintendent cannot be located, Owners project manager or his designee can authorize such work if all details about the work are thoroughly understood.

3.0 JOB SAFETY ANALYSES

3.1 Before Work begins in any location and before any changes are made in work procedures or activities, Contractor shall perform a JSA and accompanying hazard assessment. Contractor shall comply with the following in making its JSA:

- 3.1.1** Owner's work site(s) shall be walked down by Contractor's designated front line supervisor, responsible for work site work management for the purpose of doing a work site hazard assessment. This shall be performed just prior to each shift of work (No earlier than one hour before the start of work). After Contractor has completed a work site hazard assessment, Contractor's front line supervisor shall prepare in writing a description of the basic steps required to perform its work and shall identify any potential work site risks. This shall include a summary of the preventive measures that Contractor will take to eliminate or control these potential risks.
- 3.1.2** If Contractor has multiple levels of supervision and after Contractor's designated front line supervisor has completed its JSA of the work site(s), Contractor shall have its next level up of supervision, (e.g. general supervisor, superintendent) review the JSA. This review is to ensure proper hazard assessment recognition and planning to manage any potential risks with appropriate measures, has been taken into account.
- 3.1.3** As soon as practical after the second level review by Contractor has been completed, Owner's representative will review all JSA's. If work site conditions remain the same shift-to-shift and day-to-day, Owner may waive its review of subsequent JSA's. In addition to the format and hazard assessment review of all JSA's, a job site audit of at least one JSA shall be completed with Contractor's front line supervisor, along with the next level of Contractor's management.
- 3.1.4** After Contractor's second level review has been performed and the JSA has been approved, Contractor's front line supervisor shall conduct the verbal portion of the JSA with all its personnel that will be assigned work covered by the JSA. Care shall be taken to ensure all hazards recognized in the JSA assessment are covered during the duration of the work task being briefed by this JSA.
- A.** Questions shall be addressed to the work crew to assure understanding of all assignments.
 - B.** After the completion of the job site verbal briefing, each of Contractor's personnel present shall acknowledge their understanding of the briefing by signing the JSA.
 - C.** Contractor's working at any of Owner's work sites within a rolling 12 month period with 200,000 or more work hours and a recordable rate above 1.40 will be required to have their front line supervisor review the JSA with the craft after lunch or dinner breaks to assure that all the job steps and potential hazards have been reviewed and addressed.
- 3.1.5** During the course of the work shift, Contractor shall conduct two audits of the work site. One audit will be conducted by Contractor's front line supervisor as required by the JSA. The second audit will be conducted by Contractor's Superintendent or General Supervisor, whichever is available. The second JSA audit will be documented and kept on file by Contractor for review by Owner's representative. Housekeeping must be monitored as well as checking for any additional risks that may have been introduced during the work shift. Appropriate notation should be made on the JSA form of any new risk.

- A. Should a hazard that is not listed on the JSA form be recognized during the work shift, Contractor shall stop work immediately. Contractor shall implement whatever measures are necessary to make the work site safe before resuming work.

3.1.6 Contractor's site safety personnel shall be responsible for overseeing the JSA process for their respective companies.

3.1.7 If Contractor's personnel during any step of the JSA process encounter problems complying with the requirements outlined by the JSA that cannot be over come or where Contractor's personnel are failing to comply with the JSA requirements and that cannot be immediately corrected and sustained, Contractor shall take appropriate measures which may include stopping the work or taking disciplinary action up to and including discharge of employment.

4.0 SUBSTANCE ABUSE PROGRAM

4.1 Contractor and all subcontractors performing Work at any of Owner's facilities shall have an established substance abuse program. This program shall apply to all personnel (manual and non-manual). The minimum requirements of this program must include pre-hire testing, testing for cause, post incident testing and random testing as determined by Owner and/or Contractor. Screening substances and their associated cut-offs shall be in accordance with the requirements found in Owner's General Terms and Conditions.

4.2 Owner's reimbursement of the costs for testing shall be in accordance with the applicable Building Trades Council, Association or Craft program terms, whether based upon a per-hour contribution or unit price per test rate or at actual cost to Contractor, without additional markups, predicated upon Contractor's submittal of copies of the actual invoice(s) for the testing to Owner. Owner will recognize established area programs provided the aforementioned base line parameters are met. Contractor shall submit with its proposal an outline of its most current substance abuse program.

5.0 FIREARMS, ALCOHOL AND DRUGS

5.1 Firearms, alcohol, illegal drugs (marijuana, cocaine, etc.) or drugs taken for non-medicinal purposes are prohibited on all Owner project sites.

5.2 Contractor shall be responsible for its and its subcontractor personnel who are under the care of a physician and are taking prescribed medicine, which may alter the employee's physical or mental ability. Contractor will need to determine the necessity to change the employee's job assignment while undergoing treatment.

6.0 ASBESTOS CONTAINING MATERIALS

6.1 Asbestos-containing materials (ACM) have previously been installed and utilized in insulating products, siding, coatings, gaskets and other similar applications throughout Owner's existing plant facilities. Contractor shall use care and diligence in the execution of its Work to avoid the disturbance of or damage to asbestos-containing material not specifically identified as a part of the work. This may include, but is not limited to, the installation of protective barriers, temporary platforms, etc., and/or any other means deemed necessary by Contractor to comply with this requirement. Contractor shall immediately notify Owner's representative of any disturbance of or damage to asbestos-containing material. Contractor shall be responsible for insuring that its personnel, its subcontractors' personnel, the personnel of other contractors, Owner's personnel and the public are not exposed to ACM material due to Contractor's disturbance of or damage to the ACM.

7.0 LEAD BASED PAINT

7.1 Structural steel and equipment throughout Owner's facilities may have been painted with lead based paint. Therefore, any welded attachments to this structural steel or equipment for the purposes of stabilizing scaffolding, for rigging, attachment of fall protection, etc. needs to be treated accordingly. The following applies to work involving lead based paint:

7.1.1 Contractor shall submit to Owner prior to disturbing lead bearing materials, its written lead compliance program and shall identify its proposed paint removal methods to be employed and personal protection equipment that will be given to its personnel. Contractor shall submit with its proposal a copy of its lead compliance program.

7.1.2 Contractor shall adhere to all applicable federal, state and local EPA and OSHA Regulations, including personnel protection requirements and isolation of the adjacent Work areas, if required.

7.1.3 Contractor shall collect all removed lead bearing paint and contaminated materials used for the removal of lead bearing paint. These shall be placed in Owner-supplied containers. Owner will dispose of the material.

8.0 CONFINED SPACE REQUIREMENTS

8.1 Numerous areas at Owner's facilities may be defined by Owner as a confined space. These areas may require a permit unless the tested conditions prove alternate entry is possible. All entries into these spaces by Contractor's personnel shall be made in accordance with 29CFR 1910.146. Contractor shall provide the following when working in a confined space:

8.1.1 Contractor shall provide a competent person trained and responsible for determining acceptable entry conditions, capable of recognizing the hazards of a permit confined space and able to specify necessary control measures to insure worker safety.

8.1.2 Prior to entry into the confined space, Contractor shall be briefed by Owner's representative. At that time Owner will provide Contractor with Owner's confined space entry form. Contractor shall provide all equipment and shall perform all atmospheric testing for oxygen, flammables and toxics, and all subsequent monitoring it requires. At permit closure, a debriefing between Owner and Contractor's representatives shall occur in accordance with Owner's confined space entry form.

8.1.3 Contractor shall provide all equipment required to ventilate Work areas.

8.1.4 Contractor shall provide and install all barricades, signs, etc., required to identify confined spaces.

8.1.5 Contractor shall provide all training of its personnel pertaining to confined spaces and equipment its personnel may require (i.e., dust mask, respirators, harnesses, etc.).

9.0 HEARING CONSERVATION REQUIREMENTS

9.1 Owner will communicate hearing Personal Protective Equipment requirements and information on high noise areas to Contractor during Owner's safety orientation meetings.

9.2 Standard hearing protection must be used by all Contractor personnel.

- 9.3** Contractor is responsible for informing its personnel about hearing loss and how to protect their hearing. Contractor shall supply all hearing protection equipment for its personnel (ear plugs, muffs, etc.).
- 9.4** Contractor shall address hearing protection in all its JHA/JSA discussions. Contractor's JHA's list shall specify type(s) of hearing protection required for each job. As part of JSA, Contractor shall include the actual noise level in the work area where practical.
- 9.5** Contractor shall identify high noise level areas that require additional protection or administrative controls over and above standard (ear plugs, muffs, etc) protection. Owner may require Contractor to install acoustical material to isolate noise sources, substitute less noisy equipment, build enclosures for its personnel, etc to reduce their exposure to noise.

10.0 FOOTWEAR REQUIREMENTS

10.1 All Contractor Personnel are required to wear as a minimum, safety toe footwear having the label designation: ASTM F 05, F/I/75/C/75 (for females) and M/I/75/C/75 (for males). Additional footwear requirements and label designations may be required for protection from specific types of hazards.

10.1.1 All shoes or boots shall have a full heel with a minimum height of 3/8" as measured from the bottom of the heel to the breast of the heel. (Athletic type safety shoes do not have a full heel; a full heel is required for climbing ladders as the heel prevents the employee's foot from slipping forward off the ladder rung).

10.1.2 The sides of the heel must be straight or tapered outward toward the bottom. No inward tapered heels will be permitted (e.g. cowboy boots).

10.1.3 All shoes and boots must have oil-resistant soles.

10.1.4 Some shoes and boots offer additional protection from electrical hazards, metatarsal injuries, and puncture hazards. Contractor Personnel should consider these options based on job requirements, assessments, and individual needs.

10.1.5 Safety toe footwear is not required in office areas.

11.0 METALS AND HEAVY METALS

11.1 Certain types of work may require Contractor to take personal samples for trace metal oxides such as but not limited to arsenic, lead, mercury, hexavalent chromium and cadmium. Contractor shall provide its personnel with personal protective equipment associated with its work during the determination-of-presence period and shall maintain the continued use of the above-mentioned provisions after the initial determination-of-presence period if test results indicate they are required. The Material Safety Data Sheet for Coal Ash is the Attachment of this document.

11.2 Contractor at a minimum shall comply with the OSHA CR⁺⁶ Standard (29 CFR 1910.1026) for hexavalent chromium exposure control.

11.3 If any of Owner's policies are stricter than the OSHA 1926 standard for any other metals or heavy metals, Contractor shall as a minimum comply with Owner's policy. Contractor shall ask to review Owner's policies for any metals or heavy metals it thinks it may encounter in the performance of its work prior to starting work or submitting a bid for work.

11.4 Contractor shall provide Owner with copies of all test results from its air monitoring and shall review the test results with Owner's site safety personnel prior to suspending or changing personal protective equipment being used by its personnel.

12.0 **SAFETY SUPERVISOR**

12.1 Contractor shall provide an on-site full-time Safety supervisor for each shift of work in which the total of craft personnel (Contractor and its subcontractors) exceed 25 personnel. This individual shall initiate, enforce, maintain, and administer job site safety and other loss prevention programs associated with the Work. The qualifications of this individual shall be that they have satisfactorily completed the OSHA 500 or 510 training. Qualification for this individual shall be reviewed and approved by Owner. Owner may request Contractor to provide for a full-time Safety supervisor for work with fewer than 25 craft personnel per shift if Owner determines the nature of the work justifies additional safety oversight.

13.0 **GENERAL SAFETY REQUIREMENTS**

13.1 Contractor's safety performance will be monitored and evaluated during the project by Owner's Representative(s).

13.2 Contractor shall adhere to all pertinent local, state and federal regulations and all rules and policies set forth in the Contractor's safety manual. Contractor shall immediately correct any shortcoming brought to the attention of Contractor by Owner.

13.3 Owner shall have the authority to immediately stop Contractor's Work for operations, which in the opinion of Owner constitute a safety concern. It is Contractors responsibility to satisfy Owner of any remediation necessary to provide a safe and healthy workplace.

13.4 Owner conducts random safety audits. Contractor shall cooperate fully with Owner's representative during a safety audit.

13.5 Contractor and its subcontractors are required to have an interstate experience modification rate (EMR) of 1.0 or less. Contractor shall promptly notify Owner if its or its subcontractor's EMR does exceed 1.0, for review and disposition.

13.6 Contractor shall remain solely responsible for the proper and safe use of all its tools and provide information necessary for the job safety analyses (JSA) identified in Section 3.1.1. Contractor shall provide Owner a list of all tools and procedures it will use in performing Work that are fabricated or modified by Contractor or its subcontractors (Specialty Tooling). Specialty Tooling includes all tooling fabricated, developed by or modified by Contractor. Contractor shall notify Owner of any Specialty Tooling it develops or modifies on Site. Contractor shall also notify Owner, prior to use, if it intends to use standard tooling in ways other than those for which the tooling was designed. All such Specialty Tooling is subject to review by Owner. At its sole discretion, Owner may prohibit or restrict the use of Contractor Specialty Tooling on Site.

13.7 Filtering facepiece respirators may only be used on a voluntary basis (not OSHA required) and only in areas where there is expected to be no exposure above the Permissible Exposure Limits (PEL). Filtering facepiece respirators include any fabric "dust mask" type respirators with filter efficiencies from 95 through 100 (i.e., 3M models 8210, 8233, 8293).

14.0 WEEKLY REPORTING

14.1 Contractor must report the following:

14.1.1 Worker-Hours worked weekly and year-to-date on Owner's projects.

14.1.2 OSHA recordable incidents, lost time and restricted duty case severity rates weekly and year-to-date on Owners' projects.

15.0 INCIDENT REPORTING

15.1 Contractor shall submit a written report (no later than 8:00a.m. the following working day of the incident) to Owner's representative listing any and all safety incidents occurring during the Work. Incidents to be included are:

15.1.1 All near miss incidents.

15.1.2 First aid and minor incidents.

15.1.3 OSHA recordable injuries.

15.1.4 Vehicle accidents.

15.2 Within 48 hours, Contractor shall e-mail/fax an in depth report to Owner's site representative. This report must have time and date of incident, location of incident, name of injured employee, injured employees experience on the job, description of incident, factors that caused the incident, corrective actions and person responsible for corrective actions. Accidents of a more serious nature must be reported immediately (verbal reporting is sufficient) to Owner's representative.

16.0 INDIVIDUALS RESTRICTED FROM ACCESS TO OVEC/IKEC WORK SITES

16.1 Owner may deny access to its work sites any individual who fails to comply with the safety provisions set forth in the applicable General Terms and Conditions or these Supplemental Safety Terms and Conditions or who, in Owner's discretion, otherwise demonstrates a lack of safety performance. Examples of a lack of safety performance include, but are not limited to, the following:

- Unsafe job performance.
- Failure to pass drug/alcohol test.
- Displaying incompetence in performing their job.
- Personnel that are determined to be unfit for project employment.
- Participating in pranks, horseplay or practical jokes.
- Failure to report injuries and/or accidents.
- Fighting or acts of aggression.
- Theft or vandalism.

16.2 Prior to commencement of the Work and during the term of the Contract, Contractor shall provide to Owner a list of all of individuals (whether its or its subcontractor's personnel), which Contractor intends to use at Owner's Sites. The list shall identify the individuals by their name and the last three digits of the individuals' Social Security number.

16.3 Owner, in its discretion, may deny access to any individual who has previously been removed from a site by Owner for safety reasons.

16.4 Contractor may request a restricted employee to be cleared for work. A letter addressing the original safety violations or reasons for suspension with any documentation supporting the request shall be sent to Owner's representative for approval. The employee shall not work at any of Owner's work sites until approved by Owner's representative, which approval may be withheld in the sole discretion of Owner.

17.0 **COMMUNICATION**

17.1 In the event that Contractor or its Subcontractors employ personnel with limited English speaking, reading, and/or writing abilities, Contractor shall take all steps necessary to ensure that such personnel understand the scope of the work they are to perform; the hazards associated with the Work; the necessary precautions to protect themselves from the work hazards and that they are able to perform the Work in a safe manner.

17.2 Site Orientation(s) and oversight for the craft worker activities shall be the responsibility of the Contractor.

17.2.1 Contractor shall provide one bilingual employee, who will be responsible for each non English-speaking crew, who will be responsible for the Job Site Orientation(s) and site specific Safety and Health Orientation and Hazard Recognition training. All of these programs will be in the language of the personnel working for Contractor or its Subcontractor(s).

17.3 Contractor shall provide signage that is either bilingual or pictorial for any areas it is working in where there is an immediate danger to any of its personnel or its subcontractor's personnel. Contractor shall insure that its personnel clearly understand the meaning of the dangers represented by the signage.

17.4 Contractor shall provide signage, such as, but not limited too, barricade signs (Caution, Danger, Asbestos, Arsenic, Radiation, etc.), hazardous material signs (Gasoline, Caustic, Acid, Oxygen, etc.), hazcom labels, key information signs (Exit, No Exit, High Noise Area, Wet Floor, No Smoking, etc.), and all legally required employment posters (Emergency Evacuation Instructions, Accident Instructions, Emergency Contact Information, First Aid Station, etc.) that is either bilingual or pictorial for any areas it is working in where there is an immediate danger to any of its personnel or its subcontractor's personnel. Contractor shall insure that its personnel clearly understand the meaning of the dangers represented by the signage.

17.5 Contractor shall have protocols in place to assure that a bilingual representative is available to support nursing or EMT responses to injuries or accidents.

18.0 **AEP Contractor Exception**

18.1 A contractor currently working on site for AEP under AEP's Supplemental Safety Terms will be considered in compliance with the OVEC-IKEC Supplement Safety Terms subject to management approval.

Attachment

OHIO VALLEY ELECTRIC CORPORATION
 INDIANA-KENTUCKY ELECTRIC CORPORATION

MATERIAL SAFETY DATA SHEET
 FOR FLY ASH, BOTTOM ASH, AND BOILER SLAG

WARNING: DO NOT ALLOW THIS PRODUCT OR THE DUSTS FROM THIS PRODUCT:

1. TO GET INTO THE EYES 2. TO REMAIN ON THE SKIN IF IRRITATION OCCURS
3. TO BE INHALED (BREATHED IN) 4. TO GET INTO MOUTH OR TO BE SWALLOWED

I. MANUFACTURER

A. Manufacturer

OVEC/KEC coal-fired steam-electric generating plants.

B. For more information contact:

Production and Environmental Department
 Ohio Valley Electric Corporation
 Indiana-Kentucky Electric Corporation
 P. O. Box 468
 Piketon, Ohio 45661
 614-289-7249

II. HAZARDOUS CONSTITUENTS (as determined by 29 CFR 1910.1200(g)(2)(i)(C)(1))

	APPROXIMATE CONCENTRATION RANGE		APPROXIMATE CONCENTRATION RANGE
Amorphous Silica (SiO ₂)	1-65%	Titanium Dioxide (TiO ₂)	0-5 %
Crystalline Silica (SiO ₂)	0-7 %	Calcium Oxide (CaO)	0-30%
Aluminum Oxide (Al ₂ O ₃)	15-40%	Magnesium Oxide (MgO)	0-6 %
Iron Oxide (Fe ₂ O ₃)	1-60%	Sodium Oxide (Na ₂ O)	0-2 %
		Potassium Oxide (K ₂ O)	0-5 %
		Sulfur Trioxide (SO ₃)	0-15%
		Phosphorous Pentoxide (P ₂ O ₅)	0-1 %

III. OSHA PERMISSIBLE EXPOSURE LIMITS (PEL) AND ACGIH THRESHOLD LIMIT VALUES (TLV)

CONSTITUENTS	ACGIH TLV 1990-91 (mg/M ³)	OSHA PEL (mg/M ³)	CONSTITUENTS	ACGIH TLV 1990-91 (mg/M ³)	OSHA PEL (mg/M ³)
Silica(SiO ₂)			Aluminum Oxide(Al ₂ O ₃)	10	15
A. Quartz	0.1(Note 1)	0.1(Note 2)	Iron Oxide(Fe ₂ O ₃)	5	10
B. Cristobalite	0.05(Note 1)	0.05(Note 2)	Titanium Dioxide(TiO ₂)	10	10
C. Tridymite	0.05(Note 1)	0.05(Note 2)	Calcium Oxide(CaO)	2	5
D. Amorphous	10	6.0(Note 2)	Magnesium Oxide(MgO)	10	10
			Arsenic(As)	0.2	0.01
			Sodium Oxide(Na ₂ O)	(Note 4)	(Note 3)
			Potassium Oxide(K ₂ O)	(Note 4)	(Note 3)
			Sulfur Trioxide(SO ₃)	(Note 4)	(Note 3)
			Phosphorous Pentoxide(P ₂ O ₅)	(Note 4)	(Note 3)

Note 1: This is the ACGIH adopted value for 1990-91.

Note 2: See OSHA 29 CFR 1910.1000, Table Z-1-A, Z-3.

Note 3: The PEL for this constituent does not currently exist.

Note 4: The TLV for this constituent does not currently exist.

IV. PHYSICAL CHARACTERISTICS AND DATA

A. Fly Ash

Fly ash consists principally of minute, separate glass spheres together with some crystalline matter and varying amounts of unburned carbon. It ranges in color from light tan or light gray to almost black depending on the proportions of carbon and iron. The glass spheres vary in size from approximately 0.007 mm (medium silt) to 0.2 mm (fine sand), or 7 to 200 microns.

B. Bottom Ash

Bottom ash is a granular material with about the same upper and lower particle size limits as fine concrete aggregate (concrete sand). The basic particle shape of bottom ash is angular. It ranges in color from a medium brown or medium gray to almost black.

C. Boiler Slag

Boiler slag is also granular and angular with almost the same particle size limits as bottom ash. It is a uniform shiny, black color and resembles crushed coal or black glass.

D. General

Fly ash, bottom ash, and boiler slag are comprised of the constituents listed in Section II. The majority of these constituents are fused together in a glassy matrix. All three ashes are moderately soluble in water and have a specific gravity range of approximately 2-3.

Boiling points, vapor pressure, percent volatile, and evaporation rate are not applicable to these solid materials.

V. FIRE AND EXPLOSION HAZARD INFORMATION

Fly ash, bottom ash, and boiler slag are non-flammable and non-explosive. Flash point, flammable limits, extinguishing media, special fire fighting procedures, and unusual fire and explosion hazards are not applicable to these materials.

VI. HEALTH HAZARD INFORMATION

The primary routes of entry are through the respiratory system (inhalation), eyes and skin. Fly ash, bottom ash, and boiler slag are primarily composed of inert dust (irritants to mucous membranes) with low concentrations of calcium oxide (an irritant to mucous membranes and wet skin) and crystalline silica (a pneumoconiosis-producing dust identified by IARC as a carcinogen based on laboratory animal data). Coal ash contains trace amounts of arsenic, barium, lead, strontium, vanadium and zinc. When fly ash is handled in confined areas without adequate ventilation, the OSHA PEL may be exceeded for arsenic which is an OSHA-designated carcinogen.

Exposure may result in irritation to eyes, skin, or the respiratory tract. Persistent exposure to airborne dust may decrease pulmonary functions.

EMERGENCY AND FIRST AID PROCEDURES:

In case of:

1. Eye contact - Immediately flush eyes thoroughly with water.
2. Skin contact - Immediately wash skin with soap and water if irritation occurs.
3. Inhalation - Immediately remove affected person(s) to fresh air from source.
4. Oral intake - rinse mouth out with water.

Immediately contact physician or medical personnel if unusual coughing, tightness in chest, or shortness of breath occurs after exposure or if skin or eye irritation persists.

VII. REACTIVITY INFORMATION

This product is stable; hazardous polymerization will not occur. There are no chemical incompatibilities or hazardous decomposition products.

VIII. SPILL OR LEAK PROCEDURE

Wetting with water will reduce airborne dust. Material may be disposed of as an inert solid in an appropriate solid waste landfill. See applicable Federal, State, and Local Regulations.

IX. SPECIAL PROTECTION INFORMATION

If airborne dust exposure approaches the TLV or PEL, use NIOSH - approved respirators. (See Section III). Provide adequate ventilation. Do not allow these ashes or the dusts from these ashes to get into the eyes, to remain on the skin if irritation occurs, to be inhaled, to get into the mouth or to be swallowed. Contact lenses should not be worn when working with these ashes. Wear appropriate personal protective equipment, such as goggles.

X. SPECIAL PRECAUTIONS

Do not create unnecessary airborne dust when handling. Industrial hygiene surveys of worker exposure in specific ash handling operations are needed to determine the need for engineering controls of airborne dust levels, respiratory protection equipment, and other measures. Under certain conditions, such as handling in confined areas, without adequate ventilation trace metal oxides (including arsenic, iron, and vanadium) may exceed the OSHA permissible exposure levels and require personal protective equipment.

XI. LABELING

Contains Coal Ash (Fly Ash, Bottom Ash, or Boiler Slag)

WARNING: Persistent exposure to airborne dust may harm lungs and decrease pulmonary functions. Exposure may result in irritation to eyes, skin or the respiratory tract. Contains material which may cause cancer based on laboratory animal data. Consult material safety data sheet for special protections and precautionary information.

For further information contact: Production & Environmental Department
Ohio Valley Electric Corporation/Indiana-Kentucky Electric Corporation
P. O. Box 458
Piketon, Ohio 45661
614-289-7249