# 35 I.A.C. § 845 SAFETY AND HEALTH PLAN

**DECEMBER 31, 2025**

# JOPPA POWER PLANT EAST ASH POND

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## ACRONYMS & ABBREVIATIONS

| | |
|---|---|
| % | Percent |
| § | Section |
| 35 I.A.C. | Title 35 of the Illinois Administrative Code |
| 29 C.F.R. | Title 29 of the Code of Federal Regulations |
| ACGIH | American Conference of Governmental Industrial Hygienists |
| CCR | Coal Combustion Residual |
| CDC | Centers for Disease Control and Prevention |
| EAP | East Ash Pond |
| EEI | Electric Energy, Inc. |
| HAZWOPER | Hazardous Waste Operations and Emergency Response |
| ID | identification |
| IDLH | Immediately Dangerous to Life and Health |
| IEPA | Illinois Environmental Protection Agency |
| JPP | Joppa Power Plant |
| kV | kilovolt |
| NAVD88 | North American Vertical Datum of 1988 |
| NID | National Inventory of Dams |
| NIOSH | National Institute for Occupational Safety and Health |
| No. | number |
| OSHA | Occupational Safety and Health Administration |
| Part 845 | 35 I.A.C. Part 845: Residuals in Surface Impoundments |
| PEL | Permissible Exposure Level |
| PFAS | Per- and polyfluoroalkyl substances |
| PFD | Personal Flotation Device |
| PNOR | particulates not otherwise recognized |
| POC | Point of Contact |
| PPE | personal protective equipment |
| ppm | parts per million |
| SDS | Safety Data Sheet |
| STEL | Short Term Exposure Limit |
| TLV | Threshold Limit Value |
| TWA | time-weighted averages |
| USCG | United States Coast Guard |

# REVISION SUMMARY

| Revision Date | Description of Changes<br>(Section title or number – description) |
|---|---|
| 12/30/2022 | 1.2 – Updated personnel and contact information<br>2.1 – Removed reference to COVID screening<br>3.8 – Revised to follow CDC guidelines<br>3.9 – Changed Human Resources to EEI<br>4.6 – Added the table found in 29 C.F.R. § 1926.1408(h)<br>5.1 – Updated PEL for iron oxide and TLV for titanium dioxide<br>6.1 – Updated emergency contacts and phone numbers<br>6.2 – Revised "the plant PA system" to "cell phone, radio, or direct contact". Revised "Upon hearing an evacuation signal" to "Upon receiving an evacuation request".<br>6.4 – Site personnel will call 911 and the POC. Removed the control room will coordinate the arrival of on-site emergency personnel.<br>Appendix D – Removed COVID-19 Vistra Site Guidelines<br>Appendix E – Moved Safety Data Sheets to Appendix D |
| 12/29/2023 | Annual update as required by 35 I.A.C. § 845.530<br>2.1 – Update Guardhouse 3 to Guardhouse 2<br>3.0 - Included additional information regarding storage of training records and summary of training program<br>3.1 – Added "that informs them of the hazards at the facility" to the first sentence<br>4.3 – Update Guardhouse 3 to Guardhouse 2 |
| 12/31/2024 | Annual update as required by 35 I.A.C. § 845.530<br>3.3 – Added section for Fleet-wide Contractor Safety Orientation<br>4.3 – Added Methane section<br>4.8.1 -Removed extra phrase and revised to "Employees should be aware of these heat stress symptoms in themselves and their co-workers" |
| 12/31/2025 | Annual update as required by 35 I.A.C. § 845.530<br>1.2 – Added "Contracted Security Phone Number"<br>4.1 – Updated language to emphasize safety when working on ash and unstable surfaces<br>Appendix D - Added Ash Pond Work Daily Checklist |
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# PREFACE

Electric Energy, Inc. (EEI) has prepared this Safety and Health Plan in accordance with requirements set forth in Title 35 of the Illinois Administrative Code (35 I.A.C.) Part 845: Residuals in Surface Impoundments (Part 845), Section (§) 845.530. EEI assessed health and safety hazards of its coal combustion residual (CCR) surface impoundments to develop and update this Safety and Health Plan.

This document describes the minimum anticipated protective measures necessary for worker health and safety at the Joppa Power Plant (JPP) East Ash Pond (EAP; Vistra identification [ID] number [No.] 401, Illinois Environmental Protection Agency [IEPA] ID No. W1270100004-02, National Inventory of Dams [NID] No. IL50714), herein referred to as the Site. Employees of EEI, contract workers, and third-party contractors must read and comply with the contents of this document. The contents of this document are not intended to cover all situations that may arise nor to waive any provisions specified in Federal, State, and local regulations or site owner / contractor health and safety requirements.

Third-party contractors are accountable for the health and safety of their employees. Third-party contractors are required to prepare a Safety and Health Plan that meets the minimum requirements herein. However, no requirements or provisions within this plan shall be construed as an assumption of EEI of their legal responsibilities as an employer.

This Safety and Health Plan will be reviewed and updated annually, at a minimum. The Safety and Health Plan will also be updated if facility operations change, or a new hazard is identified.

# 1. INTRODUCTION

This Safety and Health Plan has been developed to outline the requirements to be met by employees of EEI, contract workers, and third-party contractors while performing any activity to construct, operate, or close the EAP. This Safety and Health Plan has been developed to meet the requirements of 35 I.A.C. § 845.530 and describes the responsibilities, training requirements, protective equipment, and safety procedures necessary to minimize the risk of injury, fires, explosion, chemical spills, material damage incidents, and near misses related to CCR activities. This Safety and Health Plan incorporates by reference the Occupational Safety and Health Administration (OSHA) regulations contained in Title 29 of the Code of Federal Regulations (29 C.F.R.) § 1910 and 29 C.F.R. § 1926.

The requirements and guidelines in this Safety and Health Plan are based on a review of available information and data, and an evaluation of identified on-site hazards. This Safety and Health Plan will be reviewed with persons assigned to work at the EAP and will be available on-site.

## 1.1 Site Description/History

The JPP is west of the Village of Joppa in Massac County, Illinois, northeast of the Ohio River in Section 14, Township 15 South, Range 3 East. The JPP property is bordered by LaFarge North America cement plant to the west, Trunkline Gas Company-Joppa Compressor Station to the north, the Village of Joppa to the east and the Ohio River to the south. The EAP is located in the west half of Section 14 directly north of the power plant and is within the railway right-of-way for the spur servicing the JPP (Appendix A).

## 1.2 Facility Personnel

The following table outlines key personnel with respect to facility operations and health and safety.

| Name | Position | Phone Number |
|---|---|---|
| Contracted Security Phone Number | | 224-277-0552 |
| Jeremy Barnhill | Point of Contact (POC)/Plant Closure Manager | 618-309-5525 |
| Security Guard | Site Security | 713-542-6267 |
| Roger Faughn | Environmental Supervisor | 270-210-3232 |
| Don Watson | Director of Health and Safety | 618-406-3615 |
| Matt Ballance | Engineering Manager | 618-792-7274 (mobile) |
| Jason Campbell | Dam Safety Manager | 271-753-8904 (Springfield)<br>217-622-3491 (mobile) |
| Vic Modeer | Engineering Manager | 618-541-0878 |

## 1.3 Responsibilities

The following persons have responsibilities associated with communicating and implementing the Safety and Health Plan for the EAP.

### 1.3.1 EEI Point of Contact

The EEI Point of Contact (POC) is a management-level person who is requiring employees, contract workers, or third-party contractors to enter the EAP. The EEI POC is responsible to communicate Safety and Health Plan information and requirements to employees, contract workers, and third-party contractors, and oversee work performed in the EAP to the extent necessary to confirm implementation of Safety and Health Plan requirements.

### 1.3.2 EEI Employees

EEI employees are directly hired by EEI. They are required to implement and/or follow Safety and Health Plan requirements as applicable to their work and exercise their "stop work authority" if safety requirements are unclear or unanticipated site conditions or hazards are observed.

### 1.3.3 Contract Workers

Contract workers are those hired by EEI through an agency firm. Similar to EEI employees, contract workers are required to implement and/or follow Safety and Health Plan requirements as applicable to their work and exercise their "stop work authority" if safety requirements are unclear or unanticipated site conditions or hazards are observed.

### 1.3.4 Third-Party Contractor Employees

Third-party contractor employees work for firms under contract to EEI. Third-party contractors include prime contractors and all of their lower tier subcontractors. Similar to EEI employees, third-party contractors are required to implement Safety and Health Plan requirements as applicable to their work and exercise their "stop work authority" if safety requirements are unclear or unanticipated site conditions or hazards are observed.

### 1.3.5 Third-Party Contractor Safety Competent Person

Third-party contractors will be required to designate a Safety Competent Person. The Safety Competent Person must be in a management position (*e.g.,* superintendent, foreman, etc.) with OSHA 30-hour construction safety certification who may perform other duties, unless EEI requires a dedicated Safety Competent Person. A Safety Competent Person must be on site at all times when the subcontractor has employees performing work for EEI and must possess a sound working knowledge of pertinent OSHA regulations, this Safety and Health Plan, and other applicable safety requirements related to the scope of work. Third-party contractors must also designate a backup Safety Competent Person that possesses the same authority and training. The competent person will ensure timely correction of safety deficiencies identified by EEI. The Safety Competent Person is responsible to ensure Safety and Health Plan requirements have been communicated to lower-tier subcontractors and enforce Safety and Health Plan requirements.

# 2. SITE ACCESS & CONTROL

This section outlines requirements for ensuring that only authorized personnel and visitors are permitted at the Site.

## 2.1 Facility Security

Elements of site control include restricting access to the Site to persons until they have met the training requirements outlined in this Safety and Health Plan and have been authorized to do so by the JPP POC or their representative.

Upon arrival to the site, all EEI employees, contract workers, and third-party contractors must report to Guardhouse 2 to check in/out at Security. They then must contact the POC.

## 2.2 Third-Party Contractor Management

Prior to working at the EAP, all third-party prime contractors must maintain an active registration with ISNetworld and maintain a grade of A or B. Lower tier subcontractors are currently not required to be registered in ISNetworld, but this requirement may change at the discretion of EEI.

## 2.3 Third-Party Contractor Safety and Health Plan

Prior to being authorized to conduct work at the EAP, third-party contractors must develop and submit a Safety and Health Plan. The third-party contractor's Safety and Health Plan must be specific to the scope of work that they will be performing at the EAP. The third-party contractor's Safety and Health Plan must meet or exceed all the requirements in this Safety and Health Plan, other EEI requirements, and applicable regulations. All lower tier subcontractors of third-party contractors must meet the requirements in this Safety and Health Plan as well as the requirements outlined in the Safety and Health Plan of the third-party with whom they are contracted.

## 2.4 Authorized Personnel

At a minimum, authorized personnel who will be granted unescorted access to the project include EEI employees, contract workers, and third-party contractors that meet the following:

- Reviewed this Safety and Health Plan and other applicable safety planning documentation
- Have completed all the training, medical surveillance, and drug screen and background investigation requirements as outlined in Section 3 of this Safety and Health Plan.
- Have completed the JPP Site Orientation Training

## 2.5 Visitors

Visitors must be escorted by Authorized Personnel through the EAP if they have not reviewed this Safety and Health Plan or completed the training requirements outlined in Section 3 of this Safety and Health Plan. Visitors may not undertake any activity to construct, operate, or close a CCR surface impoundment.

## 2.6 Communication

Communication between workers and emergency services must be maintained at all times. Cellular service is consistently available and can be relied upon to summon emergency services.

# 3. TRAINING & MEDICAL REQUIREMENTS

Project personnel must be properly trained for the type of work being performed and in accordance with 35 I.A.C. § 845.530, 29 C.F.R. § 1926 and 29 C.F.R. § 1910, and EEI policies. Additionally, personnel working in areas regulated by the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standards (29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65) must have current medical surveillance. All employees, contractors, and third-party contractors must complete the following prior to beginning any activity to construct, operate, or close the EAP.

The facility maintains an outline of the training programs used and a brief description of training program updates. Training records are located in the main office in accordance with 35 I.A.C. § 845.530(c)(1).

The training program ensures that employees, contract workers, and third-party contractors understand and are able to respond effectively to the following as outlined in 35 I.A.C. § 845.530(c)(2):

A) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment (see Section 3.5);

B) Communications or alarm systems (see Section 3.6);

C) Response to fires or explosions (see Section 6.5);

D) Response to a spill or release of CCR (see Sections 6.7 and 6.8);

E) The training under the Occupational Safety and Health Standards in 29 CFR 1910.120, 29 CFR 1926.65, and the OSHA 10-hour or 30-hour construction safety training (see Sections 3.1 and 3.2);

F) Information about chemical hazards and hazardous materials identified in subsection (b) (see Section 5.3); and

G) The use of engineering controls, administrative controls, and personal protective equipment (see Section 4).

## 3.1 HAZWOPER Training

35 I.A.C. § 845.530(c)(2)(E) requires that all employees, contract workers, and third-party contractors be trained in accordance with 29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65 that informs them of the hazards at the facility. The following training will be completed as required by job function:

- **OSHA 40-Hour Training** per 29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65, for those personnel who are expected to have extensive contact with contaminated materials and/or may be required to wear a respirator.
- **OSHA 24-Hour Training** per 29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65, for those personnel who are expected to have minimal contact with contaminated materials and will NOT be required to wear a respirator.
- **OSHA 8-hour Supervisor Training** per 29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65, for Site Supervisors, Foremen, Superintendents, and others who will be directing and managing site activities.
- **OSHA 8-hour Refresher** per 29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65, completed within 12 months of initial 40-hour or 24-hour training and annually thereafter.

The following matrix outlines HAZWOPER training requirements based on typical job functions at the EAP. It is not intended to be all inclusive, new job functions must be evaluated per 29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65.

| Training | Job Function |
|---|---|
| OSHA 40-hour | Ash handlers |
| OSHA 24-hour | Personnel not required to handle CCR materials |
| OSHA 8-hour Supervisor Training | Third-Party Contractor Safety Competent Persons |
| OSHA 8-hour refresher | All personnel |

## 3.2 OSHA Construction Outreach Training

35 I.A.C. § 845.530(c)(2)(E) requires that all employees, contract workers, and third-party contractors complete an OSHA 10-hour or 30-hour construction safety training. These trainings will be completed as follows:

- All employees, contract workers, and third-party contract employees: OSHA 10-hour or 30-hour construction outreach training.
- Supervisors, superintendents, foreman, and safety professionals: OSHA 30-hour construction outreach training.

## 3.3 Fleet-wide Contractor Safety Orientation

The Fleet-wide Contractor Safety Orientation is an online video training module that is required to be completed by all visitors prior to first arrival on-site. The training is required to be completed on an annual basis thereafter. The training can be accessed via the Vistra Safety Management System (SMS) website, at https://safety.vistracorp.com/ under the Contractor Management or Training buttons. First time users will need to register to create an account.

## 3.4 EAP Safety and Health Plan Review

Pursuant to 35 I.A.C. § 845.530(d)(e), before beginning any activity at the EAP, and annually thereafter, all EEI employees, contract workers, and third-party contractors must review the content of this HASP. After reviewing this Safety and Health Plan all personnel will understand the following:

- Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment
- Communications or alarm systems outlined in Section 6
- Response to fires and explosions outlined in Section 6
- Response to a spill or release of CCR
- Information about chemical hazards and hazardous materials outlined in Section 5
- The use of engineering controls, administrative controls, and personal protective equipment (PPE) outlined in Section 4

All personnel will acknowledge this HASP by signing the *Safety and Health Plan Acknowledgment Form (Appendix B).*

## 3.5 Emergency and Monitoring Equipment Training

All EEI employees, contract workers, and third-party contractors must be aware of how to respond to alarms and other emergencies as outlined in Section 6 of this plan. Individuals may only use facility emergency and monitoring equipment if they have been trained in their use and authorized to do so by the designated POC. Additionally, a written release may need to be completed as required by Vistra Corporate Procedure FFA-POL-0006.

Individual EEI employees and contract workers may be responsible for using, inspecting, repairing and replacing facility emergency monitoring equipment. These individuals will be trained in accordance with procedures identified by EEI. These individuals will review and adhere to the manufacturer's instructions, where applicable.

Third-party contractors are responsible for inspecting, repairing, and replacing any owned emergency (*i.e.*, fire extinguishers) and monitoring equipment (*i.e.*, air monitoring equipment). Third-party contractors will maintain procedures for using, inspecting, repairing, and replacing owned emergency and monitoring equipment that is consistent with the manufacturer's requirements. Third-party contractor employees who are responsible for this equipment will be trained in procedures for using, inspecting, and repairing owned equipment by their employer.

## 3.6 Hazard Communication

All employees, contract workers, and third-party contractors must be trained in chemical hazards (if any) associated with their work in accordance with 29 C.F.R. § 1910.1200. Work tasks performed on the EAP may include exposure to compounds identified in the Hazard Communication section of this Safety and Health Plan and is included as part of the Safety and Health Plan Review outlined in Section 3.4.

## 3.7 Medical Surveillance

All employees, contract workers, and third-party contractors engaged in operations specified in 29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65 and meet one of the criteria outlined in 29 C.F.R. § 1910.120(f)(2) and 29 C.F.R. § 1926.65(f)(2) must participate in a medical surveillance program that is administered by their employer. The criteria for participating in a medical surveillance program are:

- All employees who are or may be exposed to hazardous substances at or above the established permissible exposure limit, without regard to the use of respirators, for 30 days or more a year;
- All employees who wear a respirator for 30 days or more a year; or
- All employees who are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.

The medical surveillance program must result in documentation that an individual is cleared to work on sites covered by 29 C.F.R. § 1910.120 and 20 C.F.R. § 1926.65 and is medically fit to wear a respirator when applicable.

## 3.8 Drug Screen and Background Investigations

EEI requires that contract worker agencies and third-party contractors are responsible for ensuring that all personnel have completed and passed a drug and alcohol test and background investigation prior to on-site work as described in Appendix C.

## 3.9 COVID-19 Site Entry Guidelines

All personnel entering Vistra work sites shall review and adhere to the Centers for Disease Control and Prevention (CDC) guidelines related to COVID-19.

## 3.10 Document Management

EEI will maintain employee and contract employee training and medical surveillance records. Third-party contractors are responsible for maintaining training and medical surveillance documentation for their employees. Third-party contractors will produce documentation upon EEI request.

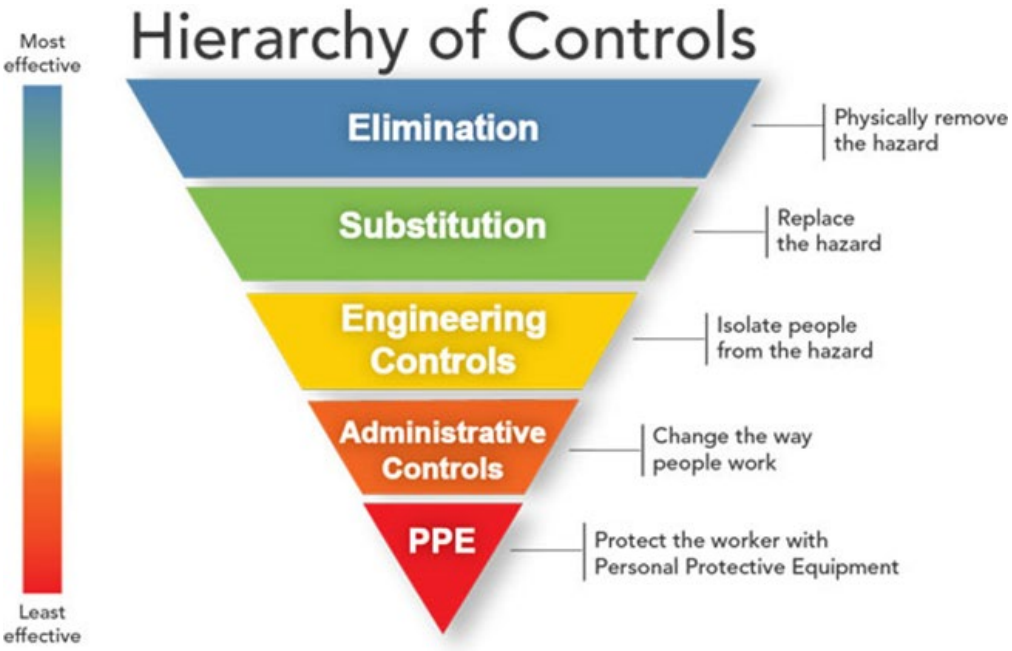
## 3.11 Industrial Hygiene Sampling Records

Upon receipt of exposure sampling results EEI and third-party contractors must distribute exposure sampling results to employees within 15 business days unless otherwise required by applicable regulation. All personnel exposure sampling results and records must be maintained by the employee's company for at least 30 years following termination of employment.

# 4. HAZARD & CONTROLS

The following section outlines general controls for the hazards and controls. Third-party contractors are still responsible for developing a Safety and Health Plan that incorporates requirements of this Safety and Health Plan, other safety requirements for the JPP, as well as the third-party contractor's safety policies and procedures. Safety and Health Plans developed by third-party contractors must be specific to the site and the anticipated work means and methods. Safety and Health Plans that consist of only standard operating procedures or are not otherwise specific to the work performed at the EAP will not be accepted by EEI.

EEI requires that a hierarchy of controls be considered when performing work at the EAP. Implement controls that favor elimination, substitution, and engineering over the use of administrative controls and PPE when feasible. See the figure below for additional guidance (courtesy of the National Institute for Occupational Safety and Health [NIOSH]).




## 4.1 Ash/Unstable Surfaces

Prior to working in or on an ash pond, third-party contractors must notify the facility POC and Plant Security. Work in or on an ash pond may not begin until the facility POC has approved the work. Upon completion of the work, third-party contractors must notify the POC and Plant Security that they have left the ash pond.

To emphasize safety and daily ash pond work planning including working on ash and unstable surfaces, Vistra requires implementation of daily ash pond work planning. A Daily Ash Pond Work Checklist will be developed for each specific project and/or project task and will be reviewed by all parties working that day in an ash pond. The project-specific Daily Ash Pond Work Checklist will be developed by the project team including Vistra project managers, Vistra plant staff, Vistra safety staff, and third-party contractors and field oversight personnel.

This daily checklist will be reviewed each day as part of daily contractor site safety planning and preparation. The contents should be reviewed, discussed, and documented as a normal part of the daily contractor routine and ultimately incorporated into each plant's permit-to-work issued for the project that day.

An example Daily Ash Pond Work Checklist template is included in Appendix D, and the typical checklist indicates key safety planning components to be incorporated for ash pond projects. Each checklist will be reviewed by Vistra and the project team. Typical actions/topics of daily ash pond safety planning discussion include, but are not limited to:

- Walk down the work site each morning to check surface conditions and possible changes from the prior day.
- Identify areas where site improvements may be required to perform that day's work and review safe work practices.
- Review project hazards associated with working in ash ponds and on ash and unstable surfaces. Ensure mitigation is covered for each of the hazards. If a hazard cannot be mitigated, implement a control that will reduce the severity of the outcome of the hazards.
- Remind project personnel of hazards and safety requirements (life jackets, ring buoys and emergency skiff) for working on or near water.
- Review emergency communication and response requirements.
- Review equipment use and performance for the day's work.
- Emphasize ash pond work overall awareness.

When working on ash ponds or unstable surfaces the following requirements must be implemented where applicable and feasible. The following table summarizes safety controls for work performed in ash ponds and on unstable surfaces and are aligned to the hierarchy of controls:

| **Elimination** | **Substitution** | **Engineering** | **Administrative** | **PPE** |
|---|---|---|---|---|
| Change the work task or work methods so that work on ash ponds is no longer required | Use the lightest available tracked equipment to reduce ground pressure | Use crane mats or other cribbing to support heavy equipment on ash ponds | Traverse compacted paths that have previously been used by heavy equipment | Use a restraint (tethering) system to prevent falls or slips into unstable ash pond surfaces or surface water that represents a drowning hazard |
| | | | If an unstable condition exists, complete a Next Level Up Pre-Job Brief prior to accessing the ash pond. | |
| | | | Approach the ash pond from the most stable direction | |
| | | | Inspect travel paths for recent terrain shifts, particularly following heavy rains or rapid dewatering | |
| | | | Working alone on ash ponds is prohibited without pre-approval from the POC. | |

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| | | | When a drowning hazard exists, implement requirements for working on/near water as outlined in Section 4.5. | |
| | | | Implement an emergency response plan with trained responders for falls into (or engulfment by) ash | |

## 4.2 Ash Inhalation/Airborne Exposure

Ash that becomes airborne due to site activities or environmental conditions may result in an exposure to its components as outlined in Section 5.1. EEI and third-party contractors are responsible for ensuring their respective employees' and contract workers' exposures are below occupational exposure limits. Upon request, third-party contractors must demonstrate to EEI that exposure control methods are adequate. The following table summarizes airborne exposure controls and is aligned to the hierarchy of controls:

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Change the work task or work methods so that work on ash ponds is no longer required | Substitute manual work methods for those that can be completed from the cab of a vehicle | Continually wet work areas to reduce the amount of ash that becomes airborne<br><br>Equip vehicles and heavy equipment cabs with filters. Clean and change filters as required | Conduct air monitoring or exposure sampling to confirm that airborne exposure is below regulatory limits | If exposure levels are above the PEL, equip employees with respirators appropriate to the level of exposure |

## 4.3 Methane

Methane is known to be present in aquifers throughout Illinois, due to both natural and anthropogenic processes (coal mining). Methane may accumulate in the borehole, well, protective casing or in the general work area near a well or boring. Therefore, a methane monitoring plan may be required on a site-specific basis for subsurface work (such as drilling, well development, slug testing, and groundwater sampling) performed on, or near, borings or wells, where methane may be present.

## 4.4 Stuck Vehicles/Equipment

If a vehicle or piece of equipment becomes stuck, a third-party towing or wrecking company who is trained in vehicle extraction must be retained and the JPP POC will be notified. The towing or wrecking company must report to Guardhouse 2 and complete the JPP Site Orientation Training upon arrival to the Site. Third-party contractors may extract their own vehicle if they have an approved extraction plan and a competent person is on site to implement the extraction. The extraction plan shall be included as part of the third-party contractor's reviewed and approved Safety and Health Plan. The above notifications are still required.

The hazards presented by stuck vehicles/equipment must not be underestimated. While the weight of the stuck equipment can be calculated, it's impossible to precisely calculate the other forces that are pulling against the towing vehicle which requires special training and experience to properly size towing equipment and select towing techniques. This is especially true for "complex" or high-hazard extractions involving equipment stuck at axle depth (or beyond) or sloped surfaces or any area where extraction activities could trigger shifts in the ground surface. No chains shall be used to remove stuck vehicles/equipment.

The following table summarizes safety controls related to stuck vehicles and equipment and are aligned to the hierarchy of controls:

| **Elimination** | **Substitution** | **Engineering** | **Administrative** | **PPE** |
|---|---|---|---|---|
| Change the work task or work methods so that work on ash ponds is no longer required | Use the lightest available tracked equipment to reduce ground pressure<br><br>Substitute tracked equipment for wheeled equipment | Use crane mats or other cribbing to support heavy equipment on ash ponds<br><br>Lighten the load – Remove materials from stuck vehicles or equipment prior to extraction if possible | Only persons trained in vehicle extraction are permitted to remove stuck vehicles/equipment<br><br>A professional towing/wrecking service is required<br><br>Prepare for spills (damage to fuel or hydraulic systems) | All persons involved in removing stuck equipment must wear PPE that includes hard hat, safety boots, safety glasses, high visibility vests, and cut resistant gloves |

## 4.5 Working Near/Over Water

All employees, contract workers, and third-party contractors must wear a United States Coast Guard (USCG) approved personal floatation device (PFD), when within 6 feet of water, over water, and/or wading in water where the danger of drowning exists. The PFD must be properly secured to the wearer, free of all defects including rips, tears, stress, and fading, and be kept clean and free of excessive dirt and oil.

If the possibility of falling into water has been eliminated through the use of guardrails, fall restraint, or other method, the use of a PFD is no longer required.

When performing work on water from a vessel, at least one lifesaving rescue vessel (*e.g.,* a skiff) shall be immediately available at locations where employees are working over, in, on, or adjacent to water where the danger of drowning exists. However, if the water is so shallow that rescuers could simply walk/run into the water body without endangering themselves and/or others or the work was being conducted very close to shore (*e.g.,* the length of the skiff from shore would be greater than the working distance from shore and/or the skiff would foul on the bottom), a skiff would not be required.

The following table summarizes the requirements for working over/near water where a drowning hazard exists and are aligned to the hierarchy of controls:

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Change the work task or work methods so that work near a drowning hazard is no longer required | | Install guardrails that separate work areas from the drowning hazard | All work to be performed by at least two people where each is equipped with proper safety gear and capable of summoning emergency rescue | All personnel are required to wear suitable PFDs |
| | | Utilize equipment (crowd-control barricades, safety fence, etc.) that will keep personnel at least 6 feet from a drowning hazard | When working on water use of a rescue skiff as outlined above | |
| | | | Use of a ring buoy with 90 feet of braided polycarbonate (or equivalent) line | |
| | | | Ring buoys must be positioned within 100 feet of work (maximum of 200 feet spacing) | |

## 4.6 Heavy Equipment

All heavy equipment operators must be competent and authorized to operate each piece of heavy equipment. Forklift and telehandler (*e.g.,* Lull, JLG) operators must have a license or certificate that indicates they have passed a written test and "road" test for the equipment they will be operating within the last 3 years. Third-party contractors will provide proof of qualification upon request of EEI.

Persons working around heavy equipment must implement the “25 Foot Rule.” The 25 Foot Rule requires that persons get the operator’s attention and permission prior to approaching closer than 25 feet to heavy equipment. Persons must walk quickly through blind spots. Loitering in heavy equipment blind spots (especially to the rear) must be avoided.

Temporary fuel storage tanks will be labelled as to their content and be protected from collision by Site vehicles using solid barricades including balusters, chain link fence, or equivalent. Spill kit (55-gallon sorbent capacity contained in an overpack) and one 20-pound Type ABC fire extinguisher will be located within 45 feet of fueling areas. Tanks will be rated for above ground use and will be double walled or have secondary containment in case of a leak. Tanks and dispensing hose will be bonded and grounded. On-site filling of fuel storage tanks will be completed with trucks that have automatic over-flow shutoffs. These trucks will be properly bonded to the storage tank and meet all of the other storage tank requirements. Temporary secondary containment must be provided in the refueling area that includes the storage tank and dispensing hoses.

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| | | Heavy equipment (and vehicles) must be equipped with backup alarms, horns, roll-over protection (when feasible) | Operators must be competent and authorized | Operators must use seatbelts when equipped |
| | | Vehicles and heavy equipment operated at night must have headlights, tail lamps, and reflectors | Forklift operators must have a current license or certificate (within 3 years) | High visibility vests are required when working around heavy equipment |
| | | | All vehicles and equipment must be turned off when not in use | |
| | | | Operators must inspect equipment daily prior to use | |
| | | | Persons working near heavy equipment must follow the "25 Foot Rule" and avoid lingering in blind spots as outlined above | |
| | | | Always obey site speed limits – 15 mph unless otherwise posted | |

## 4.7 Overhead Powerlines

All overhead powerlines must be assumed to be energized until confirmed otherwise. The minimum clearance distance for equipment working near energized power lines must be in accordance with the table of minimum clearance distances shown on the following page, as found in 29 C.F.R. § 1926.1408(h).

| Voltage (nominal, kV, alternating current) | Minimum clearance distance (feet) |
|---|---|
| up to 50 | 10 |
| over 50 to 200 | 15 |
| over 200 to 350 | 20 |
| over 350 to 500 | 25 |
| over 500 to 750 | 35 |
| over 750 to 1,000 | 45 |
| over 1,000 | (as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution). |

Note: The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

The following table summarizes safety controls for work near energized power lines:

| **Elimination** | **Substitution** | **Engineering** | **Administrative** | **PPE** |
|---|---|---|---|---|
| Plan to work away from powerlines | Use heavy equipment with shorter booms/attachments to avoid coming close to power lines | Contact the utility owner to deenergize the line | Install signs to warn personnel of overhead powerlines | |
| | | Contact the utility owner to install insulated sleeves over energized lines | Install a non-conductive distance marker to delineate minimum clearance | |
| | | | Use a dedicated spotter to ensure equipment does not enter minimum clearance distances | |

## 4.8 Severe Weather

Severe weather conditions include but are not limited to high winds, electrical storms, heavy rain, and tornados can cause hazardous conditions at CCR surface impoundments. The primary control for severe weather is monitoring weather reports prior to beginning work and as work occurs throughout the day.

Monitor lightning using a commercially available mobile application if cellular service is available. When lightning is observed within 10 miles of the CCR surface impoundment, or a storm is imminent, take shelter in the nearest solid structure or fully enclosed vehicle. If possible, secure all tools, materials, and equipment prior to the storm arriving. Work may resume 30 minutes after the last lightning strike is observed within 10 miles. Shelter locations will be reviewed during the Site Orientation Training.

Do not conduct work on a CCR surface impoundment when there is a risk for tornados in the area. If on a CCR surface impoundment and a tornado forms, seek the nearest substantial shelter. If no shelter is available, attempt to evacuate to a shelter using a vehicle. Shelter locations will be reviewed during the Site Orientation Training. If a tornado forms and you are not in a shelter, take one of the following actions:

- Stay in a vehicle with the seat belt on, keep your head below the windows and cover it with your hands
- If there is an area which is noticeably lower than the work area, lie in that area and cover your head with your hands.

The following table summarizes safety controls related to severe weather:

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Plan outdoor tasks on days with low potential for severe weather. | | | Prior to beginning outdoor work monitor the day's weather. | |
| | | | Periodically monitor weather throughout the day. Use a weather app which issues alerts for severe weather and lightning, assuming cell service is available | |
| | | | Utilize a weather radio if cellular service is inconsistent | |
| | | | Stop all outdoor work and seek shelter when lightning is observed | |

## 4.9 Heat Stress

Heat stress can be a significant hazard, especially for workers wearing protective clothing. Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly, within as little as 15 minutes. Employees, contract workers, and third-party contractors will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim, and in the prevention of heat stress incidents.

Workers will be encouraged to immediately report any heat-related problems that they experience or observe in fellow workers. Any worker exhibiting signs of heat stress and exhaustion should be made to rest in a cool location and drink plenty of water. Emergency help by a medical professional is required immediately for anyone exhibiting symptoms of heat stroke, such as red, dry skin, confusion, delirium, or unconsciousness. Heat stroke is a life-threatening condition that must be treated immediately by competent medical authority.

### 4.9.1 Heat Stress Prevention

To prevent heat stress, EEI employees, contract workers, and third-party contractors will implement heat stress prevention measures as outlined in OSHA's Heat Index (below). A summary of these precautions is described below.

| Heat Index | Risk Level | Protective Measures |
|---|---|---|
| Less than 91°F | Lower (Caution) | Basic heat safety and planning |
| 91°F to 103°F | Moderate | Implement precautions and heighten awareness |
| 103°F to 115°F | High | Additional precautions to protect workers |
| Greater than 115°F | Very High to Extreme | Triggers even more aggressive protective measures |

**Know the Symptoms:** Employees should be aware of these heat stress symptoms in themselves and their co-workers:

- Elevated heart rate, lack of concentration, difficulty focusing on a task, fatigue
- Irritability and/or sickness
- Cramps, rash, headache
- Loss of desire to drink water
- Fainting
- Skin clammy, moist, and pale (severe heat exhaustion)
- Skin extremely dry and red (heat stroke)

**Acclimatize:** When high heat stress conditions arise, employees should be exposed to the heat for short work periods followed by longer periods of work. Acclimatization usually takes five (5) days and should be provided for all new employees and employees returning from an absence of two (2) weeks or more. Contact Corporate Health and Safety for proper procedures.

**Hydration & Pace of Work:** Make sure all employees intake plenty of water throughout the work day (sometimes as much as a quart per worker per hour) and let employees know where the drinking water is located. Adjust your work pace and expectations on how much work can be done during periods of high heat stress. Workers cannot do as much during periods of high heat stress compared with similar periods of low heat stress. After acclimatization, workers may be able to resume a more "normal" work pace as long as fluid intake is adequate.

**Work/Rest Periods:** If possible, heavy work should be scheduled during the cooler parts of the day (*i.e.,* early morning) and rest periods should be taken in cool areas for longer periods.

**Personal Protective Equipment (PPE):** Employees using PPE (*i.e.*, Tyvek® suits or other equipment which may retain heat) can be more susceptible to heat stress due to the fact that heat/sweat often cannot escape the suits and/or the equipment. Persons wearing PPE that contributes to heat stress require more hydration, longer rest periods, or a reduced pace of work. Also, more careful monitoring of each person's health status is required by co-workers and management.

The following table summarizes safety controls for heat related illnesses:

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Perform outdoor, strenuous, tasks at cooler times of day/year | Use mechanized equipment in place of manual labor | Install fans or air conditioning units in the work area | Train all personnel to know the signs of heat stress/stroke and how to prevent it | Implement the use of cooling vests or other similar PPE |
| | | Install a canopy to provide shade to work areas | Allow workers to acclimatize to the work environment | |
| | | Provide cool, shaded break areas | Adjust work pace to allow for the effects of heat | |
| | | | Implement work/rest periods | |

## 4.10 Cold Stress

The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds (wind chill), dampness, and cold water. One, or any combination of these factors, can cause cold-related hazards. Cold stress, including frostbite and hypothermia, can result in severe health effects. Employees, contract employees, and third-party contractors will be instructed in the identification of a cold stress victim, the first-aid treatment procedures for the victim and in the prevention of heat stress incidents.

A dangerous situation of rapid heat loss may arise for any individual exposed to high winds and cold temperatures. Major risk factors for cold-related stresses include:

- Wearing inadequate or wet clothing thus increasing the effects of cold on the body.
- Taking certain drugs or medications such as alcohol, nicotine, caffeine, and medication thus inhibiting the body's response to the cold and/or impairing judgment.
- Having a cold or certain disease, such as diabetes, heart, vascular and thyroid problems, and thereby increasing susceptibility to the winter elements.
- Lower body-fat composition or other physiological differences. Statistics show that men experience far greater death rates due to cold exposure than women, potentially attributable to participation in risk-taking activities, lower body-fat composition and/or other physiological differences.
- Becoming exhausted or immobilized, especially due to injury or entrapment, thus speeding up the effects of cold weather.

The following table provides the resulting equivalent chill temperature to exposed skin because of increasing wind speeds at decreasing actual temperatures. Personnel shall be aware of predicted weather conditions before beginning site work and stay apprised of changes.

**TABLE 2. Cooling Power or Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)***

| Estimated Wind Speed (in mph) | Actual Temperature Reading (°F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 40 | 30 | 20 | 10 | 0 | −10 | −20 | −30 | −40 | −50 | −60 |
| | Equivalent Chill Temperature (°F) | | | | | | | | | | | |
| calm | 50 | 40 | 30 | 20 | 10 | 0 | −10 | −20 | −30 | −40 | −50 | −60 |
| 5 | 48 | 37 | 27 | 16 | 6 | −5 | −15 | −26 | −36 | −47 | −57 | −68 |
| 10 | 40 | 28 | 16 | 4 | −9 | −24 | −33 | −46 | −58 | −70 | −83 | −95 |
| 15 | 36 | 22 | 9 | −5 | −18 | −32 | −45 | −58 | −72 | −85 | −99 | −112 |
| 20 | 32 | 18 | 4 | −10 | −25 | −39 | −53 | −67 | −82 | −96 | −110 | −121 |
| 25 | 30 | 16 | 0 | −15 | −29 | −44 | −59 | −74 | −88 | −104 | −118 | −133 |
| 30 | 28 | 13 | −2 | −18 | −33 | −48 | −63 | −79 | −94 | −109 | −125 | −140 |
| 35 | 27 | 11 | −4 | −20 | −35 | −51 | −67 | −82 | −98 | −113 | −129 | −145 |
| 40 | 26 | 10 | −6 | −21 | −37 | −53 | −69 | −85 | −100 | −116 | −132 | −148 |
| (Wind speeds greater than 40 mph have little additional effect.) | LITTLE DANGER In < hr with dry skin. Maximum danger of false sense of security | | | | INCREASING DANGER Danger from freezing of exposed flesh within one minute. | | | | GREAT DANGER Flesh may freeze within 30 seconds. | | | |
| | Trenchfoot and immersion foot may occur at any point on this chart. | | | | | | | | | | | |

*Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.
Equivalent chilll temperature requiring dry clothing to maintain core body tempearture above 36°C (96.8°F) per cold stress TLV

The following table summarizes safety controls for preventing cold stress:

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Perform work during warm parts of the day or warmer parts of the year | | Install heaters in enclosed work areas | Train all personnel on the symptoms of cold stress and how to prevent it | All personnel must wear multiple layers of clothing |
| | | Provide a warm break area | Implement work/rest schedule | Utilize hand/foot warmers when required |

An additional hazard in cold weather conditions is the increased risk for slips from the accumulation of ice and snow in general work areas, ruts where water is accumulated, and heavy equipment. The following table outlines controls that may be used for preventing slips:

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Perform work during warm parts of the day or in areas free of accumulated areas | | Clear snow in work areas | | Use traction control devices (*i.e.,* YakTrax) on work boots to provide additional traction. |
| | | Apply salt/sand to icy areas | | |
| | | Use equipment to access work areas | | |

## 4.11 Biological Hazards

The following are biological hazards that may be present at the EAP.

### 4.11.1 Ticks (Lyme Disease) & Mites

Although Lyme disease has been detected throughout the continental United States, it is prevalent primarily in certain areas in New England, the Mid-Atlantic and the northern Midwest states.

Although Lyme disease is the most common tickborne illness, other tickborne illnesses include southern tick-associated rash illness, Rocky Mountain spotted fever, ehrlichiosis, and tularemia. More information on Lyme disease and other tickborne illnesses can be found from the CDC.

**Prevention**

- Standard field gear (work boots, socks, and light colored coveralls) provides good protection against tick bites, particularly if the joints are taped. However, even when wearing field gear, the following precautions shall be taken when working in areas that might be infested with ticks:
  - Wear long pants and long-sleeved shirts that fit tightly at the ankles and wrists, tape cuffs if necessary
  - Wear light colored clothing so ticks can be easily spotted
  - Per- and polyfluoroalkyl substances (PFAS)-free tick repellents (DEET and Permethrin) must be used when walking in all overgrown areas. DEET (≥25 percent [%]) must be applied to skin while permethrin must be applied to clothes and allowed to dry. Spray outer clothing, particularly your pant legs and socks, BUT NOT YOUR SKIN, with an insect repellent that contains permethrin. For heavily infested tick areas, wear spun polypropylene coveralls that have been sprayed with permethrin.
  - Inspect clothing frequently
  - Inspect head and body thoroughly when you return from the field, particularly on your lower legs and areas covered with hair
  - When walking in wooded areas, wear a hard hat, and avoid contact with bushes, tall grass, or brush as much as possible

**Removal**

- Remove any ticks by tugging with tweezers or special tick removal tools
- Do not squeeze or crush the tick
- DO NOT use matches, a lit cigarette, nail polish, or any other type of chemical to "coax" the tick out

**Treatment**

- Disinfect the area with alcohol or a similar antiseptic after removal
- Notify the Safety Competent Person of the embedded tick
- For several days to several weeks after removal of the tick, look for the signs of the onset of Lyme disease, such as a rash.
- No further treatment is necessary for ticks embedded <48 hours.
- If other signs or symptoms of Lyme are observed (fever/chills, aches, and pains), then notify the Safety Competent Person and seek medical attention

The following table summarizes safety controls to reduce the hazards associated with ticks and mites.

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Use mechanical equipment to remove overgrown vegetation | | Remove overgrowth and excessive vegetation from walkways and work areas (provide safe access) | Train personnel on tick and mite prevention. Areas of vegetation overgrowth and/or debris piles should be considered “high risk” areas | Wear light colored long-sleeved shirt tucked into pants. Tuck pant legs into socks |

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| | | | Perform frequent tick checks in the field and a thorough tick check after completing work activities | Apply Permethrin to clothes and DEET (20% or more) to exposed skin |
| | | | Call licensed pesticide contractors to remove infestations of bees, wasps, fire ants, etc. | |

### 4.11.2 Insect Bites/Stings

Stinging/biting insects at the EAP include spiders, wasps, and bees. Contact with these insects may result in project personnel experiencing adverse health effects that range from being mildly uncomfortable to being life-threatening. Therefore, insects present a serious hazard to project personnel, and extreme caution must be exercised whenever Site and weather conditions increase the risk of encountering stinging insects. Some of the factors related to stinging insects that increase the degree of risk associated with accidental contact are as follows:

- The nests for these insects are frequently found in remote wooded or grassy areas or equipment staging areas where equipment has not been moved recently.
- Some people are hypersensitive to the toxins injected by a sting, and when stung, experience a violent and immediate allergic reaction resulting in a life-threatening condition known as anaphylactic shock. Anaphylactic shock manifests itself very rapidly and is characterized by extreme swelling of the body, eyes, face, mouth, and respiratory passages.
- The hypersensitivity needed to cause anaphylactic shock, can in some people accumulate over time and exposure, therefore even if someone has been stung previously and not experienced an allergic reaction, there is no guarantee that they will not have an allergic reaction if they are stung again
- Spider bites generally only cause localized reactions such as swelling, pain, and redness. However, bites from a Black Widow or Brown Recluse, or if you are allergic to spiders, can cause symptoms that are more serious.
- ***If a worker knows that they are hypersensitive to bee, wasp, or hornet stings, or other insects, they must inform the Safety Competent Person prior to site work. Persons who have been prescribed epi-pens by their physician must have an epi-pen on the Site.***
- Inspect any clothing or PPE that has been left for a period of time prior to putting it on. Shake out the clothing and inspect the inside of safety shoes/boots prior to putting them on
- Nests in active work areas must be eradicated. Small nests may be handled by Site personnel using consumer-type insecticide. A pest control contractor should be hired to handle large or difficult to reach nests.

The following table outlines safety controls to reduce the risk of hazards associated with stinging/biting insects.

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Use mechanical equipment to remove overgrown vegetation | | Remove overgrowth and excessive vegetation from walkways and work areas (provide safe access) | Train personnel on stinging/biting insect prevention. Areas of vegetation overgrowth and/or debris piles should be considered "high risk" areas | Wear light colored long-sleeved shirt tucked into pants. Tuck pant legs into socks |
| | | Eradicate nests in the work area as outlined above. | Instruct personnel to inspect/shake out clothing and work boots that have been left for a period of time. | Apply Permethrin to clothes and DEET (20% or more) to exposed skin – NOTE this will not repel bees/wasps |
| | | | Instruct employees who are hypersensitive to insect bites/stings to carry their epi-pen while on site | |

### 4.11.3 Venomous Snakes

There are four species of venomous snakes in Illinois, they are:

- Copperhead
- Cottonmouth Water Moccasin
- Timber rattlesnake
- Eastern Massasauga

Generally, these snakes are found in the southern one-third of the state, with the Cottonmouth Water Moccasin found mostly in the southernmost portions of Illinois. Snakes are generally found in tall grass, wood piles, or other covered areas. Snakes are generally not aggressive towards humans, but if they are encountered avoid the snake and do not provoke it. If bitten by a snake that may be venomous seek medical treatment.

The following table outlines safety controls to reduce the hazard associated with venomous snakes.

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Use mechanical equipment to remove overgrown vegetation | | Remove debris piles, overgrowth and excessive vegetation from walkways and work areas (provide safe access) | Train personnel on the identification of venomous snakes. Areas of vegetation overgrowth and/or debris piles should be considered "high risk" areas | If working in area with snakes cannot be avoided, wear snake chaps |
| | | | Instruct personnel to not disturb snakes if they identify one in their work area | |

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| | | | Use caution when moving staged tools or materials into which snakes may have moved | |

### 4.11.4 Poisonous Plants and Plant Hazards

Poison ivy and poison oak may be present at the Site. Poison ivy thrives in all types of light and usually grows in the form of a trailing vine; however, it can also grow as a bush and can attain heights of 10 feet or more. Poison ivy has pointed leaves that grow in clusters of three. Poison oak resembles poison ivy except that the poison oak leaves are more rounded rather than jagged like poison ivy, and the underside of poison oak leaves are covered with hair.

The skin reaction associated with contacting these plants is caused by the body's allergic reaction to toxins contained in oils produced by the plant. Becoming contaminated with the oils does not require contact with just the leaves. Contamination can be achieved through contact with other parts of the plant such as the branches, stems or berries, or contact with contaminated items such as tools and clothing. The allergic reaction associated with exposure to these plants will generally cause the following signs and symptoms:

**Symptoms**

- Blistering at the site of contact, usually occurring within 12 to 48 hours after contact and in many cases, persons experience almost immediate irritation.
- Reddening, swelling, itching, and burning at the site of contact.
- Pain, if the reaction is severe.
- Conjunctivitis, asthma, and other allergic reactions if the person is extremely sensitive to the poisonous plant toxin.

**Prevention**

- The best treatment appears to be removal of the irritating oil before it has had time to cause inflammation by wiping exposed skin with rubbing alcohol followed by washing with soap and water.
- A visual Site inspection and identification of the plants should be completed prior to starting work so that all individuals are aware of the potential exposure. Avoid contact with any poisonous plants on the Site, and keep a steady watch to identify, report, and mark poisonous plants found on the Site.
- Avoid contact with, and wash daily, contaminated tools, equipment, and clothing.
- Barrier creams (Ivy Block®) and orally administered desensitization may prove effective and should be tried to find the best preventive solution.
- Keeping the skin covered as much as possible (*i.e.*, long pants and long-sleeved shirts) in areas where these plants are known to exist will limit much of the potential exposure. PFAS-free spun polypropylene coveralls or Tyvek® may be worn to prevent contact of skin and clothes with poison ivy.

The following table outlines safety controls to mitigate the hazards associated with poisonous plants.

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| Use mechanical equipment to remove overgrown vegetation | | Remove overgrowth and excessive vegetation from walkways and work areas (provide safe access) | Train personnel on the identification of poisonous plants | Wear pants and long sleeves when working in overgrown areas |
| | | | Instruct personnel to avoid areas where poisonous plants have been identified | Consider the use of a coverall when working in areas where these plants are present, especially for hypersensitive employees. |
| | | | Provide isopropyl alcohol along with soap and water to remove oils from skin, tools, and equipment. | |

## 4.12 Working Alone

As outlined in Section 4.1, working alone while on the EAP must be pre-approved by the POC. Working alone is prohibited for tasks deemed to be high risk by EEI including, but not limited to, handling highly hazardous chemicals (sulfuric acid), work over/near water, excavation and trenching, hot work (grinding, welding and torch cutting), and elevated work that requires personal fall arrest. Third-party contractors are responsible for identifying potential high-risk tasks in their Safety and Health Plan and requiring that a buddy system be implemented while high risk work is performed. The buddy must be located in a safe area but may perform other tasks that do not prevent observing the person performing high risk work. Working alone may occur on and around other parts of the EAP when there is no drowning hazard or risk of severe injury due to high-risk work.

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| | Modify work methods by substituting lower hazard methods for high hazard methods | Varies depending on the hazard, but for example, could include installing guardrails (temporary or permanent) which mitigates a fall hazard reducing the risk to levels where working alone may be permitted | Prohibit working alone on ash ponds and for other high hazard tasks without prior approval from the POC. | |
| | | | Implement a buddy system whenever feasible (required for high hazard work) | |

| Elimination | Substitution | Engineering | Administrative | PPE |
|---|---|---|---|---|
| | | | Implement a worker check-in, emergency alerting, and monitoring system | |

# 5. HAZARD COMMUNICATION

As required by 35 I.A.C. § 845.530, the OSHA HAZWOPER standards (29 C.F.R. § 1910.120 and 29 C.F.R. § 1926.65) and OSHA Hazard Communication Standard, site personnel, subcontractors, and visitors must be informed of chemical hazards associated with their work area. The information in this section is based on:

- Recommendations in the most recent "NIOSH Pocket Guide to Chemical Hazards" by the Department of Health and Human Services, Centers for Disease Control and Prevention, and the NIOSH Pocket Guide.
- Requirements set forth in the OSHA regulations from as defined in Chapter 17 of 29 C.F.R. § 1910.1200(c) for all hazards not otherwise classified.

## 5.1 Coal Combustion Residuals

Primary exposure to CCR is through inhalation and skin contact. CCR is typically a fine, black, grey, or tan particulate. CCR is comprised of several components. The following table outlines the components of the CCR. The exact percentage of each component will vary based on the type of ash and location at the surface impoundment.

| Chemical | Percentage | PEL | IDLH | ACGIH TLV | Symptoms of Exposure & Health Effects |
|---|---|---|---|---|---|
| Crystalline Silica | 20-60% (total) | 0.05 mg/m$^3$ (respirable) | 25 mg/m$^3$ (respirable) | 0.025 mg/m$^3$ (respirable) | Cough, dyspnoea (breathing difficulty), wheezing; decreased pulmonary function, progressive respiratory symptoms (silicosis); irritation eyes; [potential occupational carcinogen] |
| Iron oxide | 1-10% | 10 mg/m$^3$ | 2500 mg/m$^3$ | 5 mg/m$^3$ | Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis (siderosis) |
| Calcium oxide | 10-30% | 5 mg/m$^3$ | 25 mg/m$^3$ | 2 mg/m$^3$ | irritation eyes, skin, upper respiratory tract; ulcer, perforation nasal septum; pneumonitis; dermatitis |
| Titanium dioxide | <3% | 15 mg/m$^3$ | ND | 0.2 mg/m$^3$ (nanoscale particles) 2.5 mg/m$^3$ (fine-scale particles) | Lung fibrosis; [potential occupational carcinogen] |
| Aluminosilicates | 10-60% | 15 mg/m$^3$ (PNOR) | ND | 10 mg/m$^3$ (PNOR) | irritation eyes, skin, throat, upper respiratory system |
| Magnesium oxide | 2-10% | | | | |
| Magnesium dioxide | <2% | | | | |
| Phosphorous pentoxide | ≤2% | | | | |
| Sodium oxide | 1-10% | | | | |
| Potassium oxide | ≤1% | | | | |
| Bromide salt | <0.1% | | | | |

**Footnotes:**

All values are 8-hour time-weighted averages (TWAs) unless otherwise indicated.

- PEL: Permissible Exposure Limit, the concentration an employee may be exposed to for an 8-hour work day for a 40-hour work week for which nearly all employees may be repeatedly exposed without adverse health effects.
- IDLH: IMMEDIATELY Dangerous to Life and Health, contaminant concentration which present the possibility for severe health consequences if exposed to the IDLH concentration without the appropriate personal protective equipment (PPE).
- ACGIH TLV: American Conference of Governmental Industrial Hygienists Threshold Limit Value
- mg/m$^3$ = milligrams per cubic meter of air
- PNOR: Particulates Not Otherwise Regulated
- ND: Not Determined

## 5.2 Sulfuric Acid

Sulfuric acid is used in the EAP to control pH. Sulfuric acid is a very hazardous corrosive capable of causing immediate chemical burns to eyes and skin as well as damage to the upper respiratory tract and lungs if aerosols are inhaled. Sulfuric acid storage tanks and piping are labelled.

Immediately flush skin and eyes for 15 minutes following contact with sulfuric acid. An emergency shower and eyewash are located adjacent to the sulfuric acid storage tank.

## 5.3 Safety Data Sheets

Pursuant to 35 I.A.C. § 845.530(b)(3), EEI will provide Safety Data Sheets (SDSs) to all employees, contract workers, and third-party contractors for the CCR located at the Site. Third-party contractors will provide SDSs to the POC/Environmental Manager and Plant Supervisor prior to bringing a material on site. SDSs are provided in Appendix E.

## 5.4 Signage

The absence of any of the following signage does not mean that a potential hazard does not exist. Signage will be posted by EEI, but employees, contract workers, and third-party contractors must remain vigilant for changing site conditions.

To aid in hazard communication and pursuant to 35 I.A.C. § 845.530(f), EEI will post the following signs at the EAP:

- Signs identifying the hazards of CCR, including dust inhalation when handling CCR.
- Signs identifying unstable CCR areas that make the operation of heavy equipment hazardous.
- Signs identifying the necessary safety measures and necessary precautions, including the proper use of PPE.

The following signs may also be posted at the CCR units to aid in hazard communication:

- Sulfuric acid hazard communication signs or labels on all tanks, drums, or other storage containers. “Sulfuric Acid” labels on piping.
- Overhead electrical lines that may be struck by heavy equipment of vehicles will have signs warning drivers of their presence.

# 6. EMERGENCY RESPONSE PLAN

This emergency response section details actions to be taken in the event of site emergencies. This section is consistent with the JPP EAP Emergency Action Plan. All personnel on site must be familiar with emergency signals and the content of this section.

## 6.1 Emergency Phone Numbers & Notifications

| Emergency Number | |
|---|---|
| **Site Address** | **Emergency Phone Number** |
| 2100 Portland Road<br>Joppa, IL | 911 |
| Security Guard | 713-542-6267 |

| Medical Treatment | |
|---|---|
| **Local Hospital** | **Phone Number** |
| Massac Memorial Hospital<br>28 Chick Street<br>Metropolis, IL 62960 | 618-524-2176 |

| Incident Notifications | | |
|---|---|---|
| **Title** | **Name** | **Contact Number** |
| Environmental Supervisor | Roger Faughn | 270-210-3232 |
| POC/Plant Closure Manager | Jeremy Barnhill | 618-309-5525 |

## 6.2 Evacuation Signal

Notice to evacuate the EAP will be done through cell phone, radio, or direct contact. Upon receiving an evacuation request, all personnel will leave the work area and proceed to the muster point.

## 6.3 Muster Point

The muster point for the EAP is located in the Fly Ash Loading Control Room. The muster point is shown in Appendix A.

## 6.4 Calls for Emergency Support

In the case of an emergency, site personnel will call **911 and the POC (618-309-5525)**. The individual calling for emergency support will briefly explain the nature of the emergency and site conditions as follows:

- Indicate his/her name
- Location of emergency
- Description of emergency conditions that may require special rescue equipment, such as confined spaces, excavations, and elevated work platforms
- Potential chemical hazards and recommended PPE

## 6.5 Fire & Explosion Response Plan

Trained site personnel may respond to incipient stage fires using a 20-pound Type ABC dry chemical fire extinguisher or hose. An incipient stage fire is a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus. Personnel shall only attempt to extinguish the fire if it is safe to do so.

A fire that CANNOT be readily extinguished with a fire extinguisher will require evacuation of the work area personnel to Muster Point areas per this Safety and Health Plan. If personal injuries

result from any fire or explosion, the procedures outlined in the Personal Injury Response Plan will also be followed.

All fires or explosions must be reported to the contacts outlined in Section 6.1 of this Safety and Health Plan.

## 6.6 Injury Response Plan

Treatment for minor injuries will be provided on site using available first aid supplies and personnel trained in first aid. All third-party contractors must have at least one individual on site who is trained in first aid, CPR, and AED use. Third-party contractors must provide their own first aid kits and AED. For minor injuries that are not life-threatening but require further medical attention, employees should be treated by occupational physicians at occupational clinics whenever possible. Treatment of minor injuries by emergency room or personal physicians should be avoided. When injured workers are released back to work with restrictions, all subcontractors are expected to accommodate those restrictions.

Emergency medical incidents include puncture wounds to the head, chest, and abdomen, serious head and spinal cord injuries, and loss of consciousness must be treated at the hospital emergency room listed in Section 6.1 of this Safety and Health Plan.

All injuries must be reported to the contacts outlined in Section 6.1 of this Safety and Health Plan.

## 6.7 Spill Response Plan

In general, EEI employees, contract workers, and third-party contractors are trained and equipped to handle small spills associated with their work. Third-party contractors must include an approved spill response plan in their Safety and Health Plan. Site personnel will generally respond to spills as follows:

- Stop the leak immediately if it can be done without directly contacting the leaking material.
- Remove or stop all ignition sources (hot work, generators, etc.) that are within 25 feet of any part of the spill.
- On-site personnel should immediately secure the area to prevent unauthorized entry into the spill area.
- Although not likely given the anticipated types of spills, site personnel must immediately initiate evacuation if a spill may cause an explosion, death, or serious injury.
- Site personnel may only respond to incipient stage fires regardless of whether such fires are associated with a spill.
- PPE for spills to open areas generally requires Modified Level D PPE (poly-coat Tyvek®, nitrile gloves, and boot covers or boot decontamination). Over-boots or boot covers may also be used if persons cleaning the spill would have to walk on spilled materials. Latex gloves are not acceptable and will degrade with exposure to petroleum products.

## 6.8 CCR Spill or Release Response Plan

Response to minor or incidental spills of CCR will be managed as outlined in the General Spill Response Plan. An incidental release is a release of a hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the employee cleaning it up, nor does it have the potential to become an emergency within a short time frame. Incidental releases are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to employees in the immediate work area or those assigned to clean them up. An incidental spill may be safely cleaned up by employees who are familiar with CCR. Response to major releases of CCR will be in accordance with the JPP EAP Emergency Action Plan, which can be found on the Luminant CCR website at https://www.luminant.com/ccr/.

## 6.9 Ash Pond Rescue

Ash ponds may be unstable and represent an engulfment hazard if persons and equipment traverse the surface, berms, or other unstable areas. Special training is required on behalf of emergency responders to retrieve persons and equipment who become trapped in unstable ash. **Untrained persons must not enter unstable areas** in an attempt to conduct rescue because of the significant potential that they will also become victims. Call the JPP emergency number and state that an "ash pond rescue" is required. The JPP emergency contact will notify the designated service to perform the ash pond rescue. On-site personnel should remain on stand-by to support the ash pond rescue team as necessary.

## 6.10 Incident Reporting

All incidents must be reported to the contacts outlined in Section 6.1 of this Safety and Health Plan. An Incident Report must be completed for all injuries, illnesses, spills, fire, explosion, or property damage. The absence of an injury does not preclude the need to complete an Incident Report as such incidents will be classified as "near miss" or "other." It will include, but is not limited to, the nature of the problem, time, location, and corrective actions taken to prevent recurrence.

## APPENDIX A
## SITE MAP

PROJECT: 169000XXXX | DATED: 8/23/2021 | DESIGNER: STOLZSD

Y:\Mapping\Projects\22\2285\MXD\845_Operating_Permit\Joppa\Appendix A_JOP Site Map_SnHP.mxd


PART 845 REGULATED UNIT (SUBJECT UNIT)

OTHER UNIT

PROPERTY BOUNDARY

0 250 500 Feet

# SITE MAP

## APPENDIX A

**PART 845 SAFETY AND HEALTH PLAN**

JOPPA POWER PLANT

JOPPA, ILLINOIS

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

## APPENDIX B
## SAFETY AND HEALTH PLAN ACKNOWLEDGMENT FORM

# *SAFETY AND HEALTH PLAN ACKNOWLEDGEMENT FORM*

*I HEREBY CERTIFY THAT I HAVE READ AND UNDERSTOOD ALL HEALTH AND SAFETY PROCEDURES AS STATED HEREIN:*

| **Name and Affiliation (printed)** | **Signature** | **Date** |
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## APPENDIX C
## DRUG SCREEN POLICIES AND SUPPLEMENTAL TERMS

Drug and Background Investigations

Contractor is solely responsible for ensuring that all members of Contractor Project Team have completed and passed all drug and alcohol tests and background investigations required under this Attachment and under Contractor's own programs before assigning such personnel to perform Work. Contractor is also solely responsible for ensuring that such testing and investigations are performed in accordance with all applicable laws.

1. Required Investigations. Except as otherwise required by applicable law, Required Investigations shall consist of all of the following:

   1.1 a 7-panel drug screening;

   1.2 a background investigation that includes a criminal records check in all counties where the applicable person has resided for at least the last seven (7) years;

   1.3 a third-party verification of previous employment and the highest education level completed by the applicable person;

   1.4 a check of the National Sex Offender Registry and Terrorist Watch List (Denied Parties); and

   1.5 a check of Motor Vehicles Record (if work to be performed by the applicable person requires driving as part of the defined duties).

2. Notices to Tested Persons Regarding Background Checks. All background checks will be conducted in compliance with applicable provisions of the Fair Credit Reporting Act.
3. Forms and Testing Organization for Drug Tests. Except for those positions subject to Department of Transportation ("DOT") drug and alcohol testing regulations, all drug testing shall be performed using the Universal Toxicology four part "Non-DOT" Chain of Custody and Request Form with white and blue top page, and shall be conducted by an independent third-party organization.

4. Pass/Fail Standards – Background Checks. A person shall be deemed to have failed the applicable background check if:

   4.1 information is reported through the background check process indicating that such person has failed to disclose or misrepresented information requested at any time about such a person's criminal background history; or

   4.2 such person has ever committed any felony constituting a violent crime, crime against a person, sexual offense or fraud; or

   4.3 such person has committed any other felony, or has been incarcerated for a felony, within ten (10) years prior to the date of such background check (i.e., for these felonies there must be a ten (10) year lapse in time from the later of the commission and the end of any period of incarceration); or

   4.4 such person has committed any misdemeanor that:

      4.4.1 involves violence that is sexually related; or

4.4.2 consists of a DUI that is the second (or more) DUI in the last two (2) years prior to the date of the background check; or

4.4.3 consists of a theft-related offense; provided that there can be no more than one theft by check and it must have been for an amount less that $100; or

4.4.4 consists of any drug-related misdemeanor committed at any time within forty-eight (48) months prior to the date of the background check.

4.4 For purposes of both felonies and misdemeanors, a person is deemed to have committed the applicable offense if he/she is convicted or enters a plea of guilty or nolo contendere for such offense (to include, without limitation, sentences of probation and deferred adjudication).

5. Pass/Fail Standards – Drug Tests. A person shall be deemed to have failed the applicable drug test if any of the following maximum cut-off levels are exceeded, unless there is a legitimate medical explanation for the presence of a tested substance at or above the applicable cut-off level:

5.1 Amphetamines 500ng/mL

5.2 Barbiturates 150ng/mL

5.3 Benzodiazepines 150ng/mL

5.4 Cocaine 150ng/mL

5.5 Marijuana 150ng/mL

5.6 Opiates 2000ng/mL

5.7 Phencyclidine 25ng/mL

For any positions subject to DOT drug and alcohol testing requirements, testing shall be conducted according to the applicable DOT panel and cutoff levels.

6. Other Requirements.

6.1 Background checks and drug tests will be paid for by Contractor without reimbursement by Company.

6.2 Contractor will keep background checks and drug test records while the applicable persons are working pursuant to this Agreement and for three (3) years thereafter.

6.3 Upon request, Contractor will provide a certification to Company that no person required hereunder to pass a background check or drug test has failed such investigation or test. Contractor will not provide the specific results of the background check or drug test of any individual to Company.

6.4 If any person required under this Agreement to pass a background check or drug test fails such check or test, Contractor will not report the specific results of such check or test to Company and will not allow such individual to perform any Work for Company. Although such person may not be assigned to perform any Work for Company, nothing in this Attachment requires Contractor to take any other action with respect to such person's employment with Contractor.

Supplemental Terms for Onsite Services

## 1. SAFETY

1.1 Contractor agrees that any safety-related assistance or initiatives undertaken by Company will not relieve Contractor while on Company Property from responsibility for the implementation of, and compliance with, safe working practices, as developed from their own experience, or as imposed by law or regulation, and will not in any way, affect the responsibilities resting with Contractor under the provisions of any agreement to which these policies are attached and to meet all safety requirements as specified by the Occupational Safety & Health Administration (OSHA), the Mine Safety Health Administration (MSHA), including the "Mining Contractor Safety Reference Handbook" located at http://www.vistraenergy.com/wp-content/uploads/2016/12/Contractors-Safety-Handbook_Final-MC-08262016.pdf, the Department of Transportation (DOT) and any other applicable state or federal safety and health laws or regulations.

1.2 In the event that a material safety data sheet, warning label, or other documentation concerning the use of hazardous chemicals at any property owned or controlled by Company or any of its affiliates (collectively, "Company Properties"), applies to any materials or equipment provided by Contractor as an aspect of the Work, such documentation will be provided by Contractor to Company prior to the commencement of any such Work.

1.3 Contractor will report to Company all accidents involving personal injuries (including death) and damage to property occurring directly or indirectly as a result of the Work performed by Contractor hereunder immediately, but in no event, no later than 24 hours after the occurrence of any such accident. Any accident or incident occurring directly or indirectly as a result of the Work which Contractor must report to a regulatory agency (e.g. OSHA, MSHA, TCEQ) must also be reported to Company immediately following notification to the regulatory agency.

## 2. SECURITY

2.1 It will be the affirmative duty of Contractor to ensure that Contractor Group assists in carrying out all security measures, to include reporting all information or knowledge of matters adversely affecting security to Company's designated security personnel.

2.2 Company reserves the right to exclude any of Contractor's employees from any Company Property by denial of access, suspension or revocation of access authorization, preemptory expulsion, or by any other means, without notice or cause. Former Company employees, and any of Contractor's employees who previously have been excluded from any Company Property, may be brought onto Company property or facilities only if prior approval from Company is obtained. If Contractor terminates a member of Contractor Group performing Work on Company's premises, Contractor shall inform Company immediately, but in no event, no later than twenty-four (24) hours after such employee is terminated in order for Company to remove access to Company Property for such employee.

2.3 Company measures may also include investigations, whether by Company or law enforcement officials. Contractor agrees to cooperate in such investigations and understands that Company

reserves the right to require anyone in Contractor Group to authorize appropriate agencies to release his or her criminal records to Contractor as a condition of either initial or continued permission for access to any Company Property. Investigations may include searches of Contractor Group. Such searches may include searches of facilities assigned to Contractor Group, search of all Company Property areas and property at such Company Property areas, searches of including, but not limited to, offices, lockers, desks, lunch boxes, packages and motor vehicles (regardless of ownership). Without limiting the foregoing, Contractor acknowledges and agrees that all members of Contractor Group, to the extent that Company reasonably determines that such members require security badge access prior to entering onto any Company Property, shall be required to comply with Company's standard security badge requirements, including without limitation a background check to be performed by Company.

## 3. ISNETWORLD

3.1 Contractor agrees to maintain at Contractor's expense a subscription with ISNetworld (www.ISNetworld.com), Company's safety compliance program or any replacement program therefor, as directed by Company, for the Term of the Agreement. Contractor shall also furnish ISNetworld with any information requested by ISNetworld relating to ISNetworld's evaluation of the Contractor's safety program and practices. As a minimum, requested documents will be related to safety, health, and insurance (i.e., regulatory required training, certifications, safety plans, safe and secure workplace practices, insurance certificates, etc.), OSHA and MSHA injury rates and Experience Modification Rate (EMR).

3.2 Contractor has and during the performance of this Agreement shall continue to report full, complete and accurate information to ISNetworld concerning Contractor's employees.

4. MATERIALS, EQUIPMENT AND LABOR. Contractor will be solely responsible for the proper storage, transportation and disposal of any product or waste, other than sandblasting waste, used or generated in connection with the Work in accordance with all applicable Environmental Laws. Contractor will dispose of all waste materials, other than sandblasting waste, at an off-site disposal facility approved for such waste materials pursuant to applicable Environmental Laws and will complete and sign all waste manifests as the generator of such waste. Company will be responsible for the storage, transportation and disposal of any sandblasting waste generated during the performance of the Work.

## 5. CONDITIONS AFFECTING WORK

5.1 Contractor will investigate and acquaint itself with the conditions affecting the Work, including but not limited to those related to the transportation, disposal, handling and storage of materials and waste; availability of labor, water, electric power and roads; the uncertainties of weather, river stages or similar physical conditions at the site; the conformation and condition of the ground; and the character of equipment and facilities needed preliminary to and during prosecution of the Work. Contractor has satisfied itself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered. Contractor's failure to acquaint itself with any conditions affecting the Work or any available related information will not relieve it from responsibility for properly estimating the difficulty or cost of successfully performing the Work.

5.2 Contractor assumes full responsibility for investigating conditions and determining the existence and magnitude of any hazards to the physical well-being of property of Contractor, the employees, agents, and servants of Contractor, or any other person or entity who is or may become involved in

the performance of Work, and any and all other persons in the vicinity of the Work. Contractor will advise all of the above-specified persons or entities of any hazards relating to Work, and will ensure that those persons or entities are advised of and fully understand the nature of the hazards and safety precautions that can be taken to eliminate or minimize dangers relating to the hazards.

5.3 Contractor will provide information to Company regarding hazardous chemicals and/or consumable products that contain constituents listed in 40 CFR 372.65 used at any Company Property. Contractor will report the amount of such material carried on and off the site, the amount actually used and the manner of use. Contractor will provide the maximum quantity of the material stored on site at any one time and if a waste material was collected, where it was disposed of (location name and address). Contractor will provide information on the amount of material used for the previous calendar year by the first of February.

5.4 Contractor will use its best efforts to ensure that the Work is performed so as to minimize any adverse impact upon natural resources and the environment and will use best industry practices in this regard at all times.

5.5 Contractor acknowledges and agrees that all members of Contractor Group performing Work at any Company Generation or Mining Property are required to view Company's "Contractor/Visitor Safety Orientation" video (in the case of Company Generation property), when applicable, and to read and adhere to Company's "Contractor/Visitor Safety Booklet" (in the case of Company Mining property) prior to performing any Work at any Company Generation or Mining Property.

5.6 Contractor will immediately notify Company as soon as Contractor has reason to believe that Contactor, or any employee or other person performing the Work, is not or may not be performing the Work in compliance with applicable Environmental Laws. Contractor will provide Company with written notice to Company of such actual or potential non-compliance within three (3) days following the discovery thereof. Contractor will take immediate steps to ensure compliance with all applicable Environmental Laws and will, if directed by Company, cease all Work until authorized by Company to resume the Work.

5.7 Contractor will report to Company all accidents involving personal injuries (including death) and damage to property occurring directly or indirectly as a result of the Work performed by Contractor hereunder immediately, but in no event, no later than 24 hours after the occurrence of any such accident. Any accident or incident occurring directly or indirectly as a result of the Work which Contractor must report to a regulatory agency (e.g. OSHA, MSHA, TCEQ) must also be reported to Company immediately following notification to the regulatory agency.

## 6. WORK SITE PERMITS AND LICENSES

6.1 Subject to the following two paragraphs, Contractor will obtain, prior to the commencement of the Work, and provide to Company upon request, all permits, licenses and governmental authorizations, at its sole expense, required for the performance of the Work. Contractor will be solely responsible for maintaining compliance with such permits, licenses and governmental authorizations.

6.2 In the event that a storm water discharge permit is required for the performance of the Work, (i) Contractor will be responsible for filing a Notice of Intent with respect to the Work, in addition to any Notice of Intent that Company may be required to file, and (ii) Contractor will coordinate with

Company in the preparation and execution of a Storm Water Pollution Prevention Plan for the Work Site.

6.3 In the event that the performance of the Work involves the handling or abatement of asbestos-containing materials, Contractor will coordinate with Company in the preparation and filing of all required notification forms.

7. ACCESS. Should Contractor desire access to the Work Site over any land not controlled by Company, it will, at its sole expense, obtain all proper permits or written permission necessary for that access.

8. COMPANY FACILITIES. Contractor will not use Company's sanitary facilities, changehouses, shops, parks, storage buildings, tools, equipment or other facilities unless so directed by Company. Contractor will not discharge, without Company's prior written authorization, any product or waste used or generated in connection with the Work through any (i) Company-permitted outfall, (ii) Company-owned or operated pollution control equipment, or (iii) storm or sanitary sewer located at or in the vicinity of the Work Site. Any request for authorization to discharge will include, at a minimum, either a copy of the Material Safety Data Sheet for the product or a written description of the waste, including a list of the constituents of the waste and the relative concentrations thereof.

9. ENVIRONMENTAL

9.1 In the event that Contractor discovers during the performance of the Work any substance at the Work Site that is not the subject of the Work or has not otherwise been identified by Company for Contractor, which substance Contractor has reason to believe is or may be a Hazardous Substance that (i) has been or may be released or spilled into the soil, surface water, or groundwater or in a building or structure, or (ii) consists of asbestos-containing materials, lead-based paint, batteries, thermostats, lighting equipment, or equipment containing polychlorinated biphenyls, Contractor will immediately stop Work and notify Company of the discovery. Contractor will not resume the Work until receiving authorization from Company to do so.

9.2 The term "Hazardous Substance" means any product, waste, emission or substance defined, listed or designated as a hazardous or toxic substance, hazardous waste, hazardous material or pollutant by or pursuant to any Environmental Law and includes, but is not limited to, any petroleum-based product, substance or waste, including any additives associated therewith, pesticides, fertilizers, solvents, polychlorinated biphenyls, mercury, lead, lead-based paint, asbestos-containing material or explosives.

9.3 Contractor will immediately notify Company in the event of a spill or release of any material which Contractor knows or has reason to believe is a Hazardous Substance, whether onto the ground, into any body of water, a storm or sanitary sewer, or the air, or anywhere on property owned or controlled by Company, including within any building or structure. Contractor will be solely responsible, as may be required by applicable Environmental Laws, for, in consultation with Company, (i) notifying the appropriate governmental agencies of such spill or release caused or permitted by the acts or omissions of Contractor and (ii) for the cleanup and remediation of such spill or release.

10. PROTECTION OF HIGHWAYS AND RAILROADS. Contractor will make suitable arrangements with governmental authorities and railroads for the construction of all structures, whether underneath or over roads, railroads or rights-of-way to protect the public from accident or delay. Contractor will repair, at its

own expense, to the satisfaction of the governmental authorities or other owners, all roads, railroads and bridges that may be damaged by, or given undue wear due to the Work.

## 11. CLEANING UP

11.1 Contractor will at all times keep the Work Site free of waste materials or rubbish caused by the Work. After completing the Work, Contractor will remove all its waste materials, rubbish, tools, supplies, equipment and surplus materials from and about the Work Site.

11.2 If Contractor fails to keep the Work Site clean or to clean up after completing the Work, Company may do so and charge all costs of cleaning up to Contractor. Those costs may be deducted from the final payment to Contractor.

12. **COLLATERAL WORK.** Company and other contractors may be working at the Work Site. Company reserves the right to coordinate the performance of Contractor's Work with the work of others. Contractor will cooperate with and will not delay, impede or otherwise impair the work of others. Company does not guarantee Contractor continuous uninterrupted access to the Work Site, but will provide such access as good construction practices will allow, considering the other activities in the area.

13. **ALCOHOLIC BEVERAGES, DRUGS AND WEAPONS.** Contractor will inform all members of Contractor Group who may be involved in the performance of any Work of the following Company rules relating to alcoholic beverages, drugs and weapons, with which all personnel are expected to comply:

13.1 Bringing, attempting to bring, possessing, using or being under the influence of intoxicants, drugs, or narcotics while on any Company Property, including but not limited to parking areas, is prohibited. Possessing alcoholic beverages in sealed containers is permitted, however, in designated parking areas.

13.2 Prescription or over-the-counter medications that could affect the performance of safety-sensitive work are allowed on Company Property only if they have been previously cleared by Contractor. Contractor must confirm that the medication and dosage do not impair an individual's ability to perform safety-sensitive work before clearing the individual to perform such work while under the influence of the medication.

13.3 Bringing, attempting to bring, possessing or using firearms, whether classified as legal or illegal, while on any Company Property, including but not limited to buildings, parking areas, recreation facilities, equipment and vehicles, is prohibited, unless otherwise required by applicable law. Use or possession of firearms for specific situations is permitted if approved by function or higher level management of Company.

13.4 Off-the-job involvement with intoxicants, illegal drugs, or illegal narcotics that adversely affects Company's business, to include impairing the individual's ability to perform his job or the public trust in the safe operation of Company, is prohibited.

13.5 Any conduct on any Company Property which is in violation of any state or federal law or regulation is considered a violation of these rules and a breach of any agreement to which these policies are attached.

13.6 In order to enforce these rules, all individuals with access to any Company Property as well as the vehicles, offices, lockers and any personal belongings of such individuals on any Company Property are subject to search by Company and its agents, to include security representatives appointed or employed by Company. Individuals may be required to take a blood, urinalysis or Breathalyzer test, or submit to other recognized investigatory tests or procedures as are deemed appropriate or necessary by Company in the investigation of a violation of these rules.

14. TITLE AND RIGHT. Nothing in the Agreement will vest Contractor with any right of property in materials used after they have been attached to or incorporated into the Work, nor materials for which Contractor has received full or partial payment. All those materials, upon being so attached, incorporated or paid for, will become the property of Company. Any gravel, sand, stone, minerals, timber or other materials excavated, uncovered, developed or obtained in the Work, or on any land belonging to Company may be used, in the performance of the Work, provided such materials meet the requirements of this Agreement. Any objects or natural materials or animals excavated or exposed that may have historical significance or constitute a threatened or endangered species must be brought to the attention of Company.

## 15. PROTECTION AGAINST LIENS AND ENCUMBRANCES

15.1 Contractor will not at any time permit any lien, attachment or other encumbrance ("Encumbrance") by any person or persons whosoever or by reason of any claim or demand against Contractor to be placed or remain on the property of Company, including, but not limited to, the Work Site upon which Work is being performed or equipment and materials that are being furnished. To prevent an Encumbrance from being placed on the property of Company, Contractor will furnish during the progress of any Work, as requested from time to time, verified statements showing Contractor's total outstanding indebtedness in connection with the Work.

15.2 If Contractor allows any indebtedness to accrue to subcontractors or others and fails to pay or discharge that indebtedness within five (5) days after demand, then Company may withhold any money due Contractor until that indebtedness is paid or pay the indebtedness and apply that amount against the money due Contractor.

15.3 If Contractor allows any Encumbrances, whether valid or invalid to be placed on the property of Company, any and all claims or demands for payment to Contractor will be denied by Company until the Encumbrance is removed. If the Encumbrance is not removed immediately, Company may pay that claim or demand and deduct the amount paid, together with all related expenses, including attorneys' fees, from any further payment due Contractor, or at Company's election, Contractor will, upon demand, reimburse Company for the amount paid and all related expenses. Any payment made in good faith by Company will be binding on Contractor.

## 16. TERMINATION FOR DEFAULT

16.1 If a petition in bankruptcy should be filed by Contractor, or if Contractor should make a general assignment for the benefit of creditors, or if a receiver should be appointed due to the insolvency of Contractor, or if Contractor should refuse or fail to supply enough properly skilled workmen or proper equipment, materials or services or should fail to make prompt payment to subcontractors, or to pay promptly for materials or labor, or disregard laws, ordinances or the instruction of Company's Contract Coordinator, or if Contractor should refuse or fail to abide by the SOW Construction Schedule or otherwise violate any provisions of the Agreement or SOW, then Company, upon a

determination by Company's Contract Coordinator that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy available to it after giving Contractor seven (7) days' written notice, terminate the Agreement or the SOW and take possession of the Work Site. In the event of such a termination, Company may use all or part of Contractor's equipment and materials and may finish the Work by whatever method Company may deem expedient. In such event, Contractor will not be entitled to receive any further payment hereunder until the Work is finished. If the unpaid balance of the SOW fees will exceed the expense of finishing the Work, including compensation of Company's Contract Coordinator, other Company personnel, third party engineering companies, or other contractors for additional services, such excess will be paid to Contractor. If the expense of finishing the Work will exceed such unpaid balance, Contractor will pay the difference to Company within fifteen (15) days of receiving an invoice for same. The expenses incurred by Company herein, and the damage incurred through Contractor's default, will be determined by Company's Contract Coordinator, in its sole discretion, and such determination will be binding as between the parties.

16.2 In the event of a termination under the provisions of this Section 3, Contractor will transfer and assign to Company, in accordance with Company's instructions, all Work, all construction records, reports, permits, data and information, other materials (including all Company-supplied materials), supplies, Work in progress and other goods for which Contractor is entitled to receive reimbursement hereunder, and any and all plans, drawings, sketches, specifications, and information in connection with the Work, and will take such action as may be necessary to secure Company, at Company's sole election, the rights of Contractor under any or all orders and subcontracts made in connection with the Work.

16.3 In the event that Company so directs or authorizes, Contractor will sell at a price approved by Company, or retain at a mutually agreeable price, any such materials, supplies, Work in progress, or other goods as referred to in the preceding paragraph. In any event, Company will receive any and all records, plans, drawings, data, permits, specifications, sketches, reports, or other information relating to the Work. The proceeds of any such sale or the agreed price will be paid or credited to Company in such manner as Company may direct so as to reduce the amount payable by Company under this Section 3.

## APPENDIX D
## ASH POND WORK DAILY CHECKLIST

**Ash Pond Work Daily Checklist**
***Typical Vistra Plant Project Name – Date***
***Project-Specific Information to be Added as Appropriate***

This daily checklist will be reviewed each day as part of daily contractor site safety planning and preparation. The contents should be reviewed, discussed, and documented as a normal part of the daily contractor routine.

**Initial Site Review**

- Walk down each morning as first course of action that day's work area.
- Check noted work area for soft/saturated surfaces and changed conditions from the prior day.
- Identify areas where potential site access or other improvements will be needed for that day's work including fill areas and areas where materials will require replacement and/or benching into the slope. Estimate dimensions.
- Assess and identify equipment and staffing requirements for ash pond work.
- Summarize the anticipated work conditions and approach for distribution to plant as part of the daily plant permit-to-work and construction oversight personnel if applicable.
- Identify any potential hazards and determine defenses/controls for mitigation. If the hazard cannot be mitigated, then identify what can be put in place to reduce the impact of the hazard.

**Tailgate Safety Meeting Review**

During daily tailgate safety meeting and as part of daily routine for each day working in the ash pond, the following topics require discussion and review:

- Highlight as a daily reminder the hazards and safety concerns with ash pond work. Ensure workers are aware of the controls put into place for mitigation.
- Life vests must be worn when working within 6' of water's edge or for work at an ash pond when working on the interior slope of the perimeter berm where the toe of the slope is in contact with water.
- Operators to review equipment for egress procedures.
- Distribute and confirm radio communication with equipment spotter(s).
- Review tow points and necessary equipment features as part of daily pre-work checks that are critical to potential extraction or retrieval. Note that companies must be preapproved to perform extraction.
- Confirm spill and emergency response equipment and materials are stocked and readily available.
- Emergency response contractors contact information is readily available.
- Confirm emergency response boat is available and readied for potential use. Confirm rescue employees have been trained.
- Ring buoys present and spaced appropriately, within the work area and no greater than 200' apart.
- Seat belts will be worn in all work equipment and vehicles.
  Perform Hazard Review for the work being completed (PJB,JSA,JHA, etc.) Confirm and explain what the stop work criteria means and emphasize who has authority.

**Daily Ash Pond Work Awareness Review/Reminders**

- When work commences, the ash or berm slope will be explored with an excavator prior to any other track machine traverses the area.
- A long-reach excavator will be positioned on a solid non-ash or previously investigated area that is not on a slope. The excavator will be used to "manually explore" material and surface condition.
- All vegetation will be removed and wet or ash materials will be removed down to a dry non-ash subgrade.
- Any ramps or equipment pads will be benched into the slope.
- Only dry bottom ash material or suitable soil can be used to construct ramps or pads. Material will be placed by an excavator or by being pushed out by a dozer.
- No wheeled machines will be allowed on the work area surfaces without access by an acceptable roadway constructed of dry ash or appropriately sized aggregate material.

# APPENDIX E SAFETY DATA SHEETS

DYNEGY

# Safety Data Sheet

## Section 1
## Identification of the Substance and of the Supplier

### 1.1 Product Identifier

| | |
|---|---|
| **Product Name/Identification:** | ASTM Bottom Ash |
| **Synonyms:** | Ash; Ashes; Ash residues; Ashes, residues, bottom; Bottom ash; Bottom ash residues; Coal Fly Ash; Pozzolan; Waste solids. |
| **Formula:** | UVCB Substance |

### 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advices Against

| | |
|---|---|
| **Relevant Identified Uses:** | Component of wallboard, concrete, roofing material, bricks, cement kiln feed. |
| **Uses Advised Against:** | None known. |

### 1.3 Details of the Supplier of the SDS

| | |
|---|---|
| **Manufacturer/Supplier:** | Dynegy, Inc. |
| **Street Address:** | 601 Travis Street, Suite 1400 |
| **City, State and Zip Code:** | Houston, TX 77002 |
| **Customer Service Telephone:** | 800-633-4704 |

# Section 2
# Hazards Identification

## 2.1 Classification of the Substance

**GHS Classification(s) according to OSHA Hazard Communication Standard (29 CFR 1910.1200):**

- Eye Irritant, Category 2A
- STOT-SE, Category 3 (Respiratory Irritation)
- Carcinogen, Category 1A
- STOT-RE, Category 1 (Lungs)
- Toxic to Reproduction, Category 2

## 2.2 Label Elements

| ***Labelling according to 29 CFR 1910.1200 Appendices A, B and C**** | |
|---|---|
| ***Hazard Pictogram(s):*** |  |
| ***Signal word:*** | **DANGER** |
| ***Hazard Statement(s):*** | *Causes serious eye irritation.*<br>*May cause respiratory irritation.*<br>*May cause damage to lungs after repeated/prolonged exposure via inhalation.*<br>*May cause cancer of the lung.*<br>*Suspected of damaging fertility or the unborn child.* |
| ***Precautionary Statement(s):*** | *Obtain special instructions before use.*<br>*Do not handle until all safety precautions have been read and understood.*<br>*Avoid breathing dust.*<br>*Wash thoroughly after handling.*<br>*Do not eat drink or smoke when using this product.*<br>*Wear protective gloves/protective clothing/eye protection/face protection.*<br>*Use outdoors or in a well-ventilated area.*<br>*If exposed or concerned: Get medical advice/attention.*<br>*Store in a secure area.*<br>*Dispose of product in accordance with local/national regulations.* |

** Fly ash and other coal combustion products (CCPs) are UVCB substances (unknown or variable composition or biological). Various CCPs, noted as ashes/ash residuals; Ashes, residues, bottom; Bottom ash; Bottom ash residues; Waste solids, ashes under TSCA are defined as: "The residuum from the burning of a combination of carbonaceous materials. The following elements may be present as oxides: aluminum, calcium, iron, magnesium, nickel, phosphorus, potassium, silicon, sulfur, titanium, and vanadium." Ashes including fly ash and fluidized bed combustion ash are identified by CAS number 68131-74-8. The exact composition of the ash is dependent on the fuel source and flue additives composed of many constituents. The classification of the final substance is dependent on the presence of specific identified oxides as well as other trace elements.*

## 2.3 Other Hazards

**Listed Carcinogens:**

**-Respirable Crystalline Silica**

**IARC:** [Yes] **NTP:** [Yes] **OSHA:** [Yes] **Other:** **(ACGIH)** [Yes]

## Section 3
## Composition/Information on Ingredients

| *Substance* | *CAS No.* | *Percentage (%)* | *GHS Classification* |
|---|---|---|---|
| *Crystalline Silica* | *14808-60-7* | *20 - 40%* | *Repeat Dose STOT, Category 1*<br>*Carcinogen, Category 1A* |
| *Silica, crystalline respirable (RCS)* | *14808-60-7* | *See Footnote 1* | *Repeat Dose STOT, Category 1*<br>*Carcinogen. Category 1A* |
| *Aluminosilicates*[2] | *Various, see Footnote 2* | *10 - 60%* | *Single Exposure STOT, Category 3* |
| *Calcium oxide (CaO)* | *1305-78-8* | *10 - 30%* | *Skin Irritant, Category 2*<br>*Eye Irritant, Category 1*<br>*Single Exposure STOT, Category 3* |
| *Iron oxide* | *1309-37-1* | *1 - 10%* | *Not Classified* |
| *Manganese dioxide ($MnO_2$)* | *1313-13-9* | *<2%* | *Skin Irritant, Category 2*<br>*Eye Irritant, Category 2B* |
| *Magnesium oxide* | *1309-48-4* | *2 - 10%* | *Not Classified* |
| *Phosphorus pentoxide ($P_2O_5$)* | *1314-56-3* | *≤2%* | *Skin Irritant, Category 2*<br>*Eye Irritant, Category 2B* |
| *Sodium oxide* | *1313-59-3* | *1 - 10%* | *Not Classified* |
| *Potassium oxide ($K_2O$)* | *12136-45-7* | *≤1%* | *Skin Irritant Category 2*<br>*Eye Irritant Category 2B* |
| *Titanium dioxide ($TiO_2$)* | *13463-67-7* | *<3%* | *Not Classified* |
| *Bromide salt (calcium)* | *7789-41-5* | *See Footnote 3* | *Toxic to Reproduction Category 2* |

[1]*The percentage of respirable crystalline silica has not been determined. Therefore, a GHS classification of Carcinogen 1A has been assigned.*

[2]*Aluminosilicates (CAS# 1327-36-2) may be in the form of mullite (CAS# 1302-93-8); aluminosilicate glass; pozzolans (CAS# 71243-67-9); or calcium aluminosilicates such as tricalcium aluminate (C3A), or calcium sulfoaluminate (C4A3S). The form is dependent on the source of the coal and or the process used to create the CCP. Pulverized coal combustion would be more likely to create high levels of pozzolans. Aluminosilicates may have inclusions of calcium, titanium, iron, potassium, phosphorus, magnesium and other metal oxides.*

[3]*Analytical data are not available to demonstrate that the concentration of bromide salt is <0.1%; therefore, a GHS classification of Toxic to Reproduction Category 2 has been assigned.*

# Section 4
# First Aid Measures

## 4.1 Description of First Aid Measures

| | |
|---|---|
| **Inhalation:** | If product is inhaled and irritation of the nose or coughing occurs, remove person to fresh air. Get medical advice/attention if respiratory symptoms persist. |
| **Skin Contact:** | If skin exposure occurs, wash with soap and water. |
| **Eye Contact:** | If product gets into the eye, rinse copiously with water for several minutes. Remove contact lenses, if present and easy to do. Seek medical attention/advice if irritation occurs or persists. |
| **Ingestion:** | No specific first aid measures are required. |

## 4.2 Most Important Health Effects, Both Acute and Delayed

**Acute Effects:** Direct exposure may cause respiratory irritation, eye irritation and skin irritation. The product dust can dry and irritate the skin and cause dermatitis and can irritate eyes and skin through mechanical abrasion.

**Chronic Effects:** Chronic exposure may cause lung damage from repeated exposure. Prolonged inhalation of respirable crystalline silica above certain concentrations may cause lung diseases, including silicosis and lung cancer. Repeated exposure to dusts containing inorganic bromide salts may affect fertility and/or result in effects to the unborn child.

## 4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

Seek first aid or call a doctor or Poison Control Center if contact with eyes occurs and irritation remains after rinsing. Get medical advice if inhalation occurs and respiratory symptoms persist.

## Section 5
## Firefighting Measures

### 5.1 Extinguishing Media

| | |
|---|---|
| **Suitable Extinguishing Media:** | Product is not flammable. Use extinguishing media appropriate for surrounding fire. |
| **Unsuitable Extinguishing Media:** | Not applicable, the product is not flammable. |

### 5.2 Special Hazards Arising from the Substance or Mixture

| | |
|---|---|
| **Hazardous Combustion Products:** | None known. |

### 5.3 Advice for Firefighters

| | |
|---|---|
| **Special Protective Equipment and Precautions for Firefighters:** | As with any fire, wear self-contained breathing apparatus (NIOSH approved or equivalent) and full protective gear. |

## Section 6
## Accidental Release Measures

### 6.1 Personal Precautions, Protective Equipment and Emergency Procedures

| | |
|---|---|
| **Personal precautions/Protective Equipment:** | See Section 8.2.2 Individual Protective Measures. For concentrations exceeding Occupational Exposure Levels (OELs), use a self-contained breathing apparatus (SCBA). |
| **Emergency procedures:** | Use scooping, water spraying/flushing/misting or ventilated vacuum cleaning systems to clean up spills. Do not use pressurized air. |

### 6.2 Environmental Precautions

| | |
|---|---|
| **Environmental precautions:** | Prevent contamination of drains or waterways and dispose according to local and national regulations. |

## 6.3 Methods and Material for Containment and Cleaning Up

| | |
|---|---|
| **Methods and materials for containment and cleaning up:** | Do not use brooms or compressed air to clean surfaces. Use dust collection vacuum and extraction systems.<br><br>Large spills of dry product should be removed by a vacuum system. Dampened material should be removed by mechanical means and recycled or disposed of according to local and national regulations. |

See Sections 8 and 13 for additional information on exposure controls and disposal.

# Section 7
# Handling and Storage

## 7.1 Precautions for Safe Handling

Practice good housekeeping. Use adequate exhaust ventilation, dust collection and/or water mist to maintain airborne dust concentrations below permissible exposure limits (note: respirable crystalline silica dust may be in the air without a visible dust cloud).

Do not permit dust to collect on walls, floors, sills, ledges, machinery, or equipment. Maintain and test ventilation and dust collection equipment. In cases of insufficient ventilation, wear a NIOSH approved respirator for silica dust when handling or disposing dust from this product. Avoid contact with skin and eyes. Wash or vacuum clothing that has become dusty. Avoid eating, smoking, or drinking while handling the material.

## 7.2 Conditions for Safe Storage, Including any Incompatibilities

Minimize dust produced during loading and unloading.

## Section 8
## Exposure Controls/Personal Protection

### 8.1 Control Parameters

| OCCUPATIONAL EXPOSURE LIMITS | | | | | |
|---|---|---|---|---|---|
| **SUBSTANCE** | | **OSHA PEL TWA ($mg/m^3$)** | **NIOSH REL TWA ($mg/m^3$)** | **ACGIH TLV TWA ($mg/m^3$)** | **CA - OSHA PEL ($mg/m^3$)** |
| **Calcium oxide** | | 5 | 2 | 2 | 2 |
| **Particulates Not Otherwise Regulated** | Total | 15 | 15 | 10 | 10 |
| | Respirable | 5 | 5 | 3 | 5 |
| **Respirable Crystalline Silica** | Respirable | 0.05 | 0.05 | 0.025 | 0.05 |
| **Manganese dioxide (as manganese compounds)** | Total | 5 (Ceiling) | 1<br>3 (STEL) | 0.1 | 0.2 |
| | Respirable | - | - | 0.02 | - |

### 8.2 Exposure Controls

#### 8.2.1 Engineering Controls

Provide ventilation to maintain the ambient workplace atmosphere below the occupational exposure limit(s). Use general and local exhaust ventilation and dust collection systems as necessary to minimize exposure.

#### 8.2.2 Personal Protective Equipment (PPE)

| | |
|---|---|
| **Respiratory protection:** | Wear a NIOSH approved particulate respirator if exposure to airborne particulates is unavoidable and where occupational exposure limits may be exceeded. If airborne exposures are anticipated to exceed applicable PELs or TLVs, a self-contained breathing apparatus or airline respirator is recommended. |
| **Eye and face protection:** | If eye contact is possible, wear protective glasses with side shields. Avoid contact lenses. |
| **Hand and skin protection:** | Wear gloves and protective clothing. Wash hands with soap and water after contact with material. |

## Section 9
## Physical and Chemical Properties

### 9.1 Information on Basic Physical and Chemical Properties

| Property: Value | Property: Value |
|---|---|
| **Appearance (physical state, color, etc.):** Fine tan/ gray particulate | **Upper/lower flammability or explosive limits:** Not applicable |
| **Odor:** Odorless[1] | **Vapor Pressure (Pa):** Not applicable |
| **Odor threshold:** Not applicable | **Vapor Density:** Not applicable |
| **pH (25 °C) (in water):** 8 - 11 | **Specific gravity or relative density:** 2.2 – 2.9 |
| **Melting point/freezing point (°C):** Not applicable | **Water Solubility:** Slight |
| **Initial boiling point and boiling range (°C):** Not applicable | **Partition coefficient: n-octane/water:** Not determined |
| **Flash point (°C):** Not determined | **Auto ignition temperature (°C):** Not applicable |
| **Evaporation rate:** Not applicable | **Decomposition temperature (°C):** Not determined |
| **Flammability (solid, gas):** Not combustible | **Viscosity:** Not applicable |

[1] The use of urea or aqueous ammonia injected into the flue gas to reduce nitrogen oxides (NOx) emissions may result in the presence of ammonium sulfate or ammonium bisulfate in the ash at less than 0.1%. When ash containing these substances becomes wet under high pH (>9), free ammonia gas may be released resulting in objectionable/nuisance ammonia odor and potential exposure to ammonia gas especially in confined spaces.

## Section 10
## Stability and Reactivity

| | |
|---|---|
| **10.1 Reactivity:** | The material is an inert, inorganic material primarily composed of elemental oxides. |
| **10.2 Chemical stability:** | The material is stable under normal use conditions. |
| **10.3 Possibility of hazardous reactions:** | The material is a relatively stable, inert material; however, when ash containing ammonia becomes wet under high pH (>9), free ammonia gas may be released resulting in an objectionable/nuisance ammonia odor and potential exposure to ammonia gas especially in confined spaces. Polymerization will not occur. |
| **10.4 Conditions to avoid:** | Product can become airborne in moderate winds. Dry material should be stored in silos. Materials stored out of doors should be covered or maintained in a damp condition. |
| **10.5 Incompatible materials:** | None known. |
| **10. 6 Hazardous decomposition products:** | None known. |

## Section 11
## Toxicological Information

### 11.1 Information on Toxicological Effects

| Endpoint | Data |
|---|---|
| **Acute oral toxicity** | LD50 > 2000 mg/kg |
| **Acute dermal toxicity** | LD50 > 2000 mg/kg |
| **Acute inhalation toxicity** | LD50 > 5.0 mg/L |
| **Skin corrosion/irritation** | Does not meet the classification criteria but may cause slight skin irritation. Product dust can dry the skin which can result in irritation. |
| **Eye damage/irritation** | Causes serious eye irritation. Positive scores for conjunctiva irritation and chemosis in 2/3 animals based on average of 24, 48 and 72-hour scores with irritation clearing within 21 days; no corneal or iritis effects observed. |
| **Respiratory/skin sensitization** | Not a respiratory or dermal sensitizer. |
| **Germ cell mutagenicity** | Not mutagenic in in-vitro and in-vivo assays with or without metabolic activation. |
| **Carcinogenicity** | Not available. Respirable crystalline silica has been identified as a carcinogen by OSHA, NTP, ACGIH and IARC. |
| **Reproductive toxicity** | No developmental toxicity was observed in available animal studies. Reproductive studies on CCPs showed either no reproductive effects, or some effects on male and female reproductive organs and parameters but without a clear dose response.<br><br>Inorganic bromide salts have been shown to have adverse effects on reproductive parameters in some animal studies. |
| **STOT-SE** | CCPs when present as a nuisance dust may result in respiratory irritation. |
| **STOT-RE** | In a 180-day inhalation study with fly ash dust, no effects were observed at the highest dose tested. NOEC = 4.2 mg/m$^3$; it is not possible to assess the level at which toxicologically significant effects may occur.<br><br>Repeated inhalation exposures to high levels of respirable crystalline silica may result in lung damage (i.e., silicosis). |
| **Aspiration Hazard** | Not applicable based product form. |

## Section 12
## Ecological Information

### 12.1 Toxicity

| | |
|---|---|
| **Fly Ash (CAS# 68131-74-8)** | |
| **Toxicity to Fish** | LC50 > 100 mg/L |
| **Toxicity to Aquatic Invertebrates** | Data indicates that the test substance is not toxic to *Daphnia magna* (EC50 undetermined) |
| **Toxicity to Aquatic Algae and Plants** | EC50 = 10 mg/L |
| **Calcium oxide CAS# 1305-78-8** | |
| **Toxicity to Fish** | LC50 = 50.6 mg/L<br>The findings were closely related to the pH of the test solutions; therefore, pH is considered to be the main reason for the effects. |
| **Toxicity to Aquatic Invertebrates** | EC50 = 49.1 mg/L<br>The findings were closely related to the pH of the test solutions; therefore, pH is considered to be the main reason for the effects. |
| **Toxicity to Aquatic Algae and Plants** | NOEC =48 mg/L @ 72 hours based on $Ca(OH)_2$<br>The initial pH of the test medium was not directly related to the biologically relevant effects. The formation of precipitates is likely the result of the reaction between $CO_2$ dissolved in the medium. |

### 12.2 Persistence and Degradability

Not relevant for inorganic materials.

### 12.3 Bioaccumulative Potential

This material does not contain any compounds that would bioaccumulate up the food chain.

### 12.4 Mobility in Soil

No data available.

### 12.5 Results of PBT and vPvB Assessment

This material does not contain any compounds classified as “persistent, bioaccumulative or toxic” nor as “very persistent/very bioaccumulative”.

### 12.6 Other Adverse Effects

None known.

## Section 13
## Disposal Considerations

See Sections 7 and 8 above for safe handling and use, including appropriate industrial hygiene practices.

Dispose of all waste product and containers in accordance with federal, state and local regulations.

## Section 14
## Transport Information

| | | |
|---|---|---|
| **Regulatory entity:** U.S. DOT | Shipping Name: | Not Regulated |
| | Hazard Class: | Not Regulated |
| | ID Number: | Not Regulated |
| | Packing Group: | Not Regulated |

## Section 15
## Regulatory Information

### 15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Mixture

- TSCA Inventory Status

  All components are listed on the TSCA Inventory.

- California Proposition 65

  The following substances are known to the State of California to be carcinogens and/or reproductive toxicants:

  - Respirable crystalline silica
  - Titanium dioxide

- State Right-to-Know (RTK)

| Component | CAS | MA[1,2] | NJ[3,4] | PA[5] | RI[6] |
|---|---|---|---|---|---|
| Ammonium bisulfate | 7803-63-6 | No | Yes | No | No |
| Ammonium sulfate | 7783-20-2 | Yes | No | Yes | No |
| Calcium oxide | 1305-78-8 | Yes | Yes | Yes | No |
| Iron oxide | 1309-37-1 | Yes | Yes | Yes | No |
| Magnesium oxide | 1309-48-4 | No | Yes | No | No |
| Phosphorus pentoxide (or phosphorus oxide) | 1314-56-3 | Yes | Yes | Yes | No |
| Potassium oxide | 12136-45-7 | No | Yes | No | No |
| Silica-crystalline ($SiO_2$), quartz | 14808-60-7 | Yes | Yes | Yes | No |
| Sodium oxide | 1313-59-3 | No | Yes | No | No |
| Titanium dioxide | 13463-67-7 | Yes | Yes | Yes | Yes |

[1] Massachusetts Department of Public Health, no date
[2] 189th General Court of The Commonwealth of Massachusetts, no date
[3] New Jersey Department of Health and Senior Services, 2010a
[4] New Jersey Department of Health, 2010b
[5] Pennsylvania Code, 1986
[6] Rhode Island Department of Labor and Training, no date

## Section 16
## Other Information, Including Date of Preparation or Last Revision

### 16.1 Indication of Changes

Date of preparation or last revision: February 23, 2018

### 16.2 Abbreviations and Acronyms

- ACGIH: American Conference of Industrial Hygienists
- CA: California
- CAS: Chemical Abstract Services
- CCP: Coal Combustion Product
- CFR: Code of Federal Regulations
- EPA: Environmental Protection Agency
- GHS: Globally Harmonized System of Classification and Labelling
- IARC: International Agency for Research on Cancer
- LC50: Concentration resulting in the mortality of 50 % of an animal population
- LD50: Dose resulting in the mortality of 50 % of an animal population
- MA: Massachusetts
- NA: Not Applicable
- NJ: New Jersey
- NOEC: No observed effect concentration
- NIOSH: National Institute of Occupational Safety and Health
- NOx: Nitrogen oxides
- NTP: US National Toxicology Program
- OEL: Occupational Exposure Limit
- OSHA: Occupational Safety and Health Administration
- PA: Pennsylvania
- PBT: Persistent, Toxic and Bioaccumulative
- PEL: Permissible exposure limit
- PPE: Personal Protective Equipment
- REL: Recommended exposure limit
- RI: Rhode Island
- RCS: Respirable Crystalline Silica
- RTK: Right-to-Know
- SCBA: Self-contained breathing apparatus
- SDS: Safety Data Sheet
- STEL: Short-term exposure limit
- STOT-RE: Specific target organ toxicity-repeated exposure
- STOT-SE: Specific target organ toxicity-single exposure
- TLV: Threshold limit value
- TSCA: Toxic Substances Control Act
- TWA: Time-weighted average
- UEL: Upper explosive limit
- UVCB: Unknown or Variable Composition/Biological
- U.S.: United States
- U.S. DOT: United States of Department of Transportation

## 16.3 Other Hazards

| **Hazardous Materials Identification System (HMIS)**<br><br>Degree of hazard (0= low, 4 = extreme) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Health:** | 2* | **Flammability:** | 0 | **Physical Hazards:** | 0 | **Personal protection:**** | |

** Chronic Health Effects*
****** Appropriate personal protection is defined by the activity to be performed.*
*See Section 8 for additional information.*

**DISCLAIMER:**

*This SDS has been prepared in accordance with the Hazard Communication Rule 29 CFR 1910.1200. Information herein is based on data considered to be accurate as of date prepared. No warranty or representation, express or implied, is made as to the accuracy or completeness of this data and safety information. No responsibility can be assumed for any damage or injury resulting from abnormal use, failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.*

DYNEGY

# Safety Data Sheet

## Section 1
## Identification of the Substance and of the Supplier

### 1.1 Product Identifier

| | |
|---|---|
| **Product Name/Identification:** | ASTM Class C Fly Ash |
| **Synonyms:** | Coal Fly Ash, Pozzolan |
| **Formula:** | UVCB Substance |

### 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advices Against

| | |
|---|---|
| **Relevant Identified Uses:** | Component of wallboard, concrete, roofing material, bricks, cement kiln feed. |
| **Uses Advised Against:** | None known. |

### 1.3 Details of the Supplier of the SDS

| | |
|---|---|
| **Manufacturer/Supplier:** | Dynegy, Inc. |
| **Street Address:** | 601 Travis Street, Suite 1400 |
| **City, State and Zip Code:** | Houston, TX 77002 |
| **Customer Service Telephone:** | 800-633-4704 |

# Section 2
# Hazards Identification

## 2.1 Classification of the Substance

**GHS Classification(s) according to OSHA Hazard Communication Standard (29 CFR 1910.1200):**

- Eye Irritant, Category 2A
- STOT-SE, Category 3 (Respiratory Irritation)
- Carcinogen, Category 1A
- STOT-RE, Category 1 (Lungs)
- Toxic to Reproduction, Category 2

## 2.2 Label Elements

| ***Labelling according to 29 CFR 1910.1200 Appendices A, B and C**** | |
|---|---|
| ***Hazard Pictogram(s):*** |  |
| ***Signal word:*** | **DANGER** |
| ***Hazard Statement(s):*** | *Causes serious eye irritation.*<br>*May cause damage to lungs after repeated/prolonged exposure via inhalation.*<br>*May cause respiratory irritation.*<br>*May cause cancer of the lung.*<br>*Suspected of damaging fertility or the unborn child.* |
| ***Precautionary Statement(s):*** | *Obtain special instructions before use.*<br>*Do not handle until all safety precautions have been read and understood.*<br>*Avoid breathing dust.*<br>*Wear protective gloves/protective clothing/eye protection/face protection.*<br>*Wash thoroughly after handling.*<br>*Do not eat drink or smoke when using this product.*<br>*Use outdoors or in a well-ventilated area.*<br>*If exposed or concerned: Get medical advice/attention.*<br>*Store in a secure area.*<br>*Dispose of product in accordance with local/national regulations.* |

** Fly ash and other coal combustion products (CCPs) are UVCB substances (unknown or variable composition or biological). Various CCPs, noted as ashes/ash residuals; Ashes, residues, bottom; Bottom ash; Bottom ash residues; Waste solids, ashes under TSCA are defined as: "The residuum from the burning of a combination of carbonaceous materials. The following elements may be present as oxides: aluminum, calcium, iron, magnesium, nickel, phosphorus, potassium, silicon, sulfur, titanium, and vanadium." Ashes including fly ash and fluidized bed combustion ash are identified by CAS number 68131-74-8. The exact composition of the ash is dependent on the fuel source and flue additives composed of many constituents. The*

*classification of the final substance is dependent on the presence of specific identified oxides as well as other trace elements.*

## 2.3 Other Hazards

**Listed Carcinogens:**

**-Respirable Crystalline Silica**

**IARC:** [Yes] **NTP:** [Yes] **OSHA:** [Yes] **Other:** **(ACGIH)** [Yes]

## Section 3
## Composition/Information on Ingredients

| *Substance* | *CAS No.* | *Percentage (%)* | *GHS Classification* |
|---|---|---|---|
| *Crystalline Silica* | *14808-60-7* | *30 - 60%* | *Repeat Dose STOT, Category 1*<br>*Carcinogen, Category 1A* |
| *Silica, crystalline respirable (RCS)* | *14808-60-7* | *See Footnote 1* | *Repeat Dose STOT, Category 1*<br>*Carcinogen, Category 1A* |
| *Aluminosilicates* | *71243-67-9*<br>*1327-36-2* | *30 - 60%* | *Single Exposure STOT, Category 3* |
| *Iron oxide* | *1309-37-1* | *1 - 10%* | *Not Classified* |
| *Calcium oxide (CaO)* | *1305-78-8* | *20 - 30%* | *Skin Irritant, Category 2*<br>*Eye Irritant, Category 1*<br>*Single Exposure STOT, Category 3* |
| *Magnesium oxide* | *1309-48-4* | *2 - 10%* | *Not Classified* |
| *Phosphorus pentoxide ($P_2O_5$)* | *1314-56-3* | *≤2%* | *Skin Irritant, Category 2*<br>*Eye Irritant, Category 2B* |
| *Sodium oxide* | *1313-59-3* | *1-8%* | *Not Classified* |
| *Potassium oxide ($K_2O$)* | *12136-45-7* | *≤1%* | *Skin Irritant, Category 2*<br>*Eye Irritant, Category 2B* |
| *Titanium dioxide ($TiO_2$)* | *13463-67-7* | *<3%* | *Not Classified* |
| *Bromide salt (calcium)* | *7789-41-5* | *See Footnote 2* | *Toxic to Reproduction, Category 2* |

*Footnote 1: The percentage of respirable crystalline silica has not been determined. Therefore, a GHS classification of Carcinogen, Category 1A has been assigned.*

*Footnote 2: Analytical data are not available to demonstrate that the concentration of bromide salt is <0.1%; therefore, a GHS classification of Toxic to Reproduction, Category 2 has been assigned.*

# Section 4
# First Aid Measures

## 4.1 Description of First Aid Measures

| | |
|---|---|
| **Inhalation:** | If product is inhaled and irritation of the nose or coughing occurs, remove person to fresh air. Get medical advice/attention if respiratory symptoms persist. |
| **Skin Contact:** | If skin exposure occurs, wash with soap and water. |
| **Eye Contact:** | If product gets into the eye, rinse copiously with water for several minutes. Remove contact lenses, if present and easy to do. Seek medical attention/advice if irritation occurs or persists. |
| **Ingestion:** | No specific first aid measures are required. |

## 4.2 Most Important Health Effects, Both Acute and Delayed

**Acute Effects:** Direct exposure may cause respiratory irritation, eye irritation and skin irritation. The product dust can dry and irritate the skin and cause dermatitis and can irritate eyes and skin through mechanical abrasion.

**Chronic Effects:** Chronic exposure may cause lung damage from repeated exposure. Prolonged inhalation of respirable crystalline silica above certain concentrations may cause lung diseases, including silicosis and lung cancer. Repeated exposure to dusts containing inorganic bromide salts may affect fertility and/or result in effects to the unborn child.

## 4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

Seek first aid or call a doctor or Poison Control Center if contact with eyes occurs and irritation remains after rinsing. Get medical advice if inhalation occurs and respiratory symptoms persist.

## Section 5
## Firefighting Measures

### 5.1 Extinguishing Media

| | |
|---|---|
| **Suitable Extinguishing Media:** | Product is not flammable. Use extinguishing media appropriate for surrounding fire. |
| **Unsuitable Extinguishing Media:** | Not applicable, the product is not flammable. |

### 5.2 Special Hazards Arising from the Substance or Mixture

| | |
|---|---|
| **Hazardous Combustion Products:** | None known. |

### 5.3 Advice for Firefighters

| | |
|---|---|
| **Special Protective Equipment and Precautions for Firefighters:** | As with any fire, wear self-contained breathing apparatus (NIOSH approved or equivalent) and full protective gear. |

## Section 6
## Accidental Release Measures

### 6.1 Personal Precautions, Protective Equipment and Emergency Procedures

| | |
|---|---|
| **Personal precautions/Protective Equipment:** | See Section 8.2.2 Individual Protective Measures. For concentrations exceeding Occupational Exposure Levels (OELs), use a self-contained breathing apparatus (SCBA). |
| **Emergency procedures:** | Use scooping, water spraying/flushing/misting or ventilated vacuum cleaning systems to clean up spills. Do not use pressurized air. |

### 6.2 Environmental Precautions

| | |
|---|---|
| **Environmental precautions:** | Prevent contamination of drains or waterways and dispose according to local and national regulations. |

### 6.3 Methods and Material for Containment and Cleaning Up

| | |
|---|---|
| **Methods and materials for containment and cleaning up:** | Do not use brooms or compressed air to clean surfaces. Use dust collection vacuum and extraction systems.<br>Large spills of dry product should be removed by a vacuum system. Dampened material should be removed by mechanical means and recycled or disposed of according to local and national regulations. |

See Sections 8 and 13 for additional information on exposure controls and disposal.

## Section 7
## Handling and Storage

### 7.1 Precautions for Safe Handling

Practice good housekeeping. Use adequate exhaust ventilation, dust collection and/or water mist to maintain airborne dust concentrations below permissible exposure limits (note: respirable crystalline silica dust may be in the air without a visible dust cloud).

Do not permit dust to collect on walls, floors, sills, ledges, machinery, or equipment. Maintain and test ventilation and dust collection equipment. In cases of insufficient ventilation, wear a NIOSH approved respirator for silica dust when handling or disposing dust from this product. Avoid contact with skin and eyes. Wash or vacuum clothing that has become dusty. Avoid eating, smoking, or drinking while handling the material.

### 7.2 Conditions for Safe Storage, Including any Incompatibilities

Minimize dust produced during loading and unloading.

## Section 8
## Exposure Controls/Personal Protection

### 8.1 Control Parameters

| OCCUPATIONAL EXPOSURE LIMITS | | | | | |
|---|---|---|---|---|---|
| **SUBSTANCE** | | **OSHA PEL TWA ($mg/m^3$)** | **NIOSH REL TWA ($mg/m^3$)** | **ACGIH TLV TWA ($mg/m^3$)** | **CA - OSHA PEL ($mg/m^3$)** |
| **Calcium oxide** | | 5 | 2 | 2 | 2 |
| **Particulates Not Otherwise Regulated** | Total | 15 | 15 | 10 | 10 |
| | Respirable | 5 | 5 | 3 | 5 |
| **Respirable Crystalline Silica** | Respirable Crystalline Silica | 0.05 | 0.05 | 0.025 | 0.05 |
| **Titanium dioxide** | Total | 15 | 2.4 (fine)<br>0.3 (ultrafine) | 10 | 10 |
| **Manganese dioxide (as manganese compounds)** | Total | 5 (Ceiling) | 1<br>3 (STEL) | 0.1 | 0.2 |
| | Respirable | - | - | 0.02 | - |

## 8.2 Exposure Controls

### 8.2.1 Engineering Controls

Provide ventilation to maintain the ambient workplace atmosphere below the occupational exposure limit(s). Use general and local exhaust ventilation and dust collection systems as necessary to minimize exposure.

### 8.2.2 Personal Protective Equipment (PPE)

| | |
|---|---|
| **Respiratory protection:** | Wear a NIOSH approved particulate respirator if exposure to airborne particulates is unavoidable and where occupational exposure limits may be exceeded. If airborne exposures are anticipated to exceed applicable PELs or TLVs, a self-contained breathing apparatus or airline respirator is recommended. |
| **Eye and face protection:** | If eye contact is possible, wear protective glasses with side shields. Avoid contact lenses. |
| **Hand and skin protection:** | Wear gloves and protective clothing. Wash hands with soap and water after contact with material. |

## Section 9
## Physical and Chemical Properties

### 9.1 Information on Basic Physical and Chemical Properties

| Property: Value | Property: Value |
|---|---|
| **Appearance (physical state, color, etc.):** Fine tan/ gray particulate | **Upper/lower flammability or explosive limits:** Not applicable |
| **Odor:** Odorless[1] | **Vapor Pressure (Pa):** Not applicable |
| **Odor threshold:** Not applicable | **Vapor Density:** Not applicable |
| **pH (25 °C) (in water):** Not Determined | **Specific gravity or relative density:** 2.2 – 2.9 |
| **Melting point/freezing point (°C):** Not applicable | **Water Solubility:** Slight |
| **Initial boiling point/boiling range (°C):** NA | **Partition coefficient: n-octane/water:** NA |
| **Flash point (°C):** Not determined | **Auto ignition temperature (°C):** Not applicable |
| **Evaporation rate:** Not applicable | **Decomposition temperature (°C):** Not determined |
| **Flammability (solid, gas):** Not combustible | **Viscosity:** Not applicable |

[1] The use of urea or aqueous ammonia injected into the flue gas to reduce nitrogen oxides (NOx) emissions may result in the presence of ammonium sulfate or ammonium bisulfate in the ash at less than 0.1%. When ash containing these substances becomes wet under high pH (>9), free ammonia gas may be released resulting in objectionable/nuisance ammonia odor and potential exposure to ammonia gas especially in confined spaces.

## Section 10
## Stability and Reactivity

| | |
|---|---|
| **10.1 Reactivity:** | The material is an inert, inorganic material primarily composed of elemental oxides. |
| **10.2 Chemical stability:** | The material is stable under normal use conditions. |
| **10.3 Possibility of hazardous reactions:** | The material is a relatively stable, inert material; however, when ash containing ammonia becomes wet under high pH (>9), free ammonia gas may be released resulting in an objectionable/nuisance ammonia odor and potential exposure to ammonia gas especially in confined spaces. Polymerization will not occur. |
| **10.4 Conditions to avoid:** | Product can become airborne in moderate winds. Dry material should be stored in silos. Materials stored out of doors should be covered or maintained in a damp condition. |
| **10.5 Incompatible materials:** | None known. |
| **10. 6 Hazardous decomposition products:** | None known. |

## Section 11
## Toxicological Information

### 11.1 Information on Toxicological Effects

| Endpoint | Data |
|---|---|
| **Acute oral toxicity** | LD50 > 2000 mg/kg |
| **Acute dermal toxicity** | LD50 > 2000 mg/kg |
| **Acute inhalation toxicity** | LD50 > 5.0 mg/L |
| **Skin corrosion/irritation** | Does not meet the classification criteria but may cause slight skin irritation. Product dust can dry the skin which can result in irritation. |
| **Eye damage/irritation** | Causes serious eye irritation. Positive scores for conjunctiva irritation and chemosis in 2/3 animals based on average of 24, 48 and 72-hour scores with irritation clearing within 21 days; No corneal or iritis effects observed. |
| **Respiratory/skin sensitization** | Not a respiratory or dermal sensitizer. |
| **Germ cell mutagenicity** | Not mutagenic in in-vitro and in-vivo assays with or without metabolic activation. |
| **Carcinogenicity** | Not available. Respirable crystalline silica has been identified as a carcinogen by OSHA, NTP, ACGIH and IARC. |
| **Reproductive toxicity** | No developmental toxicity was observed in available animal studies. Reproductive studies on CCPs showed either no reproductive effects, or some effects on male and female reproductive organs and parameters but without a clear dose response.<br><br>Inorganic bromide salts have been shown to have adverse effects on reproductive parameters in some animal studies. |
| **STOT-SE** | CCPs when present as a nuisance dust may result in respiratory irritation. |
| **STOT-RE** | In a 180-day inhalation study with fly ash dust, no effects were observed at the highest dose tested. NOEC = 4.2 mg/m$^3$; it is not possible to assess the level at which toxicologically significant effects may occur.<br><br>Repeated inhalation exposures to high levels of respirable crystalline silica may result in lung damage (i.e., silicosis). |
| **Aspiration Hazard** | Not applicable based product form. |

## Section 12
## Ecological Information

### 12.1 Toxicity

| **Fly Ash C (CAS# 68131-74-8)** | |
|---|---|
| **Toxicity to Fish** | LC50 > 100 mg/L |
| **Toxicity to Aquatic Invertebrates** | Data indicates that the test substance is not toxic to *Daphnia magna* (EC50 undetermined). |
| **Toxicity to Aquatic Algae and Plants** | EC50 = 10 mg/L |

| **Calcium oxide CAS# 1305-78-8** | |
|---|---|
| **Toxicity to Fish** | LC50 = 50.6 mg/L<br>The findings were closely related to the pH of the test solutions; therefore, pH is considered to be the main reason for the effects. |
| **Toxicity to Aquatic Invertebrates** | EC50 = 49.1 mg/L<br>The findings were closely related to the pH of the test solutions; therefore, pH is considered to be the main reason for the effects. |
| **Toxicity to Aquatic Algae and Plants** | NOEC =48 mg/L @ 72 hours based on $Ca(OH)_2$<br>The initial pH of the test medium was not directly related to the biologically relevant effects. The formation of precipitates is likely the result of the reaction between $CO_2$ dissolved in the medium. |

### 12.2 Persistence and Degradability

Not relevant for inorganic materials.

### 12.3 Bioaccumulative Potential

This material does not contain any compounds that would bioaccumulate up the food chain.

### 12.4 Mobility in Soil

No data available.

### 12.5 Results of PBT and vPvB Assessment

This material does not contain any compounds classified as “persistent, bioaccumulative or toxic” nor as “very persistent/very bioaccumulative”.

### 12.6 Other Adverse Effects

None known.

## Section 13

## Disposal Considerations

See Sections 7 and 8 above for safe handling and use, including appropriate industrial hygiene practices.

Dispose of all waste product and containers in accordance with federal, state and local regulations.

## Section 14
## Transport Information

| | | |
|---|---|---|
| **Regulatory entity:** U.S. DOT | Shipping Name: | Not Regulated |
| | Hazard Class: | Not Regulated |
| | ID Number: | Not Regulated |
| | Packing Group: | Not Regulated |

## Section 15
## Regulatory Information

### 15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Mixture

- TSCA Inventory Status

  All components are listed on the TSCA Inventory.

- California Proposition 65.

  The following substances are known to the State of California to be carcinogens and/or reproductive toxicants:

  - Respirable crystalline silica

- State Right-to-Know (RTK)

| Component | CAS | MA[1,2] | NJ[3,4] | PA[5] | RI[6] |
|---|---|---|---|---|---|
| Ammonium bisulfate | 7803-63-6 | No | Yes | No | No |
| Ammonium sulfate | 7783-20-2 | Yes | No | Yes | No |
| Calcium oxide | 1305-78-8 | Yes | Yes | Yes | No |
| Iron oxide | 1309-37-1 | Yes | Yes | Yes | No |
| Magnesium oxide | 1309-48-4 | No | Yes | No | No |
| Manganese oxide-as manganese compounds | 1313-13-9; Various | No | No | Yes | Yes |
| Phosphorus pentoxide (or phosphorus oxide) | 1314-56-3 | Yes | Yes | Yes | No |
| Potassium oxide | 12136-45-7 | No | Yes | No | No |
| Silica-crystalline (SiO2), quartz | 14808-60-7 | Yes | Yes | Yes | No |
| Sodium oxide | 1313-59-3 | No | Yes | No | No |
| Titanium dioxide | 13463-67-7 | Yes | Yes | Yes | Yes |

[1] Massachusetts Department of Public Health, no date
[2] 189th General Court of The Commonwealth of Massachusetts, no date
[3] New Jersey Department of Health and Senior Services, 2010a
[4] New Jersey Department of Health, 2010b
[5] Pennsylvania Code, 1986
[6] Rhode Island Department of Labor and Training, no date

## Section 16
## Other Information, Including Date of Preparation or Last Revision

### 16.1 Indication of Changes

Date of preparation or last revision: February 23, 2018

### 16.2 Abbreviations and Acronyms

- ACGIH: American Conference of Industrial Hygienists
- CA: California
- CAS: Chemical Abstract Services
- CCP: Coal Combustion Product
- CFR: Code of Federal Regulations
- EPA: Environmental Protection Agency

- GHS: Globally Harmonized System of Classification and Labelling
- IARC: International Agency for Research on Cancer
- LC50: Concentration resulting in the mortality of 50 % of an animal population
- LD50: Dose resulting in the mortality of 50 % of an animal population
- MA: Massachusetts
- NA: Not Applicable
- NJ: New Jersey
- NOEC: No observed effect concentration
- NIOSH: National Institute of Occupational Safety and Health
- NOx: Nitrogen oxides
- NTP: US National Toxicology Program
- OEL: Occupational Exposure Limit
- OSHA: Occupational Safety and Health Administration
- PA: Pennsylvania
- PBT: Persistent, Toxic and Bioaccumulative
- PEL: Permissible exposure limit
- PPE: Personal Protective Equipment
- REL: Recommended exposure limit
- RI: Rhode Island
- RCS: Respirable Crystalline Silica
- RTK: Right-to-Know
- SCBA: Self-contained breathing apparatus
- SDS: Safety Data Sheet
- STEL: Short-term exposure limit
- STOT-RE: Specific target organ toxicity-repeated exposure
- STOT-SE: Specific target organ toxicity-single exposure
- TLV: Threshold limit value
- TSCA: Toxic Substances Control Act
- TWA: Time-weighted average
- UEL: Upper explosive limit
- UVCB: Unknown or Variable Composition/Biological
- U.S.: United States
- U.S. DOT: United States of Department of Transportation

## 16.3 Other Hazards

| **Hazardous Materials Identification System (HMIS)**<br><br>Degree of hazard (0= low, 4 = extreme) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Health:** | 2* | **Flammability:** | 0 | **Physical Hazards:** | 0 | **Personal protection:**** | |

** Chronic Health Effects*
****** Appropriate personal protection is defined by the activity to be performed.*
*See Section 8 for additional information.*

**DISCLAIMER:**

*This SDS has been prepared in accordance with the Hazard Communication Rule 29 CFR 1910.1200. Information herein is based on data considered to be accurate as of date prepared. No warranty or representation, express or implied, is made as to the accuracy or completeness of this data and safety information. No responsibility can be assumed for any damage or injury resulting from abnormal use, failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.*