



# Emergency Plan

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## 1 INTRODUCTION

This Emergency Plan is for the Aurora, which is operated by Oklo Power, LLC (Oklo Power) and is a single-digit-megawatt-power commercial reactor. Because of the small size of the Aurora, the reactor decay heat power at 24 hours after shutdown is very small and manageable in comparison with larger reactors, being on the order of tens of kilowatts, or on the order of a single running motorcycle engine. The materials used in the reactor have significant historical operating experience and testing data at similar temperatures and irradiation. The Aurora is inherently safe with no reliance on a secondary system, electricity, or human action in order to maintain a safe state.

The objective of this Emergency Plan is to provide defense-in-depth for a first-of-a-kind reactor and to provide protection to personnel onsite at the Aurora. The Aurora Emergency Plan is designed to be compliant with the applicable onsite aspects of Title 10 of the *Code of Federal Regulations* Part 50 (10 CFR 50) Section 50.47, “Emergency plans,” and the applicable onsite regulations in 10 CFR 50 Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities.”

## 2 DEFINITIONS

The following terms are used throughout the Emergency Plan.

**communication:** The sharing of information between parts of the Emergency Organization, including the Community Emergency Response Organizations, in order to stay informed and prepared for any necessary action.

**Community Emergency Response Organizations (CEROs):** Offsite organizations who provide local emergency services and have established and maintained agreements with Oklo Power. These local emergency services include security, medical, ambulance, and fire services.

**emergency action levels (EALs):** A pre-determined, site-specific, observable threshold for an initiating condition that, when met or exceeded, places the plant in a given emergency classification level.

**Emergency Operations Facility:** A predetermined location nearby the Aurora that may be used for gathering the Emergency Organization in the event the Aurora powerhouse is evacuated.

**Emergency Organization:** The organization that consists of the Onsite Emergency Coordinator, Onsite Emergency Supporter, Plant Manager, the Headquarters Emergency Coordinator, the Community Emergency Response Organizations, and experts from Headquarters who act together to implement the Emergency Plan.

**emergency planning zone (EPZ):** The Aurora powerhouse serves as the emergency planning zone for the Aurora. As such, there is no offsite response required by the Emergency Plan.

**Emergency Support Center:** The control center for emergency actions, which is located in the Monitoring Room.

**Headquarters Emergency Coordinator (HEC):** The Director of Reactor Operations, located at Headquarters.

**initial observation:** An observation of an off-normal event by the Onsite Monitors either through direct observation or through automated onsite systems.

**notification:** A communication shared in order to keep parties apprised of the ongoing situation, not requiring any action on the receiver's end.

**Headquarters:** The central office for Oklo Power, which is a facility located offsite with access to sufficient plant data to understand the state of the facility and provide assistance in decision making.

**Oncall Monitor:** An Onsite Monitor who is not on shift but is fit-for-duty and responsible for responding in the case of an emergency if called upon by the Emergency Organization.

**Onsite Emergency Coordinator (OEC):** The Primary Site Monitor serves as the OEC in an emergency and is the principal individual responsible during an emergency.

**Onsite Emergency Supporter (OES):** The Secondary Site Monitor serves as the OES during an emergency and is responsible for supporting the OEC in emergency response.

**Onsite Monitors:** The two employees onsite during normal operation. Onsite Monitors are responsible for monitoring the reactor and ensuring proper operation of equipment, but do not perform any credited operator actions. One of the Onsite Monitors serves as the Primary Site Monitor and the other as the Secondary Site Monitor.

**Plant Manager:** The individual responsible for the overall operations of the plant and is part of the Emergency Organization. The Plant Manager is not expected to be onsite at all times.

**Primary Site Monitor:** One of two Onsite Monitors during normal operation. The Primary Site Monitor serves as OEC during emergencies.

**protective action values:** The predetermined exposure values permitted in order to facilitate the rescue of injured personnel or take corrective actions to mitigate the consequences of an emergency event.

**Secondary Site Monitor:** One of two Onsite Monitors during normal operation. The Secondary Site Monitor serves as OES during emergencies.

**signal:** A communication between parts of the Emergency Organization that notifies the receiver of an off-normal event which may require their attention.

**site boundary:** The area that is used for the siting of the Aurora. The only significant building onsite is the Aurora powerhouse. Other small structures include grid interconnections and the energy storage shelter. It is possible for the public to walk on the site and up to the Aurora powerhouse. The area within the site boundary may be frequented by the public and encompasses the owner-controlled area and parking lot.

### 3 ORGANIZATION AND RESPONSIBILITIES

Oklo Power is responsible for planning and implementing all emergency measures within the site boundary. The reactor is expected to operate nearly automatically, and all reactor controls related to reactor safety are fully automatic. Fully automatic controls ensure that the onsite personnel do not perform any actions related to the safety of the reactor. Therefore, the responsibilities and actions of the onsite personnel in the case of an emergency are minimized.

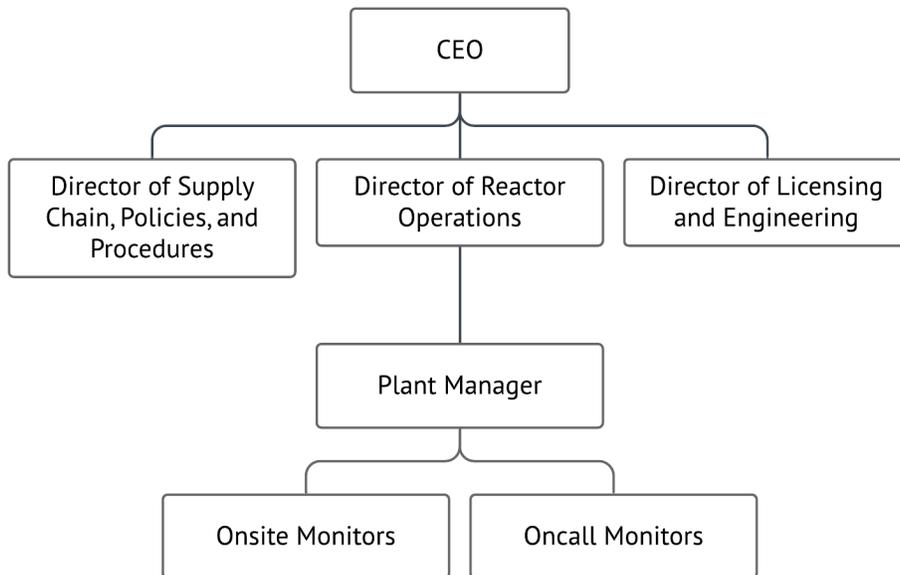
#### 3.1 Organization during normal operations

Figure 3-1 displays the organizational structure during normal operations. The plant is overseen by the Plant Manager, who is not expected to be present onsite during normal operations. The Plant Manager is responsible for the oversight of the Onsite Monitors and the Oncall Monitors. As can be seen in Figure 3-1, the Plant Manager reports to the Director of Reactor Operations, who reports to the Chief Executive Officer of Oklo Power.

The Onsite Monitors are further designated as the Primary Site Monitor and the Secondary Site Monitor and are responsible for monitoring reactor parameters, monitoring the security of the facility, and initiating a reactor trip when necessitated for investment protection reasons. Reactor parameters relevant to emergency planning accessible to the Onsite Monitors include the following:

- Reactor temperature
- Reactor power
- Secondary system pressure
- Radiation levels in the Aurora powerhouse

Onsite Monitors do not perform any credited operator actions, (i.e., actions related to reactor safety) but are capable of initiating a reactor trip. Onsite Monitors are responsible for ensuring that all communications equipment is functional on a monthly basis. Oncall Monitors are available to the site if called upon and are trained as Onsite Monitors.



*Figure 3-1: Organizational structure during normal operations*

## 3.2 Emergency Organization

The Emergency Organization functionally consists of the Primary Site Monitor, Secondary Site Monitor, Plant Manager, the HEC, the CEROs, and experts from Headquarters who act together to implement the Emergency Plan.

### 3.2.1 Transition from normal to emergency roles

During an emergency, the Onsite Monitors leave their regular positions to fulfill their emergency duties. Since there are no Onsite Monitor actions needed for safety, there are no conflicts with the Onsite Monitors abandoning their normal duties. The Primary Site Monitor takes on the OEC role, and the Secondary Site Monitor takes on the OES role.

The Plant Manager is expected to support decision making with the OEC. During an emergency, the Director of Reactor Operations functions as the HEC. The HEC is located at Headquarters and is responsible for communicating the state of the plant to outside organizations and supports decision making during an emergency. Other technical experts, including Radiation Protection Personnel, are available at Headquarters to provide advice to the OEC.

Figure 3-2 displays the Emergency Organization, and how the roles change from normal operations roles to emergency roles.

Normal Operations:		Emergency:
1. Primary Site Monitor	—————>	1. Onsite Emergency Coordinator
2. Secondary Site Monitor	—————>	2. Onsite Emergency Supporter
3. Plant Manager	—————>	3. Plant Manager
4. Director of Reactor Operations	—————>	4. Headquarters Emergency Coordinator
5. Radiation Protection Personnel	—————>	5. Radiation Protection Personnel

Figure 3-2: Transition of normal operations roles to emergency operations roles

Relationships are established and maintained with CEROs, including security, medical, ambulance, and fire services. These CEROs may supplement the Emergency Organization.

### 3.2.2 Emergency Organization communications

The Emergency Organization communicates through different messaging, which includes an initial observation, a signal, a communication, and a notification. These communication pathways are described in this portion of the Emergency Plan and are shown in Figure 3-3.

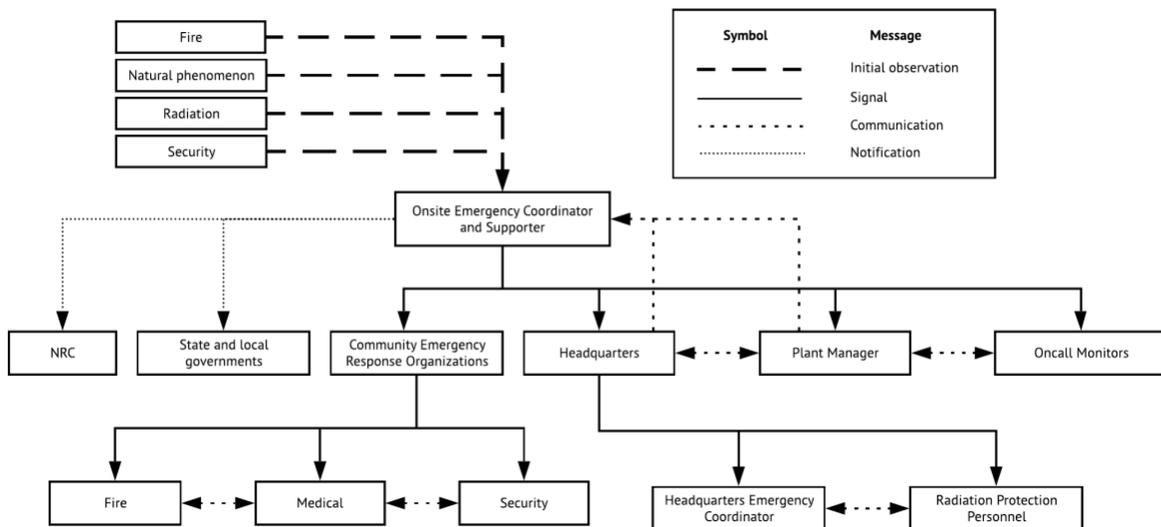


Figure 3-3: Communication pathways of the Emergency Organization

### 3.2.2.1 Initial observation

An event involving radiation<sup>1</sup>, security, or fire could be observed by either of the Onsite Monitors through an initial observation. The initial observation of the event comes from either a direct observation of the event by the Onsite Monitors or from a facility alarm. After an initial observation, the Primary Site Monitor is notified and is responsible for declaring an emergency, if needed. In the event of injury or illness to the Onsite Monitors, no emergency is declared, and the event is handled through procedures for normal operation.<sup>2</sup>

### 3.2.2.2 Signal

The purpose of a signal is to ensure that the Oncall Monitors, Plant Manager, the appropriate CEROs, and Headquarters are aware of the emergency, so they are prepared to respond if further action is required. The OEC is responsible for making decisions surrounding which CEROs should be sent a signal. The OES is responsible, as delegated by the OEC, for sending a signal to the relevant CEROs and Headquarters.

### 3.2.2.3 Communication

A communication is the sharing of information between parts of the Emergency Organization, including the CEROs, in order to stay informed and prepared for any necessary action.

### 3.2.2.4 Notification

The purpose of a notification is to notify the receiver of the ongoing situation and does not require any action on the part of the receiver. The conditions which warrant notification of the U.S. Nuclear Regulatory Commission (NRC) and State and local governments are required by 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors."

The OEC is responsible to notify the State and local governments of an emergency, as described in this Emergency Plan. After the State and local governments are notified, the NRC must be notified within 1 hour of the Notification of Unusual Event (NOUE) declaration. Specifically, the OEC must notify the NRC Operations Center via the Emergency Notification System, or via the phone, of the following:

- The declaration of an emergency of any class from this Emergency Plan, within 1 hour of the declaration.
- Any further degradation in the level of safety of the plant or other worsening plant conditions.
- The termination of an emergency class.

<sup>1</sup> It is important to note that a release of radiation is not considered credible but is included as a defense-in-depth measure.

<sup>2</sup> The Onsite Monitors do not have a role in the safety of the reactor; therefore, this event is not an emergency. The procedures used during normal operation dictate the necessary actions, including the summoning of the Oncall Monitors, if appropriate.

### 3.3 Onsite Emergency Coordinator

During an emergency, the Primary Site Monitor assumes the role of the OEC and is the main decision maker. If the Primary Site Monitor is not immediately available, the Secondary Site Monitor serves as OEC. In the case of the incapacitation of one of the Onsite Monitors, the remaining Onsite Monitor assumes the OEC role and is responsible for communicating with an Oncall Monitor.

The OEC decision-making process includes consulting the Plant Manager and the HEC when there is sufficient time. To fulfill the emergency response responsibilities, the OEC may summon assistance from the Plant Manager, Headquarters, and CEROs. The process for determining an emergency and the emergency actions to perform are part of the Training Program for Onsite Monitors and are not included in this Emergency Plan.

The OEC is responsible for the following actions:

- Declaring an emergency based on an initial observation
- Determining who from the Emergency Organization should be activated and delegating those communication duties to the OES
- Determining when the site should be evacuated
- Making independent assessments to judge the emergency
- Signaling the security CERO if a security threat occurs or is suspected
- Ensuring that the incoming Onsite Monitors are aware of the current emergency, state of the facility, their duties, and have sufficient resources to manage the event, assuming a shift change occurs during the emergency and is approved by the Plant Manager
- Notifies the appropriate government organizations and the NRC

If there is sufficient time, the OEC is expected to be in agreement with the Plant Manager before taking the following actions:

- Responding to emergencies with protective actions
- Authorizing radiation exposures to the Emergency Organization in excess of occupational limits

The coordination of decision making between the OEC and the Plant Manager adds additional redundancy to the decision-making process in an emergency; however, the OEC maintains the ultimate decision-making ability and this coordination is not required. The OEC must be in agreement with the Plant Manager before the following:

- Declaring a termination to the emergency

### 3.4 Onsite Emergency Supporter

The Secondary Site Monitor serves as the OES and is responsible for supporting the OEC during an emergency.

The OES is responsible for the following actions:

- Carrying out directions from the OEC
- Helping the OEC activate the Emergency Organization
- Ensuring all onsite personnel are removed from the Aurora powerhouse in the event of an OEC-determined evacuation
- Ensuring evacuated persons are screened for contamination outside of the Aurora powerhouse, if a radiation event is suspected, and making sure needed contamination actions are taken

### 3.5 Plant Manager

The Plant Manager is alerted in the event of an emergency and may come to the site. The Plant Manager is responsible for the following actions:

- Ensuring the Onsite Monitors are appropriately trained according to the Emergency Plan
- Ensuring annual inspections of emergency equipment and supplies are conducted to confirm operational readiness
- Determining if a shift change should occur during an emergency
- Suspending security measures in an emergency, when needed, to protect the public health and safety or to protect the personal health and safety of the Onsite Monitors
- Overseeing recovery and re-entry

The Plant Manager is expected to consult with the OEC and the HEC for the following actions:

- Determining when to enter recovery mode
- Determining when to enter re-entry mode

### 3.6 Oncall Monitors

Two Oncall Monitors are available at all times and can be brought onsite to assist during an emergency or to take on the OES role. The Oncall Monitors must be fit-for-duty, as per the requirements of the Fitness-for-Duty Program, and onsite within 90 minutes of the request to come to the site. The Oncall Monitors perform support actions as requested by the OEC, the OES, or the Plant Manager.

## 3.7 Headquarters

Headquarters provides support to onsite personnel, including CEROs. Headquarters personnel have access to reactor parameters, including the following:

- Reactor temperature
- Reactor power
- Secondary system pressure
- Radiation levels in the Aurora powerhouse
- Security video internal and external to the Aurora powerhouse

Headquarters staff includes at least the HEC and Radiation Protection Personnel but may be augmented with more technical experts as needed.

### 3.7.1 Headquarters Emergency Coordinator

The Director of Reactor Operations is responsible for the following:

- Maintaining the CERO agreements and ensuring that the CEROs are capable of fulfilling their roles in the Emergency Plan
- Updating the Emergency Plan at least annually, which may be delegated to qualified Oklo Power employee in the area of emergency planning

During an emergency, the Director of Reactor Operations becomes the HEC and is responsible for responding to requests for information from organizations outside of Oklo Power. The HEC may delegate the responsibility to another manager of at least the same position but may not delegate to a staff member.

### 3.7.2 Radiation protection personnel

As requested by the OEC or the Plant Manager, Radiation Protection Personnel can advise onsite personnel or be dispatched from Headquarters to the site.

## 3.8 Community Emergency Response Organizations

The CEROs include security, medical, ambulance, and fire services. Agreements for these services are confirmed in the Emergency Operating Procedures (EOPs). The detailed agreements with the CEROs are updated annually. The Director of Reactor Operations is responsible for ensuring the agreements are maintained and the CEROs are capable of fulfilling their roles in the Emergency Plan.

### 3.8.1 Security Community Emergency Response Organization

The security CERO may be summoned for security assistance, emergency radio communications, traffic control, and riot control as deemed necessary by the OEC. The security

CERO participates in training and drills, which include radiation protection practices, alongside the Emergency Organization. EOPs provide the procedure for the appropriate method and content of communications between the Onsite Monitors and the security CERO.

### 3.8.2 Medical Community Emergency Response Organization

The medical CERO, including ambulance response, may be used to provide care for individuals suffering an injury on the site. In the case of a radiological injury occurring in the Aurora powerhouse, the medical CERO is trained and equipped to handle an injured person while minimizing the spread of contamination. The contamination of individuals is unlikely even during emergency situations, and all plant personnel are trained in radiation safety principles and procedures by the Training Program. The contamination training is available to medical CEROs and includes the transportation of contaminated individuals as well as the management of contamination. The medical CERO participates in training and drills, which include radiation practices, alongside the Emergency Organization.

### 3.8.3 Fire Community Emergency Response Organization

The fire CERO may be summoned to assist with a large fire on the site. A fire that involves potential radiation or areas with radioactive materials is directly overseen by the OEC or the Plant Manager or delegated to the OES. The medical CERO is summoned as well. The fire CERO participates in training and drills, which include radiation practices, alongside the Emergency Organization.

## 4 EMERGENCY CLASSIFICATION SYSTEM

The emergency classifications are based upon credible reactor events or other emergency situations. Each class has appropriate responses that must be taken for the specific type of emergency. Typically, four classes of emergency conditions group the events according to the severity of offsite radiological consequences. Since there are no credible events that result in offsite radiological consequences, there are no credible events that result in consequences matching even the least severe class. Nevertheless, planning for emergencies is important, and the least severe class is used as a defense-in-depth measure for radiological consequence.

The Aurora could have potential emergency situations occur that are much less severe than any criteria for the least severe class. These situations could include small fires or personnel injury and are handled through the plant's normal operating procedures and are not considered part of the emergency classification system.

### 4.1 Notification of Unusual Events

An NOUE could be initiated by either man-made events or natural phenomena that are recognized as creating a significant hazard potential that did not previously exist. In the case of an NOUE, there is usually time available to take corrective actions to prevent the escalation of the accident. If corrective actions cannot be implemented or do not succeed, there is time to implement protective actions to mitigate the consequences. No releases of radioactive material requiring offsite responses are expected for the Aurora for an NOUE. Nevertheless, the Emergency Organization is activated to create a state of readiness to respond. The effluent value associated with an NOUE is taken from NUREG-1537 "Guidelines for Preparing and Reviewing Applications for Non-Power Reactors: Part 1," released in February of 1996, because of the similarity of size between the Aurora and nonpower reactors.

Emergency measures associated with a declaration of an NOUE are the following:

- Prolonged fires, which cannot be extinguished in under 15 minutes with a fire extinguisher by an Onsite Monitor, are classified as an unusual event. In the event of any fire in the facility, the appropriate CERO will be notified immediately. The OEC determines the need for reactor shutdown and onsite personnel evacuation.
- Reports of extreme natural phenomena, such as hurricanes, earthquakes felt in the facility, or tornados in the immediate vicinity of the site. The OEC determines the need for reactor shutdown and onsite personnel evacuation.
- Radiological effluents that accumulate over 24 hours to exceed 15 mrem whole-body dose equivalent anywhere in the Aurora powerhouse, which is not normally a radiation area. Area radiation monitors (ARMs) are located in every room of the Aurora powerhouse and trigger an alarm for the Onsite Monitors if radiation levels exceed their setpoints. The OEC determines the need for reactor shutdown and onsite personnel evacuation.
- Any threats to or breaches of security. These unusual events could include bomb threats, civil disturbances directed toward the facility, or a complete loss of offsite communications. The OEC determines the need for reactor shutdown and onsite personnel evacuation.

## 4.2 Alert

This classification is not applicable. There are no credible events that are able to cause an emergency condition that would trigger the action levels for an Alert.

## 4.3 Site Area Emergency

This classification is not applicable. There are no credible events that are able to cause an emergency condition that would trigger the action levels for a Site Area Emergency.

## 4.4 General Emergency

This classification is not applicable. There are no credible events that are able to cause an emergency condition that would trigger the action levels for a General Emergency.

## 5 EMERGENCY ACTION LEVELS

There are no emergencies at the Aurora that could produce exposures beyond the site boundary that exceed the Environmental Protection Agency (EPA) Protective Action Guidelines (PAGs) for potential offsite dose to the public of 1 to 5 rem projected dose over 4 days [1]. The only emergency class for the Aurora is the NOUE, and the EALs are described in Table 5-1. The EALs are not dependent on operating modes as startup anomalies are handled through the Initial Test Program, and maintenance is controlled through maintenance procedures.

*Table 5-1: Emergency action levels*

<b>Notice of Unusual Event</b>	
Fire	Fire that lasts more than 15 minutes.
Natural phenomena	Reports of extreme natural phenomena in the immediate vicinity of the facility.
Radiological	Radiological effluents that accumulate over 24 hours anywhere in the Aurora powerhouse, which is not normally a radiation area, to exceed 15 mrem whole-body dose equivalent. Verified alarms from the ARMs designating setpoints are exceeded.
Security	Any threats to or breaches of security. Loss of all offsite communication capabilities.

## 6 EMERGENCY PLANNING ZONE

The exterior boundary of the Aurora powerhouse makes up the EPZ. The lower limit of the PAGs for potential offsite dose to the public is 1 rem projected dose over 4 days and is the value used as the EPZ boundary goal [1].

## 7 EMERGENCY RESPONSE

### 7.1 Activation of the Emergency Organization

Upon an initial observation, the Primary Site Monitor is notified. The Primary Site Monitor is in the OEC role and determines if an emergency needs to be declared within 15 minutes of the initial observation. If an emergency is declared, the Secondary Site Monitor begins acting as the OES.

As shown in Table 7-1, the OES is the main person responsible for coordinating the communications resulting in the activation of the Emergency Organization. While the OEC is the main person responsible for decision making in activating the appropriate parts of the Emergency Organization, the OES is expected to perform the actual communications. The Plant Manager, Oncall Monitors, Headquarters, and the appropriate CEROs are sent signals when an emergency is declared and, if it is appropriate to do so, are expected to go to the site.

Table 7-1 provides an overview of which member of the Emergency Organization is responsible for contacting other members of the Emergency Organization.

*Table 7-1: Communications responsibilities*

<b>Responsible communicator</b>	<b>Communication systems</b>	<b>Party notified</b>
Initial observer	Direct contact Phone Radio	Primary Site Monitor
Onsite Emergency Coordinator (OEC)	Direct contact Phone Radio	Onsite Emergency Supporter
Onsite Emergency Supporter (OES)	Direct contact Phone Radio	Plant Manager Oklo Headquarters Oncall Monitor(s) Community fire response Community security response Community medical response State and local governments Nuclear Regulatory Commission
Headquarters Emergency Coordinator (HEC)	Phone Radio Email	News requests during an ongoing event

### 7.2 Protective action values

It is expected that all exposures of emergency personnel responding to a credible event will be well within the limit of 5 rem based on the PAGs for early phase response for emergency workers [1]. The OEC may authorize exposures greater than these values in order to facilitate the rescue of injured personnel or take corrective or protective actions that will mitigate the consequences of the emergency event. As outlined in the PAGs for emergency workers, the limit of 5 rem may be exceeded for protecting critical infrastructure necessary for public welfare,

lifesaving, or protection of large populations [1]. Dose exposures that exceed 5 rem are on a voluntary basis and are restricted to a once-in-a-lifetime exposure.

### 7.3 Report of an emergency

The emergency notification roster is posted in multiple locations onsite and at Headquarters. The emergency notification roster contains information regarding whom should be contacted and what detailed information should be provided in case of an emergency, which should aim to include the following:

1. Name, title, and how to reach the caller
2. Area on the site of the event
3. Nature and description of the event, and appropriate classification
4. Date and time of the event initiation
5. Information regarding release (type, expected or actual quantity, estimated duration time, projected or actual dose)

In accordance with 10 CFR 50.72, the NRC will be notified within 1 hour after the declaration of an NOUE.

### 7.4 Evacuation protocol

The OEC, in consultation with the Plant Manager and the HEC if time permits, is responsible for determining the necessity of and initiating an evacuation. An evacuation includes initiating a reactor trip, although the reactor may already be tripped.

The OES is responsible for ensuring all persons onsite, including the OEC and OES, are removed from the Aurora powerhouse to an area outside of the Aurora powerhouse, but within the site boundary. If abnormally high levels of radiation are detected onsite, all person are screened by the OES. If any persons are determined to be contaminated by the OES, the medical CERO is summoned onsite. The OES escorts the contaminated persons to the medical CERO and self-screens again to ensure the OES is not contaminated.

Personnel who are part of the Emergency Organization travel to the Emergency Operations Facility. The Emergency Operations Facility is a predetermined location nearby the Aurora site. The specific Emergency Operations Facility for the site is dictated by the EOPs.

### 7.5 Emergency response for Notification of Unusual Event

An NOUE is the only EAL for the Aurora, and the emergency response is discussed below.

#### 7.5.1 Activation of emergency organization for a NOUE

After an initial observation, the OEC determines if an NOUE must be declared no later than 15 minutes following the initial observation exceeding the EALs. The OEC determines which members of the Emergency Organization are needed and directs the OES to make the

appropriate contacts. The Plant Manager is the first person contacted and may be asked to go to the site. Governmental agencies, as appropriate, and the NRC are contacted by the Emergency Organization within 1 hour of the NOUE declaration.

## 7.5.2 Assessment actions for an NOUE

### 7.5.2.1 *Fire*

The OEC is responsible for determining the location of the fire and assessing the fire to determine the magnitude of the event, risk of performing prompt control, and the need for support from the CERO. The OEC, or the OES or Oncall Monitor as delegated by the OEC, may assess the area for the fire, as well as radioactivity, and may continue to monitor the area.

### 7.5.2.2 *Natural phenomenon*

Upon knowledge of a severe natural phenomenon affecting the site, the OEC is responsible to monitor the status of the phenomenon and its potential impact and timeline for affecting the site. Seismic monitors are available onsite for use by the OEC to determine the magnitude of the seismic event experienced. The Plant Manager and Headquarters are sent a signal and are also responsible for monitoring the status of the phenomenon and supporting the OEC in decision making.

### 7.5.2.3 *Radiation release*

The OEC is responsible to assess the status of systems in the reactor if unusual radiation levels are detected. If there are minor concerns surrounding the radiation release, the Plant Manager is expected to make an independent assessment of the reactor system functionality. The OEC and Plant Manager are expected to confer after each independent assessment before proceeding. If the cause of the unusual radiation levels cannot immediately be determined, the OEC may conduct a walkthrough of the Aurora powerhouse with the use of portable detection instruments. The OEC can delegate the walkthrough of the Aurora powerhouse to the OES or an Oncall Monitor. The walkthrough may include gathering of samples for contamination identification at a later date.

### 7.5.2.4 *Security threat*

Upon receipt of a security threat, the OEC or OES must signal the Plant Manager and the security CERO. The OEC is responsible for determining the credibility of the threat and if the security CERO should be summoned onsite. The state of the security system must be assessed to confirm functionality, including offsite communication.

## 7.5.3 Corrective actions for an NOUE

### 7.5.3.1 *Fire*

For minor fires, the OEC and OES may attempt to control the fire with portable fire extinguishers if it does not present excessive risk and is not in an area with suspected radiation. In the event that a fire is not extinguished within 15 minutes, the fire CERO is notified. As able, the OEC may monitor the extent of the fire and brief firefighters upon their arrival. If radiation is detected onsite during the fire, no fire control should be attempted by the OEC, and the medical CERO and fire CERO should be summoned immediately.

#### 7.5.3.2 *Natural phenomenon*

Corrective actions vary significantly for natural phenomena and are at the discretion of the OEC. Examples include putting up sandbags in the event of a flash flood or restricting outdoor activities due to extreme weather conditions.

#### 7.5.3.3 *Radiation release*

Following an assessment of the cause of radioactivity, the OEC may initiate a reactor trip. The OEC, or the OES or Oncall Monitor as delegated by the OEC, may place shielding in the designated areas according to the EOPs.

#### 7.5.3.4 *Security threat*

There are no corrective actions in the case of a security threat. In the event of a security system malfunction, the OEC or OES may attempt to correct the malfunction if it does not present excessive risk.

### 7.5.4 Protective actions for an NOUE

#### 7.5.4.1 *Fire*

The OEC determines if the Aurora powerhouse should be evacuated and if the fire CERO should be contacted for assistance in extinguishing the fire. If an evacuation occurs, the OES is responsible for personnel accountability and the segregation of potentially contaminated personnel.

#### 7.5.4.2 *Natural phenomenon*

In the case of a significant natural phenomenon, the OEC is responsible for determining when personnel should evacuate and when it is safer for them to shelter in place. Procedures for protective actions in the case of a serious natural phenomenon resulting in the need to shelter in place are discussed in the EOPs since they are specific to the weather event.

Oklo Power may suspend implementation of the affected requirements of the Physical Security Plan under the following conditions:

- In accordance with 10 CFR 50.54(x), Oklo Power may suspend any security measures under this section in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent. This suspension of security measures must be approved as a minimum by the Plant Manager before taking this action.
- During severe weather when the suspension of affected security measures is immediately needed to protect the personal health and safety of Onsite Monitors and no other immediately apparent action consistent with the license conditions and technical specifications can provide adequate or equivalent protection. This suspension of security measures must be approved, as a minimum, by the Plant Manager, with input from the Onsite Monitors, before taking this action.

Suspended security measures must be reinstated as soon as conditions permit.

The suspension of security measures must be recorded in a digital log on the security computer, within 24 hours of the time the suspension is made. Oklo shall prepare the written report in letter format and submit to the NRC Commission within 60-days, which is of a quality that will permit legible reproduction and processing.

#### *7.5.4.3 Radiation release*

In the case of a radiological release, the OEC determines when evacuation is necessary. After personnel are evacuated, personnel who may be contaminated are surveyed by the OES with portable instruments, and, in the case of contamination, the medical CERO is summoned. The OES remains with the contaminated individuals until the medical CERO arrives; the OES self-surveys to determine if any contamination is present and, if contaminated, proceeds with the medical CERO.

Further monitoring of onsite radiation dose rates is conducted from Headquarters, which has access to radiological information inside the Aurora powerhouse. Recover and re-entry actions are overseen by the Plant Manager.

#### *7.5.4.4 Security threat*

The OEC or OES must send a signal to the security CERO as well as the Plant Manager and Headquarters. In the case of a credible security threat, a security breach, or if all offsite communications are lost, the security CERO must be summoned onsite. The OEC is responsible for determining the safe means of evacuating the site or if it is safer for them to shelter in place.

## 8 EMERGENCY FACILITIES AND EQUIPMENT

### 8.1 Emergency Support Center

The Aurora powerhouse contains the Monitoring Room that is typically occupied by at least one Onsite Monitor. The Monitoring Room is designated as the Emergency Support Center that serves as the onsite operational support center and onsite technical support center for emergency actions. The Monitoring Room is also the Alarm Station and receives all alarms from the security system.

### 8.2 Emergency Operations Facility

In the event that the site is evacuated, a predetermined meeting spot serves as the Emergency Operations Facility. In the event of an evacuation, the Emergency Organization gathers at the Emergency Operations Facility to determine appropriate actions and how to begin recovery and re-entry. The Emergency Operations Facility has the capabilities to access and display plant data and communicate with the appropriate State, local, and Federal government organizations. There is sufficient capability in the Emergency Operations Facility to analyze plant technical information and provide briefings for the Emergency Organization and support CEROs.

### 8.3 Assessment facilities

Reactor temperature, reactor power, secondary system pressure, and radiation level within the Aurora powerhouse are available in the Monitoring Room and at Headquarters. However, the only parameter relevant to the safety of onsite personnel is the radiation level within the Aurora powerhouse. In the case of a complete loss of access to the reactor data, when entering re-entry mode, personnel will carry portable radiation detectors to ensure appropriate measures are taken.

Seismic instrumentation is located in the Aurora powerhouse, and fire detection is located in each fire area. An intrusion detection and assessment system is available for monitoring of the security of the site. Alarms from these sensors are sent to the Monitoring Room and Headquarters.

#### 8.3.1 First aid and medical services

In the case of a medical emergency, an uninjured Onsite Monitor is the OEC. The OEC is responsible for determining the appropriate assistance for injured persons. The OEC administers first aid and contacts the medical CEROs for onsite support if deemed appropriate. Training and procedures are provided for the medical CERO to manage radiation in the case of an incident that involved a contaminated individual.

#### 8.3.2 Communications equipment

Telephones, radios, and direct contact are the main means of communication during an emergency. Telephones and radios are located at least in the Monitoring Room. All telephones may be utilized during emergencies. Communications equipment is checked to be functional, on a monthly basis, by the Onsite Monitors.

## 8.4 Contingency planning

Headquarters has real-time access to important plant parameters. If multiple communication or data streams are lost with the site, Headquarters contacts the Onsite Monitors for more information. In the event of a full loss of communication between Headquarters and the site, an emergency is assumed. The Plant Manager acts as the OEC, and the security CERO is notified and must respond to the site. Details of contingency planning are outlined in the EOPs.

## 9 RECOVERY

The Plant Manager, in consultation with the OEC and the HEC, determines when it is appropriate to enter into recovery and re-entry mode. During recovery, a post-emergency assessment is performed, and a plan is developed for returning the facility to pre-emergency conditions, if possible. The recovery phase cannot begin until after the emergency has been terminated. A formal announcement and communication is made to the entire Emergency Organization, including the relevant CEROs, when the emergency is terminated and when recovery mode is entered.

Recovery is overseen by the Plant Manager, who can delegate recovery tasks to other members of the Emergency Organization. In the case of either a short-term or long-term emergency, during recovery and re-entry, the Plant Manager performs or delegates all operations necessary to restore the facility to safe operating conditions after an emergency.

The primary recovery and re-entry activities, include the following:

- Mitigate impacts to personnel health by minimizing exposure to radiation or hazardous material
- Restore support and utility systems including power, ventilation, communications, and indoor water accessibility
- Determine and initiate facility repairs and modifications
- Implement test programs to assess the facility
- Ensure the appropriate governmental authorities are notified
- Check and replace emergency equipment
- Return the site and the exposure limits to nonemergency levels to prepare for re-entry
- Verify that no security information has been compromised in the case of a security concern

The Plant Manager, after consultation with the HEC, authorizes operation of the reactor after the facility has been restored to a safe state.

## 10 MAINTAINING EMERGENCY PREPAREDNESS

### 10.1 Training

All plant personnel that participate in the Emergency Organization are trained on emergency preparedness as part of the Training Program. This ensures comprehension of the Emergency Plan and EOPs prior to duty. Plant personnel are subject to periodic retraining to ensure continued proficiency. The Primary, Secondary, and Oncall Monitors have the same training and are able to act within each role as required. As the OEC or OES may provide first aid to injured persons, this training is included in the Training Program. The HEC, while not described in the Training Program for plant personnel, is also trained on emergency preparedness prior to duty.

The Plant Manager is responsible for ensuring the Onsite Monitors have undergone the appropriate training and drills to ensure the Emergency Plan can be enacted effectively. The Plant Manager is also expected to participate in trainings for maintaining and updating the Emergency Plan. The HEC is expected to participate in trainings commensurate with his or her role as part of the decision-making process during emergencies. CEROs receive training commensurate with their potential degree of involvement. State and local governments may participate in trainings upon request.

### 10.2 Drills

Onsite emergency drills are conducted according to the schedule displayed in Table 10-1 to test the adequacy of Emergency Plan. The drills include the use of appropriate emergency equipment and a test of the communication links with Headquarters and CEROs. An onsite hostile action exercise is included as one scenario in every biennial drill. There are no emergency training drills for a radiological release beyond the site boundary as there are no emergencies which would result in an offsite dose above the PAGs. There are emergency training drills with CEROs for onsite emergencies. During the drills, errors in performance are corrected on the spot, and a demonstration of the proper performance is offered by the instructor. State and local governments within the EPZ may participate in drills upon request.

At the conclusion of each drill, participating personnel critique the drill to identify any deficiencies and to suggest improvements to ensure reliable response in an emergency or unusual event. The Plant Manager is expected to evaluate comments and consider possible changes in the EOPs after each drill or training. Corrective actions are then determined, and the EOPs may be updated. In the case of a drill which does not meet performance requirements presented in the EOPs, subsequent trainings are held after the drill with the personnel who did not meet the performance requirements.

*Table 10-1: Schedule for ongoing drills*

<b>Drill description</b>	<b>Quarterly</b>	<b>Annually</b>	<b>Pre-operational</b>
Offsite response - Security	x		x
Offsite response - Medical	x		x
Transportation of contaminated individual		x	
Offsite response - Fire	x		x

### 10.3 Emergency Plan review and update

Updating the Emergency Plan at least annually is the responsibility of the Director of Reactor Operations, who may delegate the task to qualified Oklo Power employee in the area of emergency planning. The review process considers the results and feedback of emergency drills.

The Director of Reactor Operations is also responsible for ensuring the agreements with the CEROs are maintained and that the CEROs are capable of responding to emergency events. The Director of Reactor Operations is responsible for ensuring a system is in place such that the EOPs are prepared, kept up to date, and version controlled. These responsibilities may be delegated.

The Plant Manager is informed of any changes and is responsible for ensuring the Onsite Monitors are trained on the updates. Upon any significant content changes, the Emergency Plan and EOPs are distributed to the CEROs and relevant governments with the changes clearly identified and appropriate trainings conducted.

### 10.4 Equipment maintenance

The Plant Manager ensures that annual inspections of emergency equipment and supplies are conducted to ensure operational readiness. The inspections may be performed by the Plant Manager, Onsite Monitors, or CEROs. Annual inspections include required maintenance and calibrations, testing, and periodic inventory.

The Onsite Monitors ensure that all communications equipment is functional, on a monthly basis.

## 11 REFERENCES

- [1] EPA, “PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents (2017 PAG Manual),” EPA-400/R-17/001, Jan. 2017.