

emi sig

EMERGENCY MANAGEMENT ISSUES
SPECIAL INTEREST GROUP



Developing Emergency Action Levels

NOT

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“That was Easy!”



Old Style EALs

OPERATIONAL EMERGENCY (OE) NOT CLASSIFIED	ALERT	SITE AREA EMERGENCY (SAE)	GENERAL EMERGENCY (GE)
1. Indication of hazard condition (e.g., release of hazardous material) by visual observation or initiation of alarms	1. Indication of hazard condition (e.g., release of hazardous material) by visual observation or initiation of alarms	1. Indication of hazard condition (e.g., release of hazardous material) by visual observation or initiation of alarms	1. Indication of hazard condition (e.g., release of hazardous material) by visual observation or initiation of alarms
AND	AND	AND	AND
2. Event is poorly defined (e.g., unexplained alarms that cannot be immediately reconciled)	2.1 Radiological instrument readings of > 1 rem/hr or 400 DAC at > 30 meters	2.1 Radiological instrument readings of > 1 rem/hr or 400 DAC at > 100 meters	2.1 Radiological instrument readings of > 1 rem/hr or 400 DAC beyond the site boundary
AND	OR	OR	OR
3. Event requires time-urgent response efforts for ≥ 15 minutes from outside the facility to implement protective actions for personnel	2.2 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels at > 30 meters	2.2 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels at > 100 meters	2.2 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels beyond the site boundary

Old Style EAL

OPERATIONAL EMERGENCY (OE) NOT CLASSIFIED	
1.	Indication of hazard condition (e.g., release of hazardous material) by visual observation or initiation of alarms
AND	
2.	Event is poorly defined (e.g., unexplained alarms that cannot be immediately reconciled)
AND	
3.	Event requires time-urgent response efforts for ≥ 15 minutes from outside the facility to implement protective actions for personnel

2009

- Operational Emergency Not Classified 02/19
 - Chlorine alarm
- Operational Emergency Not Classified 05/02
 - High alarms on Continuous Air Monitors
- Operational Emergency Not Classified 08/18
 - Nitric acid tank overflow

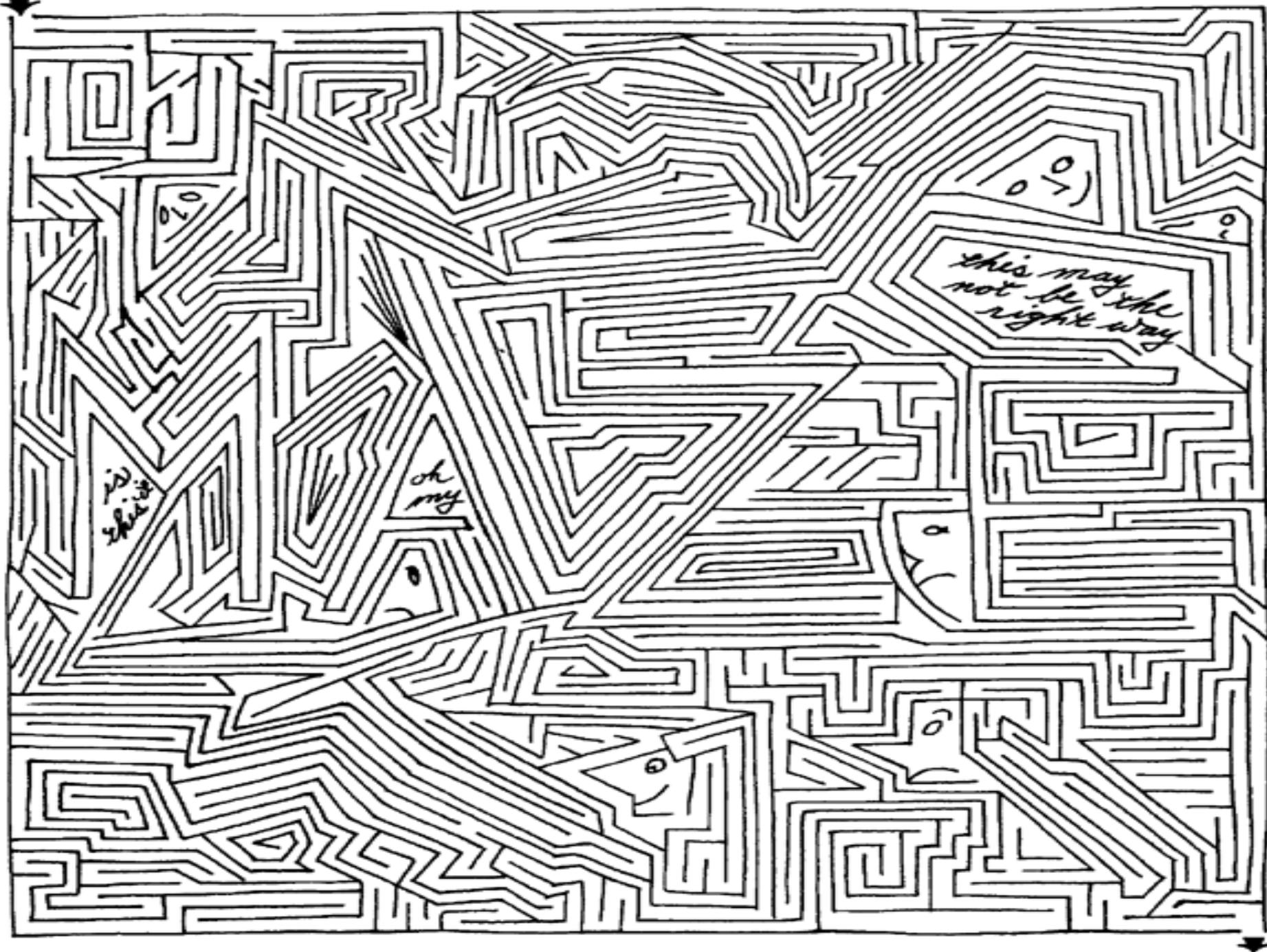
Also in 2009



“That was *TOO* Easy!”

- Thom: “We’re missing something in the EALs—it’s too easy to trigger an OE.”
- Michele: “No, it isn’t.”
- Thom: “Yes, it is.”
- Michele: “No, it isn’t.”
- Thom: “Yes, it is.”

And so forth...



is
this

oh
my

this may be the
not be the
right way

Michele

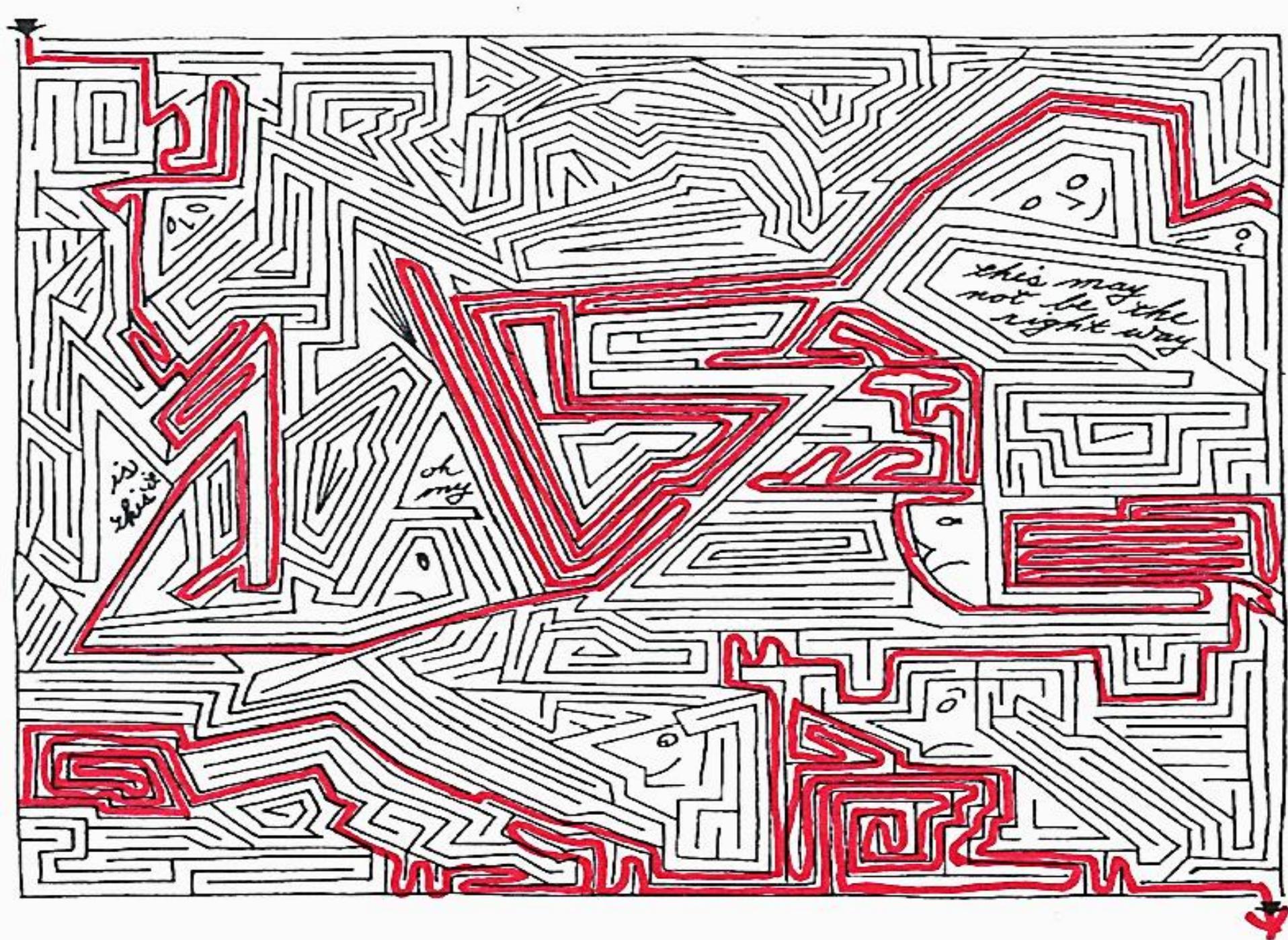


Thom



Desirable EAL Characteristics

- Complete
- Conservative
- Usable
- Integrated
- Timely
- Reliable
- Internally consistent
- Anticipatory
- Repeatable



New Style EALs (front)

GENERAL EMERGENCY (GE)		SITE AREA EMERGENCY (SAE)		ALERT		OPERATIONAL EMERGENCY (OE) NOT CLASSIFIED	
1.1	Actual event (e.g., breach of confinement, fire, explosion)	1.1	Actual event (e.g., breach of confinement, fire, explosion)	1.1	Actual event (e.g., breach of confinement, fire, explosion)	HEALTH & SAFETY OPERATIONAL EMERGENCY BASED ON HS-01	
OR		OR		OR		1.1	Actual event (e.g., breach of confinement, fire, explosion)
1.2	Unexplained alarm with additional indicator such as second alarm, actual reading, unusual odor, etc.	1.2	Unexplained alarm with additional indicator such as second alarm, actual reading, unusual odor, etc.	1.2	Unexplained alarm with additional indicator such as second alarm, actual reading, unusual odor, etc.	OR	
						1.2	Unexplained alarm with additional indicator such as second alarm, actual reading, unusual odor, etc.
AND		AND		AND		AND	
2.1	Indication of hazardous material release with significant offsite impacts requiring protective actions beyond the site boundary	2.1	Indication of hazardous material release with significant onsite impacts requiring protective actions beyond 100 meters	2.1	Indication of hazardous material release with significant impacts beyond the immediate area requiring protective actions beyond 30 meters	2.1.1	Facility or local area has been evacuated
OR		OR		OR		AND	
2.2	Radiological instrument readings of >1 rem/hr or 400 DAC beyond the site boundary	2.2	Radiological instrument readings of >1 rem/hr or 400 DAC at > 100 meters	2.2	Radiological instrument readings of >1 rem/hr or 400 DAC at > 30 meters	2.1.2	Event requires time-urgent response efforts from specialist personnel—other than planned initial incident responders—not normally assigned to the affected facility
OR		OR		OR		OR	
2.3	Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels beyond the site boundary	2.3	Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels at > 100 meters	2.3	Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels at > 30 meters	2.2.1	Facility has sustained or is expected to sustain significant structural damage
						AND	
						2.2.2	Confirmed or suspected personnel injury or death
						MAY ALSO NEED TO CONSIDER OTHER SITE-WIDE EALS	

New Style EALs (back)

Event Classification	Protective Actions/Protective Action Recommendations
GE:	<ol style="list-style-type: none"> 1. Move personnel to a safe location as indicated below <ul style="list-style-type: none"> • Evacuate affected building(s) to assembly point • Shelter-in-place remainder of the lab 2. Sound the Public Warning Siren System (PWSS) 3. Close inbound lanes of Bethel Valley Road at Post 40 and Post 50 4. Consider closing Highway 95 between the Clinch River bridge and Bear Creek Road 5. Relocate evacuated personnel as necessary 6. Recommend offsite authorities shelter-in-place the 2 mile Immediate Notification Zone (INZ) and downwind sectors of the Emergency Planning Zone (EPZ) 7. Report to the state that the distance to PAC is unknown, or report projected distance to PAC (in ft or miles).
SAE:	<ol style="list-style-type: none"> 1. Move personnel to a safe location as indicated below <ul style="list-style-type: none"> • Evacuate affected building(s) to assembly point • Shelter-in-place all other facilities within a radial distance equal to the distance of the projected PAC; or at the discretion of the LSS, shelter-in-place remainder of the lab 2. Relocate evacuated personnel as necessary 3. Consider closing onsite roads as necessary
Alert:	<ol style="list-style-type: none"> 1. Move personnel to a safe location as indicated below <ul style="list-style-type: none"> • Evacuate affected building(s) to assembly point • Shelter-in-place all other facilities within a radial distance of 328 ft (100 m) 2. Relocate evacuated personnel as necessary 3. Consider closing onsite roads as necessary
OE Not Classified:	<ol style="list-style-type: none"> 1. Move personnel to a safe location (evacuate affected area/building to local assembly point, etc.) 2. Establish control of the affected area

**OPERATIONAL EMERGENCY (OE)
NOT CLASSIFIED**

**HEALTH & SAFETY
OPERATIONAL EMERGENCY
BASED ON HS-01**

1.1 Actual event (e.g., breach of confinement, fire, explosion)

OR

1.2 Unexplained alarm with additional indicator such as second alarm, actual reading, unusual odor, etc.

AND

2.1.1 Facility or local area has been evacuated

AND

2.1.2 Event requires time-urgent response efforts from specialist personnel—other than planned initial incident responders—not normally assigned to the affected facility

OR

2.2.1 Facility has sustained or is expected to sustain significant structural damage

AND

2.2.2 Confirmed or suspected personnel injury or death

New Style EAL

Development and Approval of EALs

- Based on facility EPHA scenarios
- Based on Order and Guide for site-wide EALs
- Drafts reviewed by Emergency Management
- Scenarios developed to test and review with Laboratory Shift Superintendents
- Comments resolved
- Approval and implementation

Use of EALs

- Start with facility-specific EALs
- Discretionary EALs for unanticipated situations
- Site-wide EALs for each category (e.g., health and safety, environment, security and safeguards)
- Work from left to right on each EAL starting with criteria for General Emergency

Chlorine Alarm—Old Style EAL

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AND	AND	AND	AND
2. Event is poorly defined (e.g., unexplained alarms that cannot be immediately reconciled)	2.1 Radiological instrument readings of > 1 rem/hr or 400 DAC at > 30 meters	2.1 Radiological instrument readings of > 1 rem/hr or 400 DAC at > 100 meters	2.1 Radiological instrument readings of > 1 rem/hr or 400 DAC beyond the site boundary
AND	OR	OR	OR
3. Event requires time-urgent response efforts for ≥ 15 minutes from outside the facility to implement protective actions for personnel	2.2 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels at > 30 meters	2.2 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels at > 100 meters	2.2 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels beyond the site boundary

Chlorine Alarm—Old Style

Operational Emergency Not Classified

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AND	AND	AND	AND
<p>2.1 Indication of hazardous material release with significant offsite impacts requiring protective actions beyond the site boundary</p> <p>OR</p> <p>2.2 Radiological instrument readings of >1 rem/hr or 400 DAC beyond the site boundary</p> <p>OR</p> <p>2.3 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels beyond the site boundary</p>	<p>2.1 Indication of hazardous material release with significant onsite impacts requiring protective actions beyond 100 meters</p> <p>OR</p> <p>2.2 Radiological instrument readings of >1 rem/hr or 400 DAC at > 100 meters</p> <p>OR</p> <p>2.3 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels at > 100 meters</p>	<p>2.1 Indication of hazardous material release with significant impacts beyond the immediate area requiring protective actions beyond 30 meters</p> <p>OR</p> <p>2.2 Radiological instrument readings of >1 rem/hr or 400 DAC at > 30 meters</p> <p>OR</p> <p>2.3 Chemical instrument readings of AEGL-2, ERPG-2, or TEEL-2 levels at > 30 meters</p>	<p>2.1.1 Facility or local area has been evacuated</p> <p>AND</p> <p>2.1.2 Event requires time-urgent response efforts from specialist personnel—other than planned initial incident responders—not normally assigned to the affected facility</p> <p>OR</p> <p>2.2.1 Facility has sustained or is expected to sustain significant structural damage</p> <p>AND</p> <p>2.2.2 Confirmed or suspected personnel injury or death</p>
			<p>MAY ALSO NEED TO CONSIDER OTHER SITE-WIDE EALS</p>

**OPERATIONAL EMERGENCY (OE)
NOT CLASSIFIED**

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OPERATIONAL EMERGENCY
BASED ON HS-01**

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- OR**
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AND

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OR

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- AND**
- 2.2.2 Confirmed or suspected personnel injury or death

Chlorine Alarm New Style EAL

NOT an Operational
Emergency

Michele



Thom





