Enhancing Preparedness: Risk Assessment, Training Plan Development, & Animal Transport in Emergent Circumstances

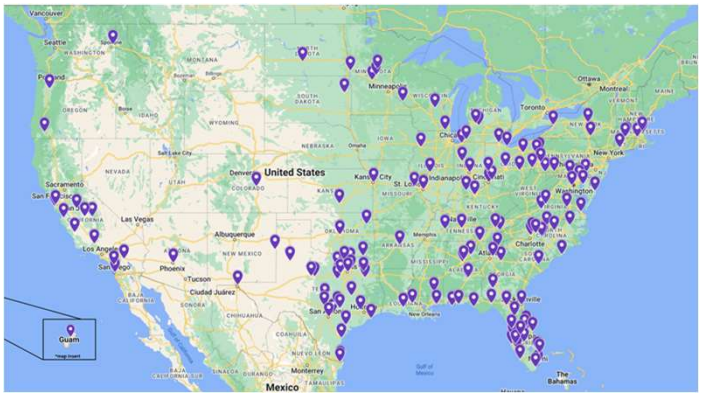
Julia Wagner, Executive Director - Zoological Disaster Response, Rescue, and Recovery (ZDR3)

ZDR3 Mission & Overview

Zoological Disaster Response, Rescue, and Recovery (ZDR3) provides support to zoos, aquariums, sanctuaries, and other exotic animal businesses before, during, and after significant incidents. All network participants sign a Memorandum of Understanding (MOU).

ZDR3 responds upon request, independent of affiliation.
ZDR3 was established in 2019, and is incorporated as a 501(c)(3) non-profit organization.

175+ Facilities
37 States & Territories
All FEMA Regions



Risk Assessment

Final Rule (a) - Contingency Plan & Associated Roles

"(a) Dealers, exhibitors, intermediate handlers, and carriers must ***develop, document, and follow an appropriate plan*** *to provide for the* ***humane handling, treatment, transportation, housing, and care of their animals in the event of an emergency or disaster*** *(one which could reasonably be anticipated and expected to be detrimental to the good health and well-being of the animals in their possession). Such contingency plans must:*

(1) ***Identify situations the licensee or registrant might experience that would trigger the need for the measures identified in a contingency plan*** *to be put into action including, but not limited to, emergencies such as electrical outages, faulty HVAC systems, fires, mechanical breakdowns, and animal escapes, as well as natural disasters most likely to be experienced;*

(2) ***Outline specific tasks required to be carried out in response to the identified emergencies or disasters*** *including, but not limited to, detailed animal evacuation instructions or shelter-in-place instructions and provisions for providing backup sources of food and water as well as sanitation, ventilation, bedding, veterinary care, etc.;*

(3) ***Identify a chain of command and who (by name or by position title) will be responsible for fulfilling these tasks;*** *and*

(4) ***Address how response and recovery will be handled in terms of materials, resources, and training needed."*** [1]

CISA Security Planning Workbook

CALCULATING RISK

RISK = THREAT × VULNERABILITY × CONSEQUENCE

The Department of Homeland Security Risk Lexicon frames risk as a function of **Risk = Threat × Vulnerability × Consequence**. The DHS Risk Lexicon specifically defines these terms as follows:

THREATS AND HAZARDS: Man-made (threats) or natural (hazards) occurrence, individual, entity, or action that has or indicates the capability or intent to harm life, information, operations, the environment, and/or property.

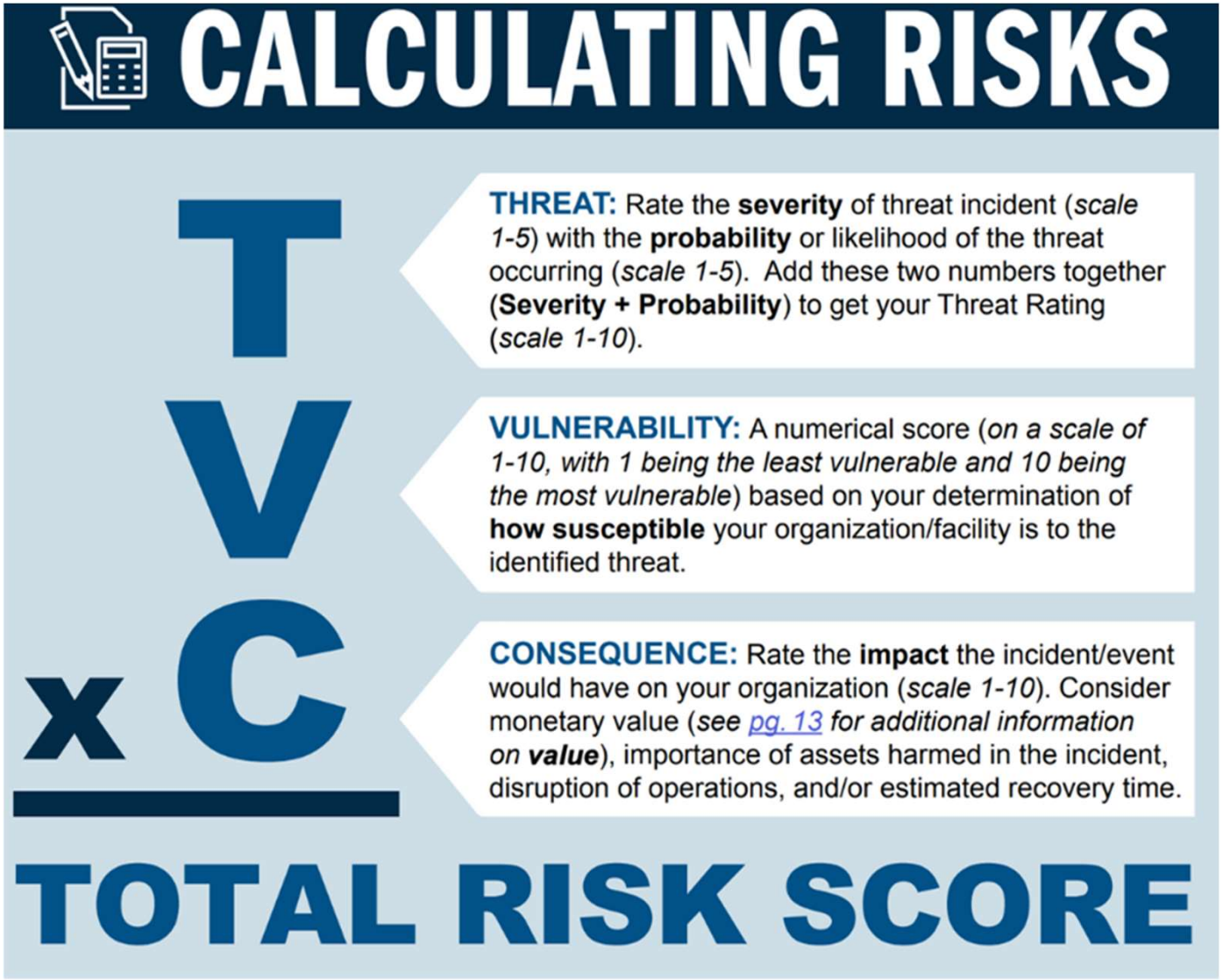
VULNERABILITY: Physical feature or operational attribute that renders an entity open to exploitation or susceptible to a given hazard.

RISK: Potential for an unwanted outcome resulting from an incident, event, or occurrence, as determined by its likelihood and the associated consequences.
Risk is a function of threat, vulnerability, and consequence.

CONSEQUENCE: Effect of an event, incident, or occurrence. Consequence is commonly measured in four ways: human, economic, mission, and psychological, but may also include other factors such as impact on the environment.

CISA Security Planning Workbook:

CISA Security Planning Workbook (9/2023) - Calculating Risk



CISA Security Planning Workbook (9/2023)

USING THE RISK ASSESSMENT PROCESS

By evaluating the combined threats/ hazards, vulnerabilities, and consequences, organizations can identify risk. The table at right shows an example of these elements:

Risk Element	Example
Threat/Hazard →	Active shooter
Vulnerability →	Broken lock on door to facility
Consequence →	Damage to facility and/or people are harmed
Risk →	Low probability, high impact event

A CONDUCT "AS IS" REVIEW

Identify your significant assets and their value, which could include:

- Security policies, procedures, protocols, operations
- Employees, members, staff, customers, volunteers
- Physical security technology and equipment

B EVALUATE THREATS & HAZARDS

Consider the impact from:

- Man-made threats / natural hazards
- Facility location and social environment (e.g., demographics, crime rates, etc.)
- Ideological or identity-based threats
- Cyber incidents

C ASSESS YOUR VULNERABILITY(IES)

Determine vulnerabilities to your assets:

- What threats/hazards has your organization experienced in the past?
- How does your organization's location and proximity to threats/hazards impact your security?
- Verify that available security/safety assets are in working order.

D ASSESS RISK AND PRIORITIZE MITIGATION

- Estimate likelihood of threat/hazard to occur (e.g. probability)
- Consider cost/consequence of loss, damage, or harm
- Determine most critical risk(s)
- Establish risk tolerance
- Identify initial risk solution(s) / methods to mitigate risk(s)

NOTIONAL RISK TABLE

Use the **Calculating Risks** graphic on the previous page and the worksheet below to assist with capturing and determining the level of risk(s) to your facility or organization. Use the **Risk Priority Level** to the right to determine if your risk score equates to a low, medium, or high priority. The risks which are rated as "High" would be the ones to consider mitigating first. **For additional information on risk mitigation, see Chapter 3 (Mitigation Considerations) beginning on the next page.**

RISK PRIORITY LEVEL

Once the **Total Risk Score** has been calculated, determine if the Total Risk Score should be prioritized as **Low**, **Medium**, or **High**.

1-60 = LOW	61-175 = MEDIUM	176-Above = HIGH

RISK NO.	BRIEF RISK DESCRIPTION	THREAT RATING (T)	VULNERABILITY RATING (V)	CONSEQUENCE RATING (C)	TOTAL RISK SCORE (T x V x C)	PRIORITY OF RISK (HIGH MEDIUM LOW)
Ex.	*Active Shooter Attack*	*6*	*6*	*7*	*252*	*HIGH*
		-	-	-	0	-
		-	-	-	0	-
		-	-	-	0	-
		-	-	-	0	-
		-	-	-	0	-
		-	-	-	0	-
		-	-	-	0	-
		-	-	-	0	-

CISA Security Planning Workbook (9/2023) - Calculating Risk

Developing a Training Plan

Possible Next Step: Establish a Training Plan

Roles and responsibilities needed first

- Part of the contingency planning process
- Informs what to train for

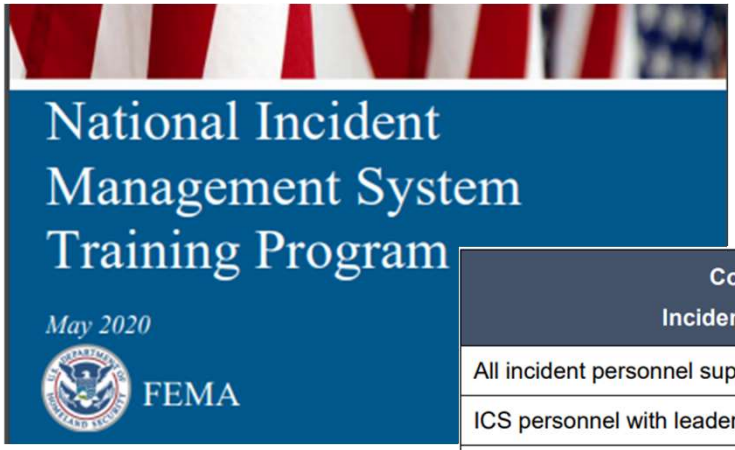
Where are you already training portions of the plan?

Where can review of relevant portions of the plan be integrated into training?

Training does not have to be cost prohibitive, but budgeting needed

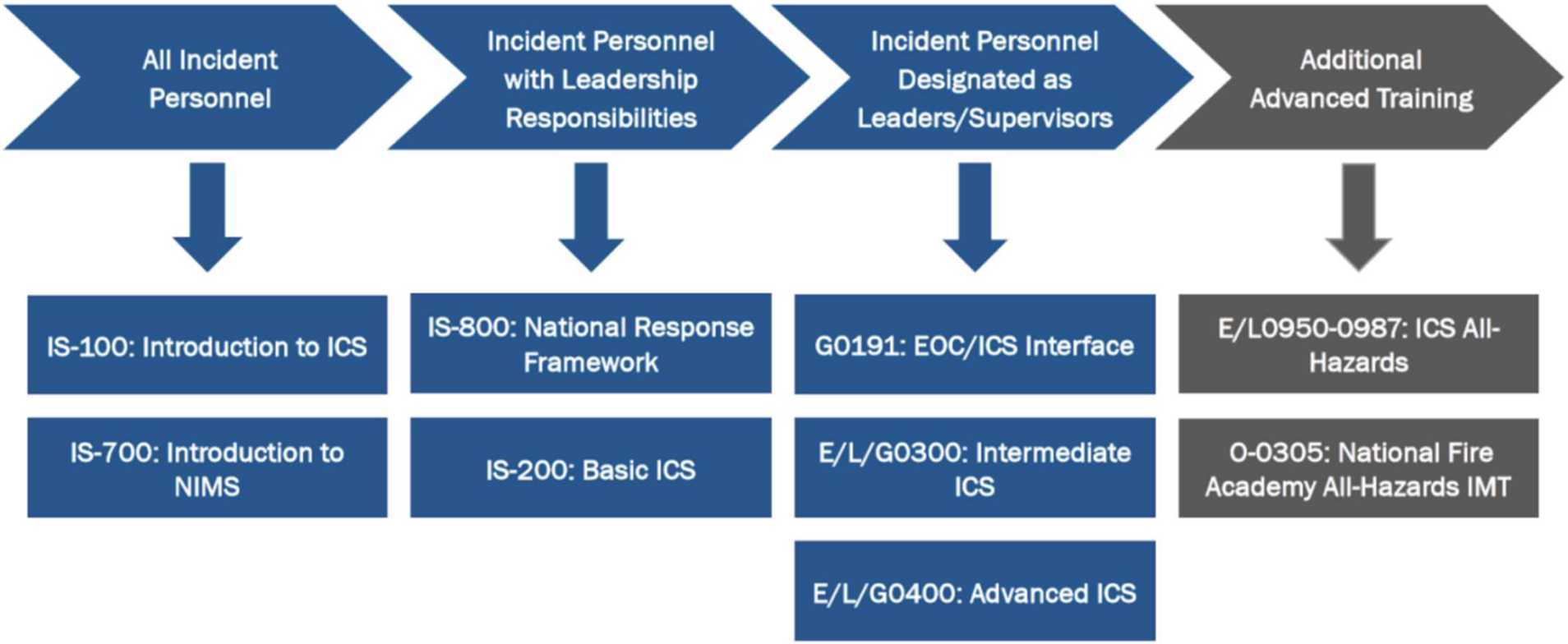
- Main cost is personnel time
- FEMA online courses are free
- Local hospitals, public health, or other agencies may offer low cost or free human first aid

National Incident Management System Training Program



- Applicable for those who have heavily adopted incident command system (ICS)

Courses → / Incident Positions ↓	IS-100	IS-700	IS-800	IS-200	G 0191	E/L/G 0300	E/L/G 0400	Position-specific PTB training
All incident personnel supporting ICS	X	X						
ICS personnel with leadership responsibilities	X	X	X	X				
ICS personnel with leadership responsibilities preparing for additional responsibility	X	X	X	X	X	X		
ICS personnel in leadership/supervisory roles	X	X	X	X	X	X	X	
IMT unit, strike team, resource team, or task force leaders preparing for complex incidents	X	X	X	X	X	X		X
IMT command, section, branch, division, or group leaders preparing for complex incidents	X	X	X	X	X	X	X	X



Training

Incident Command System Training Progression (FEMA)

Training - Curriculum - FEMA

The Incident Command System (ICS) is used by public agencies to manage emergencies, and has been adopted by some zoological facilities to manage adverse incidents.

- Courses are free
- Certifications do not expire

FEMA TRAINING COURSES	AWARENESS (ALL RESPONDERS)	TECHNICIANS (CREW LEADS)
ICS-100: Introduction to the Incident Command System	YES	YES
ICS-200: Basic Incident Command System for Initial Response	POSSIBLY	YES
ICS-300: Intermediate Incident Command System for Expanding Incidents	NO	POSSIBLY
ICS-400: Advanced Incident Command System for Command and General Staff - Complex Incidents	NO	POSSIBLY
IS-700: An Introduction to the National Incident Managment System	YES	YES
IS-800: National Response Framework, An Introduction	POSSIBLY	YES

Training - Curriculum - FEMA

- In addition to these introductory courses, FEMA offers an extensive catalog of other coursework
- FEMA offers a guidance document to assist you in developing your training program: National Incident Management System Training Program

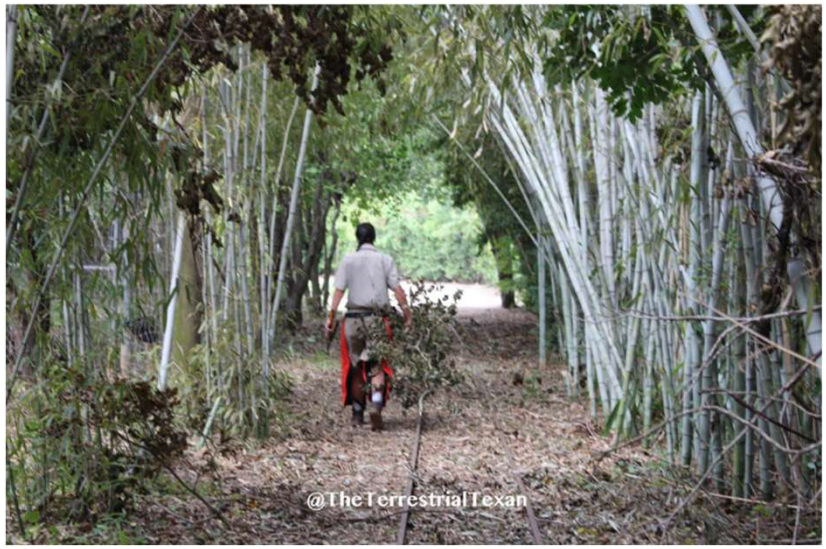
FEMA Course Catalog

NIMS Training Program

Training - Curriculum - On-the-Job Training

Due to the unique nature of the work that we undertake, the most relevant training for ZDR3 responders is their on-the-job (OTJ) experience working with and around non-domesticated animals.

- What OTJ experience are you considering in your training plan development?



Response Team: BREC's Baton Rouge Zoo, 2020 (LA)

Training - Safety

Responders should know basic first aid techniques and safety protocols to mitigate risks, provide immediate assistance, and potentially save lives during a response.

Training - Other

Comprehensive training is the backbone of a skilled and effective team.

Recommend Training Resources

- Chainsaw Operations
- Watercraft Operations
- Animal Operations/Welfare
- Hazardous Materials

National Fire Protection Association (NFPA) Levels

Technician

- Supervise, coordinate, and perform operations
- Hazard recognition
- Equipment use, and techniques necessary to safely and effectively coordinate, perform, and supervise operations

Operations

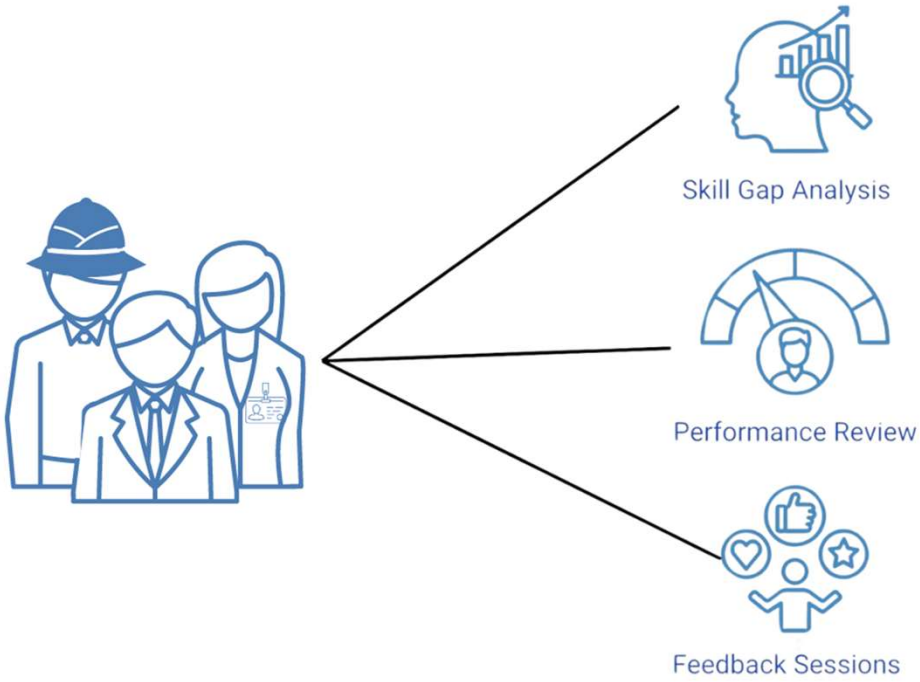
- Hazard recognition
- Equipment use, and techniques necessary to safely and effectively support and participate in an incident. This level can involve various operations, but usually operations are carried out under the supervision of technician-level personnel

Awareness

- Minimum capability of a responder who, in the course of his or her regular job duties, could be called upon to respond to, or could be the first on the scene of, an incident

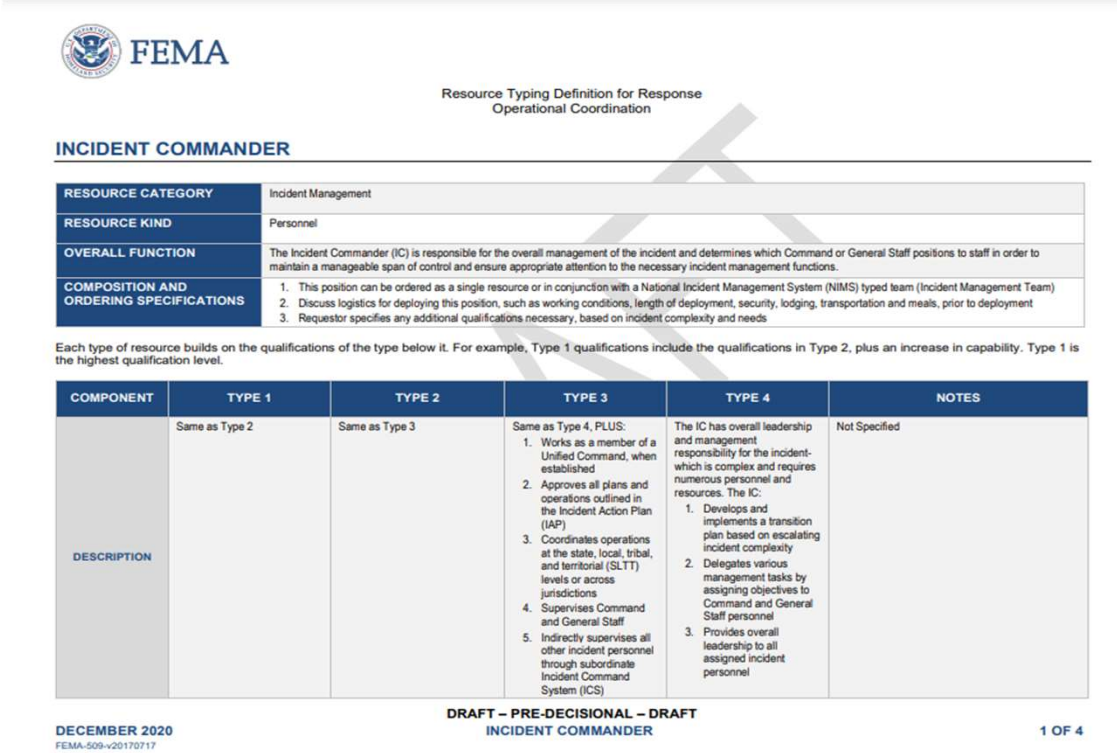
Role-Specific Training: Considerations

- Are those identified in a specific role in emergency response documents undergoing the same initial and ongoing training as any other member of the emergency response team?
    - Role-specific work - familiarization with role, understanding of roles of fellow teammates
- Many people behave differently under varying levels of stress (for better or worse)
    - Your teammates may not act and react as you anticipate or have trained for



Role-Specific Training: Incident Commander

- ICS roles have meaning to outside agencies
  - Critical when interfacing on scene
- Is this role being filled by someone who understands those expectations?



FEMA

Resource Typing Definition for Response
Operational Coordination

INCIDENT COMMANDER

RESOURCE CATEGORY	Incident Management
RESOURCE KIND	Personnel
OVERALL FUNCTION	The Incident Commander (IC) is responsible for the overall management of the incident and determines which Command or General Staff positions to staff in order to maintain a manageable span of control and ensure appropriate attention to the necessary incident management functions.
COMPOSITION AND ORDERING SPECIFICATIONS	1. This position can be ordered as a single resource or in conjunction with a National Incident Management System (NIMS) typed team (Incident Management Team) 2. Discuss logistics for deploying this position, such as working conditions, length of deployment, security, lodging, transportation and meals, prior to deployment 3. Requestor specifies any additional qualifications necessary, based on incident complexity and needs

Each type of resource builds on the qualifications of the type below it. For example, Type 1 qualifications include the qualifications in Type 2, plus an increase in capability. Type 1 is the highest qualification level.

COMPONENT	TYPE 1	TYPE 2	TYPE 3	TYPE 4	NOTES
DESCRIPTION	Same as Type 2	Same as Type 3	Same as Type 4, PLUS: 1. Works as a member of a Unified Command, when established 2. Approves all plans and operations outlined in the Incident Action Plan (IAP) 3. Coordinates operations at the state, local, tribal, and territorial (SLTT) levels or across jurisdictions 4. Supervises Command and General Staff 5. Indirectly supervises all other incident personnel through subordinate Incident Command System (ICS)	The IC has overall leadership and management responsibility for the incident- which is complex and requires numerous personnel and resources. The IC: 1. Develops and implements a transition plan based on escalating incident complexity 2. Delegates various management tasks by assigning objectives to Command and General Staff personnel 3. Provides overall leadership to all assigned incident personnel	Not Specified

DECEMBER 2020
FEMA-509-v20170717

DRAFT – PRE-DECISIONAL – DRAFT
INCIDENT COMMANDER

1 OF 4

Role-Specific Training: Incident Commander

FEMA

Resource Typing Definition for Response
Operational Coordination

COMPONENT	TYPE 1	TYPE 2	TYPE 3	TYPE 4	NOTES
			management positions (command staff, section chiefs, branch directors, division/group supervisors, unit leaders, and strike team/task force leaders)		
EDUCATION	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified
TRAINING	Same as Type 2	Same as Type 3	Same as Type 4, PLUS: 1. E/L 0950: National Incident Management System Incident Command System All-Hazards Incident Commander Course, or equivalent 2. United States Fire Administration (USFA) O-0305: Type 3 All-Hazards Incident Management Team (AHIMT), or equivalent	Completion of the following: 1. IS-100: Introduction to the Incident Command System, ICS-100 2. IS-200: Basic Incident Command System for Initial Response, ICS-200 3. ICS-300: Intermediate Incident Command System for Expanding Incidents 4. ICS-400: Advanced Incident Command System for Command and General Staff – Complex Incidents 5. IS-700: National Incident Management System, An Introduction 6. IS-800: National Response Framework, An Introduction 7. E/G/L 0191: Emergency Operations Center/Incident Command System Interface	1. Identified equivalent trainings should meet or exceed course learning objectives. 2. The NIMS Training Program defines a national baseline to guide and promote NIMS training. It provides recommendations to assist Authorities Having Jurisdiction (AHJ) in developing their own training plans, tailored to their specific needs.

FEMA

Resource Typing Definition for Response
Operational Coordination

COMPONENT	TYPE 1	TYPE 2	TYPE 3	TYPE 4	NOTES
EXPERIENCE	Same as Type 2, PLUS: 1. Successful completion of the National Qualification System (NQS) Position Task Book (PTB) for the NIMS Type 1 Incident Commander, or equivalent AHJ documentation 2. Satisfactory performance as a NIMS Type 2 IC	Same as Type 3, PLUS: 1. Successful completion of the NQS PTB for the NIMS Type 2 Incident Commander, or equivalent AHJ documentation 2. Satisfactory performance as a NIMS Type 3 IC	Same as Type 4, PLUS: 1. Successful completion of the NQS PTB for the NIMS Type 3 Incident Commander, or equivalent AHJ documentation 2. Satisfactory performance as a NIMS Type 4 IC 3. Satisfactory performance as a task force leader or strike team leader, or equivalent supervisory experience	1. Successful completion of the NQS PTB for the NIMS Type 4 Incident Commander, or equivalent AHJ documentation 2. Satisfactory performance as a single resource boss or leader, or equivalent supervisory experience	Not Specified
PHYSICAL / MEDICAL FITNESS	Same as Type 2	Same as Type 3	Same as Type 4	Light	The NIMS Guideline for the NQS defines Physical/Medical Fitness levels for NQS positions.
CURRENCY	Functions in this position during an operational incident, planned event, exercise, drill or simulation at least once every three years	Same as Type 3	Same as Type 4	Functions in this position or a higher position during an operational incident, planned event, exercise, drill or simulation at least once every three years	A higher position is one for which this position is a prerequisite.
PROFESSIONAL AND TECHNICAL LICENSES AND CERTIFICATIONS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Role-Specific Training: Incident Commander - Training (partial)

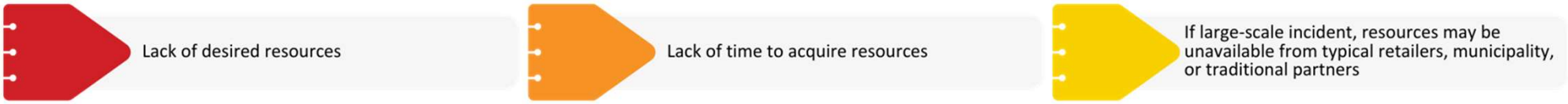
- Online (12.5 hr)
  - IS-100 - Introduction to the Incident Command System (2 hr)
  - IS-200 - Basic Incident Command System for Initial Response (4 hr)
  - IS-700 - National Incident Management System, An Introduction (3.5 hr)
  - IS-800 - National Response Framework, An Introduction (3 hr)
- In Person (43 hr)
  - ICS-300 - Intermediate Incident Command System for Expanding Incidents (21 hr)
  - ICS-400 - Advanced Incident Command System for Command and General Staff - Complex Incidents (15 hr)
  - E/G/L 0191 - Emergency Operations Center/Incident Command System Interface (7 hr)

Additional currency and experience are required for this position type

Considerations for Transporting Animals due to Adverse Event

Resources & Transit Challenges

Resource Deprivation



Transit

- Transit patterns/routes may be altered based on the incident, resulting in delays or other disruptions
- Ambient temperature conditions may not be ideal (implement mitigation strategies)
- Fueling and other typical stops may be challenging in area impacted by adverse event
- Understand and adhere to curfews, re-entry requirements, or other requirements to be in the area

Risks

Risk assessments should be performed, and operations conducted in a manner that is safe for the public, personnel, and animals

ANIMALS	PERSONNEL	FACILITY	PUBLIC
• Escape • Vehicular Accident • Hyperthermia • Hypothermia • Injury/Death from Capture/ Immobilization • Smoke Inhalation • Drowning • Electrocution • Exacerbation of Health/Medical Issue	• Putting themselves in harms way • Adverse interaction with animal • Exacerbation of Health/Medical Issue • Vehicular Accident • Smoke Inhalation • Hyperthermia • Hypothermia • Drowning • Electrocution	• Negative public relations impact ◦ Loss of faith in facility & future capacity ◦ Hoaxes & rumors • Vulnerability to bad actors • Cost	• Dangerous Animal Escape

Challenges

The unique nature of species involved and the required resources can limit who can provide support.

ANIMALS	PERSONNEL	HOUSING	RESOURCES
• Additional skillsets/teams may be required • Vet unavailable • Institution unable to take animals back (permanent relocation required) • Medical issues • Ownership issues • Death from immobilization or transport • More immobilization required than desired	• May not be available due to personal matters (also impacted by event) • May not be trained on how to perform necessary tasks • Stress and exhaustion can lead to compromised decision making/lack of strategy (eg, how to triage animals)	• Evacuation location(s) compromised or unavailable (eg, widespread incident impacts other local facilities) • Limited housing options for species, especially those with unique needs (eg, dangerous, require life support systems)	• Possibility of limited and/or compromised fuel supplies - need plan for understanding where refueling stops can occur en route • Needed resources (eg, crates) may not be available, or lines of communication to identify resources not extant

External Entities

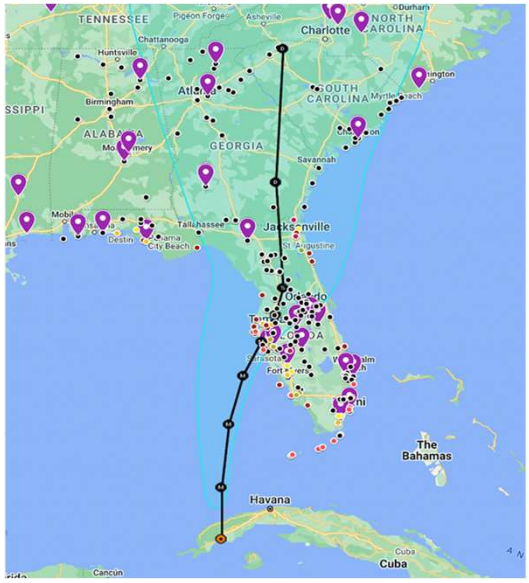
Based on severity of incident, the ability to contact individuals may be compromised (eg, communications down, people dealing with personal issues)

Land Owner/Governing Bodies

- Is everyone aligned on how the incident will be managed and who is permitted to be involved?

Agencies

- Alerting agencies, as appropriate, about anticipated concerns, active concerns, and other areas pertaining to species relevant to agency scope of coverage
- Incumbent upon animal holder, transporter, and receiver to understand required certificates and permitting
  - Waivers may be instituted, based on scale of incident
- Not just situation at current location, but need to appropriately alert for transit and regarding off-site housing locations



External Entities (cont.)

Responders

- Having a loose network, “knowing a guy,” or having a call down list of other facilities, without specific arrangements or planning, does not constitute a plan
- Mutual aid agreements should address:
  - Housing
  - Transport
  - Equipment/Resources
  - Other areas of potential collaboration

Associations/Membership Groups

- Maintain contact as appropriate

Media/Public

- The public will want to know what’s happening, plan to communicate
- Tell your story, or someone will tell it for you

Animal Considerations

Likely more stressed than usual, making loading, capture, immobilization, and all other aspects possibly more challenging

- This can become a feedback loop for personnel. Have strategies to identify and address when a situation is becoming non productive (eg, repeated attempts to load the same animal)

Husbandry Needs/Medical

- Aquatic vs Terrestrial
- Who is the veterinarian? Needs to be part of the decision making process
- Husbandry needs - Typical or unique?

Safety

- **Are conditions being monitored appropriately for responder, as well as animal, safety?**

Transport

- Consider alternative vehicle options if optimal not available (eg, rent a box truck)
- Anticipated load times - stressed animals are less predictable
  - Are personnel trained on capture/restraint?
- Consider what can (and cannot) be cohoused for movement and/or in placement, based on all regulations
- Documentation (eg, diet sheets, medicine logs)
- Temperatures - consider night driving to reduce risk
- Consider driver hours and adherence to regulations

Resources

What you can accomplish will be largely dictated by your resources - personnel and physical

Requires not just staff to manage animals, but appropriate transporters and off site housing, as well as those who can off load and manage animals in that location

*This is not an exhaustive list
*This does not account for specific needs if encountering flood water, downed trees, and other obstacles and hazards

THINGS NOT TO FORGET:

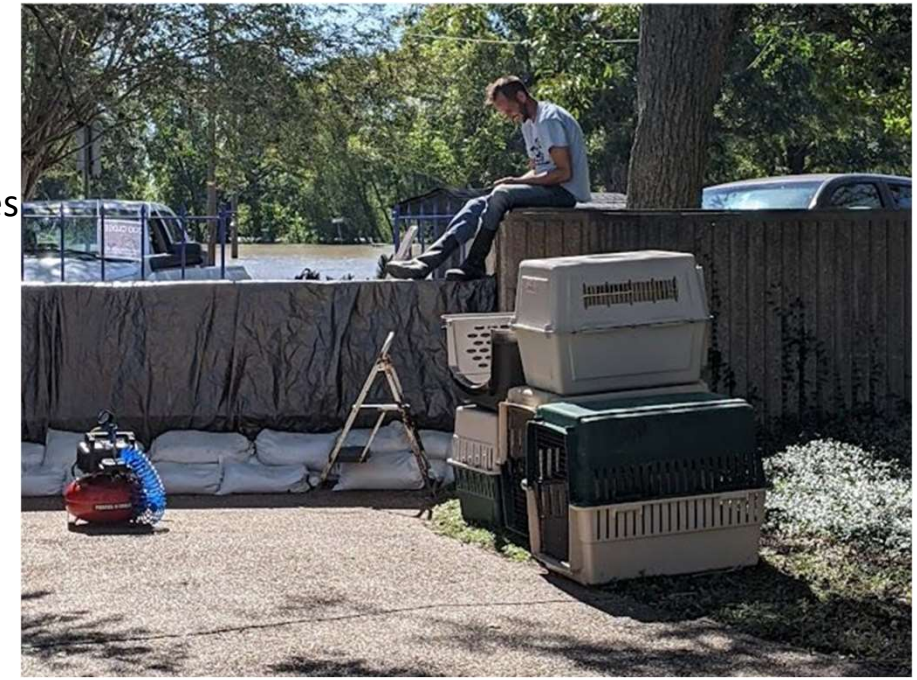
- ☐ Documentation required to have in hand for transport (eg. health, medical)
- ☐ Emergency go-bags (flashlight, radio, duct tape, first-aid kit)
- ☐ Fencing panels
- ☐ Zip-ties (steel depending on species)
- ☐ Baffle boards
- ☐ Clips/Ties
- ☐ Rope
- ☐ Visual barrier materials

Resources - Crates

Proper crates for an entire population are a consistent challenge

Important considerations

- Many facilities do not have enough for entire collection
  - Can arrange for resources from other facilities
- Containment appropriate for taxa
  - Label with basic animal information
  - Questions to consider
    - Door type?
    - Material?
    - Locking?
    - Ventilation holes?
    - Dividers for multiple animals?



Resources - Vehicles

Vehicles capable of transporting animals

- Initial removal may be different than transport (eg, animal may be boated out of location before being loaded into land transport)
- How many crates can fit safely?
- Highwater/boats
  - Licensed operators and all considerations associated with water operations

Passenger vehicles for additional personnel

- Functioning seatbelts and other necessary safety features

Resources (cont.)

Husbandry Supplies

- Appropriate supplies for transport (eg, bedding, water)
- Animal food
- Bowls, buckets
- Capture PPE, nets, bite gloves, catch poles
- Immobilization equipment, associated drugs

Trailers

- Climate control considerations
- Understand what is appropriate for large animals vs crates of small animals.

Equipment

- Heavy equipment, based on site conditions, size/weight of animals (eg, forklift)

Personnel

- Understand their role and appropriately trained?
- Understanding of compensation and expectations during adverse events (eg, lengthened work times)?

Money

- **Anticipate this will be costly; begin considering:**
  - **Insurance claims**
  - **Fundraising efforts**
  - **FEMA reimbursement**

Housing Locations

- Where are you taking the animals?
- Just because a facility houses a certain type of species does not mean they are willing and/or able to house more of them
- Options limited for some species, important to understand who can help address these concerns in advance
  - Large animals
  - Unique needs
  - Unique risks
  - Volume of individuals
- Is it appropriate in terms of animal welfare, regulatory, and public safety?

Alternative Housing Options

- Consider impact to extant collection (eg, disease considerations, additional workload for personnel)
- Local options may also be compromised, based on the event
  - Concern of distance associated with transporting animals

Mutual Aid in Evacuation

- Resulted in development of ZDR3
- Responding without mutual aid agreements introduces additional risk for all parties
- Response should be only at the request of the impacted institution
    - Spontaneous volunteers can create more risks than already present
- If large scale effort/multiple teams, centralized coordination and understanding of the overall strategy are essential
- Are you part of a coordinated effort? If not, why not? Is it a group that has activated before or has demonstrated capacity?
- Outside support will not be immediate - you need to plan for self-sufficiency (plan for 72 hours, ideally help arrives within 24-36)

Receiving Outside Support

Receiving support can sometimes feel more difficult than rendering support.

Tips to make things smoother:

- Sign an agreement for temporary placement, which stipulates all areas of concern (eg, how and when animals are to be returned, anticipated timeline until they are returned, communications expectations during holding)
    - Address whether boarding fees are part of the arrangement
- Provide clear points of contact for responding facilities to coordinate with and report to
- Document as much as possible (photography and notes)
- Know your limits in what type of help you and do not want

Rendering Outside Support

- Be prepared to encounter a challenging scene (eg, potential animal fatalities)
- The people you are helping are likely not okay, may not be making good decisions, and may not appropriately identify risks
  - Team should know who the Safety Officer is for the scene (if one identified)
  - Everyone should have their own safety plan in place (never assume others are considering your safety)
- Expect to transport animals (and possibly people and resources) you were not anticipating
- Be prepared to hold animals indefinitely
- Request/require information regarding animal husbandry/veterinary and other needs
- Establish communications between appropriate staff at both facilities
- Communicate with regulatory, as appropriate
- Consider disease transfer (eg, animals coming from one collection to another)
- Consider costs
  - Staff time (evacuation and care while housed)
  - Supplies
  - Fuel
- Respect communications strategy of impacted institution

Silver Linings

We are doing better as an industry

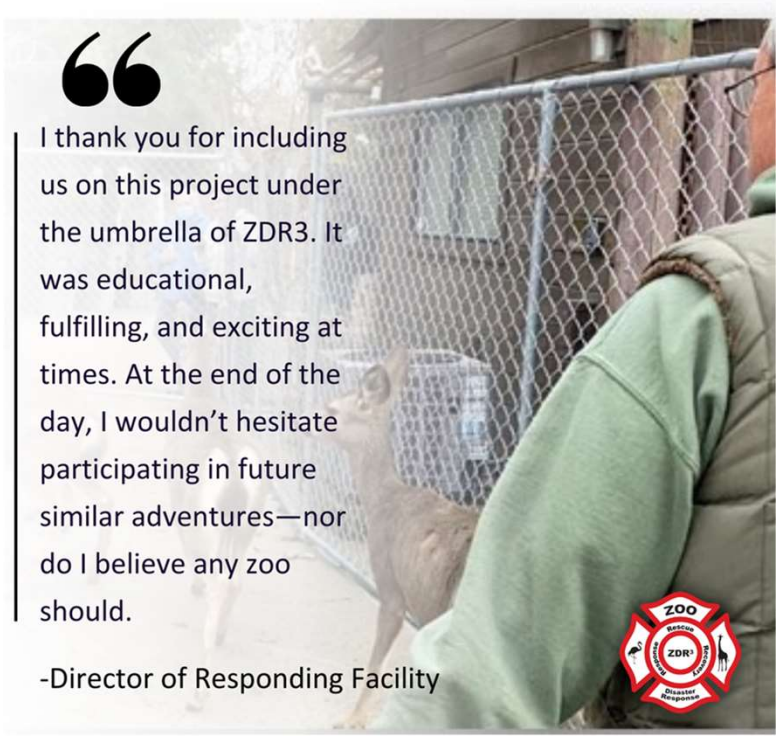
- Helping our own builds relationships and shares knowledge across institutions
- We want to help each other, we just need to better coordinate that vision

For the impacted institution

- Knowing there is help is a psychological boost
- Use lessons learned to enhance your future preparedness
- Consider how to rebuild damaged portions of facility to be more resilient

For the institution(s) providing support

- Your help makes a huge difference to those in need of assistance - and to our industry
- Responding together enhances team building
- Skills learned/developed/honed foster professional development
- Your team will be better prepared to provide support at your facility



Julia Wagner, Executive Director
admin@zdr3.org

www.zdr3.org
Follow us on Facebook