

EPA'S HAZARD RANKING SYSTEM OR "HRS 101"



PRESENTED BY JIM MCCARTHY, PG II CERCLA SITE SCREENING SECTION



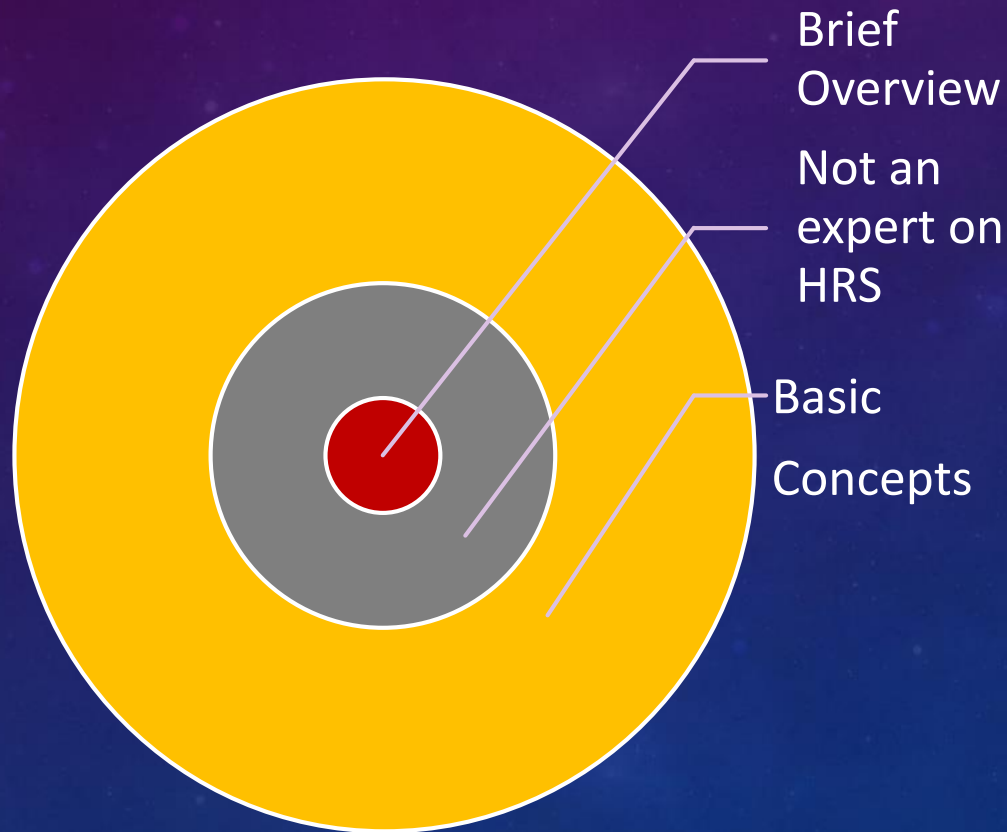
CONTRIBUTED OR ASSISTED IN PLACING 8 FLORIDA SITES ON THE EPA NATIONAL PRIORITIES LIST INCLUDING:

Site	County
Alaric Area GW Plume	Hillsborough
Callaway & Son Drums	Polk
JJ Seifert Machine	Hillsborough
Kerr McGee Chemical	Duval
Raleigh Street Dump	Hillsborough
Sanford Dry Cleaners	Seminole
United Metals Inc.	Jackson
General Dynamics Longwood	Seminole

CONTRIBUTED OR ASSISTED IN PLACING 6 FLORIDA SITES AS SUPERFUND ALTERNATIVE SITES

Site	County
Cascade Park Gasification Plant/LF	Leon
ITT Thompson Industries	Madison
Nocatee-Hull Creosote	DeSoto
Orlando Gasification Plant	Orange
Sanford Gasification Plant	Seminole
West Florida Natural Gas	Marion

“HRS 101” COURSE GOALS



WHAT IS THE HRS?

- Scoring system used by the EPA's Superfund program
- Assess the relative threat associated with actual or potential releases of hazardous substances.
- Primary screening tool for NPL determination.

POSSIBLE NPL SITE?



WHAT IS THE HRS (CONT.)?

- **It a number from 0 to 100!!**
- **Preliminary assessment (PA)**
- **Site inspection – (SI)**
- **Assess threats to environment and human health**
- **Higher HRS scores do not necessarily mean worse sites!**

WHAT IS THE HRS (CONT.)?

- Well, Its about like doing your taxes...
- HRS...a structured analysis approach to scoring sites.
Three Categories.
 - Has the site released or has the potential to release?
 - Characteristics of waste
 - People or sensitive environments?



BRIEF HRS HISTORY

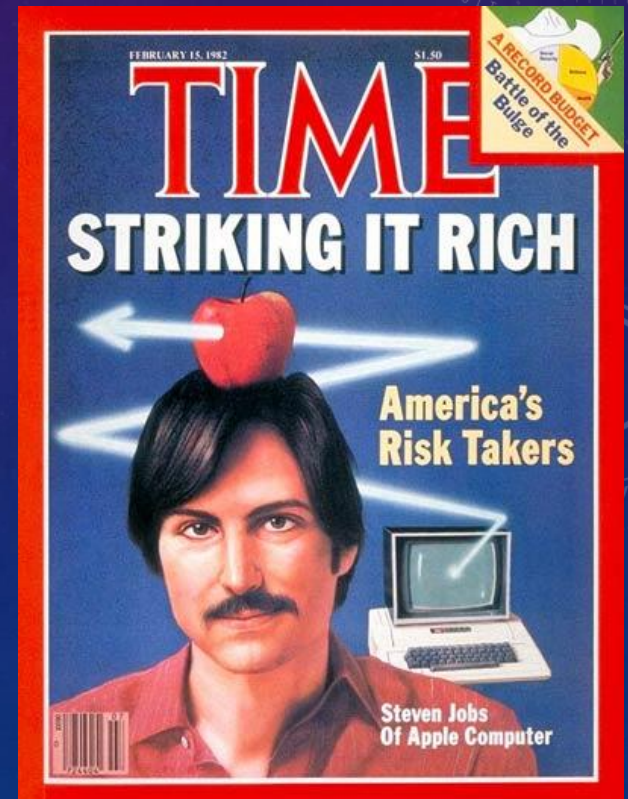
CERCLA was enacted by Congress in 1980 in response to the threat of hazardous waste sites, typified by the Love Canal disaster in New York, and the Valley of the Drums in Kentucky.



BRIEF HRS HISTORY

The EPA published the first HRS (HRS 1) in 1981
First National Priorities List (NPL) published in
1982

The Apple II Just came out!



BRIEF HRS HISTORY (CONT.)

Superfund Amendments and Reauthorization Act of 1986 (SARA) passes.



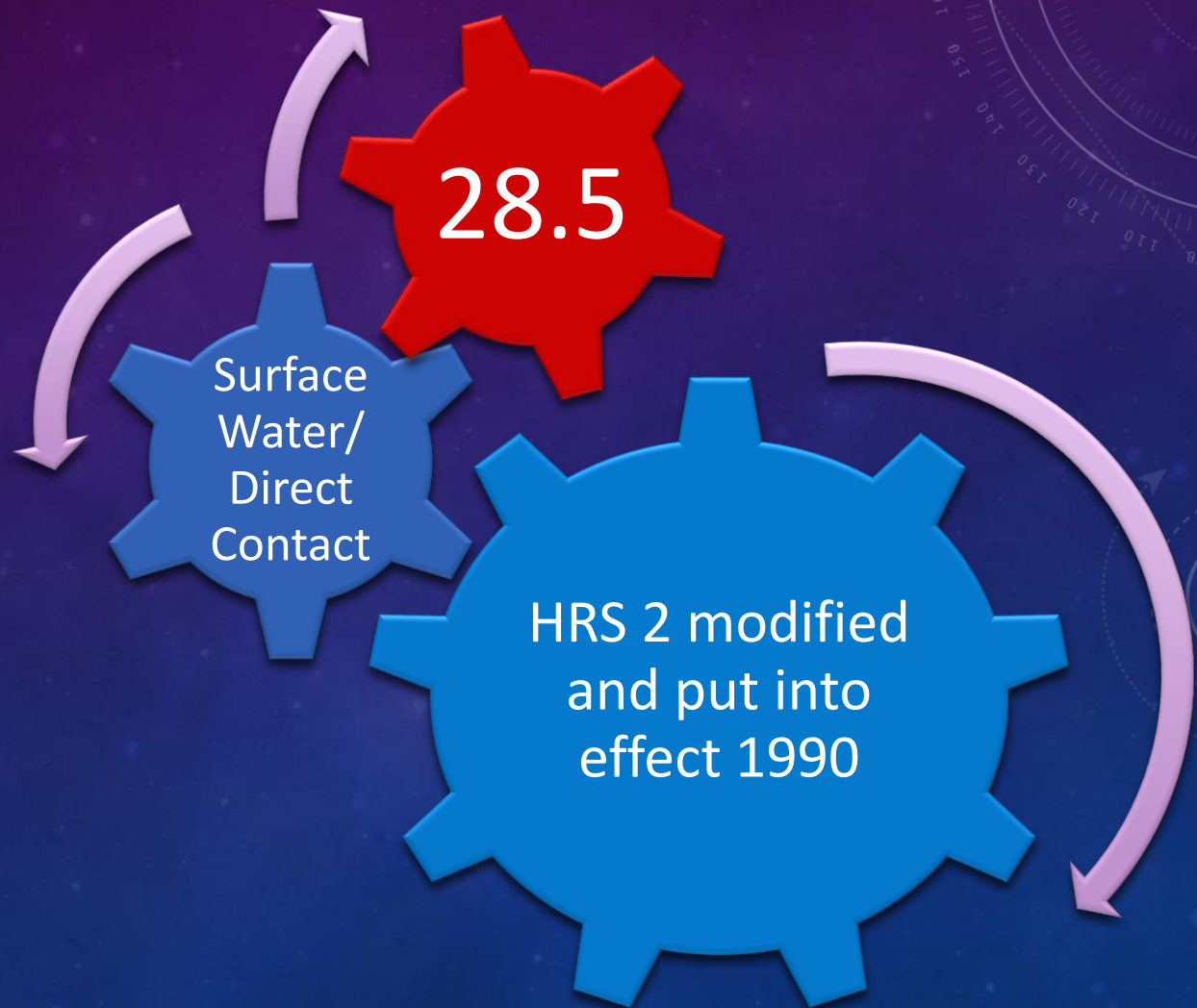
BRIEF HRS HISTORY (CONT.)

Generally, facilities with overall scores of 28.5 and greater on the HRS are eligible for the NPL.

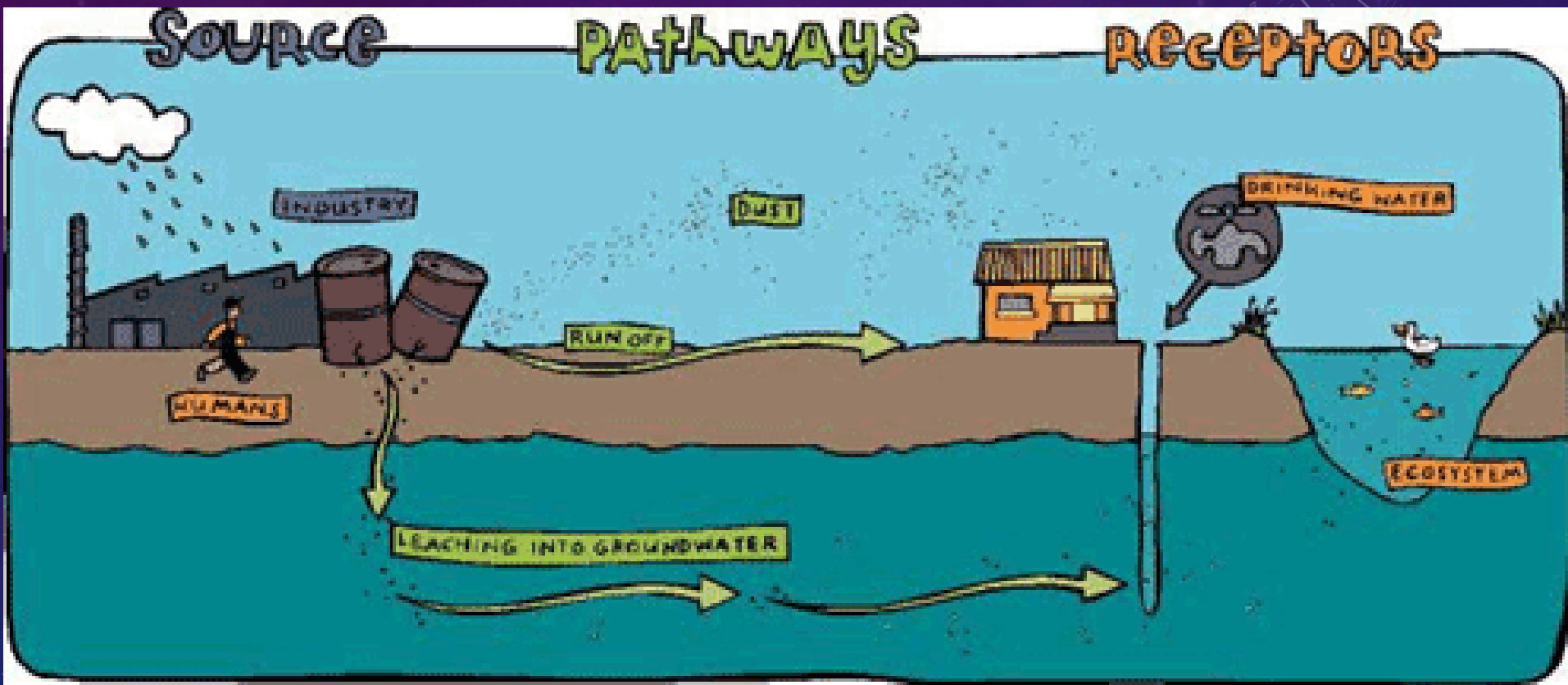
[EPA Film on Superfund](#)



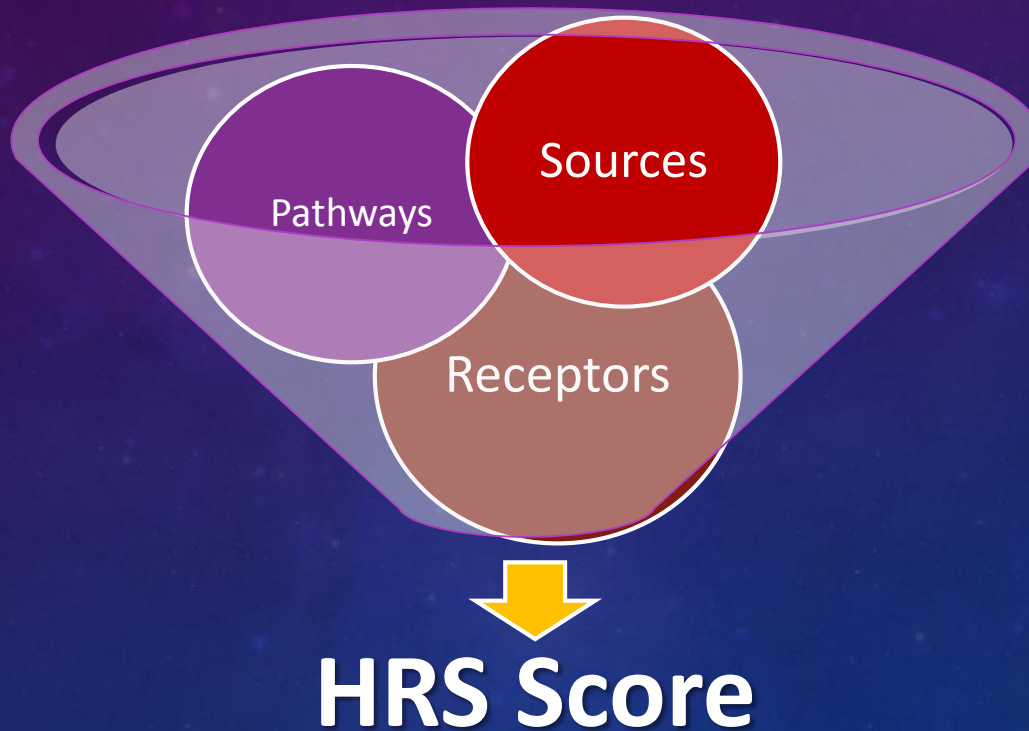
BRIEF HRS HISTORY (CONT.)



WHAT IS THE HRS?



REMEMBER THIS!!



SOURCES TO BE EVALUATED



Contaminated Soil

SOURCES TO BE EVALUATED



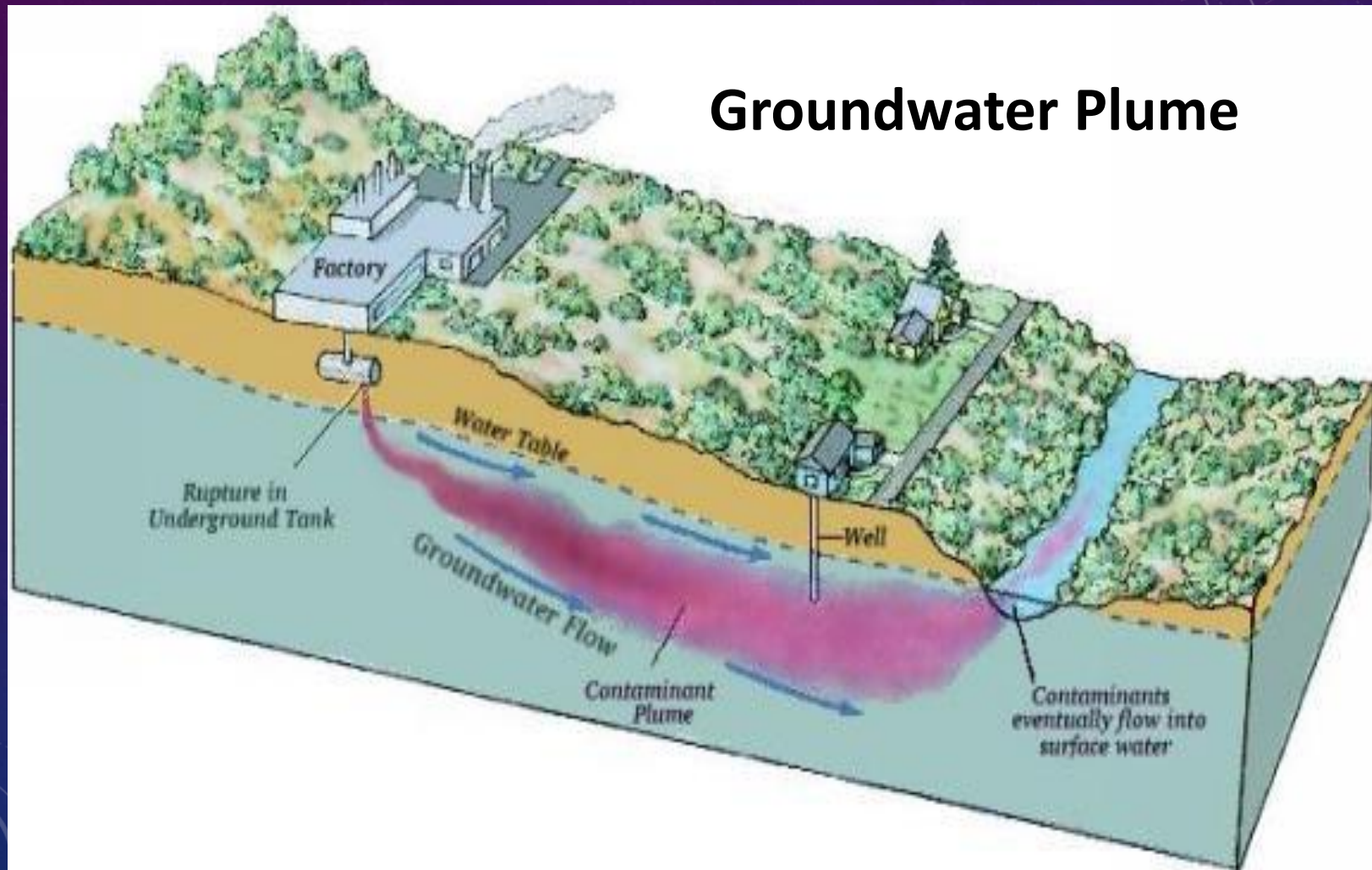
Old Landfills

SOURCES TO BE EVALUATED

Drums, Tanks & Containers



SOURCES TO BE EVALUATED



SOURCES TO BE EVALUATED

Contaminated Sediment



FOUR PATHWAYS...

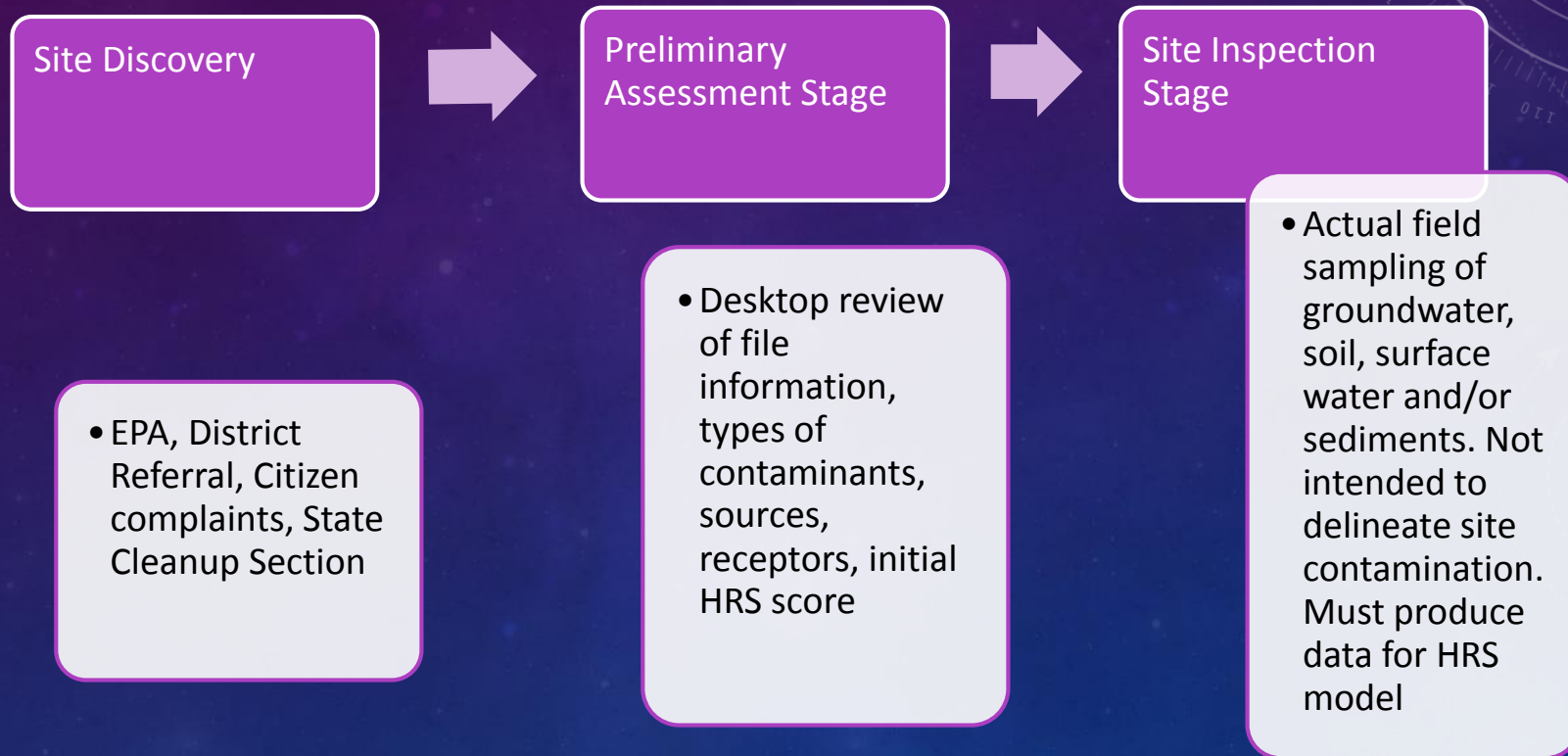
- **This is not the Four Horsemen of the Apocalypse but close!**



FOUR PATHWAYS SCORED ON HRS

Pathway	Concerns
Ground water migration	drinking water
Surface water migration	drinking water, human food chain, sensitive environments
Soil exposure	resident population threat (residents, workers, terrestrial sensitive environments) and nearby population threat (population within 1-mile).
Air migration	population, sensitive environments

CERCLA PROCESS FLOW



CERCLA PROCESS FLOW (CONT.)

Post SI HRS Score

- Does it score above 28.5? Is this an NPL caliber site?

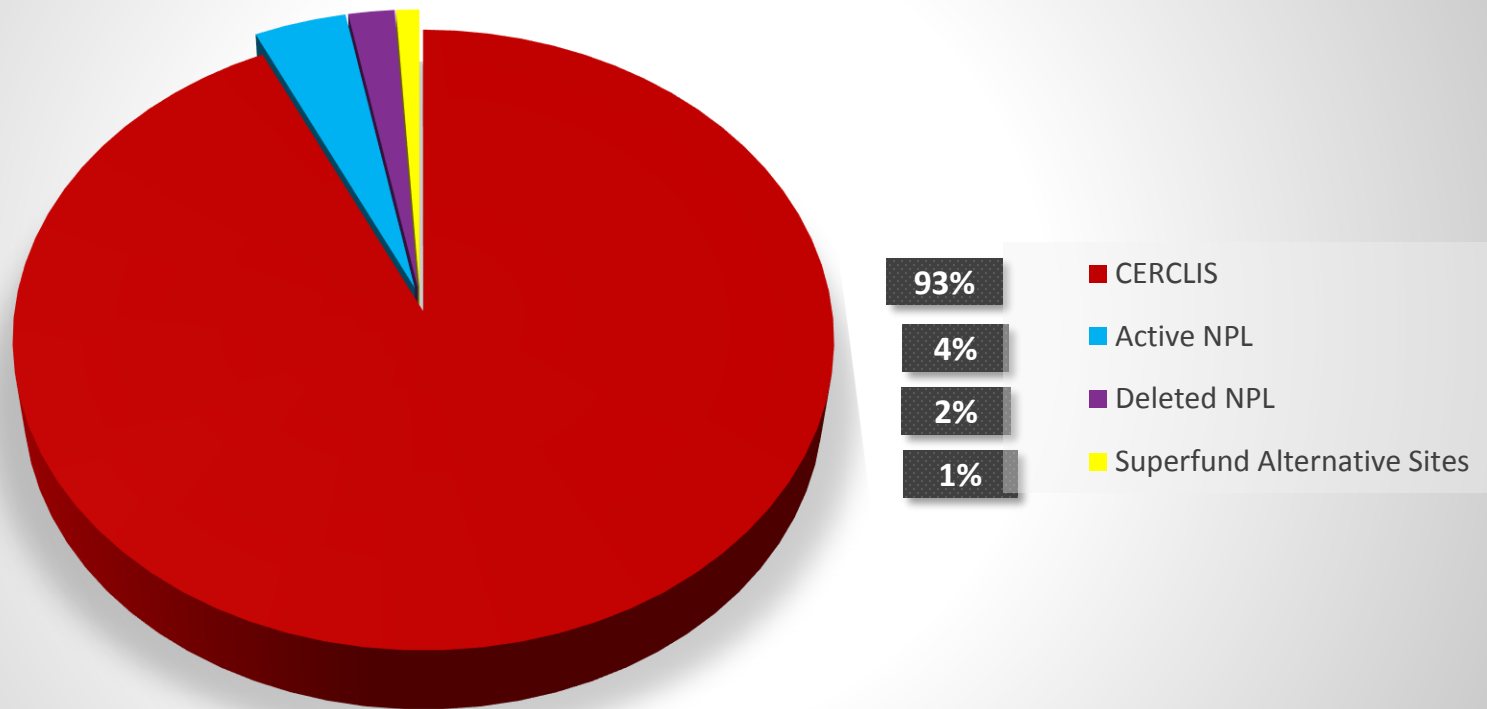


Removal & Emergency Response Actions

- Can occur at any stage of the CERCLA Process

TOTAL NUMBER OF CERCLIS SITES COMPARED TO NPL AND SUPERFUND ALTERNATIVE SITES

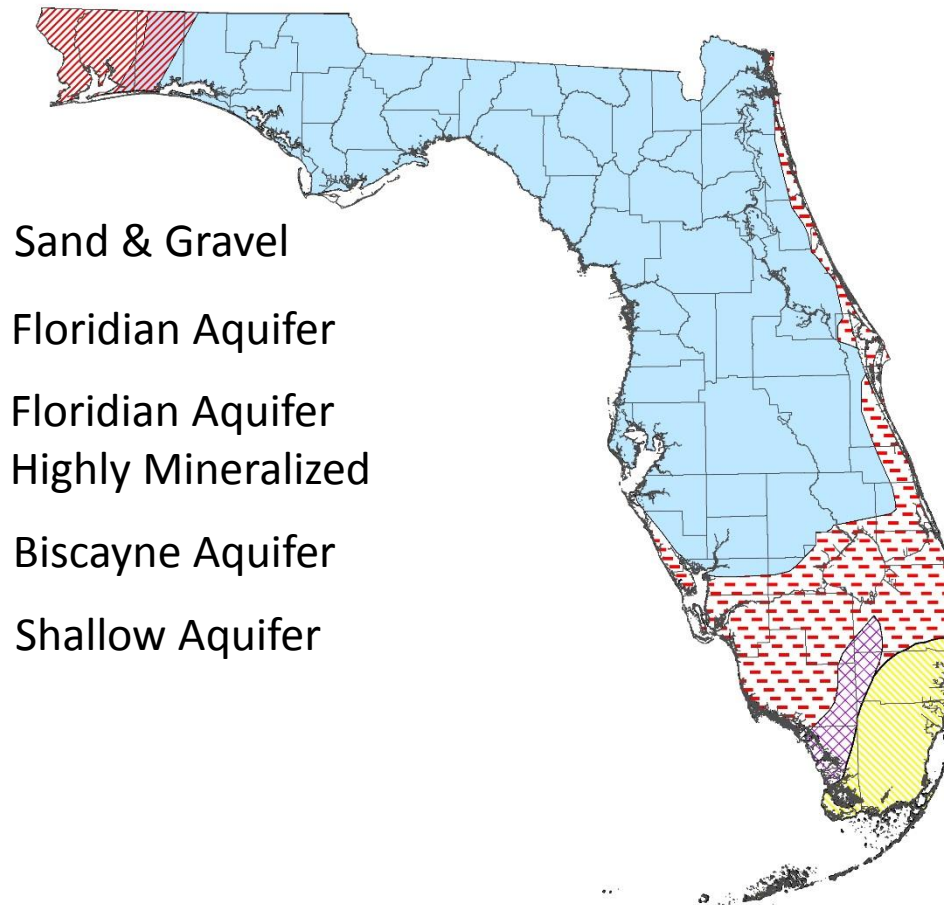
CERCLIS Site Breakdown – 1345 Sites



GROUNDWATER MIGRATION PATHWAY



FGS AQUIFERS IN FLORIDA



Sand & Gravel

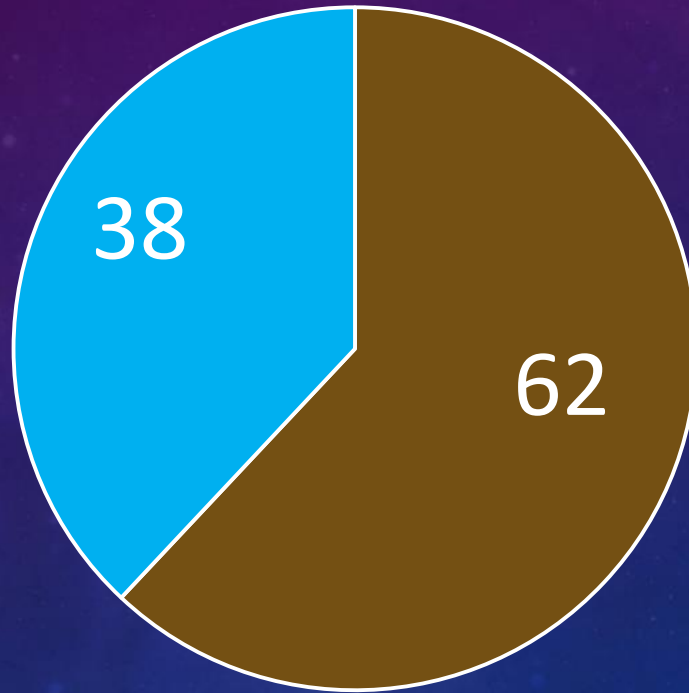
Floridian Aquifer

Floridian Aquifer
Highly Mineralized

Biscayne Aquifer

Shallow Aquifer

SOURCES OF DRINKING WATER IN FLORIDA

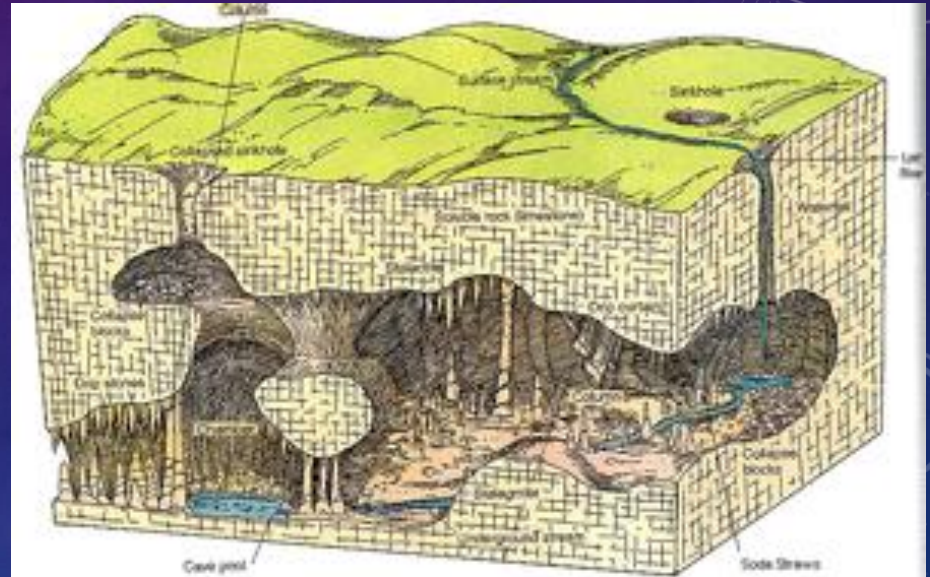


■ Ground Water

■ Surface Water

GROUNDWATER MIGRATION PATHWAY

- Karst terrain and karst aquifer conditions
- High scores.



SOMETIMES KARST IS OBVIOUS
SOMETIMES IT'S NOT...



WHAT IS A NPL CALIBER SITE? GROUNDWATER MIGRATION PATHWAY



The closer to the target the higher the HRS Score

- **Receptors**
- **People**

GROUNDWATER MIGRATION PATHWAY

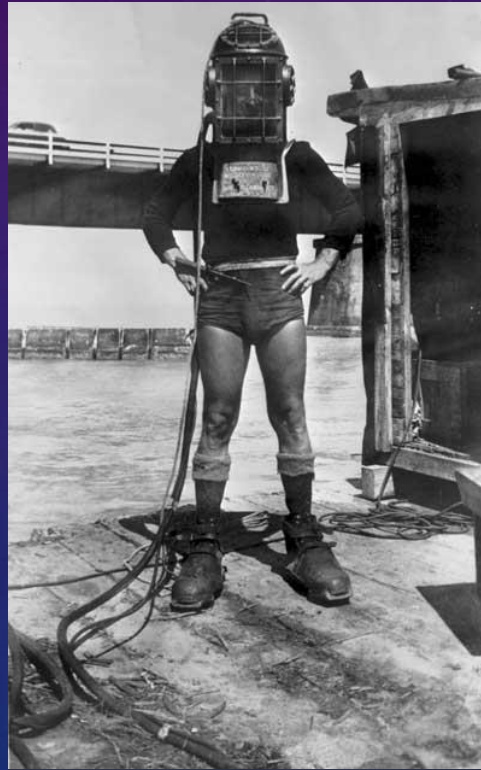
- Contaminated private or public wells
- MCL exceedance and Cancer Risk Concentrations get high priority.



PRIVATE WELLS CONTAMINATION



SURFACE WATER MIGRATION PATHWAY

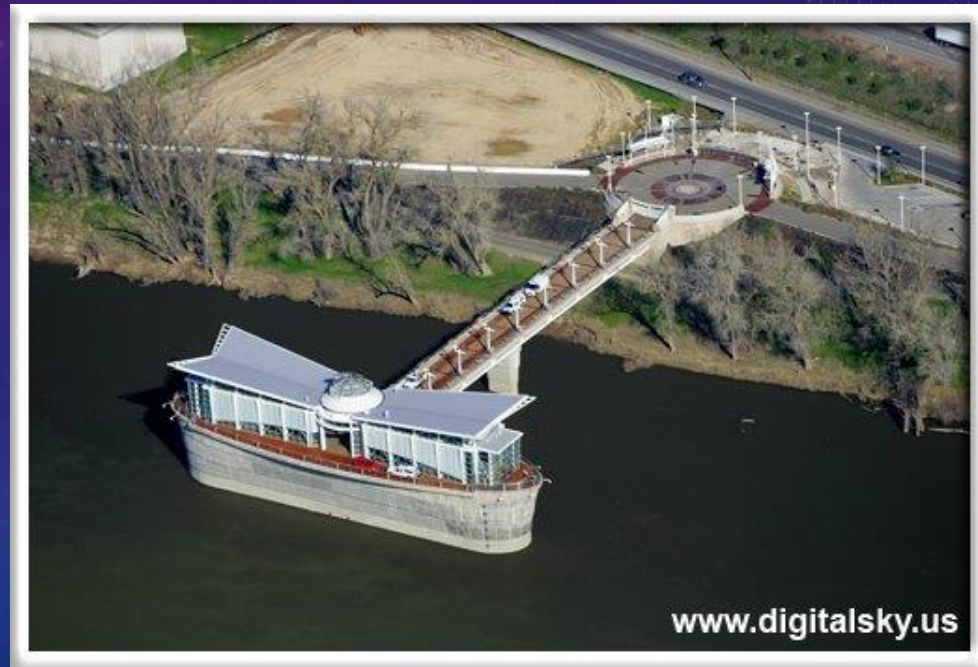


THE SURFACE WATER MIGRATION PATHWAY – 15 MILES DOWNSTREAM

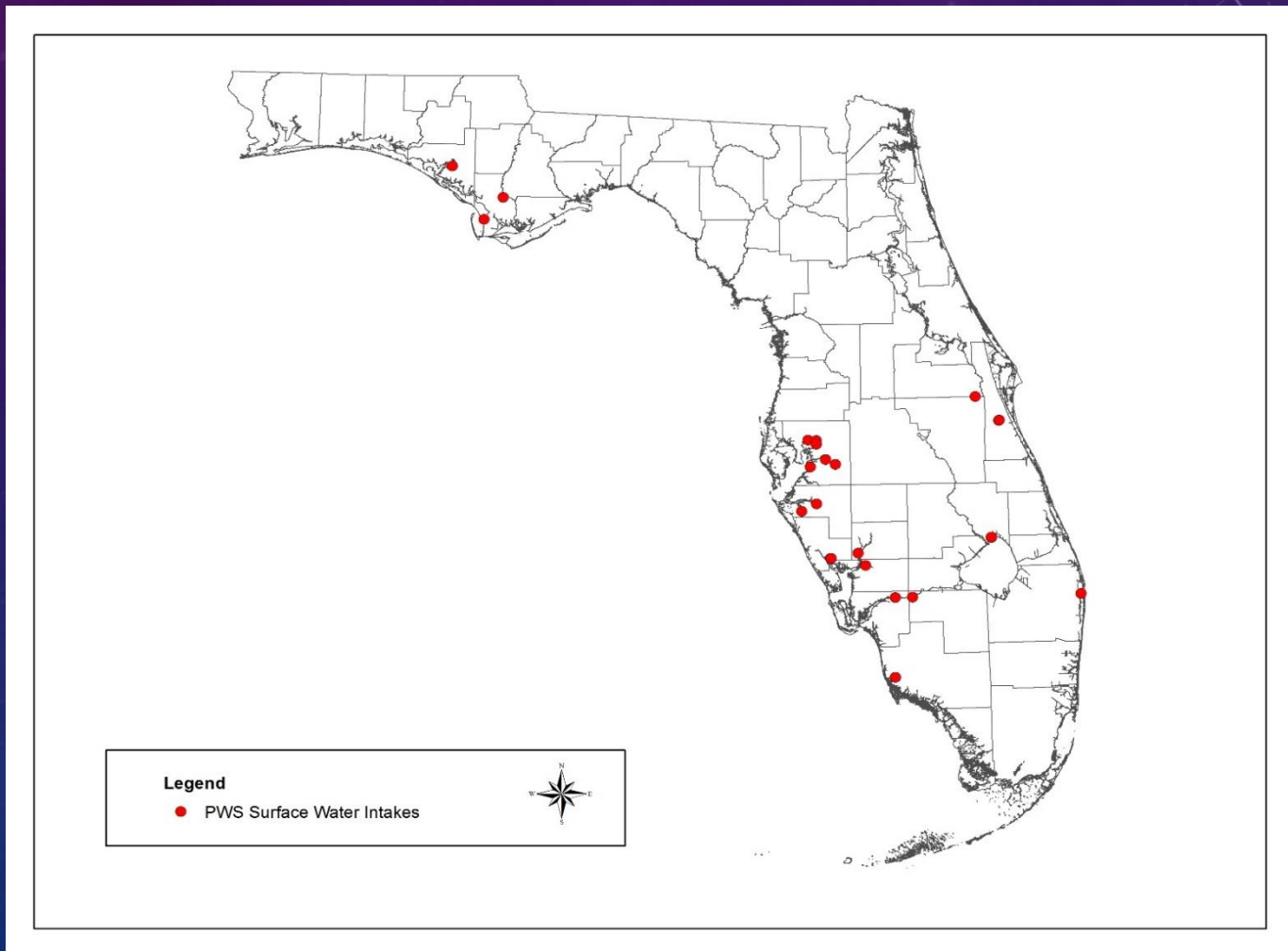


SURFACE WATER MIGRATION PATHWAY

- Sites impacting surface water (or sediments)
 - near potable surface water intakes significantly increase the HRS score.



SURFACE WATER SOURCES IN FLORIDA



SURFACE WATER MIGRATION PATHWAY

- Contaminated water body
 - Sediments
 - Fisheries or contaminated fisheries
 - Fish tissue testing



SURFACE WATER MIGRATION PATHWAY

- Contaminated water body with sensitive environments
 - Wetlands
 - Endangered or threatened species
 - Critical Habitats
 - State designated scenic or wild rivers.
 - Federal National Wildlife Refuges



WHAT IS A NPL CALIBER SITE SOIL EXPOSURE PATHWAY

- Contaminated surface soils:
 - Residential
 - Daycare
 - School
- Soil contamination must be within 200 feet.



RESIDENTIAL HOUSING-CONTAMINATED SOILS



CITIZEN COMPLAINT - DIELDRIN/ALDRIN CONTAMINATION



ON-SITE SENSITIVE ENVIRONMENTS



- Endangered/or threatened species
- Gopher tortoises
- Woodstorks
- Eastern indigo snakes
- Florida Scrub Jays
- Red-Cockaded Woodpecker



FLORIDA SCRUB JAY AT FORMER CAMP MURPHY RIFLE RANGE MARTIN COUNTY



AIR MIGRATION PATHWAY

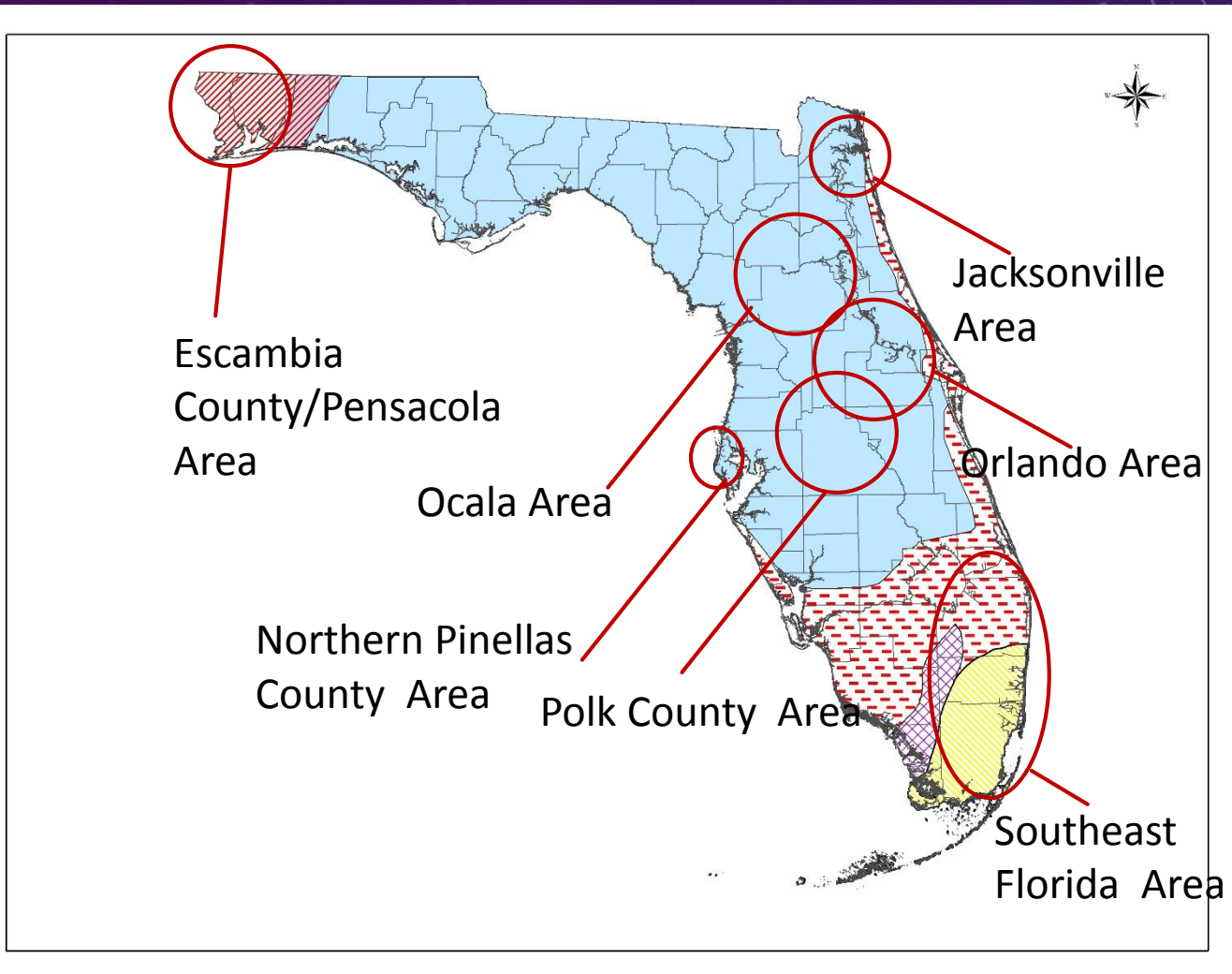
- Few sites score under the Air Migration Pathway
- There is always a first time!



HRS FUTURE PATHWAYS



AREAS WHERE SITES SCORE SIGNIFICANTLY ABOVE 28.5



THE CERCLA SITE SCREENING SECTION LEAVES NO STONE UNTURNED...

- You discover a site??
- “Who you gonna call?”
- Contact the CERCLA Site Screening Section...



SOMETIMES WE GET REALLY GOOD SITES!



EPA WEBSITES FOR INFORMATION ON THE HRS AND GUIDANCE

- [HRS Guidance](#)
- [HRS Toolbox](#)
- [Overview of Present HRS](#)
- [Subsurface Intrusion \(Ssl\) to the HRS](#)

QUESTIONS??

