

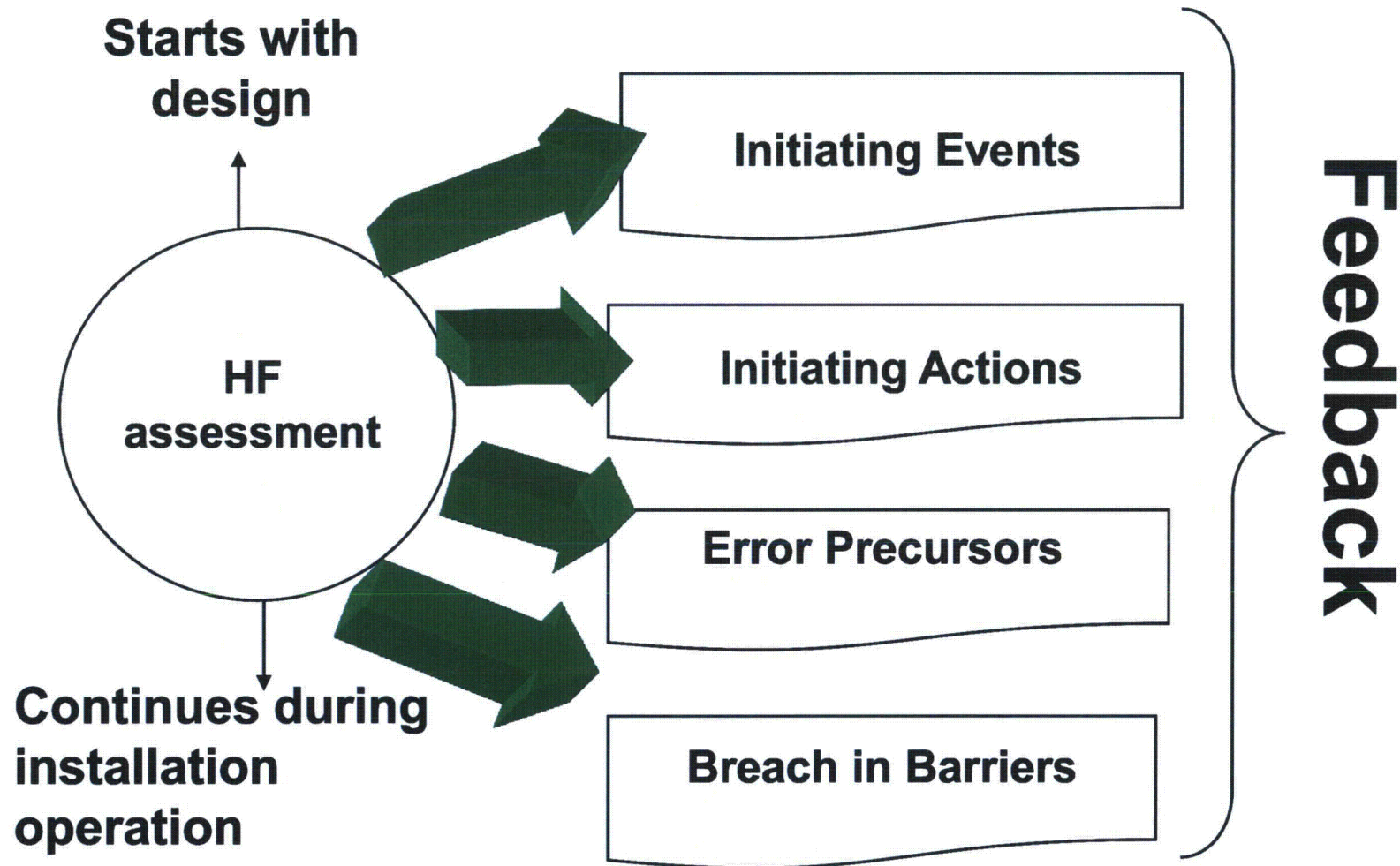
Auxiliary Systems

- Auxiliary systems include:
 - HVAC
 - Compressed air
 - Fire Protection
 - Water control systems
 - Fuel Storage (fresh and irradiated)
- No Safety Class 1 systems

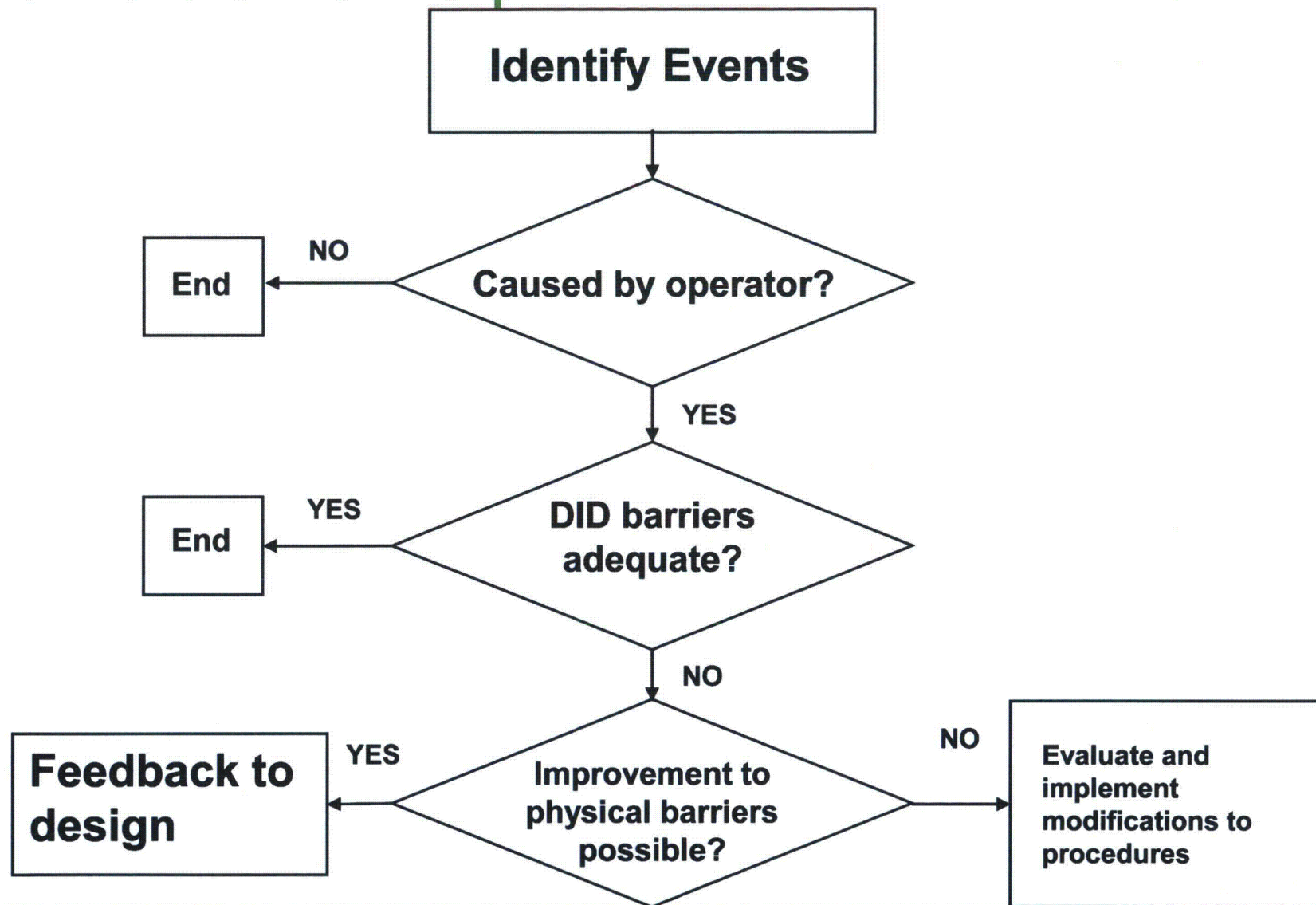
Conduct of Operations: HFE

- At Preliminary Engineering stage: Human Factors Engineering
- INVAP has developed a methodology to integrate HFE in the design process
 - Involves all levels of Defense in Depth
 - Includes identification of latent error causes in design

Conduct of Operations: HFE



Conduct of Operations: HFE



Conduct of Operations: HFE

- Actions with highest potential impact on safety of the facility
 - Operation:
 - Main control room
 - Pool top operations
 - Molybdenum target loading
 - Maintenance:
 - Contributes to latent errors;
 - Includes refueling
- Management and mitigation of accidents

Conduct of Operations: HFE

- Design:
 - 30 minutes after initiating events with no action required by operator.
 - Procedures design: task analysis.
 - Design of tools for pool top operations
 - Hot cell front and telemanipulators
- Operation:
 - Evaluation of information displays (focus groups, checklists)
 - Operation procedures based on previous experience
- Maintenance:
 - Minimize error-forcing context
 - Procedures
 - Determine level of supervision (e.g. for release of equipments for operation)
- Training of operators

Conduct of Operations: HFE



Accident Analyses

- NUREG-1537 + ISG + experience
- Analysis in parallel with design
- Early development of model for analysis to provide feedback to designers
- In initial stage verify for Reactor:
 - Behavior of inherent safety (e.g. feedback coefficients in transients without scram)
 - Actuation time for the RPS/RSS
 - Acceptable delays
- Facility: Integrated Safety Assessment

Accident Analyses: Reactor

- Demonstrate that no DBA leads to release
- Steps:
 - Definition of acceptance criteria
 - Initiating Events
 - Accident Sequence
 - Data collection
 - Development of dynamic model
 - Verification of steady state (initial state for analysis)
 - Analysis of bounding accident sequence in each group
 - Consequence analysis for BDBA

Accident Analyses: Facility

- Demonstrate that there are no events with failure of single barrier that leads to release.
- Steps:
 - Definition of acceptance criteria
 - Initiating Events (radiological and chemical consequences)
 - Accident Sequence
 - Data collection
 - Barrier integrity analysis
 - Consequence analysis for BDBA

Accident Analyses: External Events

- Determined by site characteristics
- Will include all events identify for site
- Possible combination of events (e.g. effects of high winds + missiles on building and other structures)
- Will involve analysis of simultaneous effect on facilities on site

Accident Analyses: Reactor + RPF

● Acceptance Criteria

- Design Basis Accident Sequences → No damage to core or irradiation targets
- No release of radioactive material from the hot cell
- Beyond Design Basis Accident Sequences → Dose-based acceptance criteria (10 CFR Part 20)

Waste Conditioning Facility

- Characteristics and waste treatment processes to be determined by requirements from entity that will remove waste for storage (DOE lease and take-back program)*
- Temporary storage only
- Frequency of waste transport to be defined
- Minimization of inventory

*The American Medical Isotope Production Act of 2012 requires DOE responsibility for nuclear fuel management and radioactive waste that cannot be accepted in commercial disposal facilities (Type C and Greater Than Type C).



Questions?

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Environmental Update

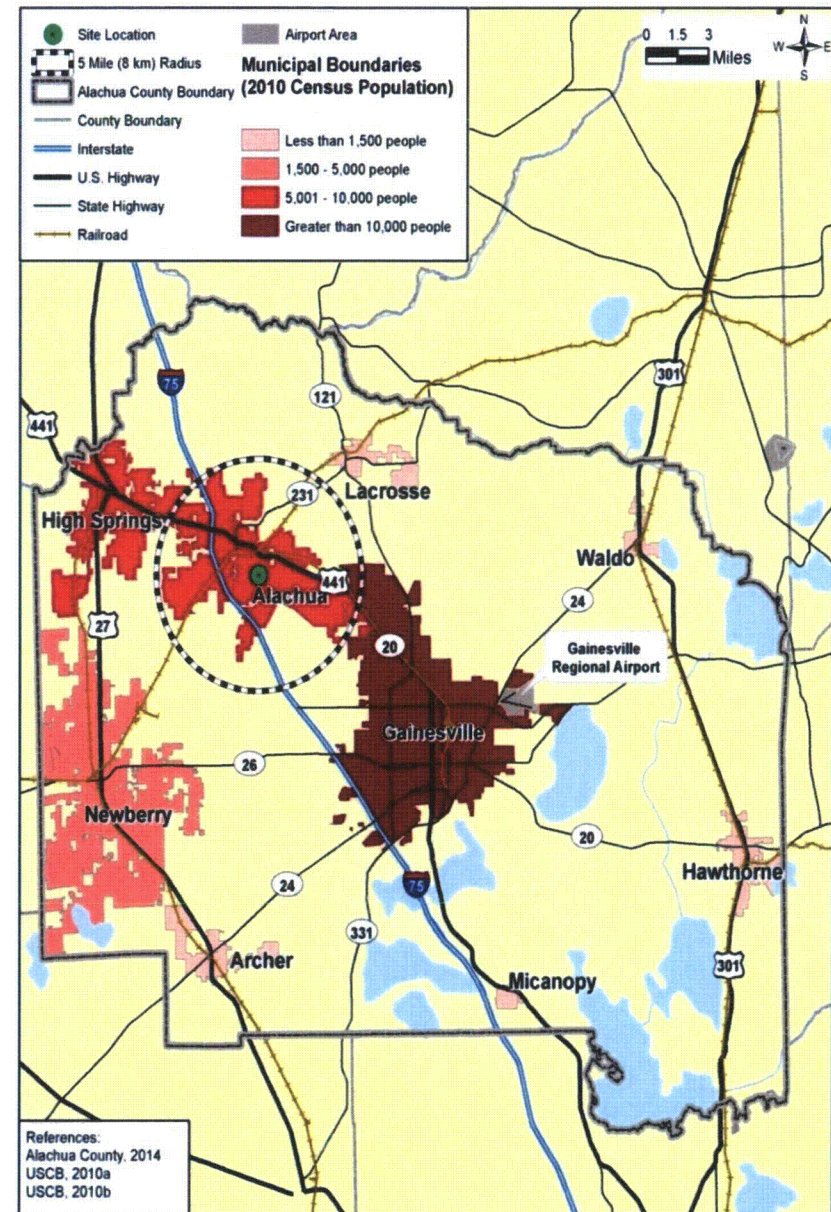
Environmental Presentation Goal

- Provide NRC with an update of environmental work and Environmental Report preparations

- 10 CFR § 50.33(f) requires an ER in compliance with 10 CFR Part 51
- Will follow NUREG-1537 and the ISG Augmenting NUREG-1537

Site Location

- Site located in City of Alachua, Florida
- Nearest population center is Gainesville, FL 10 miles SE

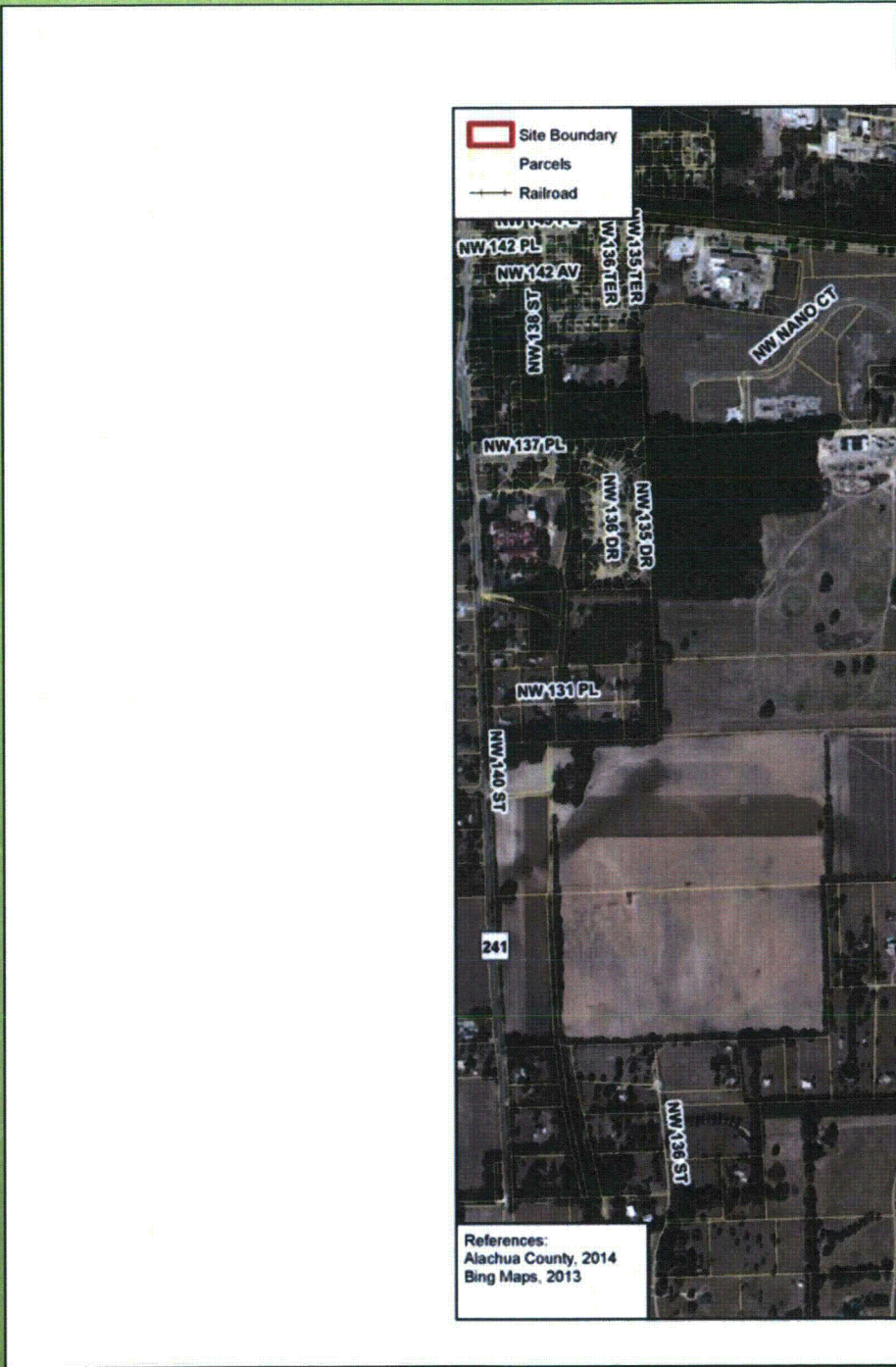


Site Location



- Site Boundary
- 5 Mile (8 km) Radius
- Railroad
- Progress Corporate Park
- Public Schools
- Agricultural Practices within the region
- Lodging Facilities within the region
- GRU Deerhaven Power Plant
- Churches
- Parks

Site Location



Land Use and Visual Resources

- Analysis of existing viewshed has been completed.
- Based upon final exterior building design and site layout, impacts to the viewshed from adjacent properties will be considered



View of COQUI site looking east



View of COQUI site looking southeast

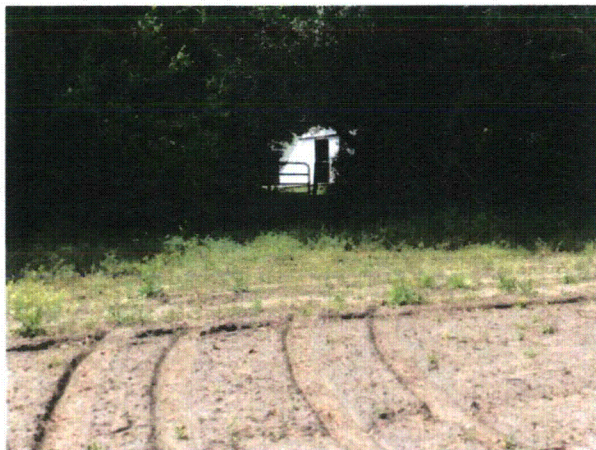


View of COQUI site looking south



View of COQUI site looking southwest

Affected Environment



View of farm to southwest of the site



View of farm to southwest of site



View of home to the south of site



View of home to the south of the site

Air Quality & Noise

- Regional meteorological data has been collected and analyzed
- Collection of site-specific data is planned
- Site-specific equipment, air emission, and noise sources are being finalized as part of the design process

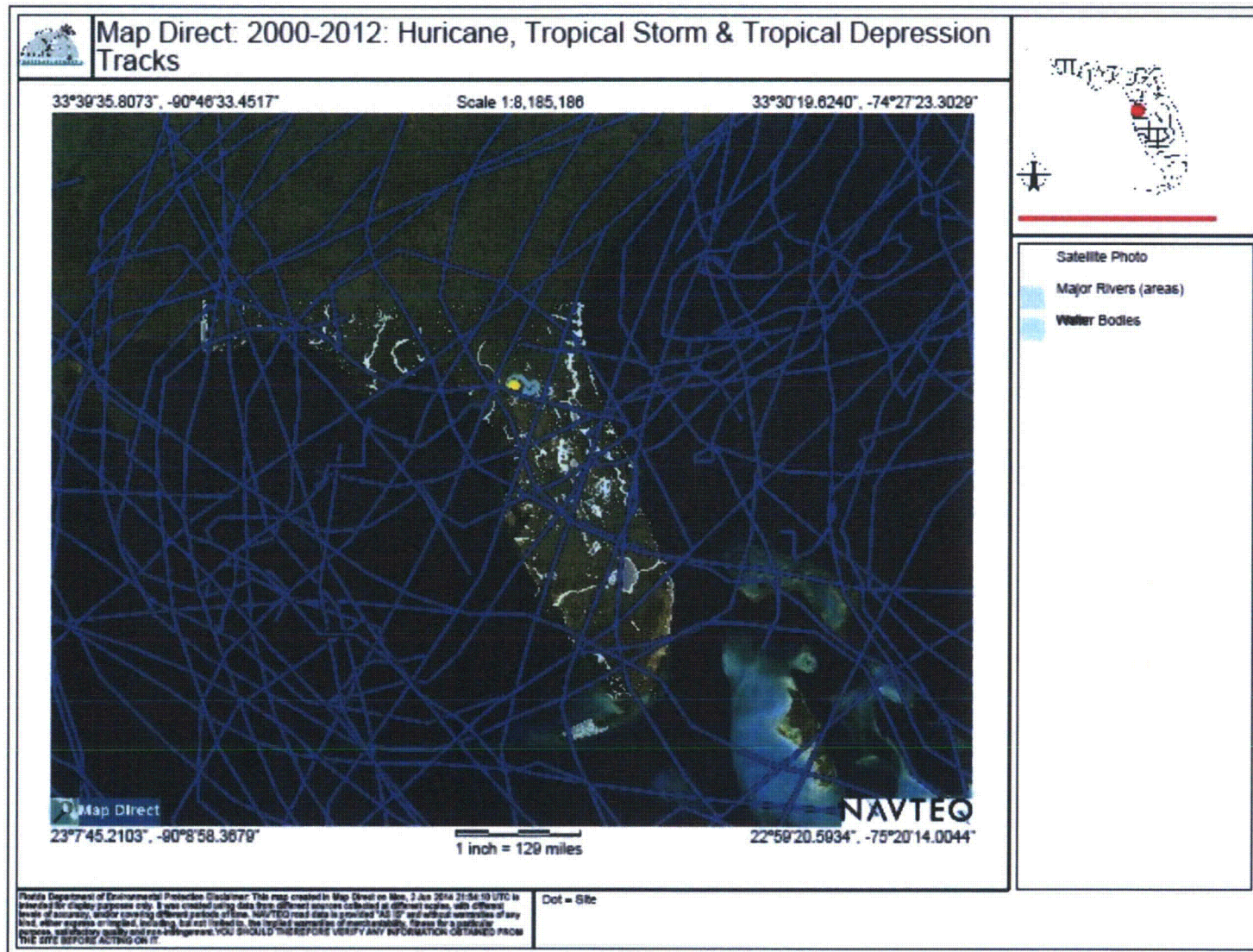
Air Quality

- Nearest nonattainment areas to site are:
 - Hillsborough County , Florida (120 miles south) for lead and SO₂
 - Nassau County, Florida (85 miles northeast) for SO₂
- Not subject to Haze Rule as >100 km (62 miles) from a Class I area
- Nearest Class I Areas to site is Okefenokee National Wildlife Refuge, GA, 105 km (65 miles) north

Severe Weather

- Thirteen hurricanes since 1950 that either made landfall on Florida or brought winds of Category 3 or above (sustained winds >111 mph)
- Frequency of summer thunderstorm activity in Central FL is high
- Design is addressing hurricane missile, tornado protection, lightning and flooding

Affected Environment

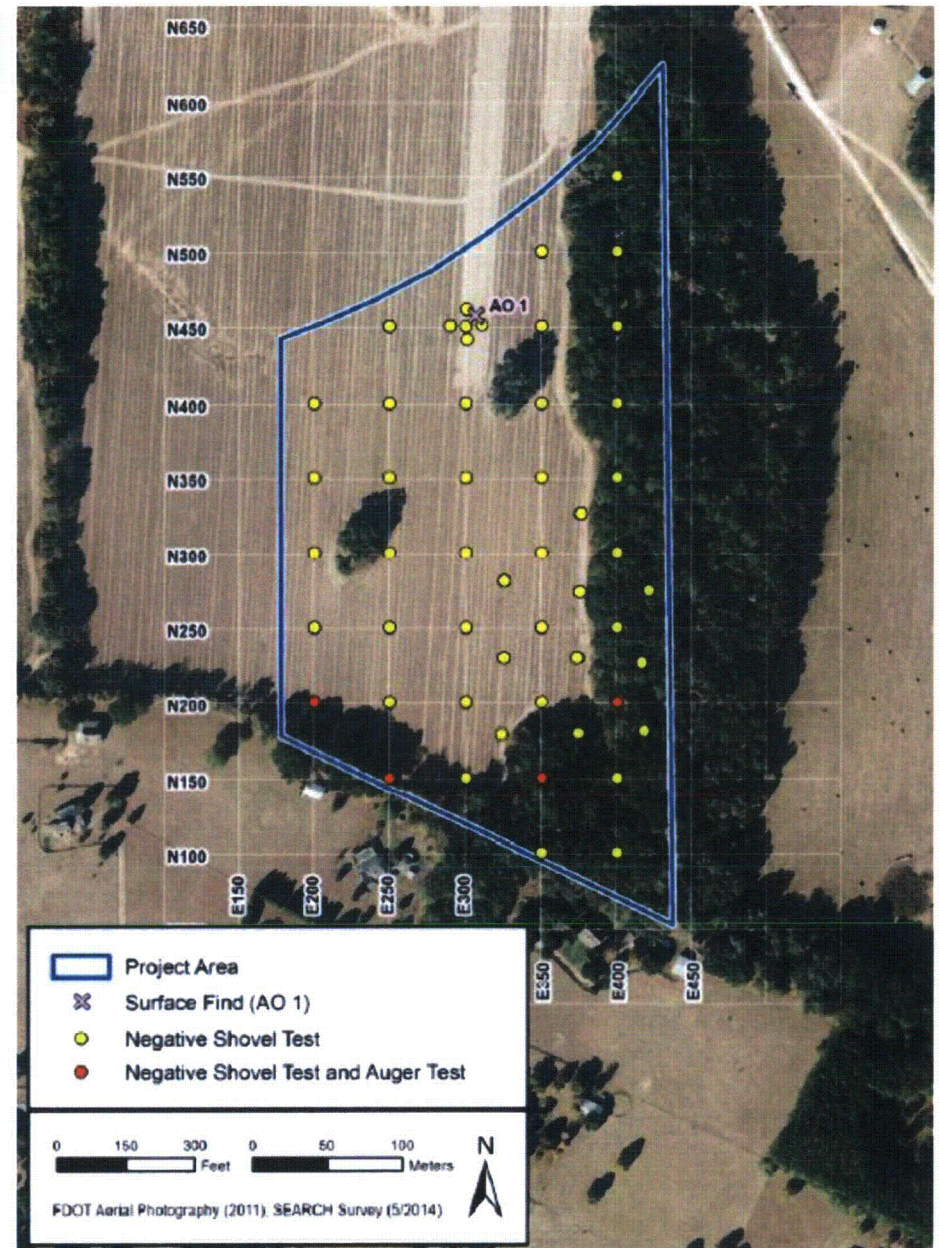


Water Resources

- No surface water on-site
- City of Alachua's available water capacity exceeds facility water needs
- 5 groundwater monitoring wells were installed and are being monitored for potentiometric changes
- Regional groundwater flow paths through primary conduits in limestone bedrock may yield groundwater velocities up to approximately 2,300 feet per day

Historic & Cultural Resources

- On-site archeological survey consisted of 52 shovel tests and surface inspection
- Single lithic waste flake observed on surface of fallow ground
- Survey results indicated that no eligible or potentially eligible resources will be affected



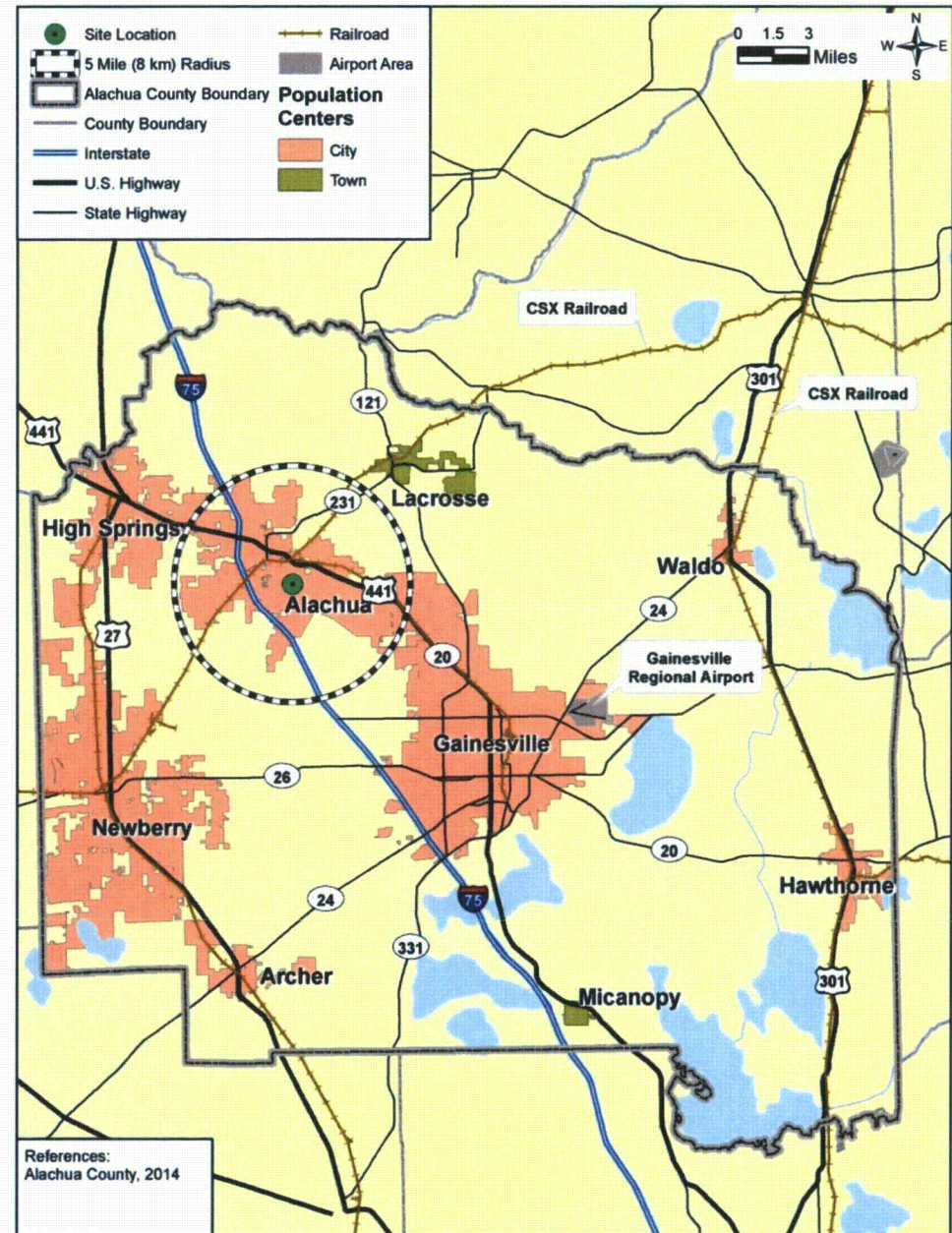
Historic & Cultural Resources

- Outreach to 4 Native American Tribes was conducted
 - One response received
- Cultural resource assessment survey performed and submitted to SHPO



Socioeconomic

- Data has been compiled on:
 - Population and demographics
 - Labor
 - Housing
 - Public water systems
 - Local school systems
 - Local road networks



Human Health

- On-site background radiation samples
 - Soil: 20
 - Air: 2



Human Health

- On-site background radiation samples
- Groundwater: 5



Waste Management

- Radioactive Waste systems, structures and components will be designed and operated to:
 - Minimize waste generation
 - Segregate liquid wastes at the time of collection and processing according to isotopic concentration
 - Minimize radiological releases (i.e. gaseous)
 - Comply with regulatory requirements including NRC, DOE, and waste disposal facility operational requirements
- A Process Control Program will be prepared for operations defining waste practices
- Waste Management practices and approach will be described in the Environmental Report and PSAR consistent with regulatory guidance

Waste Management

- **Nuclear fuel** will be leased from the DOE and after use returned to the DOE.
 - Temporary onsite storage provisions will be provided to accommodate spent fuel management and DOE pickup practices.
- **Liquid Radioactive Waste** from reactor and moly production facilities will be collected and processed to prepare a waste disposal package that is compliant with 10 CFR Part 61.
- **Solid Radioactive Waste** will be collected, compacted and packaged for disposal compliant with 10 CFR Part 61.
- **Gas Radioactive Waste** predominantly from the moly production facility will be collected in holding tanks to achieve decay prior to release within 10 CFR Part 20.
- **Waste Disposal**
 - Type A&B waste will be disposed in commercial disposal facilities
 - Type C and Greater Than Type C waste will be shipped to DOE for disposal

Environmental Justice

- Resources:
 - Council on Environmental Quality's *Environmental Justice Guidance under the National Environmental Policy Act*;
 - NRC Policy Statement on the Treatment of *Environmental Justice Matters in NRC Licensing Actions*; and,
 - NRC Office Instruction No. LIC 203, Revision 2, *Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues*
- Have analyzed local area for potential impact on minority and low-income communities



Questions?

Closing

Coquí looks forward to continue working with the NRC on this important project.

Contact:

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