# Coastal Protection and Restoration Authority of Louisiana

## HSDRRS Re-Certification

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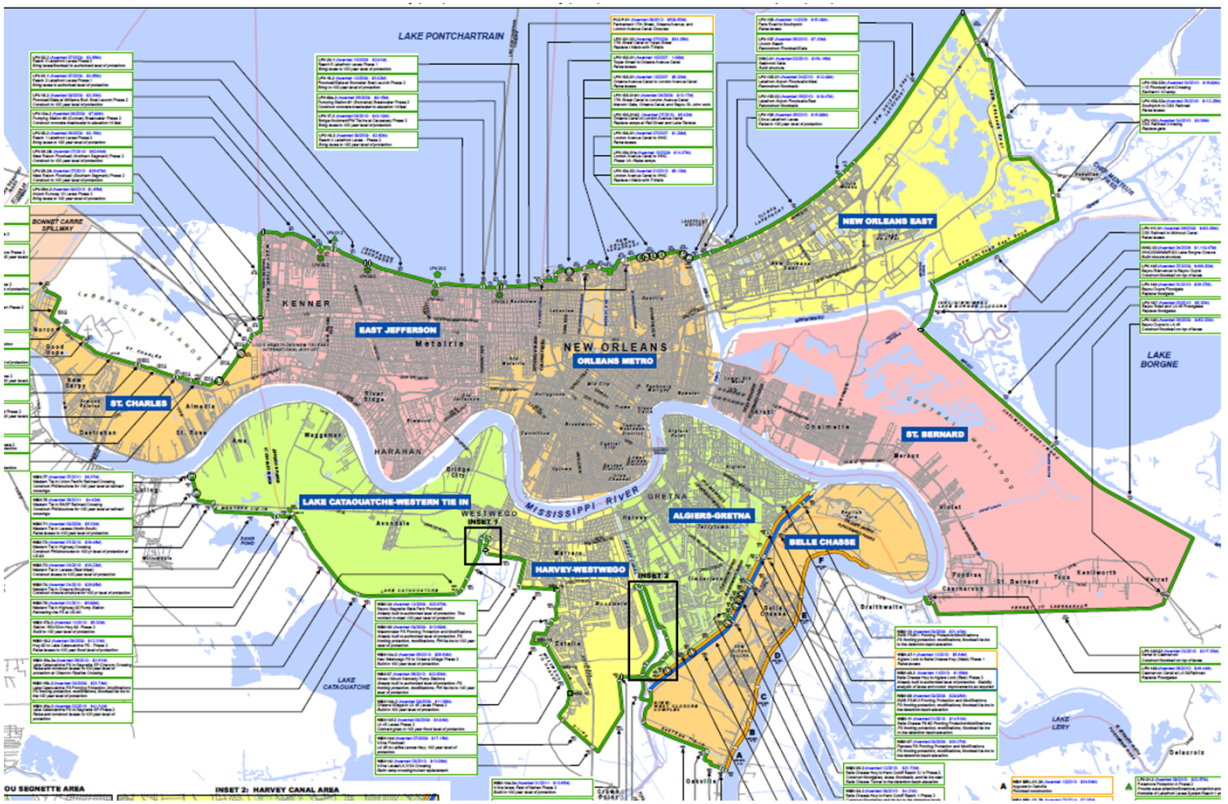
# AGENDA

- Greater New Orleans HSDRRS Certification Background
  - System Description
  - NLSER report by USACE dated June 2013
- Work performed by CPRA for the HSDRRS Re-Certification
- Path forward
  - USACE Risk Assessment vs 44 CFR, Section 65.10

# HSDRRS Certification Background

HSDRRS:

- 350 miles of levees and floodwalls.
- 73 non-federal pump stations.
- 3 canal closure structures with pumps



# HSDRRS Certification Background

## NFIP Levee System Evaluation Report (NLSER)

- The report determined that the Greater New Orleans HSDRRS system provides risk reduction against a 100 year event. It is dated June 2013, and Corps stated that their recommendations are valid for a period of 10 years.

- Report followed EC 1110-2-6067. This Engineer Circular provides technical guidance for use in USACE process for NFIP levee system evaluation.

# Re-Certification work by CPRA

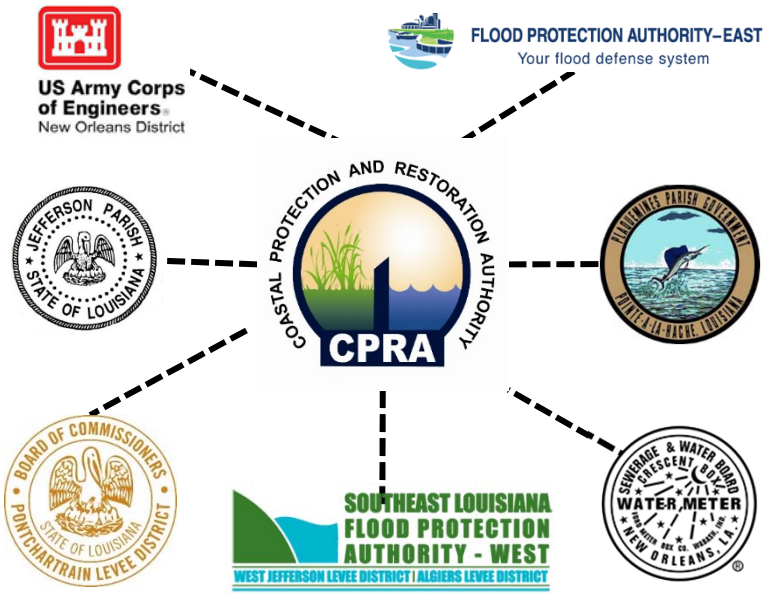
- **Recent progress:**

  - ✓ **September 2018 - Cooperative Research and Development Agreement (CRADA) developed with USACE Engineer Research and Development Center (ERDC) for assistance with H&H modeling.**

  - ✓ **On-going – Update the Topobathymetric Digital Elevation Model (TBDEM) for South Louisiana.**

  - ✓ **November 2019 – Held face-to-face meeting with Levee Safety Program Manager to discuss Re-Certification options.**

  - ✓ **July 2020 – Received estimated cost for HSDRRS risk assessment.**



# Path Forward

Options:

- Hire an engineering firm/organization to certify that the levee system meets 44 CFR, 65.10 requirements.

- Request a risk assessment evaluation from USACE.
  - ✓ Semi-Quantitative Risk Assessment (SQRA)
  - ✓ Quantitative Risk Assessment (QRA)

# RISK ASSESSMENTS

- Risk assessments evaluate levee and flood risks associated with the levee system.
- Factors that drive risks such as hazards, performance and consequences are evaluated.
- A risk matrix showing the likelihood and consequences for each risk-driving failure mode is plotted.
- Accreditation recommendation to FEMA is based on annual exceedance probability of total flood risk for the levee system.

# RISK ASSESSMENTS NOTES

- Effort will be cost-shared (50/50) between Federal and Local Sponsor funding.
- Interior drainage is NOT included as part of the risk assessment.
- Risk assessment will not start until new water levels and wave statistics are provided by ERDC.
- Although ERDC's information is essential for the risk assessment, USACE will not cost-share it.
- Risk assessments will be updated by USACE at a minimum every 10 years in conjunction with a formal inspection, dependent on the availability of funding.

# Risk Assessment Estimated Cost

**NFIP Accreditation**

**LPV and WBV Cost Summary**

| | |
|---|---|
| LPV Labor | $787,366.00 |
| LPV Travel | $35,654.50 |
| WBV Labor | $741,325.00 |
| WBV Travel | $35,654.50 |
| **Total Cost** | **$1,600,000.00** |

| | |
|---|---|
| LPV Total | $823,020.50 |
| WBV Total | $776,979.50 |

Date: 14 July 2020

# Risk Assessment Estimated Cost for WBV

- Non Federal Sponsor is responsible for $388,490

| | Miles | % of total | Cost | Levee Districts |
|---|---|---|---|---|
| SLFPA-W | 71.34 | 65 | $252,518.3 | WJLD, ALD |
| Plaquemines | 31.34 | 28 | $108,777.13 | PPG |
| SCPG/LBLD | 7.46 | 7 | $27,194.3 | SCPG/LBLD |

# Path Forward

| | Follow CFR 44, Sec 65.10 | Risk Assessment (USCE) |
|---|---|---|
| Evaluation Frequency | Certification has no expiration date. Evaluation frequency will depend on how often the system floods/fails. FEMA can request system re-evaluation at any given time | Once an SQRA or QRA has been conducted on a levee system, any updates to the risk characterization, including validation/update of the NFIP accreditation recommendation, will be accomplished by updating the SQRA or QRA every 10 years. |
| Funding | Evaluation is fully paid by the Non-Federal Sponsor every time FEMA requests re-evaluation | Cost of evaluation is shared on a 50 percent Federal - 50 percent Non-Federal basis for the first evaluation. USACE will update the SQRA or QRA every 10 years, dependent on availability of funds. |
| Engineering Analysis | Analyses usually consist of deterministic methods | System will be evaluated using risk assessment methods (SQRA or QRA) |
| | Requires updating the still water level and wave height associated with the 1% event. Freeboard is then added per requirement from Section 65.10 | Requires updating the still water level and wave height associated with the 1% event to determine probability of overtopping, and flood risk annual exceedance probability. |

# THANKS!

# Levee Certification vs. Accreditation

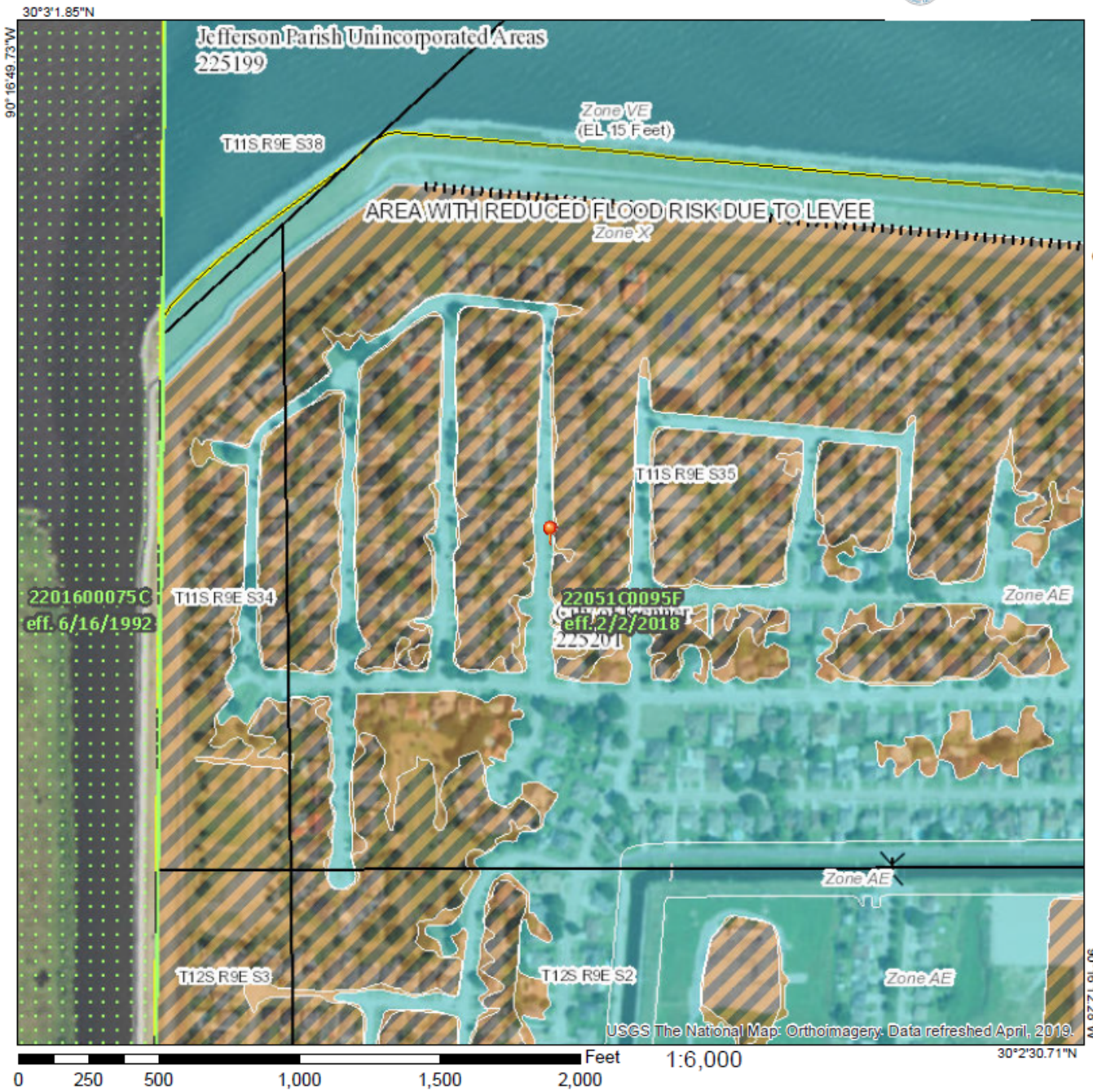
What is Levee Certification?

- It consists of documentation, signed and sealed by a registered PE, stating that:
  - Levee meets the requirements of 44 CFR, Section 65.10.
  - Data is accurate to the best of the certifier's knowledge
  - Analyses are performed correctly and in accordance with sound engineering practices.
- Documentation has to show that levee provides risk reduction from at least the 1% annual-chance flood (base flood).
- It's the responsibility of the levee owner or community in charge of the operations and maintenance.
- Alternatively, a Federal agency with responsibility for levee design may certify that system provides protection against the base flood.
- Certification must be completed to be eligible for accreditation by FEMA.

# Levee Certification vs. Accreditation

- Accredited Levee System
  - An accredited levee system is a system that FEMA has determined can be shown on a DFIRM as providing a 1 percent annual-chance or greater of flood protection. This determination is based on the submittal of documentation required y 44 CFR Section 65.10.
  - The area landward of an accredited system is shown as a moderate-risk area, labeled Zone X on the DFIRM except for areas of residual flooding, which will be shown as Special Flood Hazard Areas (SFHAs). Flood insurance is not mandatory in Zone X areas but it's mandatory in SFHAs.

# National Flood Hazard Layer FIRMette




## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

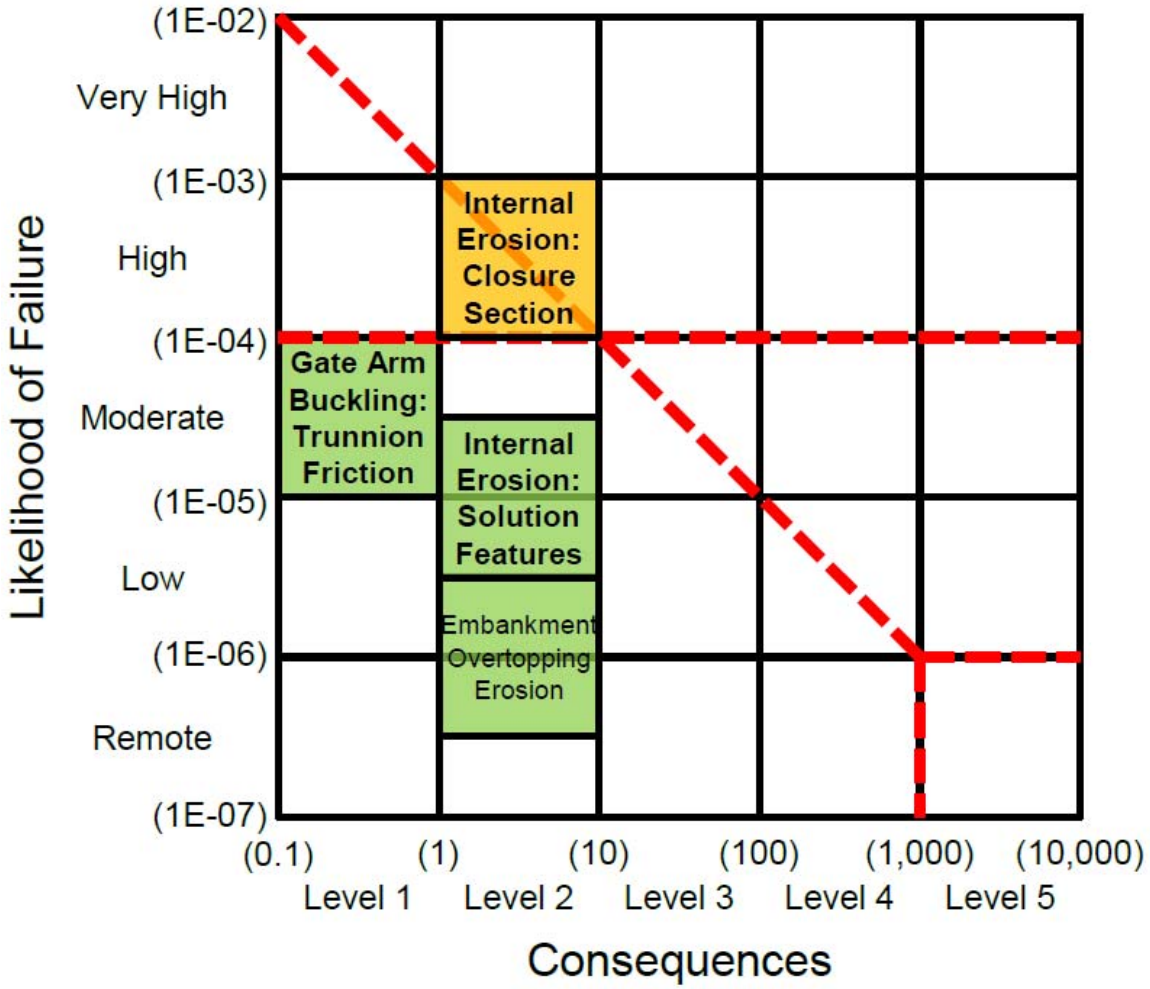
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/6/2019 at 10:24:19 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# RISK ASSESSMENTS

## Semi-Quantitative Risk Assessment (SQRA)



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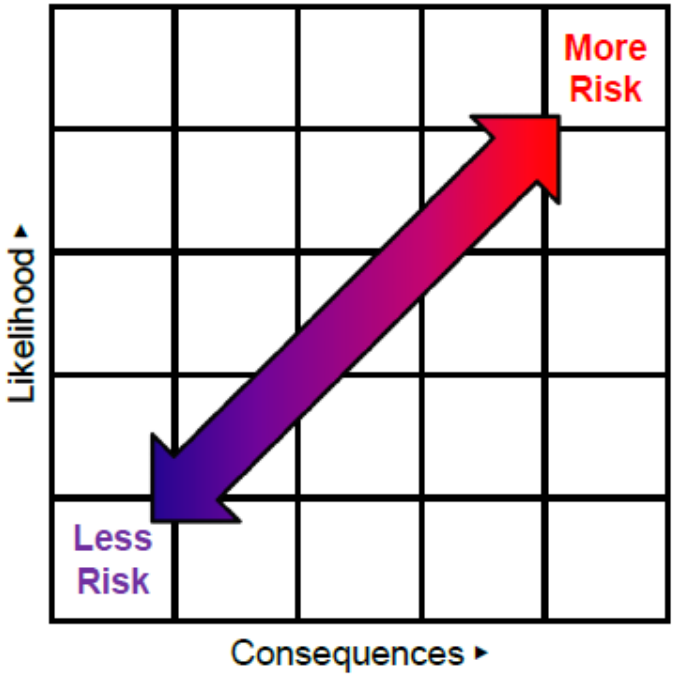
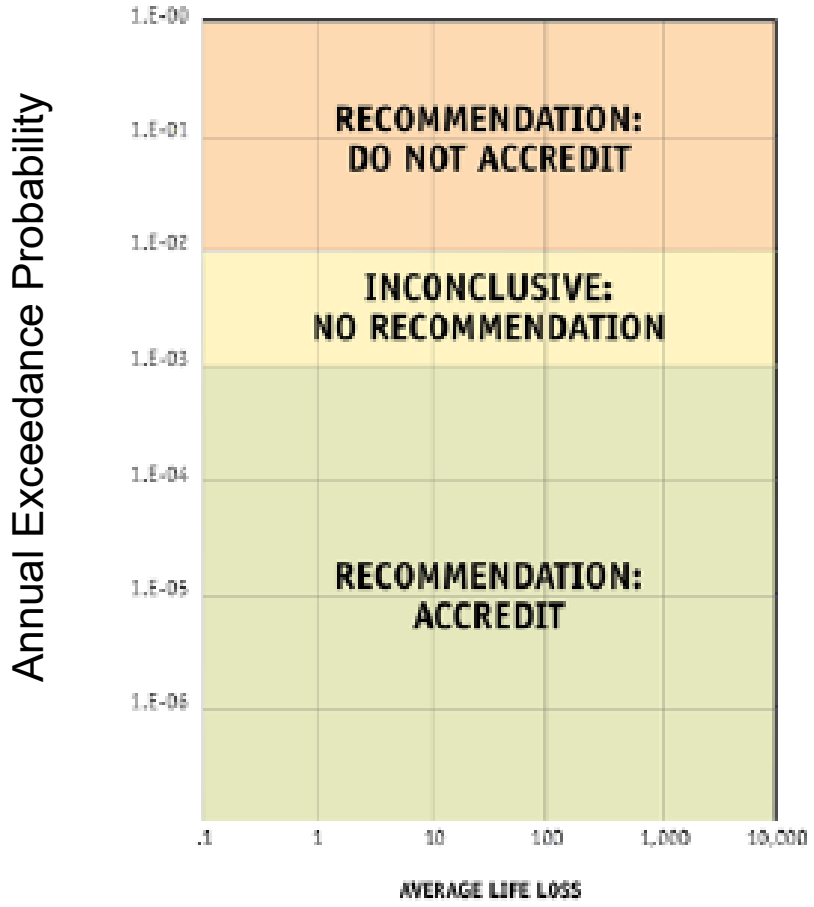



General Risk Matrix Approach

# RISK ASSESSMENTS

## Semi-Quantitative Risk Assessment (SQRA)




General Risk Matrix Approach