



# Benefits of a PARRE-Assisted ANSI/AWWA J-100 Risk and Resilience Assessment



## OVERVIEW

The Program to Assist Risk & Resilience Examination (PARRE) is an open-source, interactive database designed to assist owner/operator assessment teams in the conduct of a probability-based risk and resilience assessment of their critical assets. Good risk assessment, upon which actionable decisions can be made, requires the intelligent correlation of substantial operating information with real world impediments. To be comprehensive and exhaustive, hundreds or thousands of asset-threat combinations must be valued, evaluated, and prioritized. PARRE supports the team in this process, intelligently dealing with this minutiae so that the team can focus on the most important details and actionable insights.

## ADVANTAGES OF USING PARRE

PARRE was designed to provide substantial benefits to its users:

- Saves the assessment team time by performing laborious calculations and organizing data in a user-friendly way
- Helps the assessment team understand the results and develop intelligent, prioritized management plans to reduce risk and increase resilience
- For the water-sector, provides strict compliance with the ANSI/AWWA J-100 standard for risk and resilience assessment
- Provides the owner/operator with US Department of Homeland Security SAFETY Act flow down liability limitation from directed attacks

## PARRE FEATURES

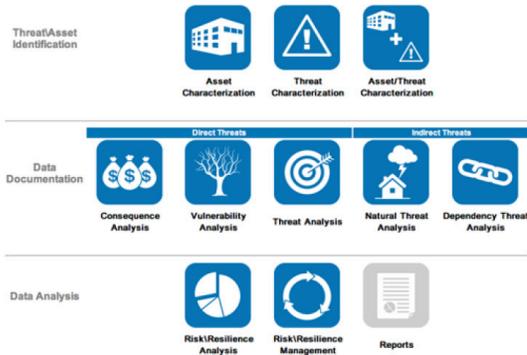
PARRE has many features:

- Tracks progress at reducing risk and increasing resiliency over time against a fixed baseline
- Quickly updates as investments are made or assets are modified to show the change in risk and risk-priorities

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**PARRE saves the assessment team time by performing laborious calculations and organizing data in a user-friendly way.**

- Accesses a complete suite of J100-required directed threats for assessment team evaluation, automatically calculating asset risk for six natural threats (hurricane, tornado, seismic, flood, ice storm, and wild fire) based on U.S. government recurrence databases
- Substitutes alternate recognized approaches for determining natural threat magnitudes and return periods, if desired
- Calculates threat-asset pair risk probability values based on monetary consequences, vulnerability probability, and threat likelihood probability
- Guides the assessment team through the step-by-step logic of an assessment, assuring that significant information is not overlooked
- Calculates both threat-asset pair level resilience and system-wide financial/operating resilience
- Links to owner/operator preferred consequence models (e.g. blast analysis, contamination, and toxic gas release)
- Determines vulnerability probability using path analysis, decision tree analysis, and/or fault tree analysis
- Determines threat likelihood using expert elicitation, conditional probability, and/or proxy tool
- Accommodates proximity and interdependency evaluations from other lifeline sector risk assessments
- Stores the amassed data in a secure, owner-controlled environment so that it is readily available for modification, updates, "what-if drills," and/or future assessment team use