

Wilmington

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“RETS – REMP WORKSHOP 2005”

Nuclear Liability Insurance Impact
Due To
Nuclear Power Plant Effluent Releases

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Overview

- ❖ **Snapshot – The effect that effluent releases have on nuclear liability insurance at NPPs**



Risk

❖ **Term is all inclusive, many components**

- **Biological**
- **Radiological**
- **Financial**
- **Corporate Liability**
- **Others**



ANI Insured Nuclear Facilities (Domestic)

❖ In US

- ~ 1100 Policies, 400 Locations
- \$300m at each US NPP
- On-site Bodily Injury & Off-site Bodily Injury Property Damage Caused by the Nuclear Energy Hazard



ANI Insured Nuclear Facilities

❖ Outside US

- **Provide Reinsurance Capacity on a Facultative Basis.**
- **Insure ~2/3 of the over 400 NPPs in 31 Countries.**
- **Write up to \$50 million of direct liability coverage for US suppliers of products or services sold to nuclear facilities outside of US**



Nuclear Liability Insurance Risk

- ❖ **\$300 Million US Provided to Each US NPP Site**
- ❖ **Protection Covers Operators & Suppliers Against Bodily Injury or Property Damage Caused by Nuclear Hazard**
- ❖ **Losses Can Be Catastrophic or Non-Catastrophic**
- ❖ **Claims Defense Costs Can Be Major Portion of Claim**



Nuclear Liability Insurance Risk (Effluent Releases)

- ❖ **Increased Public Awareness of NPP Effluent Releases & Perception of Personal Risk**
- ❖ **Do not differentiate between Isotope of Cobalt and Tritium**
- ❖ **1 atom Co-60 ~ 1 atom of Tritium (perception)**
- ❖ **NPP Releases Cause Harm ! (Perception)**
- ❖ **Majority of Claims from Offsite BI & PD**



Effluent Releases

- ❖ **Direct Financial Impact (ERF)**
- ❖ **Indirect Financial Impact (ICRP)**



Nuclear Liability Insurance Risk

- ❖ **Facilities Can Mitigate Excessive Claims Defense Costs Through Evidence of Due Care and Proper Operation**
 - **ANI's Performance Indicator Areas Can Be Used To Demonstrate Such Care (ERF)**

Average Nuclear Liability Insurance Premium

❖ ~ \$725,000

(For Single Operating Unit)



Power Reactor Liability Rating - 6 Components

- ▶ **Reactor Type**
- ▶ **Reactor Use**
- ▶ **Reactor Size**
- ▶ **Reactor Location**
- ▶ **Type of Containment**
- ▶ **ERF (Introduced 1981)**



ANI Engineering Rating Factor (ERF)

- ❖ Implemented 1981
- ❖ Collaborative Effort
- ❖ Comparative Rating Basis
- ❖ Reflect Varying Performance of Individual Insureds and Thus the Insurance Risk to the Pools Arising out of that Performance
- ❖ Redistribute Total Nuclear Liability Insurance Premium Based on Individual Plant Performance (Premium Neutral)

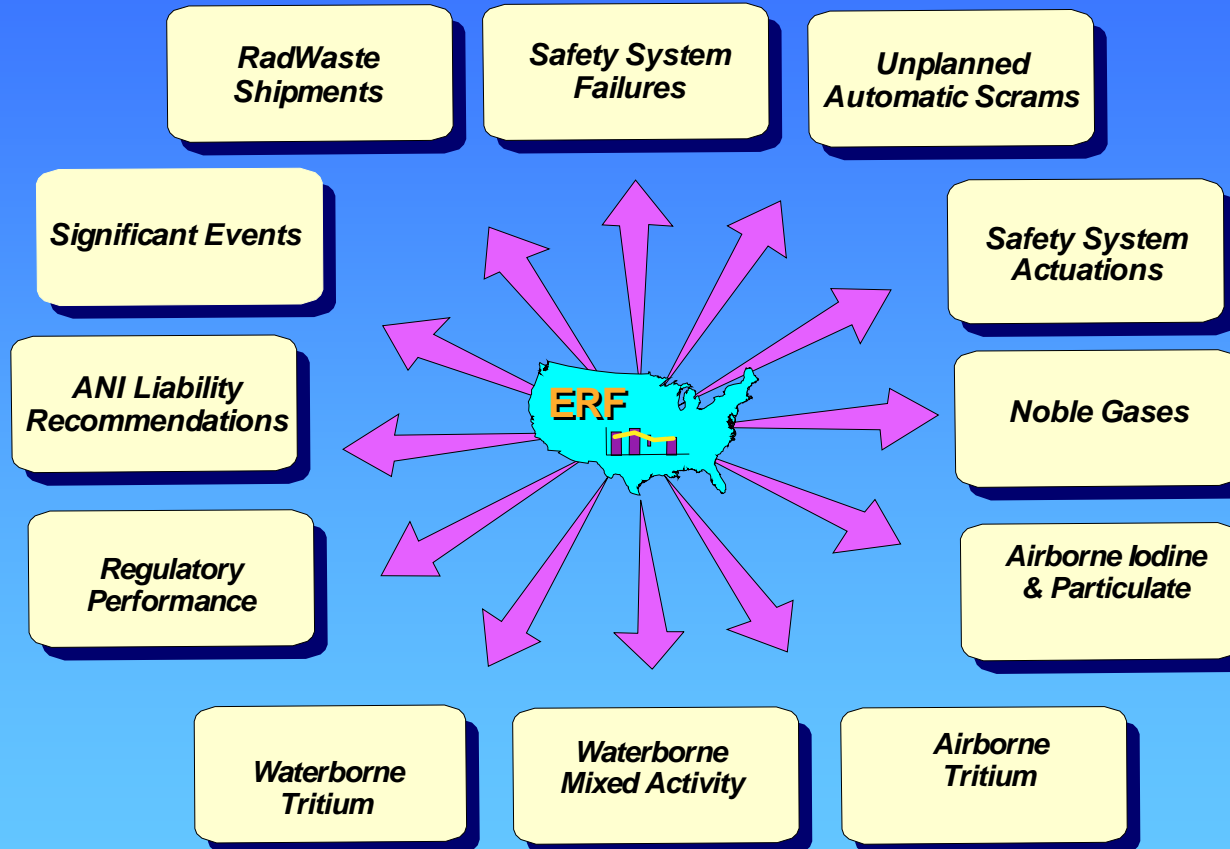
20% Credit

Best Performers

30% Surcharge

Higher Risk Performers

8 Performance Areas (12 Subfactors)



ERF Computation Process

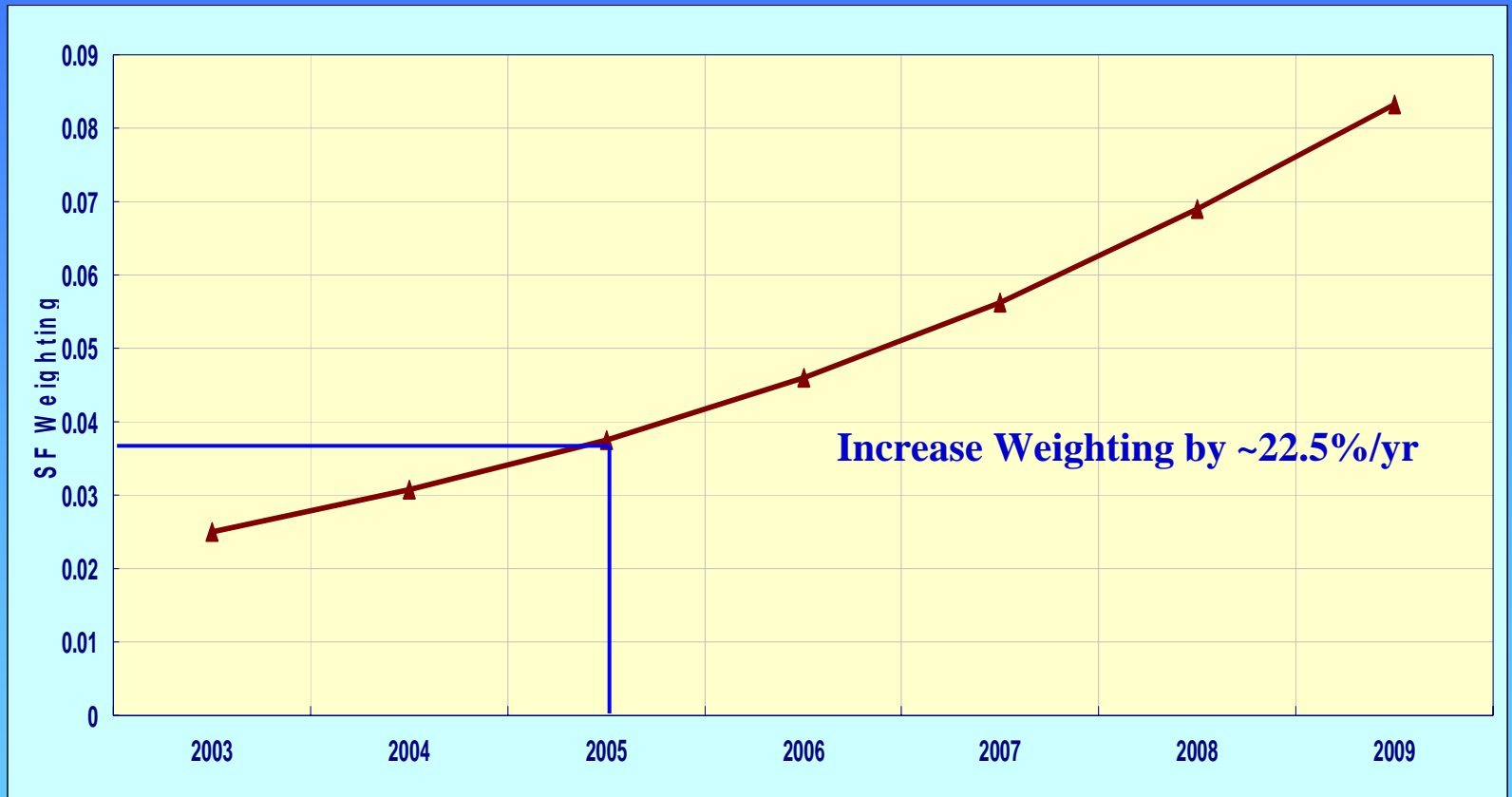
- **Subfactor Weighting ***
- **Sum Weighted Values**
- **Statistically Scale Weighted Values**
- **Develop Approximate Normal Distribution**
- **ERF Values Range 0.8 to 1.3**



SF Weighting Changes

- ❖ **Increased insurance exposure due to effluent releases**
 - **Public Drinking Water / Other Off-site Areas**
- ❖ **2002 Separated out Effluent Releases to Individual Subfactors**
- ❖ **For '04 initiated increased weighting by 22.5%**
 - **Each effluent component contributed ~3.7% to the ERF weighting**
- ❖ **Will Increase Weighting each Year by ~22.5% Until All 12 Subfactors are Weighted Equally**

Weighting Protocol – Effluent Releases



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Direct Effect on Premium

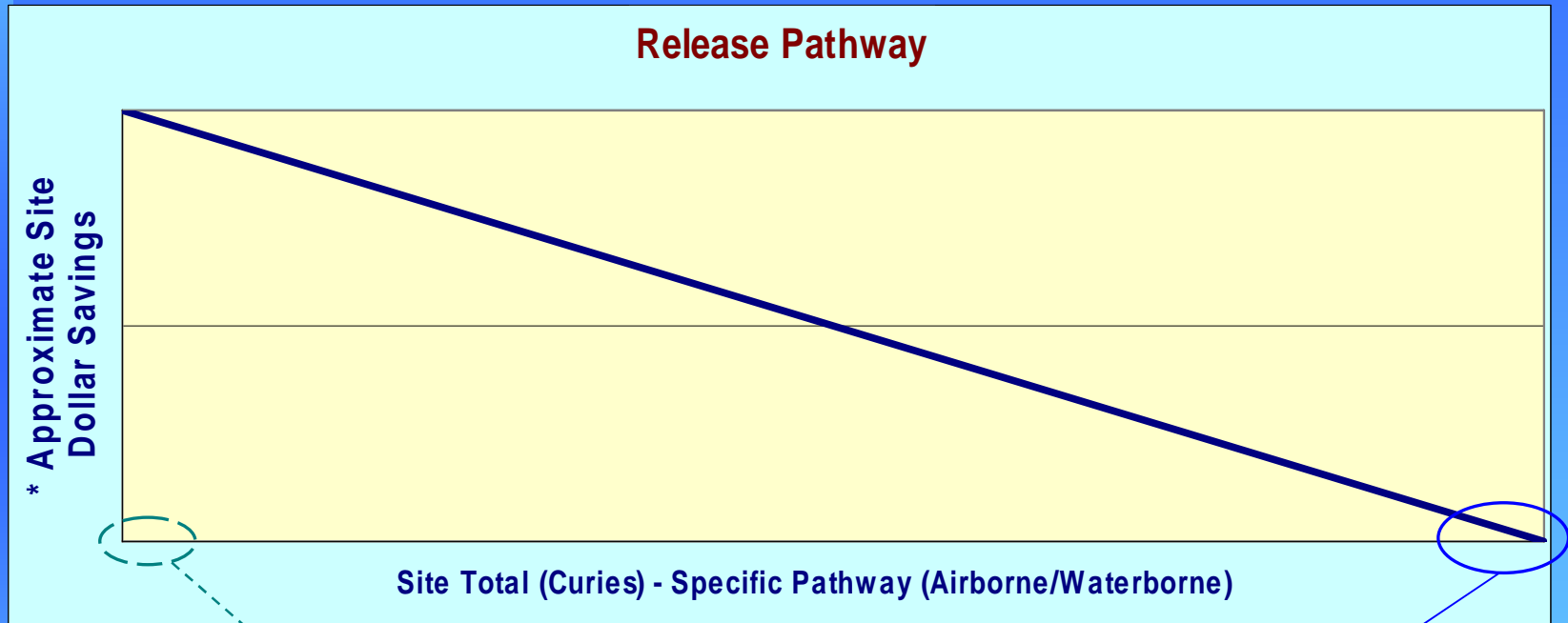
- ❖ **Performance Evaluated on Comparative Basis**
- ❖ **Direct Multiplier on Premium**
- ❖ **ANI Recommendation Impact within ERF can be**
 - ~ \$3,000 - \$52,000 (Single Unit)**
 - ~ 1.5 x for Multi-unit Site**
- ❖ **Relative Contribution of aggregate environmental component in ERF for plant with best industry performance -**
 - ~ \$20,000 - \$250,000**

Indirect Effects on Premium

- ❖ **Industry Credit Rating Plan (ICRP)**
- ❖ **~ 75% of Premium Set Aside in Reserve Fund**
- ❖ **Held for 10 Years**
- ❖ **Refunds are Effected by Claims Payments (Decreased from 90+%)**



Effluent Release Strategy Cost Analysis



- 3 year weighted ave (2001, 2002, 2003)
- Plant quartile rankings at 0% (Best Quartile)
- Weighted at 8.3% as would be following full phase in 2009

- 3 year weighted ave (2001, 2002, 2003)
- Plant quartile rankings at ~4th quartile
- Weighted at current 2005 value of 3.7%

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Concluding Remarks

- ❖ **Risk Minimization**
- ❖ **High Quality Decisions**
- ❖ **Balanced Effluent Release Program**

