NEXTera® ENERGY
POINT BEACH

Point Beach Nuclear Plant
Regulatory Conference

July 22, 2013

Opening Remarks

Larry Meyer

Site Vice President

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Agenda

- Opening Remarks – Larry Meyer
- Performance Deficiency – Rich Wright
- Point Beach Postulated Flooding Overview – Rich Wright
- Engineering Analyses – Rudy Gil
- Risk Significance – Anil Julka
- Station Response – Steve Bowe
- Conclusions – Rich Wright
- Closing Remarks – Larry Meyer

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Nuclear Excellence Model

Vision	We are a team that delivers consistent excellent performance
Mission	We will produce energy in a safe, reliable, cost effective way, while caring for our employees, communities and the environment
Values	Conduct all activities to demonstrate a deep respect for Nuclear Safety Live the Safety Guiding Principles Be a Self-Improving Culture & Learning Organization Maximize the time spent on Prevention and Detection to minimize / eliminate Correction activities Foster a work environment where we are the employer of choice
Core Principles	Operationally Focused Passion for Excellence Engaged Leaders Standardized Processes Responsive to Stakeholders Effective Workforce Planning Engaged Employees Effective Long-Range Planning Strong Teamwork Strong Ownership & Accountability Effective Supervisors Worklife Balance
Strategic Focus Areas	**Operational Excellence**  **Organizational Effectiveness**  **Generation Reliability**  **Effective Business & Financial Performance** 

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PDC

"Do the job right the first time"

Value

Maximize the time spent on
Prevention and Detection
to minimize / eliminate Correction activities

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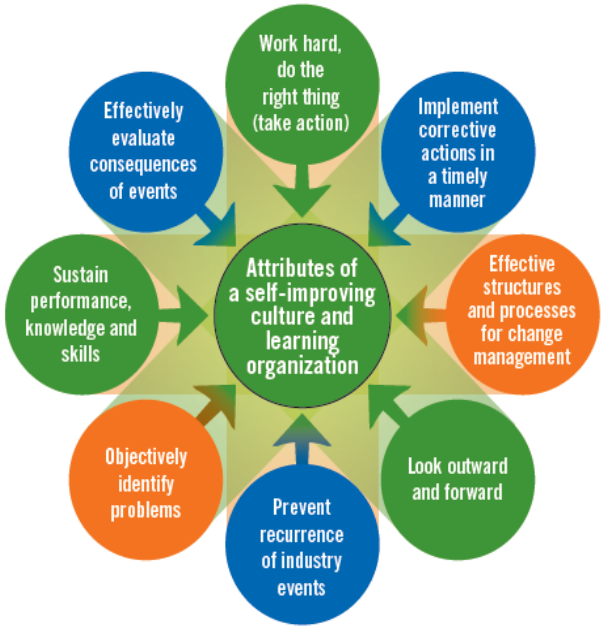
SIC/LO



Value

Be a Self-Improving Culture
& Learning Organization

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Attendees

- Larry Meyer, Site Vice President
- Rich Wright, Plant General Manager
- Rudy Gil, Corporate Engineering Manager
- Steve Bowe, Operations Shift Manager
- Anil Julka, Fleet Risk and Reliability Manager
- Steve Catron, Fleet Licensing Manager
- Ron Seizert, Site Licensing Supervisor
- Jim Petro, Managing Attorney - Nuclear
- Sandy Dinzeo, Enercon Engineering Lead
- Jemie Dababneh, Rizzo Associates Technical Director

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Performance Deficiency

Rich Wright

Plant General Manager

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Performance Deficiency

- **"Licensee failed to establish procedural requirements to implement external flooding wave run-up protection design features as described in the FSAR."**
- **Cause Analysis**
  - In 1996 we changed our strategy for flood barrier protection
  - Installation of barriers was not required to be validated by procedure
- **Corrective Actions**
  - Barrier installation requires validation process
  - Location was improved with new concrete pads and berms

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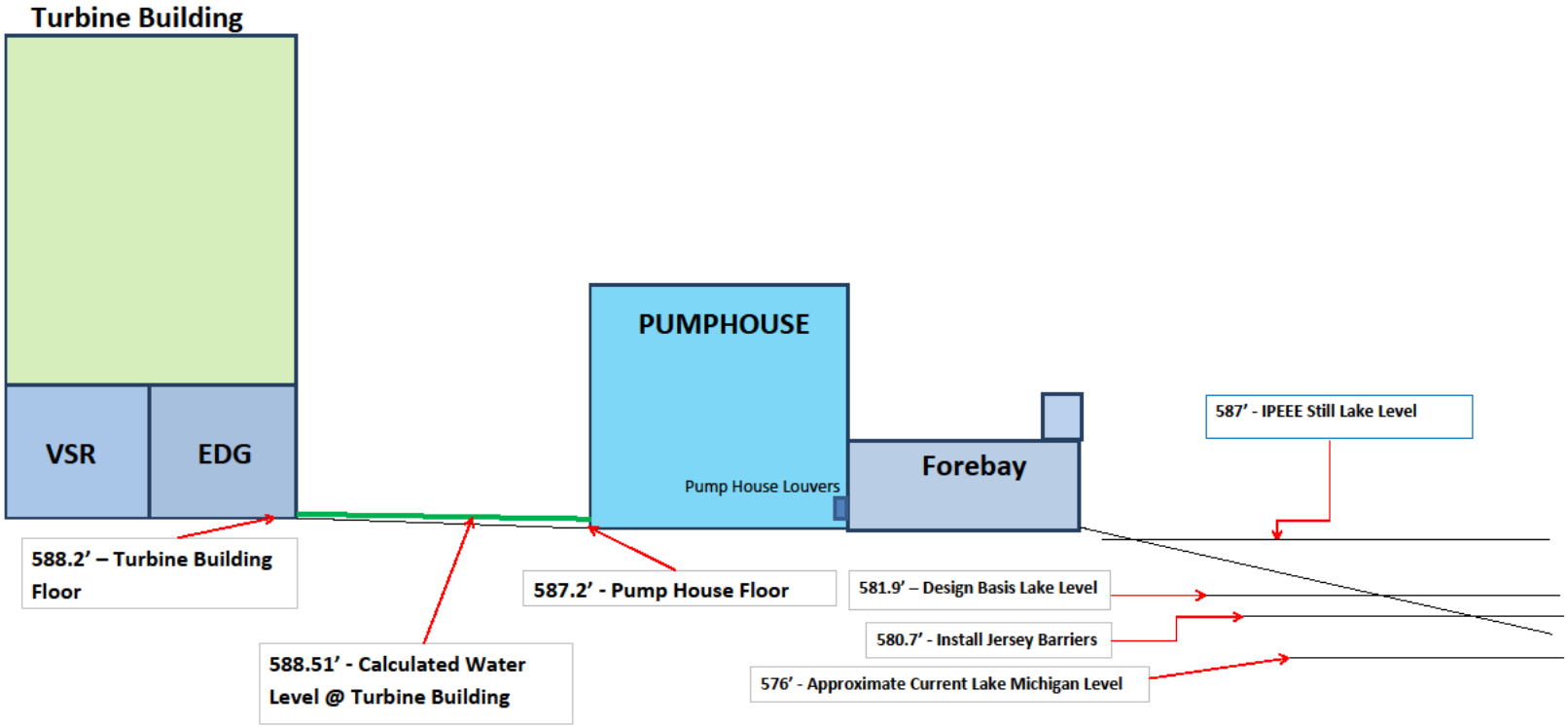
Simplified PBNP Plant Elevation with Calculated Water Level (Not to Scale)



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Engineering

Rudy Gil

Corporate Engineering Manager

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Engineering Analyses

- **Performed detailed storm surge/wave run-up analyses**
  - Analyses start with same lake still water level established in the IPEEE
  - DELFT3D model was used to calculate the storm surge level at the site due to wave effects
  - The water level at the Turbine Building, including wave effects, is calculated using FEMA and USACE formulae
  - Analyses performed by experienced vendor and independently reviewed by third party expert

Rigorous analyses determined the water level at the Turbine Building; provides appropriate technical input for risk significance determination

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Engineering Analyses

- **Review of analysis model (DELFT 3D)**
  - DELFT3D is a sophisticated modeling software used in the US and more than 70 countries world-wide
  - DELFT3D has been rigorously validated against hydraulic lab testing and compared to field observations
  - Has been used for six separate site COLA evaluations and is currently being used for Fukushima flooding reevaluations
  - The model was thoroughly validated to ensure stability; over 40 runs with varying inputs show consistent results
  - The model incorporates actual verified topographic and bathymetric site configuration

The software used for the analysis is well recognized and has undergone rigorous benchmarking

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Engineering Analyses

- **Analyses inputs and assumptions**
  - Deep water wave characteristics that produce the highest wave effects were used
  - 40 iterations run by varying starting lake level, wind direction, wave period, and barrier configuration
  - The maximum model output near the Turbine Building was used to determine the average water based on run-up
  - Yard drains capable of draining water back to the Lake are assumed blocked.

Analyses use conservative inputs and assumptions to maximize wave effect at the site

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Engineering Analyses

Storm Surge/Wave Run-up Analyses Comparison to IPEEE

Parameter	IPEEE	Updated Analyses
Still Lake Water Level	587 ft	587 ft
Storm Surge Model	Approximate calculations	State of the Art Model (DELFT3D)
Average Water Level at TB	Conservative Estimates	FEMA and USACE calculation methods
Shoreline Topography	Conservative estimate of lake bottom	Actual Bathymetric / Topographic Survey Data
Wind directions and speed	Not provided	3 different directions; most conservative used speed bounded
Wave Protection Features	Rip rap (Considered, but not modeled)	Rip rap Discharge flumes

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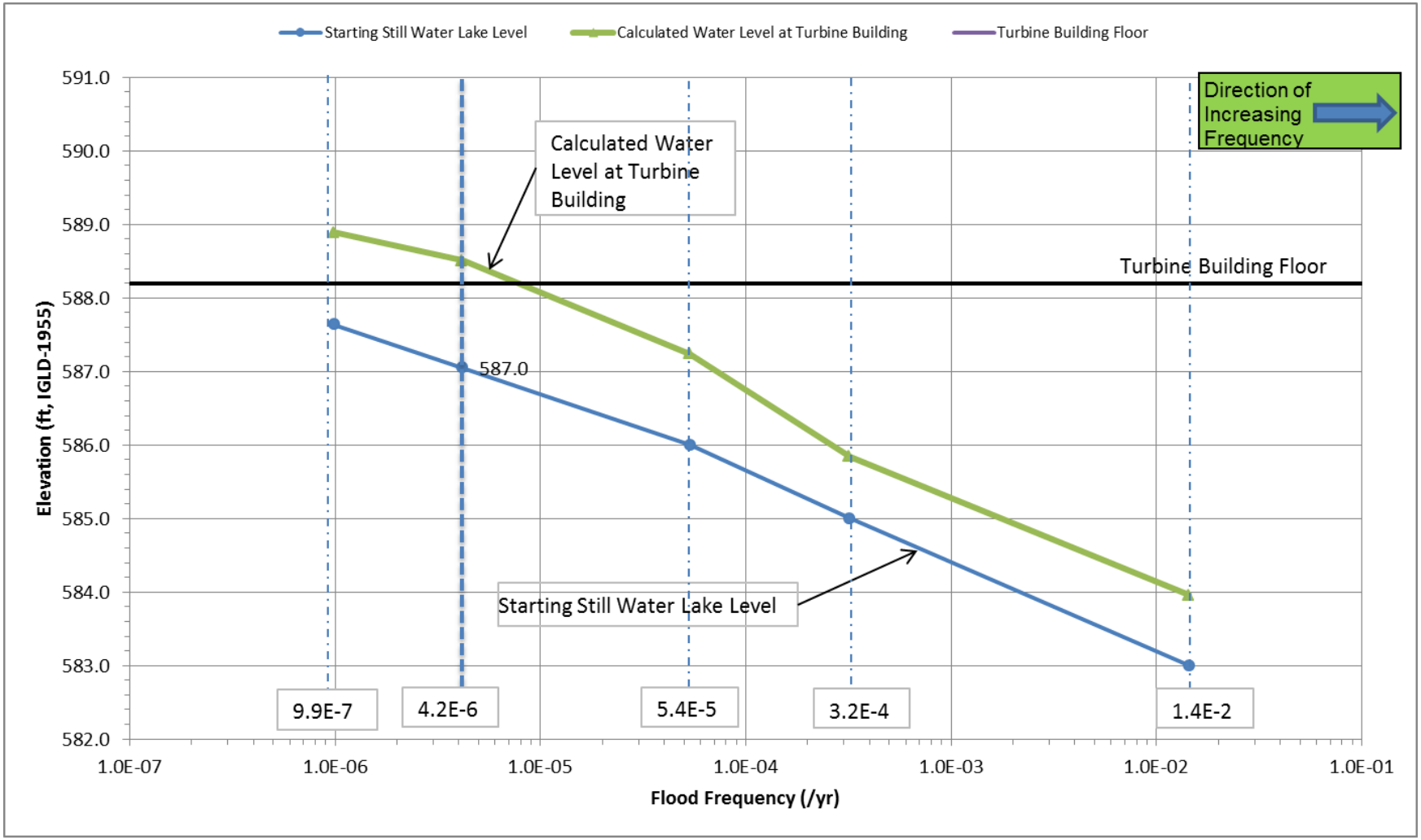
Engineering Analyses



The 4.2E-6 event results in < 4” of water outside the Turbine Building; at higher frequencies no water reaches the Turbine Building

Engineering Analyses

- **Conclusions**
  - The updated analyses provide the appropriate information for assessing the significance of the degraded flood barrier performance deficiency
  - The results of the updated analyses show that the water level outside of the Turbine Building would be less than 4”
  - The equipment impacted by this water level for the PRA would be the Residual Heat Removal system
  - Although the calculated water levels at the Turbine Building are assumed to immediately equal water levels inside the building, analyses show that the transition is relatively slow

Revised rigorous analyses conclude that the effects of the external flooding event are less severe than those estimated in the IPEEE

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Risk Significance

Anil Julka

Nuclear Risk and Reliability Manager

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Beneficial Risk-Significant Plant Improvements

- **Risk Significant Changes**
  - Added two additional emergency diesel generators at elevation 608.2 ft
  - Relocated B-Train 4,160 V switchgear to elevation 608.2 ft
  - Added two additional battery banks at elevation 606.2 ft
  - Added three additional battery chargers at elevation 606.2 ft
  - Added two additional 125 VDC distribution panels at elevation 606.2 ft

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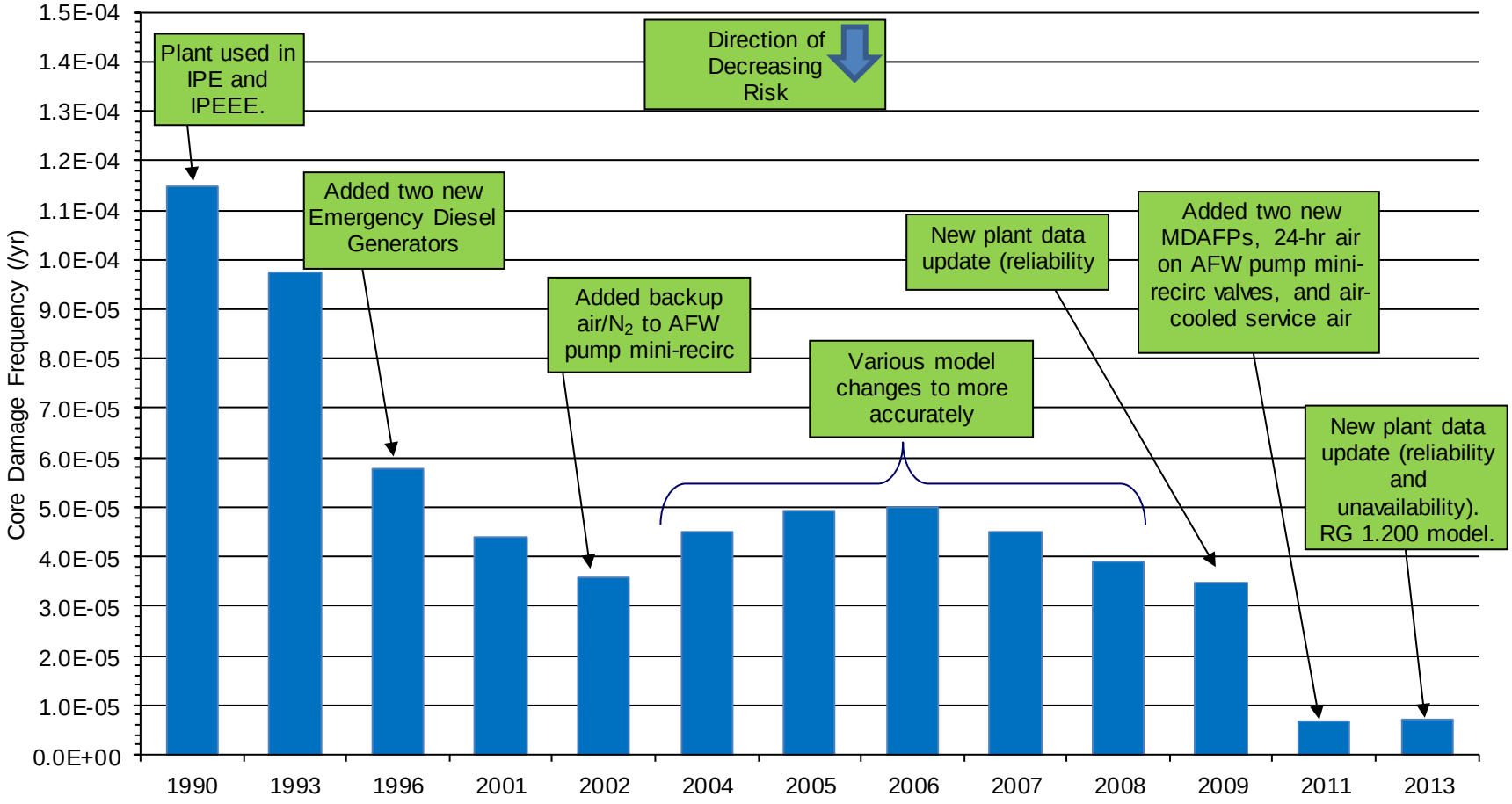
Historical Internal Events CDF Risk Profile

- **Significant Improvements in Plant Design as Measured by the Internal Events CDF**



Inputs to PRA Evaluation

- **Annual Flood Exceedance Frequency**
  - Used annual flood exceedance frequencies based on still water elevations from IPEEE
- **Wave Run-up**
  - Calculated water levels at the turbine building based on updated engineering analyses
- **Equipment Impacted**
  - Detailed assessment to identify flood heights in plant where equipment is wetted and assumed to fail
- **Calculated change in risk (with and without barriers protecting to 589.2 ft. IGLD-1955)**

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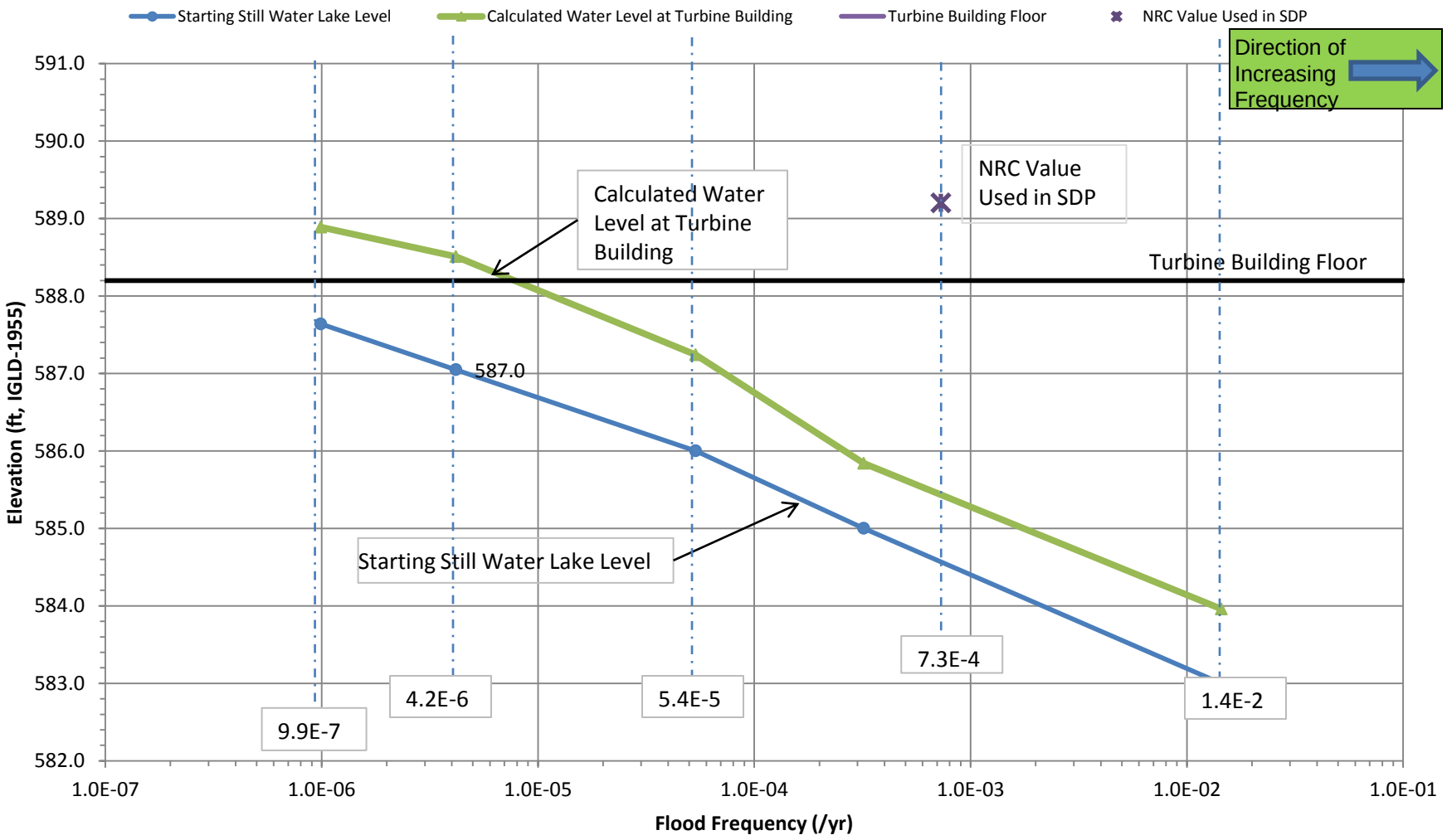
Inputs to PRA Evaluation



PRA Evaluation Results

- By incorporating the calculated wave run-up analyses into our evaluation, the significance of this issue has lowered
- Updated PRA evaluation more precisely evaluates risk by calculating CCDP and ΔCDF at various flood levels and summing all the ΔCDFs
- The results are as follows:

Without Barriers	With barriers	
CDF (/yr)	CDF (/yr)	ΔCDF (/yr)
2.83E-07	2.76E-07	7.E-09

Conclusions of PRA Evaluation

- **Overall risk from external flooding event is very low**
  - Calculated External flood CDF is **2.83E-07 /yr.**
- **Change in risk with and without barriers is very low**
  - Calculated external flood ΔCDF is **7E-09 /yr.**

Updated rigorous analyses show ΔCDF result to be of very low safety significance

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Operations Response

Steve Bowe

Operations Shift Manager

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Station Response

- **Operations Actions vs. Lake Level**
  - Weather Conditions are monitored daily by the Shift Technical Advisor and entered into Safety Monitor
  - Weekend look ahead by Work Week Manager for weather impact on Safety Monitor
  - Procedurally directed Monthly Recording of Lake Level per PC 80 Part 7 “Lake Level Determination”

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Station Response

- **Postulated Lake Level rises to (580.7')**
  - Per PC 80 Part 7 Jersey Barriers are installed
  - Administrative Procedures and Programs entered
- **If Lake Level Rises to the License Basis Lake Level (581.9')**
  - Both units will be shutdown
- **Operations Response to Degraded Barriers**
  - Alarm Response procedures would direct operator actions for internal/external flooding
  - Operators are procedurally directed to respond to degraded barriers and internal/external flooding that has the potential to cause degraded equipment

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Changes in Station Response

- **Abnormal Operating Procedure AOP-13C, for Severe Weather**
- **Modified Jersey Barrier installation**

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Conclusion

Rich Wright

Plant General Manager

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Conclusion

- **NextEra accepts the performance deficiency and understands the importance of protecting the plant from the effects of flooding:**
  - The procedure was lacking and NextEra owns that performance
  - The learning from this process has been extremely valuable to NextEra
- **NextEra has conducted updated analyses including:**
  - Water levels inside and outside the turbine building
  - Site features, equipment impacted, and updated PRA evaluations
- **Based on the results of our analysis of this issue, NextEra concludes that the safety significance is very low.**

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Closing Remarks

Larry Meyer

Site Vice President

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