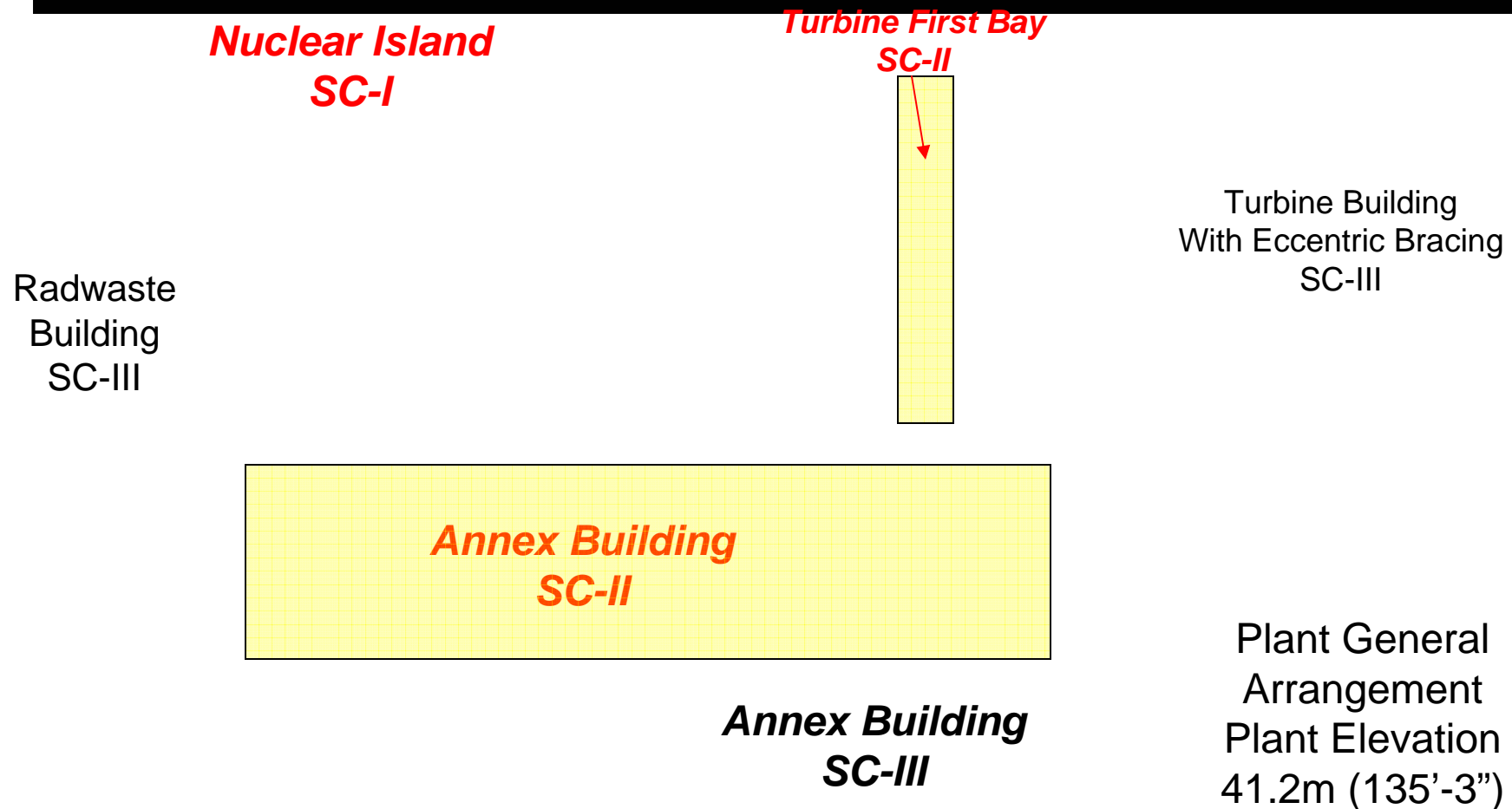


Adjacent Building Seismic Design



Adjacent Building Seismic Design



***Nuclear Island
SC-I***

***Annex
Building
SC-II***

*Annex
Building
SC-III*

Adjacent Building Seismic Design



- The seismic category II buildings criteria:
- No structural failure due to inertia loading
- Gap separation adequate (no impact with nuclear island)
- No soil failure (bearing capacity, etc.)

Adjacent Building Seismic Design

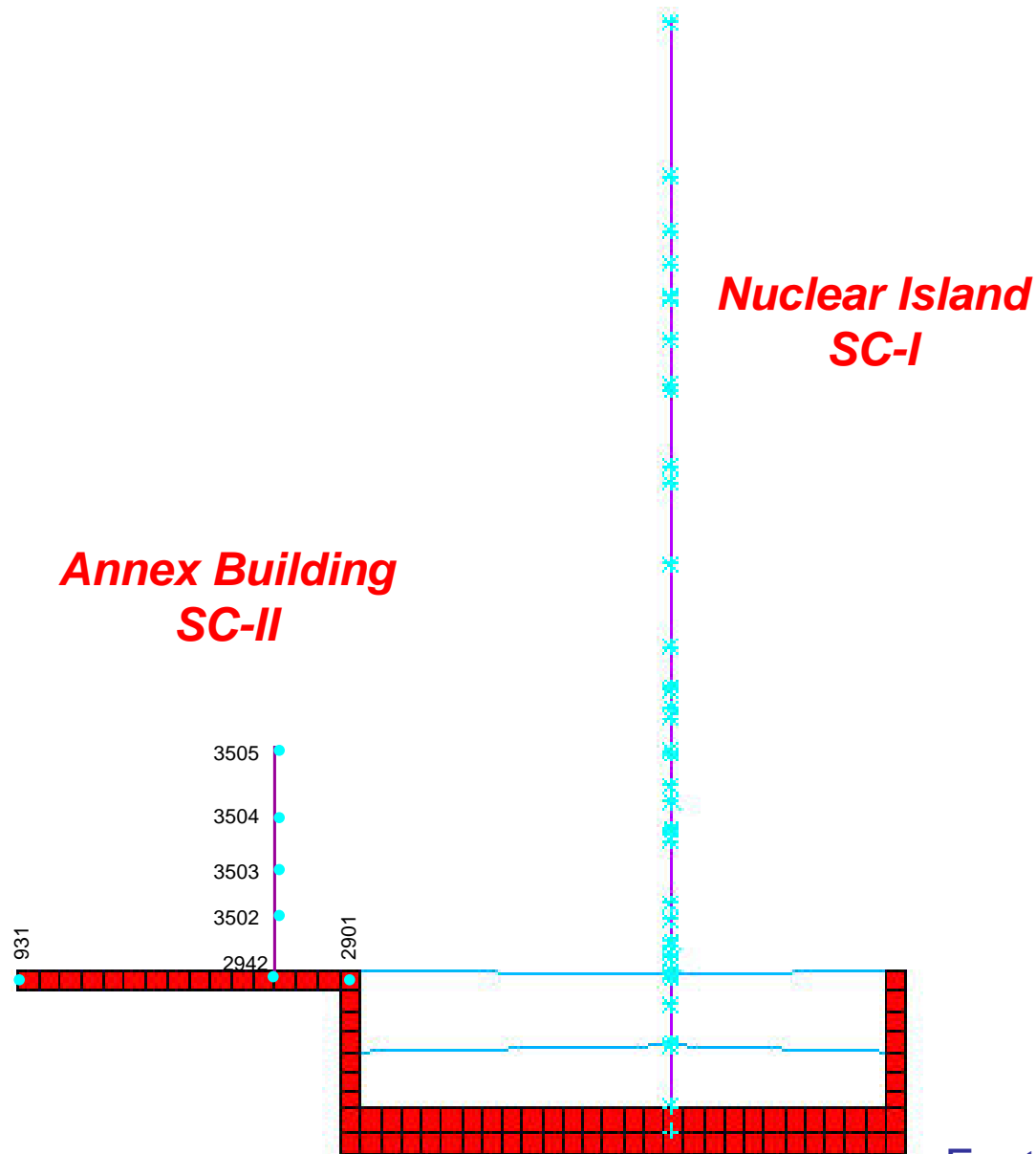


- The analysis will be performed using 2D SASSI models.
- The 3D effects will be accounted by comparing the response of adjacent buildings on from 2D vs 3D analyses. The adjacent buildings analyzed to develop the 3D effect factor shall be on rigid foundations.
- The three soil cases (Upper Bound Soft to Medium, Soft to Medium, and Soft Soil) will be used to determine the 3d factor.

1

ELEMENTS

TYPE NUM



2D SASSI MODEL IN Y DIRECTION

East-West Model

1

ANSYS

ELEMENTS

TYPE NUM

OCT 20 2006

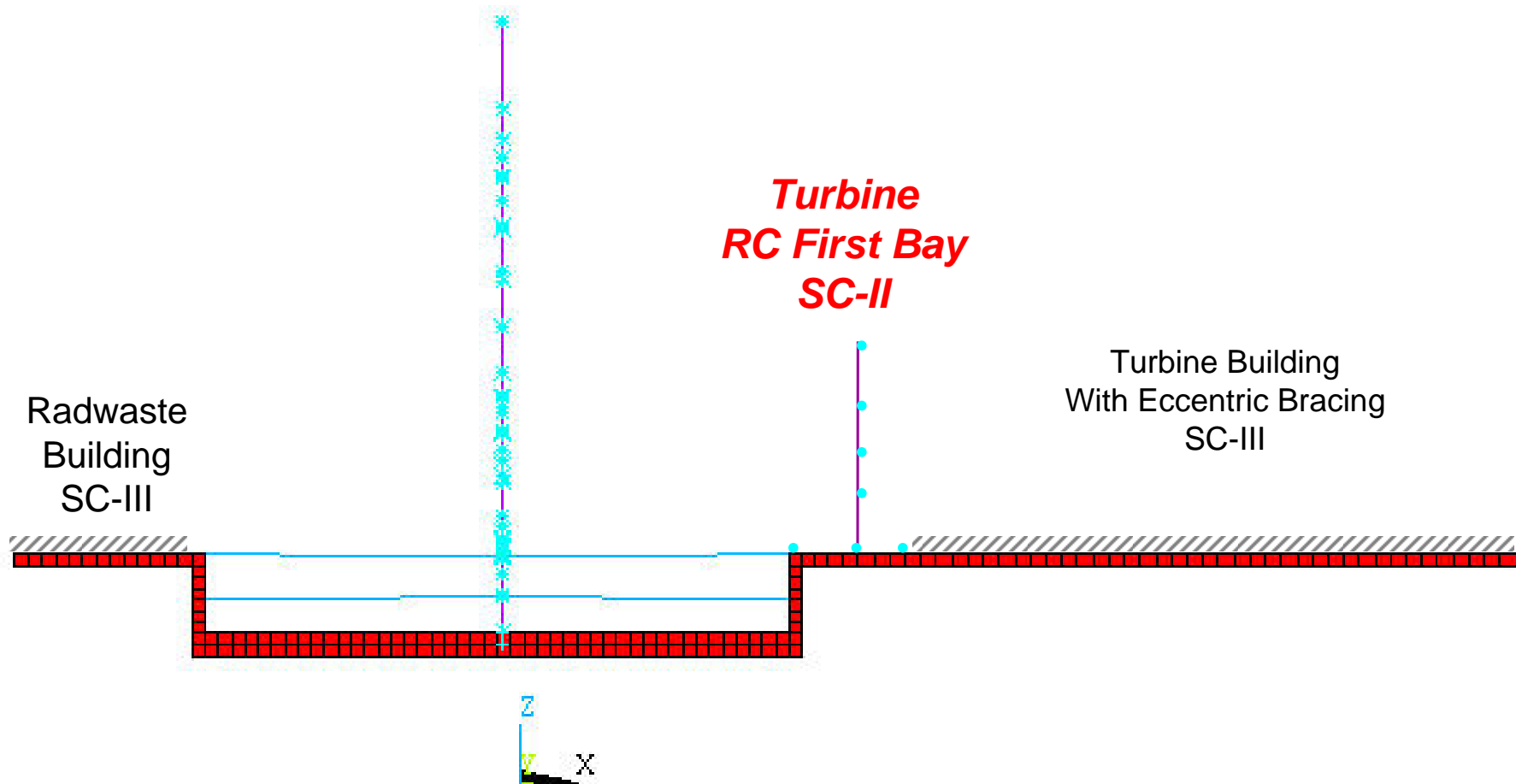
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**Nuclear Island
SC-I**

**Turbine
RC First Bay
SC-II**

Turbine Building
With Eccentric Bracing
SC-III

Radwaste
Building
SC-III



2D SASSI MODEL IN X DIRECTION

North-South Model

1

ELEMENTS

REAL NUM

ANSYS

APR 20 2009

14:13:30

**Nuclear Island
SC-I**

Radwaste
Building
SC-III

**Turbine
RC First Bay
SC-II**

Turbine Building
With Eccentric Bracing
SC-III

**Annex Building
SC-II**

Seismic Category II Building Design Foundation Spectra Development



- Envelope of:
 - AP1000 CSDRS
 - GMRS @plant grade of deep soil site (*Vogtle*)
 - GMRS @plant grade of other sites (*Lee, VC Summer, Bellefonte, Shearon Harris*)
 - *Envelope of three locations at base of SC II structure from 2D analyses for:*
 - *UBSM, SM, SS soil profiles with AP1000 spectra input at grade*
 - *Deep soil sites profiles with site GMRS @plant grade*
 - *Backfill soil profiles with envelope HRHF sites GMRS HRHF @plant grade*
- ❑ *Maximum bearing demand will be established from the 2D SASSI analyses*

Adjacent Building Seismic Design



- The envelope foundation spectra shall be applied at the base of SC II structure.
- Response spectra analysis of SC II shall be performed to obtain the building design loads
- SC II structure shall be designed in accordance with the AP1000 seismic design criteria.

SC II Screening criteria for COL applicants



- Site soil meet DCD soil uniformity requirements
- Soil profiles fall within the range of profiles used in 2D analyses
- Site GMRS @ plant grade (FIRS) < Either AP1000 design spectra or AP1000 HRHF spectra
- Bearing capacity > Bearing Demand

Then the COL applicant meets the screening criteria and no further work is needed.

If the above requirements are not met, the site applicant can perform a site specific analyses to show the site specific SC II foundation spectra is less than the AP1000 generic design Annex or First Bay envelope foundation spectra.