

August 10, 1999

MEMORANDUM TO: Kamal Manoly, Chief
Civil & Engineering Mechanics Section

FROM: Robert L. Rothman, Senior Geophysicist
Civil & Engineering Mechanics Section /s/

SUBJECT: IN-STRUCTURE RESPONSE SPECTRA USED FOR USI A-46
PROGRAM IMPLEMENTATION AT NORTH ANNA POWER STATION
UNITS 1 & 2

During a telephone conference call between NRC staff members and staff of Virginia Electric Power Company (VEPCO) August 9, 1999, on the subject of the North Anna Power Station Unresolved Safety Issue (USI) A-46 implementation program, the NRC staff requested that VEPCO provide the in-structure response spectra for locations in the plant where the Generic Implementation Procedure's Method A.1 was used for comparing seismic capacity to seismic demand. Attached are copies of the seven figures which VEPCO sent to Peter Tam of NRC's Division of Project Management, via telephone facsimile, August 9, 1999.

Docket No.: 50-338 & 50-339

Attachment: As stated

Distribution: File Center PDR EMEB RF G. Edison P. Tam

CONTACT: R. L. Rothman, NRR/EMEB
415-3306 DOCUMENT NAME: g:\emeb\Rothman\A46NAPS.IRS

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ENGINEERING WORK SHEET



DOCUMENT TYPE: Response Spectra

SHEET NO.: 1 OF 7

PROJECT: North Anna Power Station

DOC. NO.

REV.

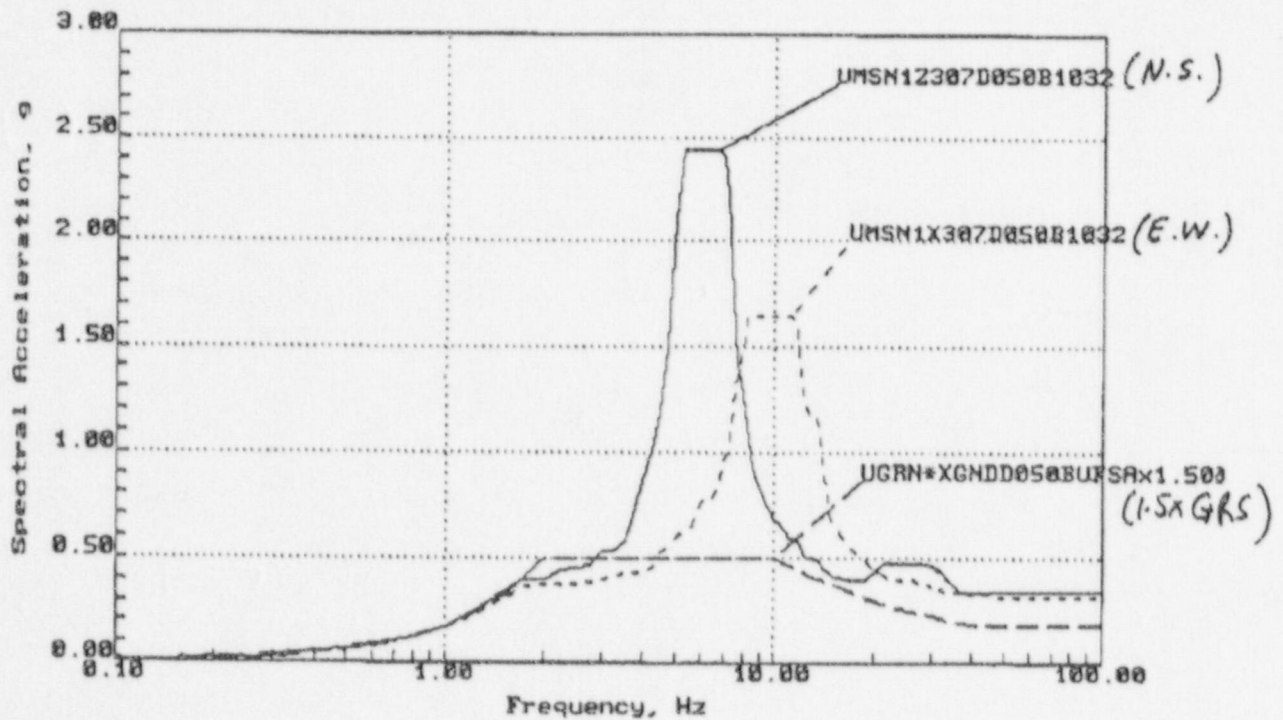
SUBJECT: Comparison of ISRS with 1.5xGRS

PREPARED BY: _____ DATE: _____

SYSTEM: Main Steam Vlv Hse - Unit 1, 307'

CHECKED BY: _____ DATE: _____

Virginia Power Response Spectra Database



North Anna Power Station, MSVH, Unit 1 - ISRS, el. 307', EW & NS dir.
and 1.5xGround Response Spectrum (Rock)
5% Spectral Damping

ATTACHMENT

ENGINEERING WORK SHEET



DOCUMENT TYPE: Response Spectra

SHEET NO.: 2 OF 7

PROJECT: North Anna Power Station

DOC. NO.

REV.

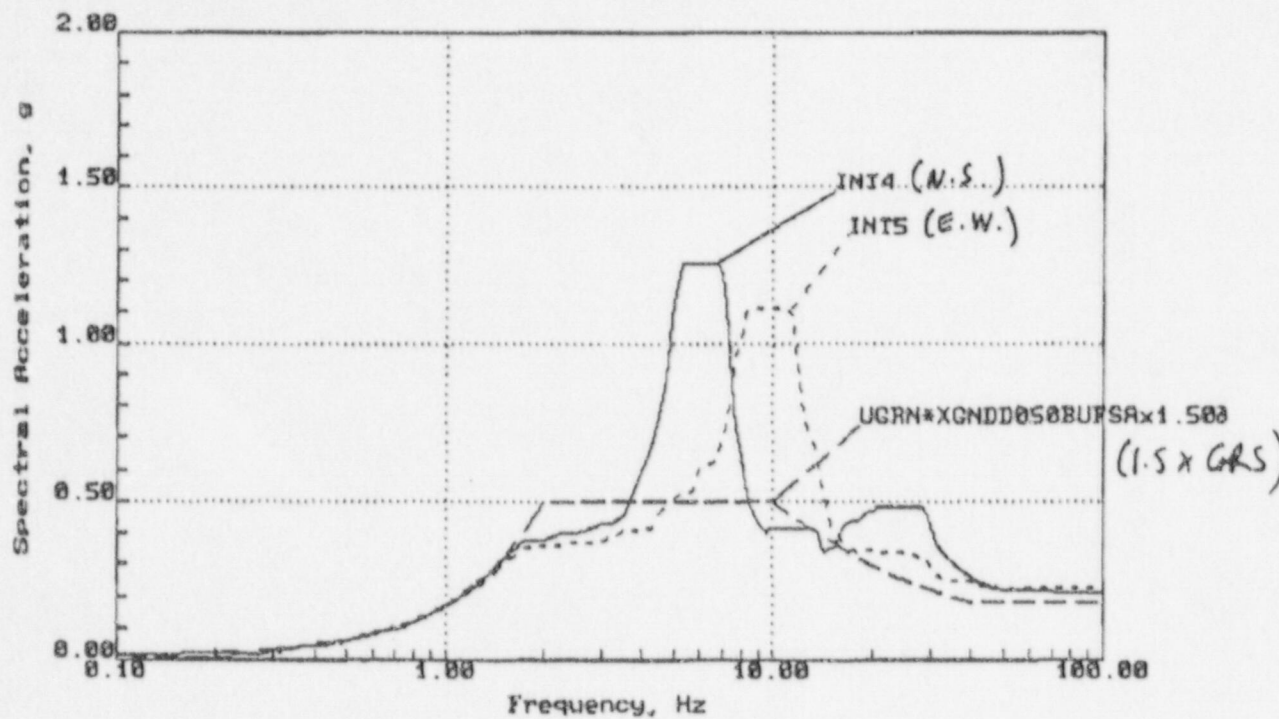
SUBJECT: Comparison of ISRS with 1.5xGRS

PREPARED BY: _____ DATE: _____

SYSTEM: Main Steam Vlv Hse -Unit 1, el. 285'

CHECKED BY: _____ DATE: _____

Virginia Power Response Spectra Database



North Anna Power Station, MSVH, Unit 1 - ISRS, el. 285', EW & NS dir.
and 1.5xGround Response Spectrum (Rock)
5% Spectral Damping

ENGINEERING WORK SHEET



DOCUMENT TYPE: Response Spectra

SHEET NO.: 3 of 7

PROJECT: North Anna Power Station

DOC. NO.

REV.

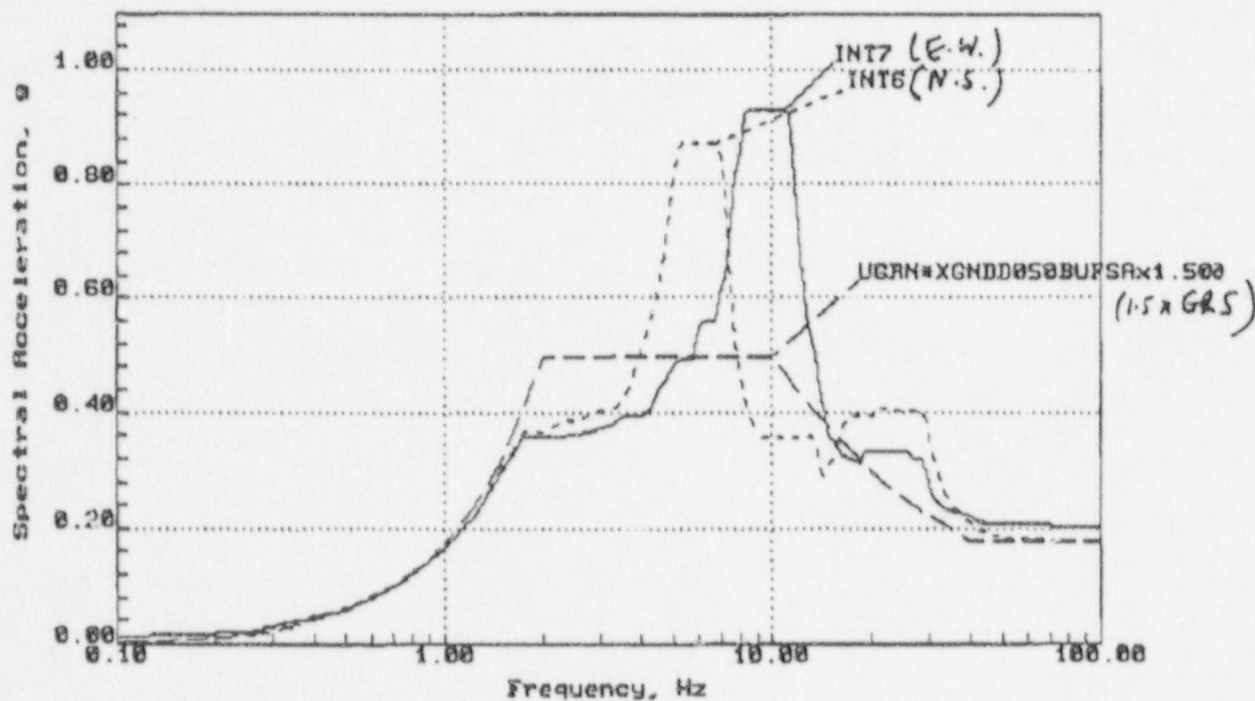
SUBJECT: Comparison of ISRS with 1.5xGRS

PREPARED BY: _____ DATE: _____

SYSTEM: Main Steam Vlv Hse -Unit 1, el. 277'

CHECKED BY: _____ DATE: _____

Virginia Power Response Spectra Database



North Anna Power Station, MSVH, Unit 1 - ISRS, el. 277', EW & NS dir.
and 1.5xGround Response Spectrum (Rock)
5% Spectral Damping

ENGINEERING WORK SHEET



DOCUMENT TYPE: Response Spectra

SHEET NO.: 4 OF 7

PROJECT: North Anna Power Station

DOC. NO.

REV.

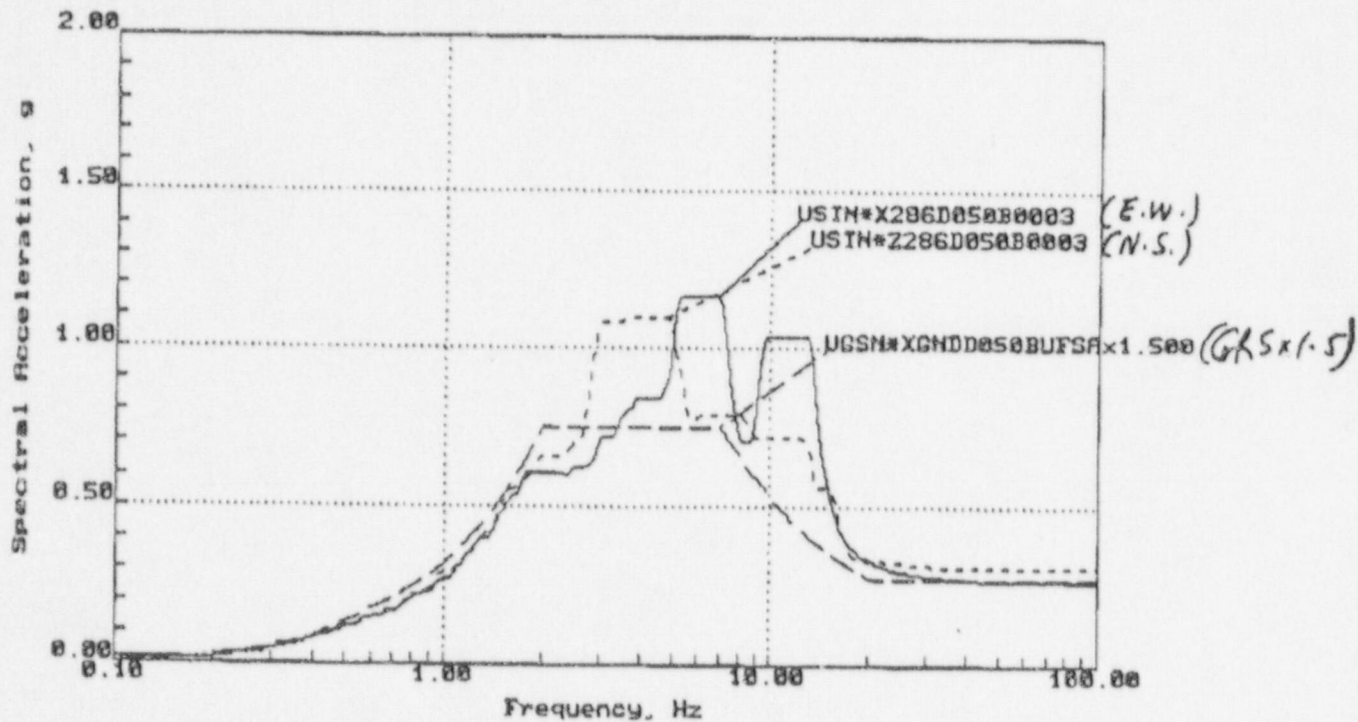
SUBJECT: Comparison of ISRS with 1.5xGRS

PREPARED BY: _____ DATE: _____

SYSTEM: Service Building, el 286'

CHECKED BY: _____ DATE: _____

Virginia Power Response Spectra Database



North Anna Power Station, Service Building ISRS, el. 286', EW & NS dir.
and 1.5xGround Response Spectrum (Soil)
5% Spectral Damping

ENGINEERING WORK SHEET



DOCUMENT TYPE: Response Spectra

SHEET NO.: 5 OF 7

PROJECT: North Anna Power Station

DOC. NO. REV.

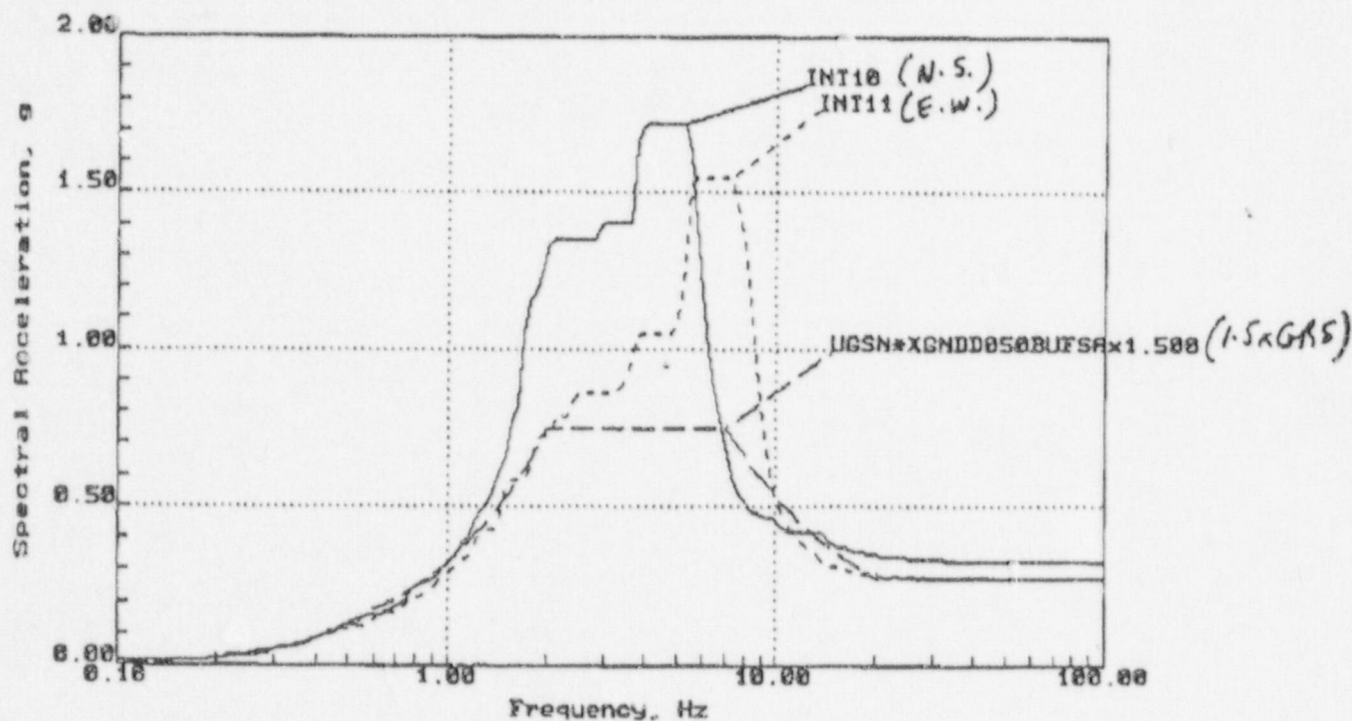
SUBJECT: Comparison of ISRS with 1.5xGRS

PREPARED BY: DATE:

SYSTEM: Main Steam Vlv Hse, Unit 2, el 285'

CHECKED BY: DATE:

Virginia Power Response Spectra Database



North Anna Power Station, MSVH, Unit 2, ISRS, el. 285', EW & NS dir.
and 1.5xGround Response Spectrum (Soil)
5% Spectral Damping

ENGINEERING WORK SHEET



DOCUMENT TYPE: Response Spectra

SHEET NO.: 6 OF 7

PROJECT: North Anna Power Station

DOC. NO.

REV.

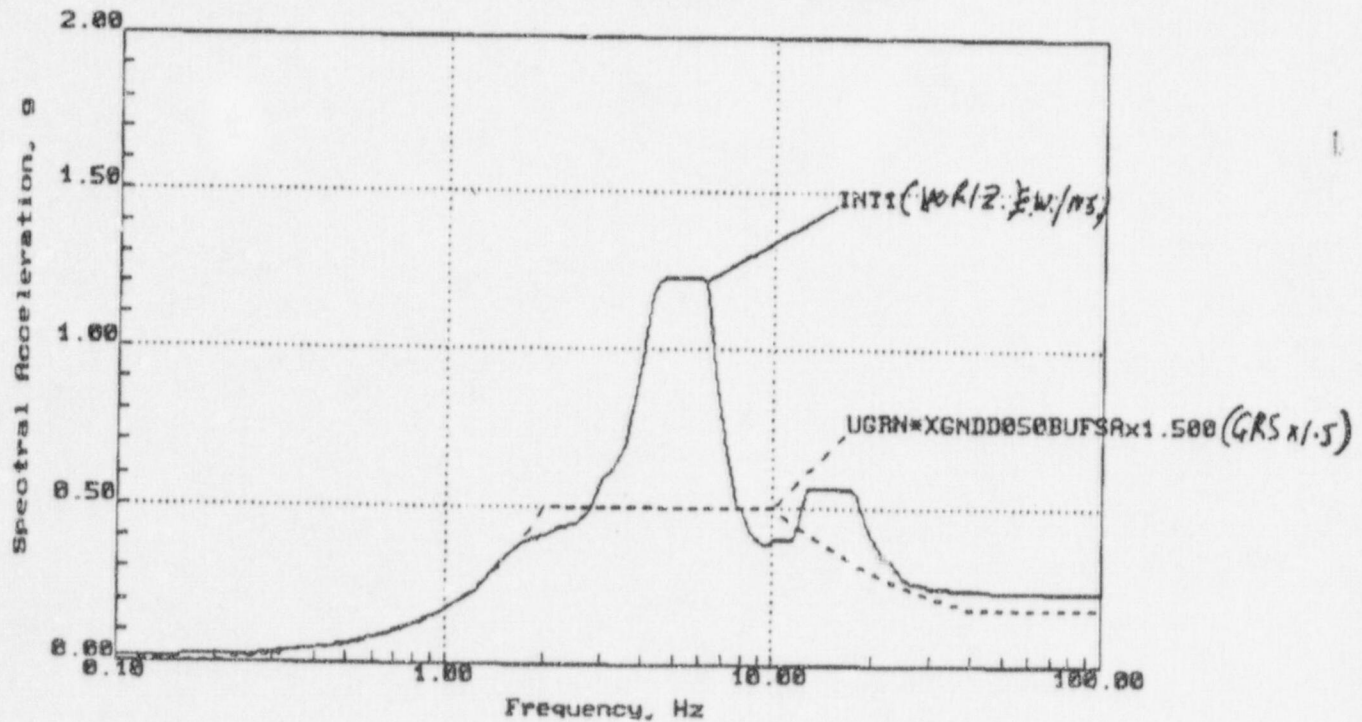
SUBJECT: Comparison of ISRS with 1.5xGRS

PREPARED BY: _____ DATE: _____

SYSTEM: Reactor Internal Struct. - el. 253'

CHECKED BY: _____ DATE: _____

Virginia Power Response Spectra Database



North Anna Power Station, Reactor Building ISRS, el. 253', horizontal dir.
and 1.5xGround Response Spectrum (Rock)
5% Spectral Damping

ENGINEERING WORK SHEET



DOCUMENT TYPE: Response Spectra

SHEET NO.: 7 OF 2

PROJECT: North Anna Power Station

DOC. NO.

REV.

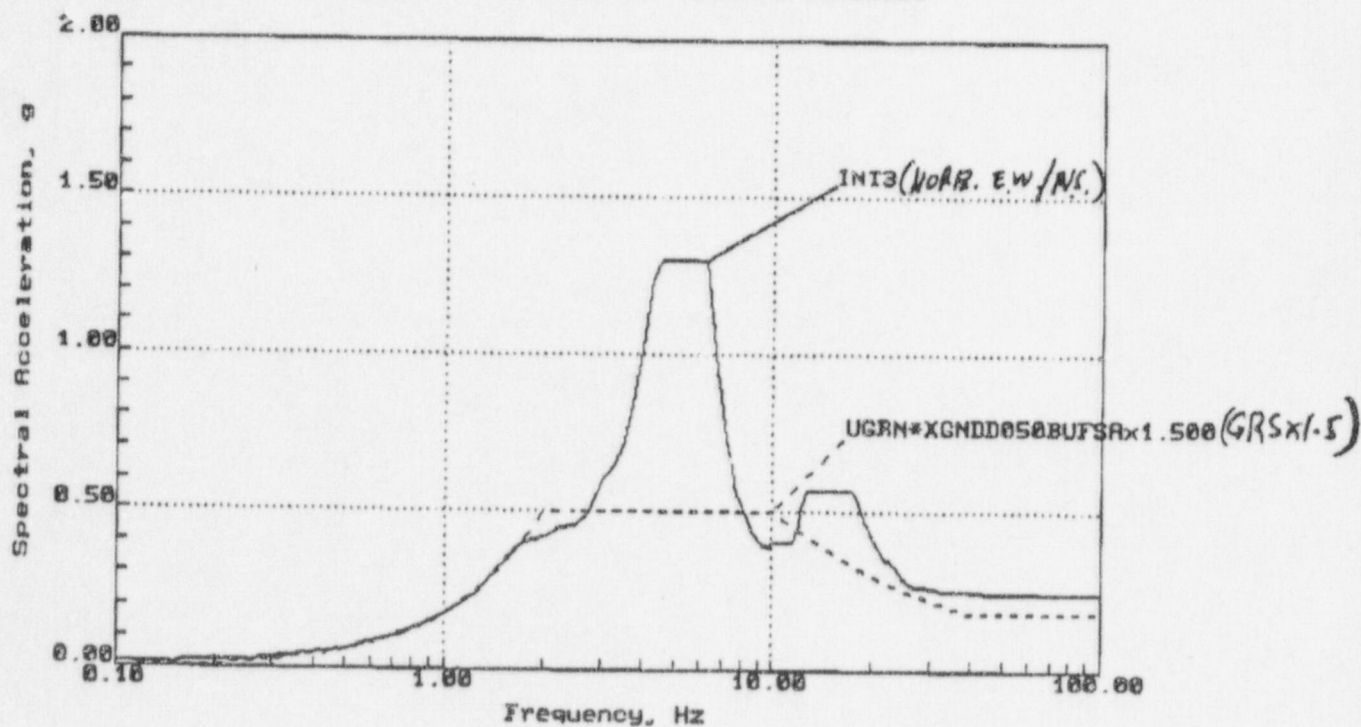
SUBJECT: Comparison of ISRS with 1.5xGRS

PREPARED BY: _____ DATE: _____

SYSTEM: Reactor Internal Struct. - el. 256'

CHECKED BY: _____ DATE: _____

Virginia Power Response Spectra Database



North Anna Power Station, Reactor Building ISRS, el. 256', horizontal dir.
and 1.5xGround Response Spectrum (Rock)
5% Spectral Damping