





Figure 3H.6-141 DGFOSV Wall and Slab Labeling Convention



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Figure 3H.6-143 DGFOSV Slab 1 Looking Down Vertical Reinforcement Zones Near Side Face

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Figure 3H.6-145 DGFOSV Slab 1 Looking Down Vertical Reinforcement Zones Far Side Face

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Figure 3H.6-146 DGFOSV Slab 1 Looking Down Transverse Reinforcement Zones

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Figure 3H.6-149 DGFOSV Roof 2 Looking Down Horizontal Reinforcement Zones Far Side Face



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Figure 3H.6-151 DGFOSV Slab 3 Looking Down Horizontal Reinforcement Zones Near Side Face



Figure 3H.6-152 DGFOSV Slab 3 Looking Down Vertical Reinforcement Zones Near Side Face



Figure 3H.6-153 DGFOSV Slab 3 Looking Down Horizontal Reinforcement Zones Far Side Face



Figure 3H.6-154A DGFOSV Slab 3 Looking Down Vertical Reinforcement Zones Far Side Face



Figure 3H.6-154B DGFOSV Slab 3 Looking Down Transverse Reinforcement Zones



Figure 3H.6-155 DGFOSV Roof 5 Looking Down Horizontal Reinforcement Zones Near Side Face



Figure 3H.6-156 DGFOSV Roof 5 Looking Down Vertical Reinforcement Zones Near Side Face



Figure 3H.6-157 DGFOSV Roof 5 Looking Down Horizontal Reinforcement Zones Far Side Face



Figure 3H.6-158 DGFOSV Roof 5 Looking Down Vertical Reinforcement Zones Far Side Face



Figure 3H.6-159 DGFOSV Roof 6 Looking Down Horizontal Reinforcement Zones Near Side Face



Figure 3H.6-160 DGFOSV Roof 6 Looking Down Vertical Reinforcement Zones Near Side Face



Figure 3H.6-161 DGFOSV Roof 6 Looking Down Horizontal Reinforcement Zones Far Side Face



Figure 3H.6-162 DGFOSV Roof 6 Looking Down Vertical Reinforcement Zones Far Side Face



Figure 3H.6-163 DGFOSV Wall 7 Looking From Outside Horizontal Reinforcement Zones Near Side Face



Figure 3H.6-164 DGFOSV Wall 7 Looking From Outside Vertical Reinforcement Zones Near Side Face



Figure 3H.6-165 DGFOSV Wall 7 Looking From Outside Horizontal Reinforcement Zones Far Side Face













Figure 3H.6-169 DGFOSV Wall 8 Looking From Outside Vertical Reinforcement Zones Near Side Face

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Figure 3H.6-171 DGFOSV Wall 8 Looking From Outside Vertical Reinforcement Zones Far Side Face









Figure 3H.6-174 DGFOSV Wall 9 Looking From Outside Vertical Reinforcement Zones Near Side Face






Figure 3H.6-176A DGFOSV Wall 9 Looking From Outside Vertical Reinforcement Zone Far Side Face















Figure 3H.6-179 DGFOSV Wall 10 Looking From Outside Horizontal Reinforcement Zones Far Side Face











Figure 3H.6-181 DGFOSV Wall 11 Looking From Outside Horizontal Reinforcement Zones Near Side Face



Figure 3H.6-182 DGFOSV Wall 11 Looking From Outside Vertical Reinforcement Zones Near Side Face



Figure 3H.6-183 DGFOSV Wall 11 Looking From Outside Horizontal Reinforcement Zones Far Side Face



Figure 3H.6-184 DGFOSV Wall 11 Looking From Outside Vertical Reinforcement Zones Far Side Face



Figure 3H.6-185 DGFOSV Wall 12 Looking From Outside Horizontal Reinforcement Zones Near Side Face



Figure 3H.6-186 DGFOSV Wall 12 Looking From Outside Vertical Reinforcement Zones Near Side Face



Figure 3H.6-187 DGFOSV Wall 12 Looking From Outside Horizontal Reinforcement Zones Far Side Face



Figure 3H.6-188 DGFOSV Wall 12 Looking From Outside Vertical Reinforcement Zones Far Side Face



Figure 3H.6-189 DGFOSV Wall 12 Looking From Outside Transverse Reinforcement Zones

Details and Evaluation Results of Seismic Category 1 Structures



Figure 3H.6-190 DGFOSV Wall 13 Looking From Outside Horizontal Reinforcement Zones Near Side Face







Figure 3H.6-192 DGFOSV Wall 13 Looking From Outside Horizontal Reinforcement Zones Far Side Face

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Figure 3H.6-194 DGFOSV Wall 13 Looking From Outside Transverse Reinforcement Zones



Figure 3H.6-195 DGFOSV Wall 14 Looking From Outside Horizontal Reinforcement Zones Near Side Face

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Figure 3H.6-196 DGFOSV Wall 14 Looking From Outside Vertical Reinforcement Zones Near Side Face



Figure 3H.6-197 DGFOSV Wall 14 Looking From Outside Horizontal Reinforcement Zones Far Side Face

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Details and Evaluation Results of Seismic Category 1 Structures



Figure 3H.6-199 DGFOSV Wall 14 Looking From Outside Transverse Reinforcement Zones



Figure 3H.6-200 DGFOSV Wall 15 Looking From Outside Horizontal Reinforcement Zones Near Side Face

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3-V-L \mathbf{F} 7'-6" 20'-0" 1-V-L 2-V-L 6'-3" 2-V-L 7'-6" +2'-6" 3-V-L 3-V-L -3' X 5'-0" 5'-6" — _ X 2'-9" 3'-4" / 32'-0"

Figure 3H.6-201 DGFOSV Wall 15 Looking From Outside Vertical Reinforcement Zones Near Side Face



Figure 3H.6-202 DGFOSV Wall 15 Looking From Outside Horizontal Reinforcement Zones Far Side Face



1'-8"

5'-0"

2'-6"

1-T

5'-0"



Figure 3H.6-203B DGFOSV Wall 15 Looking From Outside Transverse Reinforcement Zones

32'-0"

20'-0"

5'-0"

1-T

- 2'-9"





Figure 3H.6-204 DGFOSV Wall 16 Looking From Outside Horizontal Reinforcement Zones Near Side Face



Figure 3H.6-205 DGFOSV Wall 16 Looking From Outside Vertical Reinforcement Zones Near Side Face



Figure 3H.6-206 DGFOSV Wall 16 Looking From Outside Horizontal Reinforcement Zones Far Side Face



Figure 3H.6-207 DGFOSV Wall 16 Looking From Outside Vertical Reinforcement Zones Far Side Face




Figure 3H.6-209 SSI Model of RSW Piping Tunnel



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Lateral Seismic Soil Pressure on RSW Tunnel E. Wall With RB and RWB (psf)

Figure 3H.6-212 Lateral Seismic Soil Pressures (psf) on RSW Piping Tunnel East Wall (Main Cross Section of RSW Piping Tunnel)



Lateral Seismic Soil Pressure on RSW Tunnel W. Wall With RB and RWB (psf)

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Figure 3H.6-213 Lateral Seismic Soil Pressures (psf) on RSW Piping Tunnel West Wall (Main Cross Section of RSW Piping Tunnel)



Lateral Seismic Soil Pressure on RSW Tunnel N. Wall With Other Buildings (psf)

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Figure 3H.6-214 Lateral Seismic Soil Pressures (psf) on RSW Piping Tunnel North Wall (RSW Piping Tunnel near UHS/RSW Pump House)



Lateral Seismic Soil Pressure on RSW Tunnel S. Wall With Other Buildings (psf)





Lateral Seismic Soil Pressure on RSW Tunnel E. Wall With RB and RWB (psf) (UB In-Situ Soil Case)

Figure 3H.6-216 Lateral Seismic Soil Pressures (psf) on RSW Piping Tunnel East Wall For UB In-Situ Soil Case (Main Cross Section of RSW Piping Tunnel, Including Effect of Vertical Excitation)



Lateral Seismic Soil Pressure on RSW Tunnel W. Wall With RB and RWB (psf) (UB In-Situ Soil Case)

Figure 3H.6-217 Lateral Seismic Soil Pressures (psf) on RSW Piping Tunnel West Wall For UB In-Situ Soil Case (Main Cross Section of RSW Piping Tunnel, Including Effect of Vertical Excitation)

1000 2000 3000 4000 5000 6000 7000 8000 0 0.00 SSSI Seismic Soil Pressure on PH S. Wall (With Other Buildings, 2D SSSI), Envelope of all soil cases analyzed SASSI Seismic Soil Pressures on PH S. Wall (Empty Basin) (3D SSI) - Envelope Excluding Separated Case SASSI Seismic Soil Pressures on PH S. Wall (Empty Basin) (3D SSI) - Separated Case 10.00 SASSI Seismic Soil Pressures on PH S. Wall (Full Basin) (3D SSI) - Envelope Excluding Separated Case SASSI Seismic Soil Pressures on PH S. Wall (Full Basin) (3D SSI) - Separated Case Design Pressure (Seismic Soil Component Only) Calculated ASCE 4-98 Loading 20.00 Depth Below Ground Surface (feet) 30.00 40.00 50.00 60.00

Seismic Soil Pressure (psf)

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Figure 3H.6-218 SSI, SSSI, ASCE 4-98 and Design Lateral Seismic Soil Pressures on RSW Pump House South Wall

70.00



Figure 3H.6-219 SSI, SSSI, ASCE 4-98 and Design Lateral Seismic Soil Pressures on RSW Pump House North Wall



Figure 3H.6-220 SSI, SSSI, ASCE 4-98 and Design Lateral Seismic Soil Pressures on Ultimate Heat Sink Basin South Wall



Figure 3H.6-221 Partial Site Plan







Figure 3H.6-222a Amplified N-S Site-Specific Response Spectra Diesel Generator Fuel Oil Storage Vault (DGFOSV) Final Safety Analysis Report



Frequency (Hz)

Figure 3H.6-222b Amplified E-W Site-Specific Response Spectra Diesel Generator Fuel Oil Storage Vault (DGFOSV)



Figure 3H.6-222c Amplified Vertical Site-Specific Response Spectra Diesel Generator Fuel Oil Storage Vault (DGFOSV)



Figure 3H.6-223 Enveloped Broadened Horizontal Direction Response Spectra for DGFOSV

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Figure 3H.6-224 Enveloped Broadened Vertical Direction Response Spectra for DGFOSV



Figure 3H.6-225 2D SSSI Model of DGFOT, DGFOSV and Crane Foundation Retaining Wall









SSSI Seismic Soil Pressure on Vault No. 1C N. Wall (With Other Buildings), Envelope of all soil cases analyzed
Calculated ASCE 4-98 Loading
Dynamic Soil Pressure Used for Design
SSI Soil Pressure without Separation
SSI Soil Pressures with Separation

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Seismic Soil Pressure (psf)

Figure 3H.6-228 SSI, SSSI, ASCE 4-98 and Design Lateral Seismic Soil Pressures on Diesel Generator Fuel Oil Storage Vault No. 1C North Wall



- SSI Soil Pressure without Separation
- SSI Soil Pressure with Separation



Figure 3H.6-229 SSI, SSSI, ASCE 4-98 and Design Lateral Seismic Soil Pressures on Diesel Generator Fuel Oil Storage Vault No. 1C South Wall





•	SSSI Seismic Soil Pressure on DGFOSV No. 1A W. Wall (With DGFOT and CW), Envelope of all soil cases analyzed
•	Calculated ASCE 4-98 Loading
•	Dynamic Pressure Used for Design
•	SSI Soil Pressure without Separation
ŀ	SSI Soil Pressure with Separation







Active Pressure (ksf)





Active Pressure (ksf)

Figure 3H.6-233 Active Lateral Earth Pressure on the North, East and West Walls of the RSW Pump House



Active Pressure (ksf)





Passive Pressure (ksf)





Passive Pressure (ksf)




Passive Pressure (ksf)









Figure 3H.6-239 At-Rest Lateral Earth Pressure on the North, East and West Walls of the RSW Pump House







Figure 3H.6-241 At-Rest Lateral Earth Pressure on the Diesel Generator Fuel Oil Storage Vault Walls



Figure 3H.6-242 Dynamic At-Rest Lateral Earth Pressure on the Diesel Generator Fuel Oil Storage Vault Walls



Active Pressure (ksf)





Passive Pressure (ksf)





Figure 3H.6-245 Active Lateral Earth Pressure Diagrams for Typical Section of RSW Tunnel



Figure 3H.6-246 At-Rest Lateral Earth Pressure Diagrams for Typical Section of RSW Tunnel



Figure 3H.6-247 Passive Lateral Earth Pressure Diagrams for Typical Section of RSW Tunnel



	Figure	3H.6-248	RSW	Tunnel	Plan	View
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Figure 3H.6-249 Typical RSW Piping Tunnel Section





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Figure 3H.6-251 Plan View of DGFOSV at Elevation 35'-0"



Figure 3H.6-252 DGFOSV Section 1

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Figure 3H.6-253 Driving Lateral Pressure on the East and West Walls of RSW Tunnel (for Stability Evaluation)



Figure 3H.6-254 Resisting Lateral Pressure on the East and West Walls of RSW Tunnel (for Stability Evaluation)



Figure 3H.6-255 Driving Lateral Pressure on the North, East, South, and West Walls of DGFOSV (for Stability Evaluation)



Figure 3H.6-256 Resisting Lateral Pressure on Walls of DGFOSV Perpendicular to Tank (for Stability Evaluation)



Figure 3H.6-257 Resisting Lateral Pressure on Walls of DGFOSV Parallel to Tank (for Stability Evaluation)

(U2) (U3) (U4)(U5) (U6) (U1) 150.1.0 4' •0* 23' •6* 3' .0. 10' -0" 49' -0 23' -6" 23' -6" 23' -6" 10' -0" 3' •0" (TYP) M 3' - 0" (TYP) VINEL /CONCE EL (-)4* 3' -0" - 3, 6. 10, 0 9, 9 3' -0" (TYP) CL REACTOR UA тв 6' -0-(TYP) ÷. CST CBA СВ Τ HATCH HATCH ABOVE HATCH ABOVE è 6' -0" · · 0· 4' -0" 6' -0" ,8 LSOJ FOST UHS \$**9** 1' · 0' TYP Š Ř TYP KEY PLAN UB Φ

Figure 3H.6-258 RSW Pump House Floor Plan at Elevation -18'-0"

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Details and Evaluation Results of Seismic Category 1 Structures

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Details and Evaluation Results of Seismic Category 1 Structures

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150g FOST ١Į





Figure 3H.6-260 UHS Tower Upper Level

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Details and Evaluation Results of Seismic Category 1 Structures





Figure 3H.6-261 UHS/RSW Pump House, Section 1

KEY PLAN

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KEY PLAN



Figure 3H.7-1 SAP2000 Finite Element Analysis Model for DGFOT



Figure 3H.7-2 Dynamic At-Rest Lateral Earth Pressure (psf) on the Walls of the Fuel Oil Tunnel DGFOT Walls







Figure 3H.7-4 Resisting Lateral Earth Pressure (ksf) on the Walls of the Fuel Oil Tunnel (for Stability Evaluation)



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Figure 3H.7-5 SSI, SSSI, ASCE 4-98 and Design Lateral Seismic Soil Pressures (psf) on Fuel Oil Tunnel East Wall with Reactor Building and Crane Wall







Figure 3H.7-7 SSI, SSSI, ASCE 4-98 and Design Lateral Seismic Soil Pressures (psf) on Fuel Oil Tunnel East Wall with Diesel Generator Fuel Oil Storage Vault and Crane Wall



Figure 3H.7-8 SSI, SSSI, ASCE 4-98 and Design Lateral Seismic Soil Pressures (psf) on Fuel Oil Tunnel West Wall with Diesel Generator Fuel Oil Storage Vault and Crane Wall



Figure 3H.7-9 Access Region Walls Looking From Outside Horizontal Reinforcement Zones Near Side and Far Side Faces

Figure 3H.7-10 Access Region Walls Looking From Outside Vertical Reinforcement Zones Near Side and Far Side Faces

Details and Evaluation Results of Seismic Category 1 Structures


Figure 3H.7-10A Access Region Walls Looking From Outside Transverse Reinforcement Zones



Figure 3H.7-11 Tunnel Walls Looking From Outside Horizontal Reinforcement Zones Near Side Face



Figure 3H.7-12 Tunnel Walls Looking From Outside Horizontal Reinforcement Zones Far Side Face



Figure 3H.7-13 Tunnel Walls Looking From Outside Vertical Reinforcement Zones Near Side Face



Figure 3H.7-14 Tunnel Walls Looking From Outside Vertical Reinforcement Zones Far Side Face



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	1-HL	5-6*
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Figure 3H.7-15 Tunnel and Access Region Basemat Looking Down Horizontal Reinforcement Zones Near Side and Far Side Faces

Figure 3H.7-16 Tunnel and Access Region Basemat Looking Down Vertical Reinforcement Zones Near Side and Far Side Faces





1-H-L	5'-(6"
36'-0"	, ,	

Figure 3H.7-18 Roof of Tunnel Looking Down Horizontal Reinforcement Zones Near Side and Far Side Faces

1-V-L	5'-6"
36-0"	

Figure 3H.7-19 Roof of Tunnel Looking Down Vertical Reinforcement Zones Near Side and Far Side Faces







Figure 3H.7-19A Roof of Tunnel Looking Down Transverse Reinforcement Zones



Figure 3H.7-20 2D Model for SSI Analysis of a Typical Cross section of DGFOT

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Figure 3H.7-21 2D SSSI Model of RB, DGFOT and Crane Foundation Retaining Wall



Figure 3H.7-22 Comparison of Spectra at Foundation of DGFOT – Lower Bound Soil Properties, Horizontal X Direction







Figure 3H.7-24 Comparison of Spectra at Foundation of DGFOT – Lower Bound Soil Properties, Vertical Direction



Figure 3H.7-25 Comparison of Spectra at Foundation of DGFOT – Mean Soil Properties, Horizontal X Direction



Figure 3H.7-26 Comparison of Spectra at Foundation of DGFOT – Mean Soil Properties, Horizontal Y Direction



Figure 3H.7-27 Comparison of Spectra at Foundation of DGFOT – Mean Soil Properties, Vertical Direction



Figure 3H.7-28 Comparison of Spectra at Foundation of DGFOT – Upper Bound Soil Properties, Horizontal X Direction







Figure 3H.7-30 Comparison of Spectra at Foundation of DGFOT – Upper Bound Soil Properties, Vertical Direction



Figure 3H.7-30a Amplified N-S Site-Specific Response Spectra Diesel Generator Fuel Oil Tunnel (DGFOT)

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Figure 3H.7-30b Amplified E-W Site-Specific Response Spectra Diesel Generator Fuel Oil Tunnel (DGFOT)



Figure 3H.7-30c Amplified Vertical Site-Specific Response Spectra Diesel Generator Fuel Oil Tunnel (DGFOT)



Figure 3H.7-31 Enveloped, Broadened Horizontal Response Spectra for DGFOTs

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Figure 3H.7-32 Enveloped, Broadened Vertical Response Spectra for DGFOTs















Figure 3H.7-36 Typical DGFOT Section



Figure 3H.8-1 Horizontal H1 Time History, Matching Horizontal R.G. 1.60 Response Spectrum



Figure 3H.8-2 Horizontal H2 Time History, Matching Horizontal R.G. 1.60 Response Spectrum



Figure 3H.8-3 Vertical V1 Time History, Matching Vertical R.G. 1.60 Response Spectrum





Figure 3H.8-4 Target vs. Computed Response Spectra, H1 Component, 2% damping


Figure 3H.8-5 Target vs. Computed Response Spectra, H1 Component, 3% damping





Figure 3H.8-6 Target vs. Computed Response Spectra, H1 Component, 4% damping



Figure 3H.8-7 Target vs. Computed Response Spectra, H1 Component, 5% damping





Figure 3H.8-8 Target vs. Computed Response Spectra, H1 Component, 7% damping



Figure 3H.8-9 Target vs. Computed Response Spectra, H2 Component, 2% Damping





Figure 3H.8-10 Target vs. Computed Response Spectra, H2 Component, 3% Damping



Figure 3H.8-11 Target vs. Computed Response Spectra, H2 Component, 4% Damping





Figure 3H.8-12 Target vs. Computed Response Spectra, H2 Component, 5% Damping



Figure 3H.8-13 Target vs. Computed Response Spectra, H2 Component, 7% Damping





Figure 3H.8-14 Target vs. Computed Response Spectra, V1 Component, 2% Damping



Figure 3H.8-15 Target vs. Computed Response Spectra, V1 Component, 3% Damping





Figure 3H.8-16 Target vs. Computed Response Spectra, V1 Component, 4% Damping



Figure 3H.8-17 Target vs. Computed Response Spectra, V1 Component, 5% Damping





Figure 3H.8-18 Target vs. Computed Response Spectra, V1 Component, 7% Damping



Figure 3H.8-19 Target vs. Computed Power Spectral Density, Horizontal H1 Component



Figure 3H.8-20 Target vs. Computed Power Spectral Density, Horizontal H2 Component



Figure 3H.8-21 Target vs. Computed Power Spectral Density, Vertical V1 Component





Figure 3H.11-1 Automobile Missile Impact Forcing Function





(b) - Response Extends into Plastic Range

Figure 3H.11-3 Idealized Load-Deflection Diagrams



Reactor Building Hurricane Wind Load Assessment Windward and Leeward Combined

Figure 3H.11-4 Comparison of Hurricane and Tornado Wind Pressures for Reactor Building

DCD)



Figure 3H.11-5 Comparison of Hurricane and Seismic Shear Forces for Reactor Building

Shear Diagram

Diagram

70,000

80,000

90,000

100,000

-RG 1.221 Hurricane Shear



Control Building Hurricane Wind Load Assessment Windward and Leeward Combined

Figure 3H.11-6 Comparison of Hurricane and Tornado Wind Pressures for Control Building

Figure 3H.2-17.b of the DCD - considers wind speed of 300 mph)



Figure 3H.11-7 Comparison of Hurricane and Seismic Shear Forces for Control Building

20,000



RSW Tunnel Access Region Hurricane Wind Load Assessment Windward and Leeward Combined

Figure 3H.11-8 Comparison of Hurricane and Tornado Wind Pressures for RSW Piping Tunnels



Figure 3H.11-9 Comparison of Hurricane and Tornado Wind Pressures for RSW Pump House



UHS Basin Hurricane Wind Load Assessment

Figure 3H.11-10 Comparison of Hurricane and Tornado Wind Pressures for **UHS Basin and Cooling Towers**



Diesel Generator Fuel Oil Storage Vault Hurricane Wind Load Assessment for Leeward Wall

Figure 3H.11-11 Comparison of Hurricane and Tornado Wind Pressures for Diesel Generator Fuel Oil Storage Vaults



DGFOT Access Region Hurricane Wind Load Assessment Windward and Leeward Combined

Figure 3H.11-12 Comparison of Hurricane and Tornado Wind Pressures for Diesel Generator Fuel Oil Tunnels