

## Tables

Table 1.1-201	Left Margin Annotations .....	1-9
Table 1.6-201	Referenced Topical Reports.....	1-26
Table 1.7-201	Summary of Electrical System Configuration Drawings .....	1-29
Table 1.7-202	Summary of Mechanical System Configuration Drawings.....	1-29
Table 1.8-201	Departures from the Referenced Certified Design .....	1-32
Table 1.8-202	Conceptual Design Information (CDI) .....	1-33
Table 1.9-201	Conformance with Standard Review Plan .....	1-38
Table 1.9-202	Conformance with Regulatory Guides.....	1-86
Table 1.9-203	Conformance with the FSAR Content Guidance in RG 1.206.....	1-113
Table 1.9-204	Industrial Codes and Standards .....	1-152
Table 1.9-205	NUREG Reports Cited .....	1-157
Table 1.10-201	Summary of FSAR Sections Where DCD COL Items Are Addressed .....	1-161
Table 1.11-201	COL Item Resolutions Related to NUREG-0933 Table II Task Action Plan Items and New Generic Issues .....	1-169
Table 1.11-202	Supplementary Resolutions Related to NUREG-0933 Table II TMI Action Plan Items and Human Factors Issues .....	1-171
Table 1.12-201	Potential Hazards to Fermi 2 from Fermi 3 Construction Activities .....	1-176
Table 1.12-202	Potential Consequences to Fermi 2 Due to Potential Hazards Resulting from Fermi 3 Construction Activities) .....	1-178
Table 1.12-203	Managerial and Administrative Controls for Fermi 3 Construction Activity Hazards .....	1-181
Table 1C-201	Operating Experience Review Results Summary—Generic Letters .....	1-185
Table 1C-202	Operating Experience Review Results Summary—IE Bulletins .....	1-185
Table 2.0-2R	Limits Imposed on Acceptance Criteria in Section II of SRP by ESBWR Design .....	2-2
Table 2.0-201	Evaluation of Site/Design Parameters and Characteristics .....	2-7
Table 2.1-201	U.S. Counties and Canadian Counties within 80 km (50 mi) Radius of Fermi 3 .....	2-59

## Tables

Table 2.1-202	Resident Population Distribution by Segment, 0 to 16 km (10 mi) from Fermi 3, 2000 .....	2-60
Table 2.1-203	Largest Population Areas within 16 km (10 mi) of the Fermi Site, 2000.....	2-61
Table 2.1-204	Segment Resident Population Distribution 0 to 80 km (50 mi) From the Proposed Fermi 3 Power Block, 2000.....	2-62
Table 2.1-205	Resident and Transient Population and Density, 0-10 mi Concentric Circles from the Fermi Site, 2000.....	2-63
Table 2.1-206	Resident and Transient Population and Density by Concentric Circle, 2000 .	2-64
Table 2.1-207	Commuter Information for the 80 km (50 mi) Region, 2000 .....	2-65
Table 2.1-208	Special Facilities Transient Population Data for the Regional Counties, 2000 .....	2-66
Table 2.1-209	Michigan and Ohio Regional County Populations and Average Annual Growth Rates .....	2-67
Table 2.1-210	0 to 16 km (10 mi) Resident and Transient Historical Population and Population Projections, 2000, 2008, 2013, 2018, and 2020-2060 .....	2-68
Table 2.1-211	Canadian Population and Average Annual Growth Rates .....	2-74
Table 2.1-212	16 km (10 mi) to 80 km (50 mi) Resident and Transient Population, 2000, 2008, 2013, 2018, and 2020 to 2060 .....	2-75
Table 2.1-213	Industrial Facilities within 5 mi of Fermi Site .....	2-79
Table 2.1-214	Schools within 5 mi of Fermi Site .....	2-80
Table 2.1-215	Current and Projected Population Data for the LPZ.....	2-81
Table 2.1-216	2013 Population Density by Concentric Circle .....	2-82
Table 2.1-217	2018 Population Density by Concentric Circle .....	2-83
Table 2.2-201	Industrial Facilities Within 8 Km (5 Mi) .....	2-112
Table 2.2-202	Offsite Hazardous Materials Within 8 Km (5 Mi).....	2-113
Table 2.2-203	Fermi Onsite Chemical Storage Locations and Quantities.....	2-118
Table 2.2-204	Airports Near Fermi 3 .....	2-123
Table 2.2-205	Fermi Onsite Chemicals Evaluation .....	2-125
Table 2.3-201	National Weather Service First-Order and Cooperative Observing Stations Surrounding the Fermi Site .....	2-218

## Tables

Table 2.3-202	Local Climatological Data Summary for Detroit, Michigan .....	2-219
Table 2.3-203	Local Climatological Data Summary for Flint, Michigan .....	2-221
Table 2.3-204	Local Climatological Data Summary for Toledo, Ohio.....	2-223
Table 2.3-205	Climatological Normals for National Weather Service First-Order and Cooperative Observation Stations in the Region Surrounding the Fermi Site .....	2-225
Table 2.3-206	Climatological Extremes for National Weather Service First-Order and Cooperative Observation Stations Surrounding the Fermi Site.....	2-226
Table 2.3-207	Annual Summaries of Hours with Dust Reported for Detroit Metropolitan Airport During the Period 1961-1995.....	2-227
Table 2.3-208	Distribution for Duration of Discrete Dust Events at Detroit Metropolitan Airport (1961-1995) .....	2-228
Table 2.3-209	Summaries for Freezing Rain Events Occurring in the Five-County Area Surrounding the Fermi Site (1993-2007).....	2-229
Table 2.3-210	Ambient Temperature and Humidity Statistics for Detroit Metropolitan Airport .....	2-230
Table 2.3-211	Monthly and Annual Temperature Data (°F) for Detroit Metropolitan Airport and Fermi Site (2003 - 2007).....	2-231
Table 2.3-212	Monthly and Annual Dew-point Temperature (°F) Summaries for the Fermi Site (2003 - 2007) .....	2-232
Table 2.3-213	Hours with Precipitation and Hourly Precipitation Rate Distribution for Detroit Metropolitan Airport at Detroit, Michigan (2003-2007) .....	2-233
Table 2.3-214	Estimated Maximum Precipitation Amounts (Inches) for Durations 1 Hour to 24 Hours and Recurrence Intervals 1 year to 100 years for Fermi 3.....	2-234
Table 2.3-215	Observed Maximum Precipitation Events at Detroit Metro Airport for Durations from 1 Hour to 24 Hours .....	2-235
Table 2.3-216	Mean Monthly and Annual Summaries (Hours) of Fog and Heavy Fog for Detroit, Michigan (1961-1995).....	2-236
Table 2.3-217	Monthly and Annual Mean Wind Speeds (mph) for Detroit Metropolitan Airport and Fermi Site (2003 - 2007).....	2-237
Table 2.3-218	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-238
Table 2.3-219	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-239

## Tables

Table 2.3-220	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-240
Table 2.3-221	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-241
Table 2.3-222	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-242
Table 2.3-223	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-243
Table 2.3-224	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-244
Table 2.3-225	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-245
Table 2.3-226	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-246
Table 2.3-227	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-247
Table 2.3-228	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-248
Table 2.3-229	Wind Direction Persistence Summaries - Fermi Site 10-m Level.....	2-249
Table 2.3-230	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-250
Table 2.3-231	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-251
Table 2.3-232	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-252
Table 2.3-233	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-253
Table 2.3-234	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-254
Table 2.3-235	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-255
Table 2.3-236	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-256
Table 2.3-237	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-257
Table 2.3-238	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-258
Table 2.3-239	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-259
Table 2.3-240	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-260
Table 2.3-241	Wind Direction Persistence Summaries - Fermi Site 60-m Level.....	2-261
Table 2.3-242	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-262
Table 2.3-243	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-263

## Tables

Table 2.3-244	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-264
Table 2.3-245	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-265
Table 2.3-246	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-266
Table 2.3-247	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-267
Table 2.3-248	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-268
Table 2.3-249	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-269
Table 2.3-250	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-270
Table 2.3-251	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-271
Table 2.3-252	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-272
Table 2.3-253	Wind Direction Persistence Summaries - Detroit Metropolitan Airport 10 m Level .....	2-273
Table 2.3-254	Mean Monthly and Annual Mixing Heights (m) at White Lake, Michigan (2003 - 2007) .....	2-274
Table 2.3-255	Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007) .....	2-275
Table 2.3-256	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007) .....	2-276
Table 2.3-257	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007) .....	2-277
Table 2.3-258	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007) .....	2-278
Table 2.3-259	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007) .....	2-279

## Tables

Table 2.3-260	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007).....	2-280
Table 2.3-261	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007).....	2-281
Table 2.3-262	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007).....	2-282
Table 2.3-263	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007).....	2-283
Table 2.3-264	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007).....	2-284
Table 2.3-265	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007).....	2-285
Table 2.3-266	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007).....	2-286
Table 2.3-267	Monthly Temperature Inversion Frequency and Persistence at the Fermi Site (2003 - 2007).....	2-287
Table 2.3-268	Monthly and Annual Vertical Stability Class and Mean 60-m Wind Speed Distributions for Fermi Site (2003 - 2007) .....	2-288
Table 2.3-269	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-290
Table 2.3-270	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-291
Table 2.3-271	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-292
Table 2.3-272	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-293
Table 2.3-273	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-294
Table 2.3-274	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-295
Table 2.3-275	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-296
Table 2.3-276	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-297
Table 2.3-277	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-298
Table 2.3-278	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-299
Table 2.3-279	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-300
Table 2.3-280	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-301

## Tables

Table 2.3-281	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-302
Table 2.3-282	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-303
Table 2.3-283	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-304
Table 2.3-284	Annual JFD of Wind Direction, Wind Speed, and Stability Class .....	2-305
Table 2.3-285	SACTI Input Parameters .....	2-306
Table 2.3-286	Average Plume Lengths During NDCT Operation.....	2-307
Table 2.3-287	Annual Plume Length Frequency During NDCT Operations .....	2-308
Table 2.3-288	Meteorological Parameters Monitored at the Fermi Site .....	2-309
Table 2.3-289	Accuracies and Thresholds for the Fermi Onsite Meteorological Monitoring Program Instruments .....	2-310
Table 2.3-290	Method for Substituting Redundant Parameters of the Critical Meteorological Measurements.....	2-311
Table 2.3-291	Data Recovery Percentages for the Fermi Onsite Meteorological Monitoring Instruments During the 2003-2007 Time Period .....	2-312
Table 2.3-292	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class – Stability Class A.....	2-313
Table 2.3-293	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class – Stability Class B.....	2-314
Table 2.3-294	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class – Stability Class C.....	2-315
Table 2.3-295	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class – Stability Class D.....	2-316
Table 2.3-296	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class – Stability Class E.....	2-317
Table 2.3-297	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class – Stability Class F .....	2-318
Table 2.3-298	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class – Stability Class G .....	2-319
Table 2.3-299	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class – All Stability Classes.....	2-320

## Tables

Table 2.3-300	Fermi 3 Offsite Short-Term Atmospheric Dispersion Factors .....	2-321
Table 2.3-301	Onsite X/Q Factors from ARCON96 Runs (Based on 2001-2007 Meteorological Data Set) .....	2-322
Table 2.3-302	Cross-Unit C/Q Factors (Based on 2001-2007 Meteorological Data Set) .....	2-326
Table 2.3-303	Distances to Site Boundary, Nearest Residences, and Nearest Gardens ...	2-327
Table 2.3-304	Distances to Nearest Sheep, Goat, Meat Cow, and Milk Cow Receptors....	2-328
Table 2.3-305	Site Boundary X/Q and D/Q Factors for Ground-Level Release (Based on 2002-2007 met data) .....	2-329
Table 2.3-306	Site Boundary X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data) .....	2-330
Table 2.3-307	Site Boundary X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data).....	2-331
Table 2.3-308	Nearest Residence X/Q and D/Q Factors for Ground-Level Release (Based on 2002-2007 met data).....	2-332
Table 2.3-309	Nearest Residence X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data) .....	2-333
Table 2.3-310	Nearest Residence X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data).....	2-334
Table 2.3-311	Nearest Garden X/Q and D/Q Factors for Ground-Level Release (Based on 2002-2007 met data) .....	2-335
Table 2.3-312	Nearest Garden X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data) .....	2-336
Table 2.3-313	Nearest Garden X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data).....	2-337
Table 2.3-314	Nearest Sheep X/Q and D/Q Factors for Ground-Level Release (Based on 2002-2007 met data) .....	2-338
Table 2.3-315	Nearest Sheep X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data) .....	2-339
Table 2.3-316	Nearest Sheep X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data).....	2-340

## Tables

Table 2.3-317	Nearest Goat X/Q and D/Q Factors for Ground-Level Release (Based on 2002-2007 met data) .....	2-341
Table 2.3-318	Nearest Goat X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data) .....	2-342
Table 2.3-319	Nearest Goat X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data).....	2-343
Table 2.3-320	Nearest Meat Cow X/Q and D/Q Factors for Ground-Level Release (Based on 2002-2007 met data).....	2-344
Table 2.3-321	Nearest Meat Cow X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data) .....	2-345
Table 2.3-322	Nearest Meat Cow X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data).....	2-346
Table 2.3-323	Nearest Milk Cow X/Q and D/Q Factors for Ground-Level Release (Based on 2002-2007 met data) .....	2-347
Table 2.3-324	Nearest Milk Cow X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data) .....	2-348
Table 2.3-325	Nearest Milk Cow X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data).....	2-349
Table 2.3-326	Annual Average X/Q Values (No Decay, Undepleted) for Ground Level Release (Based on 2002-2007 met data) .....	2-350
Table 2.3-327	Annual Average X/Q Values (2.26 Day Decay, Undepleted) for Ground Level Release (Based on 2002-2007 met data).....	2-353
Table 2.3-328	Annual Average X/Q Values (8.0 Day Decay, Depleted) for Ground Level Release (Based on 2002-2007 met data).....	2-356
Table 2.3-329	Annual Average D/Q Values for Ground Level Release (Based on 2002-2007 met data).....	2-359
Table 2.3-330	Annual Average X/Q Values (No Decay, Undepleted) for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data).....	2-362
Table 2.3-331	Annual Average X/Q Values (2.26 Day Decay, Undepleted) for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data).....	2-365

## Tables

Table 2.3-332	Annual Average X/Q Values (8.0 Day Decay, Depleted) for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data).....	2-368
Table 2.3-333	Annual Average D/Q Values for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 2002-2007 met data) .....	2-371
Table 2.3-334	Annual Average X/Q Values (No Decay, Undepleted) for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data) .	2-374
Table 2.3-335	Annual Average X/Q Values (2.26 Day Decay, Undepleted) for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data) .	2-377
Table 2.3-336	Annual Average X/Q Values (8.0 Day Decay, Depleted) for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data) .	2-380
Table 2.3-337	Annual Average D/Q Values for Mixed-Mode Release from the Turbine Building Stack (Based on 2002-2007 met data).....	2-383
Table 2.3-338	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class (Based on 1985-1989 Met Data) – Stability Class A .....	2-386
Table 2.3-339	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class (Based on 1985-1989 Met Data) – Stability Class B .....	2-387
Table 2.3-340	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class (Based on 1985-1989 Met Data) – Stability Class C .....	2-388
Table 2.3-341	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class (Based on 1985-1989 Met Data) – Stability Class D .....	2-389
Table 2.3-342	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class (Based on 1985-1989 Met Data) – Stability Class E .....	2-390
Table 2.3-343	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class (Based on 1985-1989 Met Data) – Stability Class F .....	2-391
Table 2.3-344	Joint Frequency Distribution in Hours of Wind Speed and Direction by Atmospheric Stability Class (Based on 1985-1989 Met Data) – Stability Class G .....	2-392
Table 2.3-345	Site Boundary X/Q and D/Q Factors for Ground-Level Release (Based on 1985-1989 met data) .....	2-393

## Tables

Table 2.3-346	Site Boundary X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-394
Table 2.3-347	Site Boundary X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data).....	2-395
Table 2.3-348	Nearest Residence X/Q and D/Q Factors for Ground-Level Release (Based on 1985-1989 met data).....	2-396
Table 2.3-349	Nearest Residence X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-397
Table 2.3-350	Nearest Residence X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data).....	2-398
Table 2.3-351	Nearest Garden X/Q and D/Q Factors for Ground-Level Release (Based on 1985-1989 met data).....	2-399
Table 2.3-352	Nearest Garden X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-400
Table 2.3-353	Nearest Garden X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data).....	2-401
Table 2.3-354	Nearest Sheep X/Q and D/Q Factors for Ground Level Release (Based on 1985-1989 met data) .....	2-402
Table 2.3-355	Nearest Sheep X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-403
Table 2.3-356	Nearest Sheep X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data).....	2-404
Table 2.3-357	Nearest Goat X/Q and D/Q Factors for Ground Level Release (Based on 1985-1989 met data) .....	2-405
Table 2.3-358	Nearest Goat X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-406
Table 2.3-359	Nearest Goat X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data).....	2-407
Table 2.3-360	Nearest Meat Cow X/Q and D/Q Factors for Ground Level Release (Based on 1985-1989 met data) .....	2-408
Table 2.3-361	Nearest Meat Cow X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-409

## Tables

Table 2.3-362	Nearest Meat Cow X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data).....	2-410
Table 2.3-363	Nearest Milk Cow X/Q and D/Q Factors for Ground Level Release (Based on 1985-1989 met data).....	2-411
Table 2.3-364	Nearest Milk Cow X/Q and D/Q Factors for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-412
Table 2.3-365	Nearest Milk Cow X/Q and D/Q Factors for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data).....	2-413
Table 2.3-366	Annual Average X/Q Values (no Decay, Undepleted) for Ground Level Release (Based on 1985-1989 met data) .....	2-414
Table 2.3-367	Annual Average X/Q Values (2.26 Day Decay, Undepleted) for Ground Level Release (Based on 1985-1989 met data) .....	2-417
Table 2.3-368	Annual Average X/Q Values (8.0 Day Decay, Undepleted) for Ground Level Release (Based on 1985-1989 met data) .....	2-420
Table 2.3-369	Annual Average D/Q Values for Ground Level Release (Based on 1985-1989 met data).....	2-423
Table 2.3-370	Annual Average X/Q Values (no Decay, Undepleted) for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-426
Table 2.3-371	Annual Average X/Q Values (2.26 Day Decay, Undepleted) for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data).....	2-429
Table 2.3-372	Annual Average X/Q Values (8.0 Day Decay, Depleted) for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-432
Table 2.3-373	Annual Average D/Q Values for Mixed-Mode Release from the Reactor Building/Fuel Building Stack (Based on 1985-1989 met data) .....	2-435
Table 2.3-374	Annual Average X/Q Values (No Decay, Undepleted) for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data) .....	2-438
Table 2.3-375	Annual Average X/Q Values (2.26 Day Decay, Undepleted) for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data) ..	2-441
Table 2.3-376	Annual Average X/Q Values (8.0 Day Decay, Depleted) for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data) ..	2-444

## Tables

Table 2.3-377	Annual Average D/Q Values for Mixed-Mode Release from the Turbine Building Stack (Based on 1985-1989 met data).....	2-447
Table 2.3-378	Onsite X/Q Factors from ARCON96 Runs (Based on 1985-1989 Meteorological Data Set).....	2-450
Table 2.3-379	Cross-Unit X/Q Factors (Based on 1985-1989 Meteorological Data Set)....	2-454
Table 2.4-201	2004 Water Usage - Withdrawal and Consumptive Uses for Lake Erie .....	2-627
Table 2.4-202	2003 Summary Report and 2002 Basin Report for Lake Erie Water Usage	2-628
Table 2.4-203	2001 and 2000 Basin Water Usage Report for Lake Erie .....	2-629
Table 2.4-204	1999 and 1998 Basin Water Usage Report for Lake Erie .....	2-630
Table 2.4-205	Monroe County Water Usage (2000 – 2006) .....	2-631
Table 2.4-206	2005 Monroe County Report .....	2-633
Table 2.4-207	2006 Monroe County Report .....	2-634
Table 2.4-208	2006 Monroe County Water Capacity Report .....	2-635
Table 2.4-209	Net Basin Supply for Lake Erie .....	2-636
Table 2.4-210	Extreme Lake Levels for the Western Basin of Lake Erie at the Fermi Site (ID 9063090) .....	2-637
Table 2.4-211	Local Intense PMP Depth Duration .....	2-639
Table 2.4-212	Discharge (Q) from Existing Locations Calculated with the Rational Method .....	2-640
Table 2.4-213	Discharge (Q) from Final Grade Locations Calculated with the Rational Method .....	2-641
Table 2.4-214	Existing Site and Final Grade Runoff Comparison .....	2-642
Table 2.4-215	Swan Creek Flow Characteristics .....	2-643
Table 2.4-216	Swan Creek Watershed Incremental PMP Depths for the 72-Hour Storm... 2-644	2-644
Table 2.4-217	PMP Temporal Distribution .....	2-645
Table 2.4-218	NRCS Dimensionless Unit Hydrograph Ordinates .....	2-646
Table 2.4-219	Summary of Results for Alternative II - PMF .....	2-647
Table 2.4-220	Summary of Results for Alternative I – 500-Year Flood .....	2-648

## Tables

Table 2.4-221	Summary of Results for Alternative III – Probable Maximum Surge and Seiche .....	2-649
Table 2.4-222	Lake Erie - Possible Storm Induced Lake Level Increases (Ft) .....	2-650
Table 2.4-223	Wavelengths for Various Points in the Lake.....	2-651
Table 2.4-224	Breaking Wave Heights .....	2-652
Table 2.4-225	Lake Erie Extreme Low Water Elevations from 1967-2007 at the Fermi Site (Station No. 9063090) .....	2-653
Table 2.4-226	EPA Region 5 Sole Source Aquifers .....	2-654
Table 2.4-227	Monroe County, Michigan Projected Groundwater Use Through 2060.....	2-655
Table 2.4-228	Wayne County, Michigan Projected Groundwater Use Through 2060.....	2-656
Table 2.4-229	Monitoring Well/Piezometer Construction Data.....	2-657
Table 2.4-230	Surface Water Gauge Construction Data .....	2-659
Table 2.4-231	Water Level Data.....	2-660
Table 2.4-232	Overburden Hydraulic Conductivity .....	2-665
Table 2.4-233	Bedrock Aquifer Hydraulic Conductivity .....	2-666
Table 2.4-234	Site Specific Inputs .....	2-668
Table 2.4-235	Comparison of Liquid Release Concentrations With 10 CFR 20 Concentrations - Lake Erie .....	2-669
Table 2.4-236	Comparison of Liquid Release Concentrations With 10 CFR 20 Concentrations - Off Site Water Well .....	2-672
Table 2.4-237	Depth-Area-Duration Data.....	2-675
Table 2.4-238	Lake Erie - Decay Plus Retardation .....	2-676
Table 2.4-239	Off Site Well – Decay Plus Retardation.....	2-679
Table 2.4-240	Lake Erie - Decay Plus Retardation, Factor of 10 for Dilution.....	2-682
Table 2.4-241	Off Site Well - Decay Plus Retardation Plus 1-D Dispersion (H-3, Ni-63, Pu-239 Only) .....	2-685
Table 2.4-242	Off Site Well - Decay Plus Retardation Plus 2-D Dispersion (H-3, Ni-63, Pu-239 Only) .....	2-688
Table 2.5.1-201	Regional Tectonic Structures Within 320 km (200 mi) .....	2-904

## Tables

Table 2.5.1-202	Site Stratigraphy for Fermi 2 and Fermi 3 .....	2-912
Table 2.5.2-201	Results of Significance Tests of Predicted Seismicity Rates Within 320 km (200 mi) of the Fermi 3 Site .....	2-1069
Table 2.5.2-202	Post-CEUS Earthquakes Used In Assessing Mmax Distributions.....	2-1070
Table 2.5.2-203	Maximum Magnitude Distributions for Select CEUS SSC Distributed Seismicity Source Zones .....	2-1071
Table 2.5.2-204	Generic CEUS Hard Rock Hazard Results for 0.5 Hz Spectral Acceleration for the Fermi 3 Site.....	2-1072
Table 2.5.2-205	Generic CEUS Hard Rock Hazard Results for 1 Hz Spectral Acceleration for the Fermi 3 Site.....	2-1073
Table 2.5.2-206	Generic CEUS Hard Rock Hazard Results for 2.5 Hz Spectral Acceleration for the Fermi 3 Site.....	2-1074
Table 2.5.2-207	Generic CEUS Hard Rock Hazard Results for 5 Hz Spectral Acceleration for the Fermi 3 Site.....	2-1075
Table 2.5.2-208	Generic CEUS Hard Rock Hazard Results for 10 Hz Spectral Acceleration for the Fermi 3 Site.....	2-1076
Table 2.5.2-209	Generic CEUS Hard Rock Hazard Results for 25 Hz Spectral Acceleration for the Fermi 3 Site.....	2-1077
Table 2.5.2-210	Generic CEUS Hard Rock Hazard Results for (100 Hz Spectral Acceleration) for the Fermi 3 Site .....	2-1078
Table 2.5.2-211	Uniform Hazard Response Spectra for the Fermi 3 Site for Generic Hard Rock Conditions .....	2-1079
Table 2.5.2-212	Rock Hazard Reference and Deaggregation Earthquakes .....	2-1080
Table 2.5.2-213	Site Response Analysis Profile .....	2-1081
Table 2.5.2-214	Rock Damping Values for Site Response Analyses.....	2-1082
Table 2.5.2-215	Time History Data Sets Used for Each Deaggregation Earthquake.....	2-1083
Table 2.5.2-216	GMRS for the Fermi 3 Site .....	2-1084
Table 2.5.4-201	Approximate Elevation Ranges for Each Subsurface Material Encountered at Fermi 3 .....	2-1276
Table 2.5.4-202	Summary Engineering Properties of Soils and Bedrock .....	2-1277

## Tables

Table 2.5.4-203	Statistical Analysis of Results from Field and Laboratory Test Performed for Lacustrine Deposits .....	2-1279
Table 2.5.4-204	Statistical Analysis of Results from Field and Laboratory Test Performed for Glacial Till.....	2-1280
Table 2.5.4-205	Input Parameters to Estimate Rock Mass Strength .....	2-1281
Table 2.5.4-206	Statistical Analysis of Results from Field and Laboratory Test Performed for Bass Islands Group .....	2-1282
Table 2.5.4-207	Rock Mass Properties for Rock Units Encountered at Fermi 3 based on Hoek-Brown Criterion .....	2-1283
Table 2.5.4-208	Mohr-Coulomb Parameters for Bedrock Units Encountered at Fermi 3 based on Hoek-Brown Criterion .....	2-1284
Table 2.5.4-209	Statistical Analysis of Measured Compression and Shear Wave Velocities using P-S Suspension Logger in the Bass Islands Group .....	2-1285
Table 2.5.4-210	Statistical Analysis of Results from Field and Laboratory Test Performed for the Salina Group Unit F .....	2-1286
Table 2.5.4-211	Statistical Analysis of Measured Compression and Shear Wave Velocities using P-S Suspension Logger in Salina Group Unit F .....	2-1287
Table 2.5.4-212	Statistical Analysis of Results from Field and Laboratory Test Performed for the Salina Group Unit E .....	2-1288
Table 2.5.4-213	Statistical Analysis of Measured Compression and Shear Wave Velocities using P-S Suspension Logger in the Salina Group Unit E .....	2-1289
Table 2.5.4-214	Statistical Analysis of Results from Field and Laboratory Test Performed for the Salina Group Unit C .....	2-1290
Table 2.5.4-215	Statistical Analysis of Measured Compression and Shear Wave Velocities using P-S Suspension Logger in the Salina Group Unit C.....	2-1291
Table 2.5.4-216	Statistical Analysis of Results from Field and Laboratory Test Performed for Salina Group Unit B .....	2-1292
Table 2.5.4-217	Statistical Analysis of Measured Compression and Shear Wave Velocities using P-S Suspension Logger in Salina Group - Unit B.....	2-1293
Table 2.5.4-218	Elevations, Boring Depths and Depths to Top of Each Soil/Rock Layer Observed from Each Boring.....	2-1294
Table 2.5.4-219	Pressuremeter Testing Locations and Results in Boring RB-C6.....	2-1297
Table 2.5.4-220	Results of Index, Gradation and Chemical Tests on Soil Samples .....	2-1299

## Tables

Table 2.5.4-221	Results of Strength Tests on Soil Samples .....	2-1301
Table 2.5.4-222	Results of Unconfined Compression Tests on Rock Samples .....	2-1303
Table 2.5.4-223	Results of Direct Shear Tests on Rock Discontinuities .....	2-1306
Table 2.5.4-224	Foundation Elevations of Major Structures in the Power Block Area .....	2-1307
Table 2.5.4-225	Locations, Logging Methods, and Depth Ranges for Geophysical Surveys Performed to obtain the Dynamic Characteristics of Soils and Rocks .....	2-1308
Table 2.5.4-226	Summary of Building Dimensions, Depths of Foundation Level and Loadings in the Power Block Area .....	2-1310
Table 2.5.4-227	Results of Bearing Capacity Analysis.....	2-1311
Table 2.5.4-228	Summary of Modulus of Elasticity of Bedrock Units based on Test Results, and Hoek-Brown Criterion .....	2-1312
Table 2.5.4-229	Selected Parameters for Linear Elastic Model used for Settlement Analysis .....	2-1313
Table 2.5.4-230	Calculated Rebound at Seismic Category I Structures due to Excavation to Foundation Level.....	2-1314
Table 2.5.4-231	Calculated Total Settlements due to Backfilling and Applied Loads for Seismic Category I Structures .....	2-1315
Table 2.5.4-232	Comparing Acceptance Criteria in Referenced DCD .....	2-1316
Table 2A-4R	ARCON 96 Input-Recptor to Source Direction .....	2-1353
Table 3.7.1-201	Full Soil Column Site Response Analysis Profile: Lower Range .....	3-37
Table 3.7.1-202	Full Soil Column Site Response Analysis Profile: Intermediate Range.....	3-38
Table 3.7.1-203	Full Soil Column Site Response Analysis Profile: Upper Range .....	3-39
Table 3.7.1-204	FWSC Foundation Input Response Spectrum Site Response Analysis Profile .....	3-40
Table 3.7.1-205	Horizontal and Vertical PBSRS at the Finished Ground Level Grade with Associated V/H Ratios.....	3-41
Table 3.7.1-206	Deterministic Profile with Engineered Granular Backfill above the Top of the Bass Islands Group Bedrock: Best Estimate .....	3-43
Table 3.7.1-207	Deterministic Profile with Engineered Granular Backfill above the Top of the Bass Islands Group Bedrock: Lower Bound.....	3-44

## Tables

Table 3.7.1-208	Deterministic Profile with Engineered Granular Backfill above the Top of the Bass Islands Group Bedrock: Upper Bound.....	3-45
Table 3.7.1-209	Deterministic Profile without Engineered Granular Backfill above the Top of the Bass Islands Group Bedrock: Best Estimate.....	3-46
Table 3.7.1-210	Deterministic Profile without Engineered Granular Backfill above the Top of the Bass Islands Group Bedrock: Lower Bound.....	3-47
Table 3.7.1-211	Deterministic Profile without Engineered Granular Backfill above the Top of the Bass Islands Group Bedrock: Upper Bound.....	3-48
Table 3.7.1-212	Horizontal and Vertical RB/FB SCOR FIRS at Elevation 523.7 (ft) NAVD 88 with Associated V/H Ratios .....	3-49
Table 3.7.1-213	Horizontal and Vertical CB SCOR FIRS at Elevation 540.4 (ft) NAVD 88 with Associated V/H Ratios .....	3-52
Table 3.7.1-214	Enhanced Horizontal and Vertical RB/FB SCOR FIRS at Elevation 523.7 (ft) NAVD 88 .....	3-55
Table 3.7.1-215	Enhanced Horizontal and Vertical CB SCOR FIRS at Elevation 540.4 (ft) NAVD 88 .....	3-58
Table 3.7.1-216	Horizontal and Vertical FWSC FIRS at Elevation 581.6 (ft) NAVD 88 with Associated V/H Ratios.....	3-61
Table 3.7.1-217	Seed Time History Recording Details .....	3-64
Table 3.7.1-218	Cross Correlation Coefficients for the Matched Time Histories.....	3-65
Table 3.7.1-219	Matched Time History (Outcrop Motions) Parameters .....	3-66
Table 3.7.1-220	Cumulative Power below 50 Hz for In-Column Acceleration Time Histories with and without Engineered Granular Backfill above the Top of the Bass Islands Group Bedrock .....	3-67
Table 3.7.2-201	RB/FB Soil-Structure Interaction Analysis Cases.....	3-140
Table 3.7.2-202	CB Soil-Structure Interaction Analysis .....	3-141
Table 3.7.2-203a	Ratio with DCD Enveloping Seismic Loads: RB/FB Stick .....	3-142
Table 3.7.2-203b	Ratio with DCD Enveloping Seismic Loads: RCCV Stick.....	3-143
Table 3.7.2-203c	Ratio with DCD Enveloping Seismic Loads: Vent Wall/Pedestal Stick.....	3-144
Table 3.7.2-203d	Ratio with DCD Enveloping Seismic Loads: RSW Stick.....	3-145
Table 3.7.2-203e	Ratio with DCD Enveloping Seismic Loads: RPV Stick.....	3-146

## Tables

Table 3.7.2-204	Ratio with DCD Enveloping Seismic Loads: CB Stick.....	3-147
Table 3.7.2-205a	Ratio with DCD Enveloping Maximum Vertical Acceleration: RB/FB .....	3-148
Table 3.7.2-205b	Ratio with DCD Enveloping Maximum Vertical Acceleration: RCCV.....	3-149
Table 3.7.2-205c	Ratio with DCD Enveloping Maximum Vertical Acceleration: VW/Pedestal .	3-150
Table 3.7.2-205d	Ratio with DCD Enveloping Maximum Vertical Acceleration: RSW .....	3-151
Table 3.7.2-205e	Ratio with DCD Enveloping Maximum Vertical Acceleration: RB/FB Flexible Slab Oscillators.....	3-152
Table 3.7.2-206	Ratio with DCD Enveloping Maximum Vertical Acceleration: CB.....	3-154
Table 3.8.5-201	Factors of Safety for RB/FB Foundation Stability .....	3-196
Table 3.8.5-202	Factors of Safety for CB Foundation Stability .....	3-197
Table 3.8.5-203	Maximum Soil Dynamic Bearing Pressure Demand for RB/FB and CB .....	3-198
Table 5.3-201	Quantities of Reactor Vessel Material Specimens per Irradiation Exposure Set .....	5-9
Table 8.3-4R	Safety-Related DC and UPS Nominal Component Data.....	8-16
Table 9.2-201	PSWS Component Design Characteristics .....	9-14
Table 9.2-202	Major Makeup Water System Components.....	9-15
Table 9.2-203	Potable Water System Component Design Characteristics .....	9-16
Table 9.2-204	Station Water System – Plant Cooling Tower Makeup System Component Design Parameters .....	9-17
Table 9.2-205	Station Water System – Pretreated Water Supply System Component Design Parameters .....	9-18
Table 9.5-201	Codes and Standards.....	9-41
Table 9A.5-5R	Radwaste Building.....	9-46
Table 9A.5-7R	Yard.....	9-55
Table 10.4-201	Recommended Water Quality and Action Levels.....	10-9
Table 10.4-3R	Circulating Water System.....	10-10
Table 11.3-201	HEPA Filter Locations and Costs .....	11-9

## Tables

Table 11.3-202	HEPA Filter Annual Costs .....	11-10
Table 11.4-1R	SWMS Component Capacities .....	11-17
Table 11.4-2R	Annual Waste Volumes <sup>1&amp;5</sup> .....	11-18
Table 11.5-201	Provisions for Sampling Liquid Streams.....	11-25
Table 11.5-201	Provisions for Sampling Liquid Streams (Notes).....	11-27
Table 12.2-15R	Airborne Sources Calculation .....	12-11
Table 12.2-17R	Comparison of Airborne Release Concentrations with 10 CFR 20 Limit.....	12-12
Table 12.2-18aR	Offsite Dose Calculation Bases .....	12-16
Table 12.2-18bR	Gaseous Pathway Doses to the MEI.....	12-17
Table 12.2-19bR	Comparison of Annual Liquid Release Concentrations with 10 CFR 20 Limit .....	12-22
Table 12.2-20aR	Liquid Pathway Offsite Dose Calculation Bases .....	12-25
Table 12.2-20bR	Liquid Pathway Doses from Fermi 3 for MEI at Lake Erie.....	12-26
Table 12.2-22R	Radiation Source Parameters .....	12-27
Table 12.2-201	Comparison of Annual Doses to the MEI from Gaseous Effluents.....	12-30
Table 12.2-202	Comparison of Annual Doses to MEI from Liquid Effluents .....	12-31
Table 12.2-203	Comparison of Site Doses to the MEI .....	12-32
Table 12.2-204	Collective Total Body (Population) Doses Within 50 Miles.....	12-33
Table 12.2-205	Fermi 3 Normal Operational Iodine Radioisotopes in Reactor Water (Based on Fermi 3 ODCM) .....	12-34
Table 12.2-206	Fermi 3 Annual Airborne Iodine Releases for Offsite Dose Evaluations (MBq)** - Based on Reactor Water Iodine Concentrations in Table 12.2-205 .....	12-35
Table 12.2-207	Bounding Radionuclide Concentration and Inventory in the Condensate Storage Tank .....	12-36
Table 12.2-208	Radioactive Sources Used for Radiation Monitoring and Laboratory and Portable Monitoring Instrumentation <sup>1</sup> .....	12-38
Table 12.2-209	Non-Fuel Special Nuclear Material for Use .....	12-38
Table 12.3-8R	Shielding Geometry (Nominal) .....	12-44

## Tables

Table 12.4-201	Maximum Annual Dose to a Construction Worker by Source (mrem).....	12-63
Table 12.4-202	Collective Annual Construction Worker Dose by Source (person-rem)1.....	12-63
Table 12.4-203	Comparison of Construction Worker Dose to Public Dose Limits Specified in 10 CFR 20.1301.....	12-63
Table 12.4-204	Comparison of Construction Worker Dose from Gaseous Effluent to Public Dose Limits Specified in 40 CFR 1901 .....	12-64
Table 12.4-205	Comparison with 10 CFR 50 Appendix I Criteria for Effluent Dose .....	12-64
Table 12BB-201	Very High Radiation Areas (VHRA)1.....	12-68
Table 13.1-201	Generic Position/Site Specific Position Cross Reference .....	13-28
Table 13.1-202	Minimum Shift Staffing for Unit 3 .....	13-34
Table 13.4-201	Operational Programs Required by NRC Regulations .....	13-43
Table 13.5-201	Pre-COL Phase Administrative Programs and Procedures.....	13-69
Table 13.5-202	Nominal Procedure Development Schedule .....	13-70
Table 17.5-201	Quality Assurance Activities for FSAR Section and Supporting Activities....	17-18