Exelon Generation®

10 CFR 50.54(f)

RS-15-110

May 5, 2015

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Response to Request for Additional Information Regarding Fukushima Lessons Learned - Flood Hazard Reevaluation Report

References:

1. Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flooding Hazard Reevaluation Report, dated March 12, 2014 (RS-14-054 Clinton)
2. Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flooding Hazard Reevaluation Report, dated March 12, 2014 (RS-14-055 LaSalle)
3. NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 12, 2012
4. NRC Email Request for Additional Information (RAI) Regarding Clinton Station Fukushima Lessons Learned - Flood Hazard Reevaluation Report, dated March 16, 2015
5. NRC Email Request for Additional Information (RAI) Regarding LaSalle Station Fukushima Lessons Learned - Flood Hazard Reevaluation Report, dated March 17, 2015

In References 1 and 2, Exelon Generation Company, LLC (EGC) provided the Flooding Hazard Reevaluation Reports for Clinton Power Station and LaSalle County Station, respectively, in response to the March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, (Reference 3).

AD10
NRR

The purpose of this letter is to provide the response to the NRC request for additional information (RAI) for Clinton Power Station and LaSalle County Station (References 4 and 5 respectively). Enclosures 1 and 2 to this letter provide each station's response to the information request.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact Ron Gaston at (630) 657-3359.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 5th day of May 2015.

Respectfully submitted,

Glen T. Kaegi
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Enclosures:

1. Clinton Response to NRC Request for Additional Information Regarding FHRR
2. LaSalle Response to NRC Request for Additional Information Regarding FHRR
3. LaSalle RAI 1 Response: FLO 2D Modeling Electronic Files
   DVD labeled: LaSalle RAI Response TAC Nos. MF3655 and MF3656 – RAI 1: FLO 2D Modeling Electronic Files, April 2015
   Document Components:
   RAI 1 FLO-2D Modeling electronic files
   FLO-2D Input Shape Files
   FLO-2D Results

cc: Director, Office of Nuclear Reactor Regulation (with Enclosure 3)
NRC Regional Administrator - Region III (with Enclosure 3)
NRC Senior Resident Inspector – Clinton Power Station, Unit 1 (w/o Enclosure 3)
NRC Senior Resident Inspector –LaSalle County Station, Units 1 and 2 (w/o Enclosure 3)
NRC Project Manager, NRR – Clinton Power Station, Unit 1 (w/o Enclosure 3)
NRC Project Manager, NRR – LaSalle County Station, Units 1 and 2 (with Enclosure 3)
Mr. Victor E. Hall, NRR/JLD/PPSD/HMB, NRC (with Enclosure 3)
Illinois Emergency Management Agency - Division of Nuclear Safety (with Enclosure 3)

Enclosure 1

Clinton Power Station, Unit 1

Response to NRC Request for Additional Information Regarding FHRR

(2 pages)

Clinton Station

By letter dated March 12, 2014, Exelon Generation Company LLC (the licensee) submitted its flood hazard reevaluation report (FHRR) for Clinton Power Station, Unit No. 1 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14079A419). By e-mail dated June 18, 2014, the U.S. Nuclear Regulatory Commission (NRC) staff provided a request for additional information (RAI) regarding the above referenced FHRR (ADAMS Accession No. ML14169A545). The licensee responded to this RAI by letter dated November 3, 2014 (RS-14-312). The staff determined that additional information, as requested below, is necessary to complete its assessment of the licensee's FHRR.

RAI: Local Intense Precipitation (LIP) Event Duration and Distribution

The FHRR presents a LIP flood reevaluation for a 1-hour, front-loaded probable maximum precipitation (PMP) event using Hydrometeorological Report Nos. 51 and 52. Provide justification that the LIP analysis presented in the FHRR is bounding in terms of warning time, flood depth, and flood duration. This justification can include sensitivity analysis of LIP event duration to consider localized (one square mile) PMP events up to 72 hours in duration (e.g., 1-, 6-, 12-, 24-, 48-, 72-hour PMPs) and various rainfall distributions (e.g., center-loaded and others in addition to a front-loaded distribution). The evaluations could identify potentially bounding scenarios with respect to flood height, event duration, and associated effects. Provide electronic versions of any associated modeling input and output files for the sensitivity runs.

Response

Per NUREG/CR-7046 Section 3.2 (Reference 1): *"Local intense precipitation is a measure of the extreme precipitation at a given location. The duration of the event and the support area are needed to qualify an extreme precipitation event fully. Generally, the amount of extreme precipitation decreases with increasing duration and increasing area. The PMP values for areas of the United States east of the 105th meridian are presented in HMRs 51 (Schreiner and Riedel 1978) and 52 (Hansen et al. 1982). The 1-hr, 2.56-km^2 (1-mi^2) PMP was derived using single-station observations of extreme precipitation, coupled with theoretical methods for moisture maximization, transposition, and envelopment. HMR 52 recommended that no increase in PMP values for areas smaller than 2.56 km^2 (1 mi^2) should be considered over the 1-hr, 2.56-km^2 (1 mi^2) PMP.* ***The local intense precipitation is, therefore, deemed equivalent to the 1-hr, 2.56-km^2 (1 mi^2) PMP at the location of the site."***

Since the 1-hr, 1-mi^2 LIP event would fully encompass the contributing drainage area of the Clinton Power Station, the evaluation of a longer duration and larger storm event is not deemed necessary. This approach is in accordance with the definition of the LIP event per NUREG/CR-7046, as described above. In addition, because of the rainfall intensity during the first hour of the storm event, the amount of precipitable water available for a longer duration storm event would be minimal compared to the first hour. Nevertheless, for added conservatism, the 1-hr PMP was nested within a 6-hour duration PMP in the flood hazard reevaluation for Clinton Power Station (Reference 4).

The 1-hr PMP event temporal distribution was developed in accordance with Hydrometeorological Report (HMR) 52 (Reference 2), which provides a set of multiplication

factors for the 5-, 15-, and 30-minute time intervals relative to the 1-hr, 1-mi^2 PMP depths. While HMR 52 does not specifically state the time intervals be arranged in this particular order, with the typical west-east flow across North America, the type of storm set-up that would produce a LIP would likely be a mesoscale convective system (such as a squall line). Using the conceptual model of this type of system (Reference 3), the initial precipitation is associated with the mature cells and a zone of convergence and as such will be very intense. The storm motion and nature of the system would then see a decrease in the precipitation after the initial burst as the rear trailing stratiform region with the cold pool moves over the area. This type of meteorological system fits with the front loaded distribution.

In summary, Exelon's position is that the bounding peak flood depths for LIP, reported in Reference 4, are associated with the storm configuration described above. Warning time and flood duration parameters are not relevant since the reevaluation results for LIP are bounded by the design basis LIP flood and permanent/passive means are used to protect the plant.

References

1. United States Nuclear Regulatory Commission (2011) NUREG/CR-7046, "Design-Basis Flood Estimation for Site Characterization at Nuclear Power Plants in the United States of America."

2. NOAA Hydrometeorological Report No. 52 (HMR-52) (1982), Application of Probable Maximum Precipitation Estimates - United States East of the 105th Meridian, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, and U.S. Department of the Army Corps of Engineers.

3. Houze, Robert A., Jr. (2004), "Mesoscale Convective Systems." Review of Geophysics, 42, RG4003/2004. Paper number 2004RG000150.

4. Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flooding Hazard Reevaluation Report, dated March 12, 2014 (RS-14-054).

Enclosure 2

LaSalle County Station, Units 1 and 2

Response to NRC Request for Additional Information Regarding FHRR

(32 pages)

LaSalle Station

By letter dated March 12, 2014, Exelon Generation Company LLC (the licensee) submitted its flood hazard reevaluation report (FHRR) for LaSalle County Station, Units 1 and 2 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14079A425). By e-mail dated June 18, 2014, the U.S. Nuclear Regulatory Commission (NRC) staff provided a request for additional information (RAI) regarding the above referenced FHRR (ADAMS Accession No. ML14169A545). The licensee responded to this RAI by letter dated July 14, 2014 (RS-14-194) (ADAMS Accession No. ML14293A599). The staff determined that additional information, as requested below, is necessary to complete its assessment of the licensee's FHRR.

RAI 1: FLO2D Modeling

Background: The staff compared aerial imagery and the shape files created by the FLO-2D software using geographical information system (GIS software) to verify that site features (e.g., buildings, drainage systems, and paved surfaces) have been properly modeled in the Local Intense Precipitation (LIP) analysis. An American Standard Code for Information Interchange (ASCII) projection file included in response to the previous RAI, georeferenced the site data using a horizontal coordinate system WGS84 UTM Zone 16N and vertical datum of NAVD88 with units of meters. However, the graphical plots and maps created by the FLO-2D software (e.g., shape files, maximum water surface elevation, depth, and velocity) do not appear to have the same projection as the ASCII file. This discrepancy prevents the correct alignment of aerial imagery GIS.

Request: Provide the appropriate projection information used in FLO-2D.

Response

The requested GIS input and output files with the appropriate projection information are provided in Enclosure 3. The projection is: Projected Coordinate System/State Plane/NAD 1983 (US Feet/NAD 1983 State Plane Illinois East FIPS 1201 (US Feet)).

RAI 2: Section 3.1 LIP - Event Duration and Distribution

Background: The FHRR presents a LIP flood reevaluation for a one-hour, one-square-mile probable maximum precipitation (PMP) event using a site-specific Hydrometeorological study. This approach may not capture the potentially most conservative and bounding flood condition resulting from precipitation events of different magnitude, duration, and timing.

Request: Provide justification that the LIP analysis presented in the FHRR is bounding in terms of warning time, flood depth, and flood duration. This justification can include sensitivity analysis of LIP event duration to consider localized (one square mile) PMP events up to 72 hours in duration (e.g., 1-, 6-, 12-, 24-, 48-, 72-hour PMPs) and various rainfall distributions (e.g., center-loaded and others in addition to a front-loaded distribution). The evaluations could identify potentially bounding scenarios with respect to flood height, event duration, and associated effects. Provide electronic versions of any associated modeling input and output files for the sensitivity runs.

Response

Per NUREG/CR-7046 Section 3.2 (Reference 1): *"Local intense precipitation is a measure of the extreme precipitation at a given location. The duration of the event and the support area are needed to qualify an extreme precipitation event fully. Generally, the amount of extreme precipitation decreases with increasing duration and increasing area. The PMP values for areas of the United States east of the 105th meridian are presented in HMRs 51 (Schreiner and Riedel 1978) and 52 (Hansen et al. 1982). The 1-hr, 2.56-km^2 (1-mi^2) PMP was derived using single-station observations of extreme precipitation, coupled with theoretical methods for moisture maximization, transposition, and envelopment. HMR 52 recommended that no increase in PMP values for areas smaller than 2.56 km^2 (1 mi^2) should be considered over the 1-hr, 2.56-km^2 (1 mi^2) PMP.* ***The local intense precipitation is, therefore, deemed equivalent to the 1-hr, 2.56-km^2 (1 mi^2) PMP at the location of the site."***

Since the 1-hr, 1-mi^2 LIP event would fully encompass the contributing drainage area of LaSalle Station, the evaluation of a longer duration and larger storm event is not deemed necessary. This approach is in accordance with the definition of the LIP event per NUREG/CR-7046, as described above. In addition, because of the rainfall intensity during the first hour of the storm event, the amount of precipitable water available for a longer duration storm event would be minimal compared to the first hour.

The 1-hr PMP event temporal distribution was developed in accordance with Hydrometeorological Report (HMR) 52 (Reference 2), which provides a set of multiplication factors for the 5-, 15-, and 30-minute time intervals relative to the 1-hr, 1-mi^2 PMP depths (developed from a site-specific LIP study (Reference 3)). While HMR 52 does not specifically state the time intervals be arranged in this particular order, with the typical west-east flow across North America, the type of storm set-up that would produce a LIP would likely be a mesoscale convective system (such as a squall line). Using the conceptual model of this type of system (Reference 4), the initial precipitation is associated with the mature cells and a zone of convergence and as such will be very intense. The storm motion and nature of the system would then see a decrease in the precipitation after the initial burst as the rear trailing stratiform region with the cold pool moves over the area. This type of meteorological system fits with the front loaded distribution.

In summary, Exelon's position is that the bounding peak flood depth and duration for LIP, provided in Reference 5 and response to RAI No. 3, are associated with the storm configuration described above. Associated effects for LIP (erosion and sediment deposition, hydrodynamic loads, etc.) are addressed in Reference 5. See response to RAI No. 3 regarding LIP warning time.

References

1. United States Nuclear Regulatory Commission (2011) NUREG/CR-7046, "Design-Basis Flood Estimation for Site Characterization at Nuclear Power Plants in the United States of America."

2. NOAA Hydrometeorological Report No. 52 (HMR-52) (1982), Application of Probable Maximum Precipitation Estimates - United States East of the 105th Meridian, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, and U.S. Department of the Army Corps of Engineers.

3. Exelon Nuclear (2014). Beyond Design Basis Site-Specific Local Intense Precipitation Analysis (Fukushima), Analysis No. L-003859, Rev. 1.

4. Houze, Robert A., Jr. (2004), "Mesoscale Convective Systems." Review of Geophysics, 42, RG4003/2004. Paper number 2004RG000150.

5. Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flooding Hazard Reevaluation Report, dated March 12, 2014 (RS-14-055).

RAI 3: General Hazard Reevaluation- Flood Duration Parameter

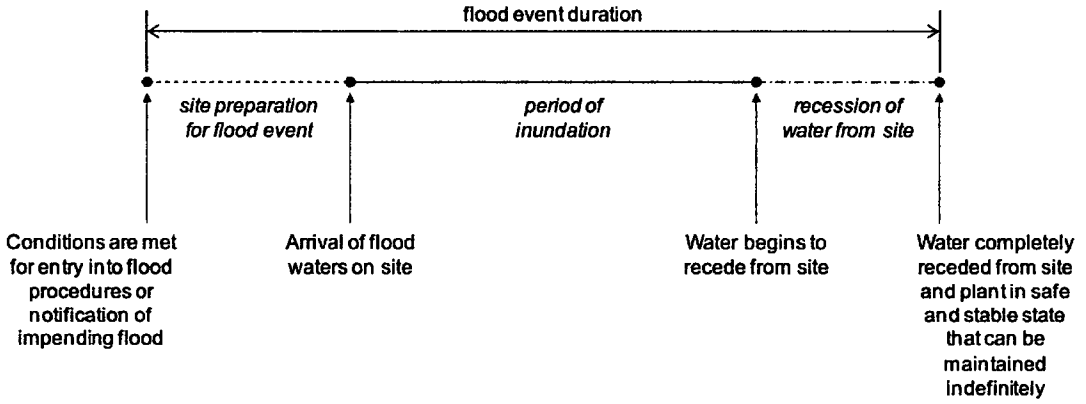
Background: Enclosure 2 of the 50.54(f) letter requests the licensee to perform an integrated assessment of the plant's response to the reevaluated hazard if the reevaluated flood hazard is not bounded by the current design basis. The FHRR should include all of the flood hazard information needed to understand the flood hazard and associated effects that will be an input to the integrated assessment; including the flood duration parameters for LIP (see definition and Figure 6 of the NRC interim staff guidance document JLD-ISG-2012-05, "Guidance for Performing an Integrated Assessment," dated November 2012 (ADAMS Accession No. ML12311A214).

Request: Provide the applicable flood event duration parameters associated with LIP using the results of the flood hazard reevaluation. This includes the warning time the site will have to prepare for the event (e.g., the time between notification of an impending flood event and arrival of floodwaters on site) and the period of time the site is inundated. Provide the basis for the flood event duration, which may include a description of relevant forecasting methods (e.g., products from local, regional, or national weather forecasting centers) and timing information derived from the hazard analysis.

Response

The flood duration parameters in Figure 6 (below) of the NRC Interim Staff Guidance document JLD-ISG-2012-05, "Guidance for Performing an Integrated Assessment," dated November 2012, relevant to LIP are period of inundation, warning time (site preparation time), and recession time. The requested information for period of inundation at critical locations is provided in Reference 1 with additional details provided via flood-depth hydrograph plots in Attachment 3.1 below. The plots in Attachment 3.1, excerpted from Reference 2, also provide recession time information. Warning time for LIP, including forecasting methods, will be addressed during the Integrated Assessment phase of the NTTF Recommendation 2.1 information request response, and depend upon the long-term strategy for the reevaluated LIP flood.

Figure 6



References

1. Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flooding Hazard Reevaluation Report, dated March 12, 2014 (RS-14-055).

2. Exelon Calculation L-003856, Rev. 0, "Beyond Design Basis Effects of Local Intense Precipitation Analysis (Fukushima)".

Attachment 3.1 – LIP Flood Duration

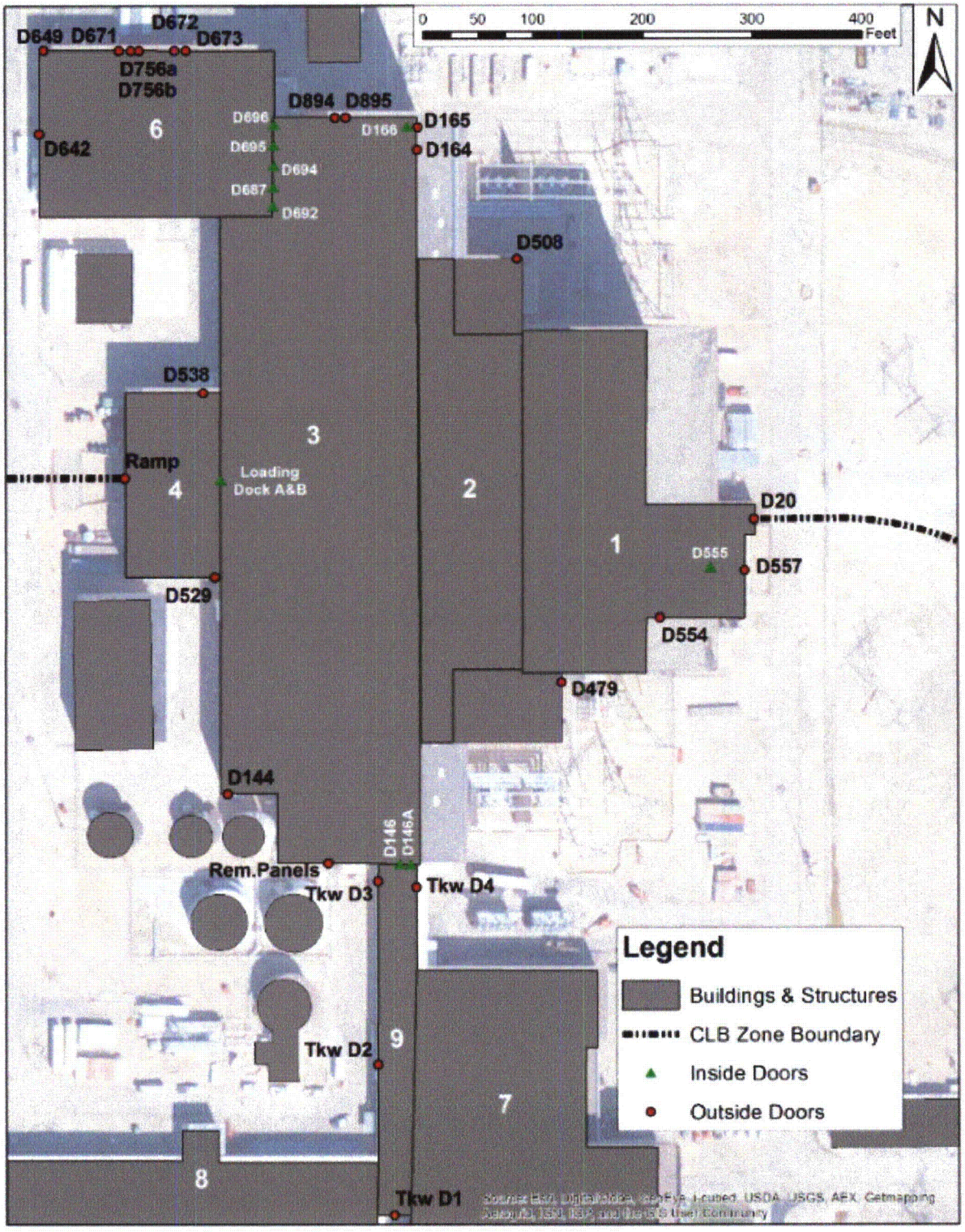


Figure 1 – Door Location Map

Table 1 – LIP Flood Duration above CLB LIP Elevation

Door Number	Building	Flood Beginning** (min)	Flood Duration* (hours)	Flood Duration* (min)	Notes
D20	Reactor Building	0	1.1	66	Flood above const. D = 0.05 ft*
D557	Reactor Building	48	0.5	30	Flood above CLB max WSE
D554	Reactor Building	48	0.5	30	Flood above CLB max WSE
D479	Auxiliary Building	48	0.5	30	Flood above CLB max WSE
D508	Auxiliary Building	18	1.0	60	Flood above CLB max WSE
D894	Turbine Building	n/a	n/a	n/a	Water level below const. D = 0.05 ft*
D895	Turbine Building	n/a	n/a	n/a	Water level below CLB max WSE
D165	Turbine Building	n/a	n/a	n/a	Water level below const. D = 0.05 ft*
D164	Turbine Building	n/a	n/a	n/a	Water level below const. D = 0.05 ft*
Rem. Panels	Turbine Building	0	1.10	66	Flood above CLB max WSE
D144	Turbine Building	0	0.3	16	Flood above CLB max WSE
D642	Old Service Building	n/a	n/a	n/a	Water level below const. D = 0.05 ft*
D649	Old Service Building	n/a	n/a	n/a	Water level below const. D = 0.05 ft*
D671	Old Service Building	n/a	n/a	n/a	Water level below CLB
D756a	Old Service Building	n/a	n/a	n/a	Water level below CLB
D756b	Old Service Building	n/a	n/a	n/a	Water level below CLB
D672	Old Service Building	n/a	n/a	n/a	Water level below const. D = 0.05 ft*
D673	Old Service Building	n/a	n/a	n/a	Water level below const. D = 0.05 ft*
Tkw.D1	Trackway Building	0	1.10	66	Flood above const. D = 0.05 ft*
Tkw.D2	Trackway Building	n/a	n/a	n/a	Water level below const. D = 0.05 ft*
Tkw.D3	Trackway Building	0	1.10	66	Flood above const. D = 0.05 ft*
Tkw.D4	Trackway Building	48	0.6	36	Flood above CLB max WSE
Ramp	Radwaste Building	n/a	n/a	n/a	Water level below CLB
D529	Radwaste Building	0	0.3	18	Flood above const. D = 0.05 ft*
D538	Radwaste Building	0	1.1	66	Flood above CLB max WSE

* FLO-2D accounts for surface detention and the minimum computer water depth (0.05 ft) is due to the surface detention. Therefore, the time of flooding with a constant minimum computed water depth D is not considered and is not included in the computed flood duration.

** Flood beginning is the time, in minutes, from the beginning of the rainfall to the time when the CLB maximum water surface elevation is first exceeded. The rain begins at minute zero.

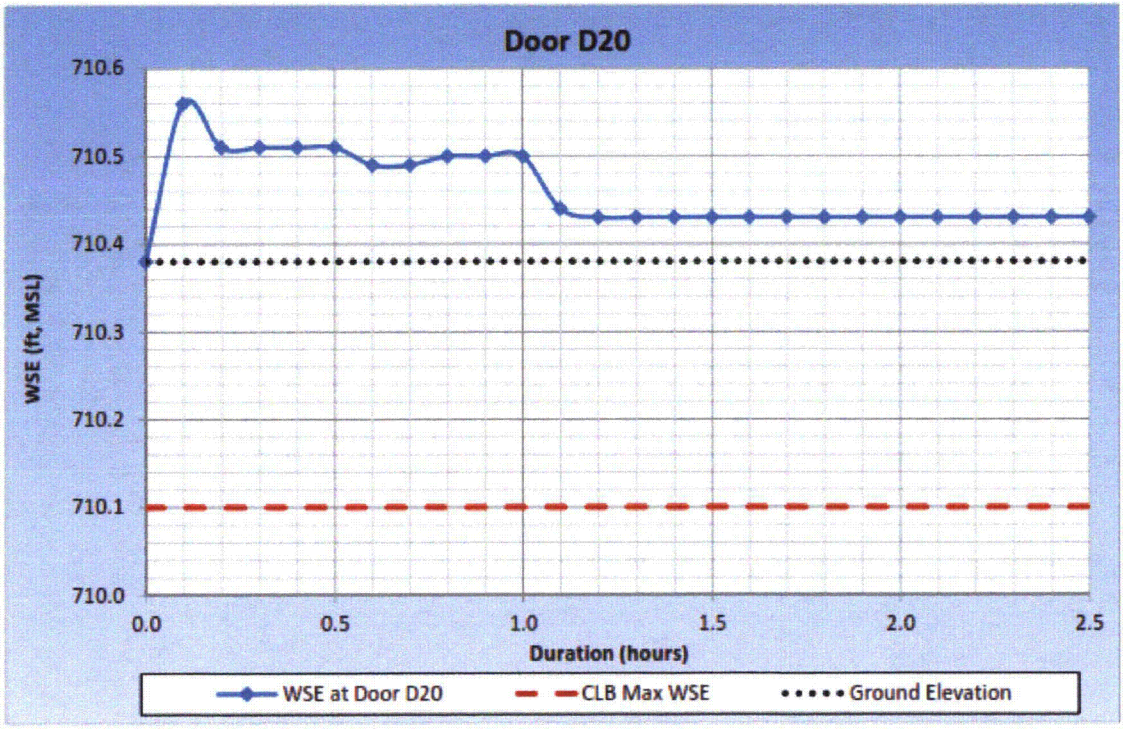
WSE at Door D20 Grid # 61638

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.60	710.38
0.10	0.18	710.78	710.56
0.20	0.13	710.73	710.51
0.30	0.13	710.73	710.51
0.40	0.13	710.73	710.51
0.50	0.13	710.73	710.51
0.60	0.11	710.71	710.49
0.70	0.11	710.71	710.49
0.80	0.12	710.72	710.50
0.90	0.12	710.72	710.50
1.00	0.12	710.72	710.50
1.10	0.06	710.66	710.44
1.20	0.05	710.65	710.43
1.30	0.05	710.65	710.43
1.40	0.05	710.65	710.43
1.50	0.05	710.65	710.43
1.60	0.05	710.65	710.43
1.70	0.05	710.65	710.43
1.80	0.05	710.65	710.43
1.90	0.05	710.65	710.43
2.00	0.05	710.65	710.43
2.10	0.05	710.65	710.43
2.20	0.05	710.65	710.43
2.30	0.05	710.65	710.43
2.40	0.05	710.65	710.43
2.50	0.05	710.65	710.43

Grid Surface Elevation = **710.6** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.38**	**ft, MSL**
0	710.38	
2.5	710.38	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

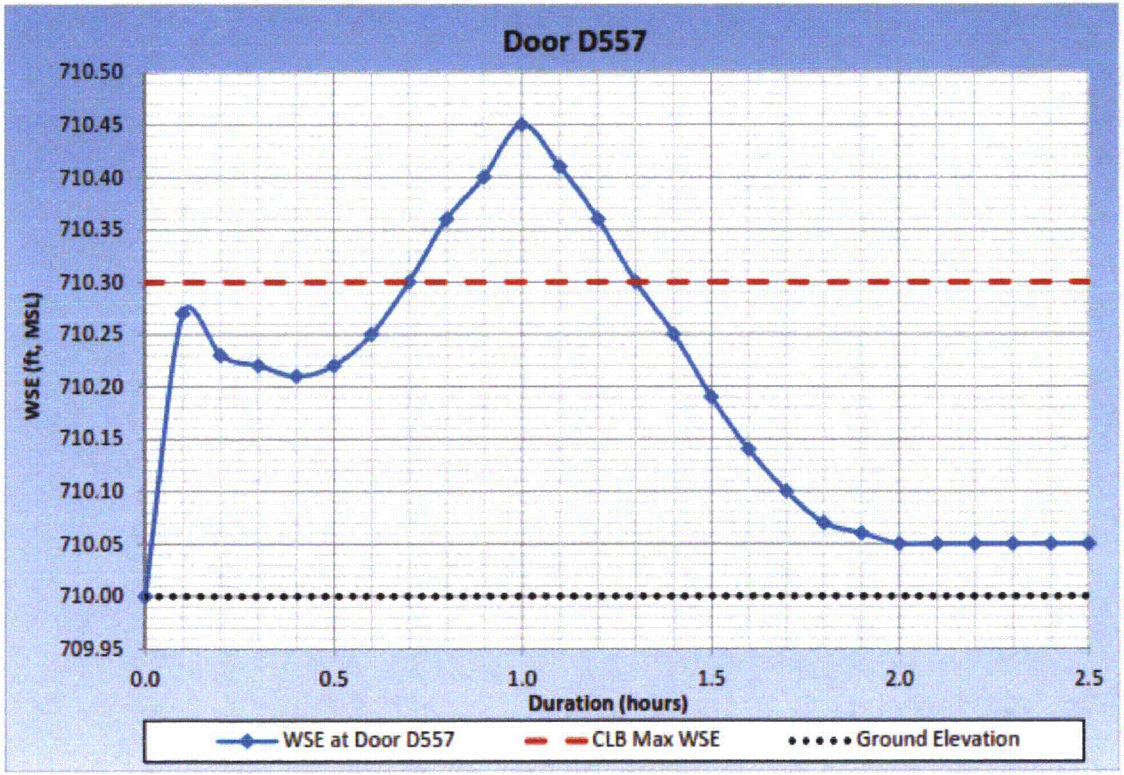
WSE at Door D557 Grid # 65659

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.22	710.00
0.10	0.27	710.49	710.27
0.20	0.23	710.45	710.23
0.30	0.22	710.44	710.22
0.40	0.21	710.43	710.21
0.50	0.22	710.44	710.22
0.60	0.25	710.47	710.25
0.70	0.3	710.52	710.30
0.80	0.36	710.58	**710.36**
0.90	0.4	710.62	**710.40**
1.00	0.45	710.67	**710.45**
1.10	0.41	710.63	**710.41**
1.20	0.36	710.58	**710.36**
1.30	0.3	710.52	**710.30**
1.40	0.25	710.47	710.25
1.50	0.19	710.41	710.19
1.60	0.14	710.36	710.14
1.70	0.1	710.32	710.10
1.80	0.07	710.29	710.07
1.90	0.06	710.28	710.06
2.00	0.05	710.27	710.05
2.10	0.05	710.27	710.05
2.20	0.05	710.27	710.05
2.30	0.05	710.27	710.05
2.40	0.05	710.27	710.05
2.50	0.05	710.27	710.05

Grid Surface Elevation = **710.22** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.30**
2.5	710.30

Ground Elevation	**710.00**	**ft, MSL**
0	710	
2.5	710	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

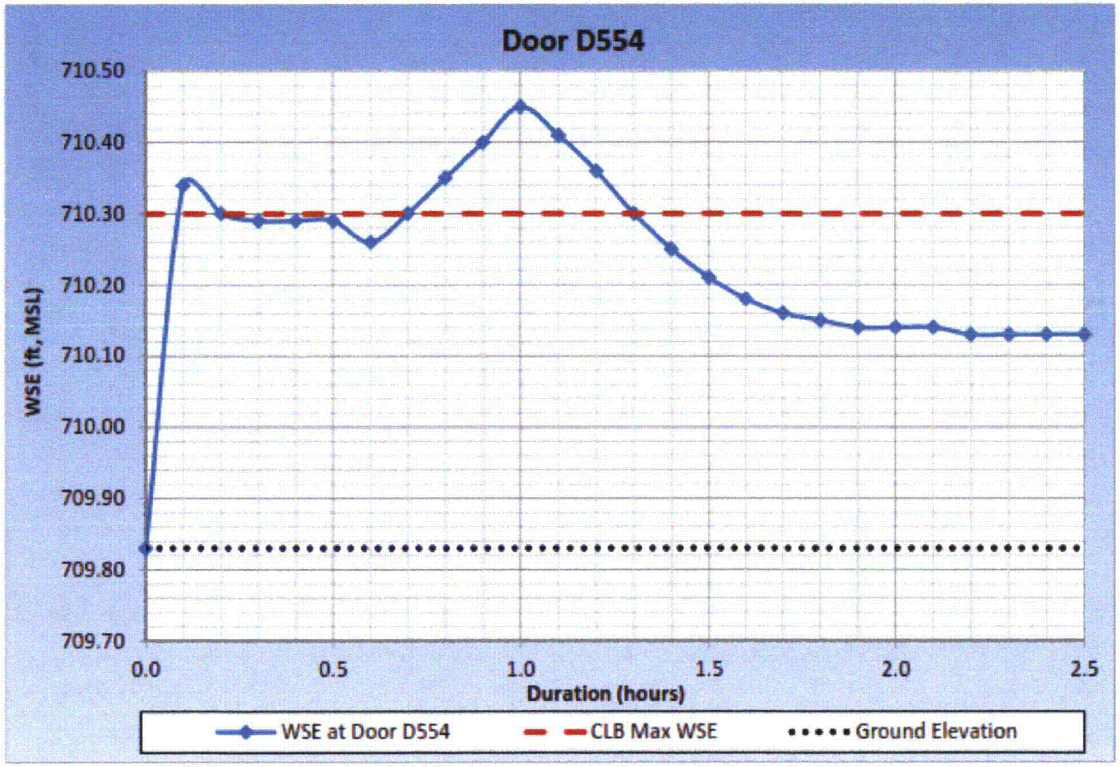
WSE at Door D554 Grid # 69666

Time (hours)	Flow Depth (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.05	709.83
0.10	0.51	710.56	710.34
0.20	0.47	710.52	710.30
0.30	0.46	710.51	710.29
0.40	0.46	710.51	710.29
0.50	0.46	710.51	710.29
0.60	0.43	710.48	710.26
0.70	0.47	710.52	710.30
0.80	0.52	710.57	**710.35**
0.90	0.57	710.62	**710.40**
1.00	0.62	710.67	**710.45**
1.10	0.58	710.63	**710.41**
1.20	0.53	710.58	**710.36**
1.30	0.47	710.52	**710.30**
1.40	0.42	710.47	710.25
1.50	0.38	710.43	710.21
1.60	0.35	710.40	710.18
1.70	0.33	710.38	710.16
1.80	0.32	710.37	710.15
1.90	0.31	710.36	710.14
2.00	0.31	710.36	710.14
2.10	0.31	710.36	710.14
2.20	0.3	710.35	710.13
2.30	0.3	710.35	710.13
2.40	0.3	710.35	710.13
2.50	0.3	710.35	710.13

Grid Surface Elevation = **710.05** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.30**
2.5	710.30

Ground Elevation	**709.83**	**ft, MSL**
0	709.83	
2.5	709.83	



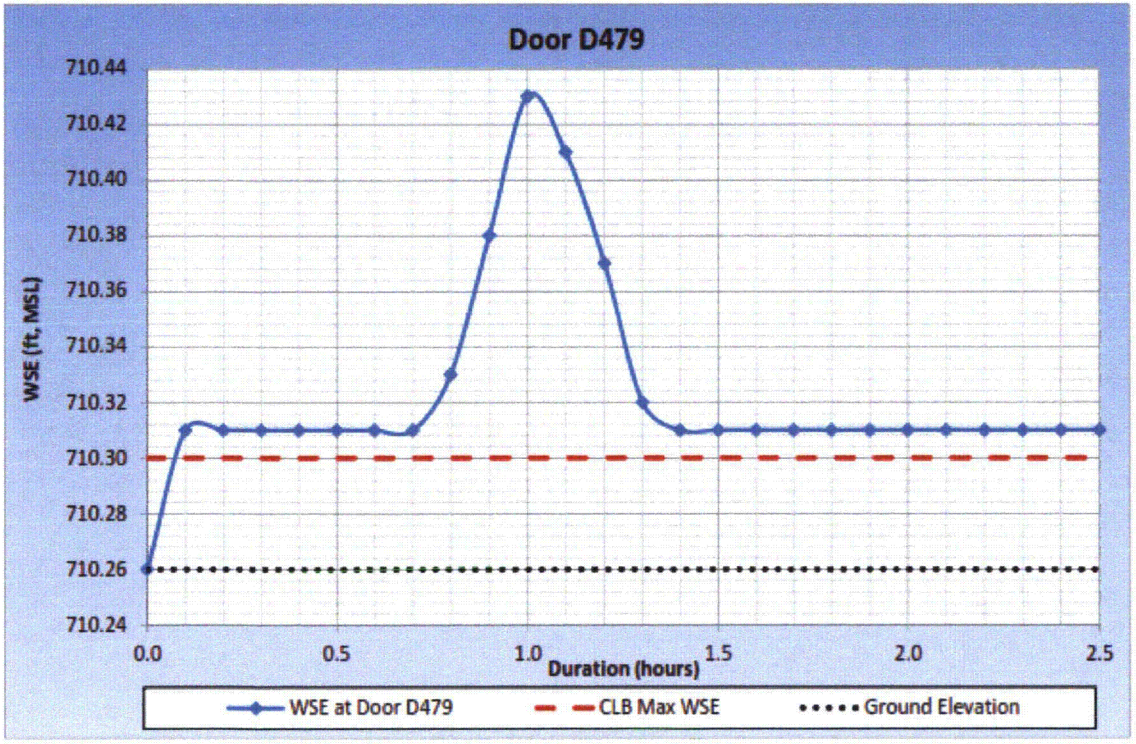
WSE at Door D479 Grid # 74466

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.48	710.26
0.10	0.05	710.53	710.31
0.20	0.05	710.53	710.31
0.30	0.05	710.53	710.31
0.40	0.05	710.53	710.31
0.50	0.05	710.53	710.31
0.60	0.05	710.53	710.31
0.70	0.05	710.53	710.31
0.80	0.07	710.55	**710.33**
0.90	0.12	710.60	**710.38**
1.00	0.17	710.65	**710.43**
1.10	0.15	710.63	**710.41**
1.20	0.11	710.59	**710.37**
1.30	0.06	710.54	**710.32**
1.40	0.05	710.53	710.31
1.50	0.05	710.53	710.31
1.60	0.05	710.53	710.31
1.70	0.05	710.53	710.31
1.80	0.05	710.53	710.31
1.90	0.05	710.53	710.31
2.00	0.05	710.53	710.31
2.10	0.05	710.53	710.31
2.20	0.05	710.53	710.31
2.30	0.05	710.53	710.31
2.40	0.05	710.53	710.31

Grid Surface Elevation = **710.48** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.30**
2.5	710.30

Ground Elevation	**710.26**	**ft, MSL**
0	710.26	
2.5	710.26	



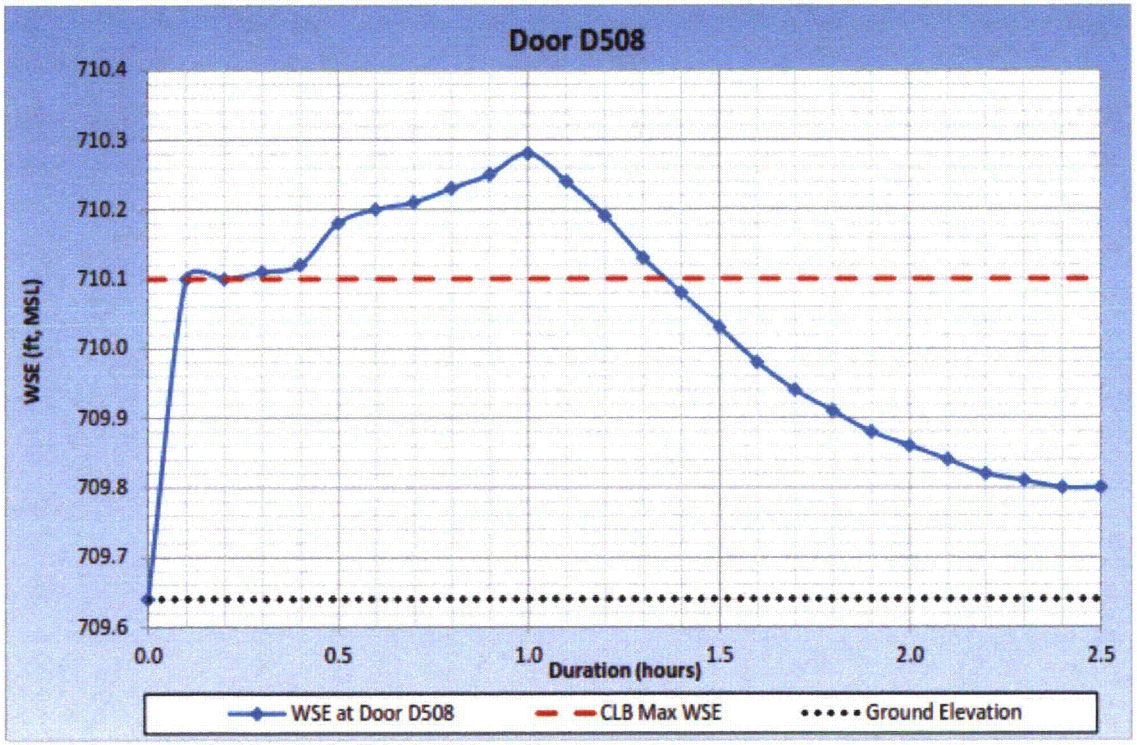
WSE at Door D508 Grid # 40229

Time (hours)	Flow Depth (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	709.86	709.64
0.10	0.46	710.32	710.10
0.20	0.46	710.32	710.10
0.30	0.47	710.33	**710.11**
0.40	0.48	710.34	**710.12**
0.50	0.54	710.40	**710.18**
0.60	0.56	710.42	**710.20**
0.70	0.57	710.43	**710.21**
0.80	0.59	710.45	**710.23**
0.90	0.61	710.47	**710.25**
1.00	0.64	710.50	**710.28**
1.10	0.6	710.46	**710.24**
1.20	0.55	710.41	**710.19**
1.30	0.49	710.35	**710.13**
1.40	0.44	710.30	710.08
1.50	0.39	710.25	710.03
1.60	0.34	710.20	709.98
1.70	0.3	710.16	709.94
1.80	0.27	710.13	709.91
1.90	0.24	710.10	709.88
2.00	0.22	710.08	709.86
2.10	0.2	710.06	709.84
2.20	0.18	710.04	709.82
2.30	0.17	710.03	709.81
2.40	0.16	710.02	709.80
2.50	0.16	710.02	709.80

Grid Surface Elevation = **709.86** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**709.64**	**ft, MSL**
0	709.64	
2.5	709.64	



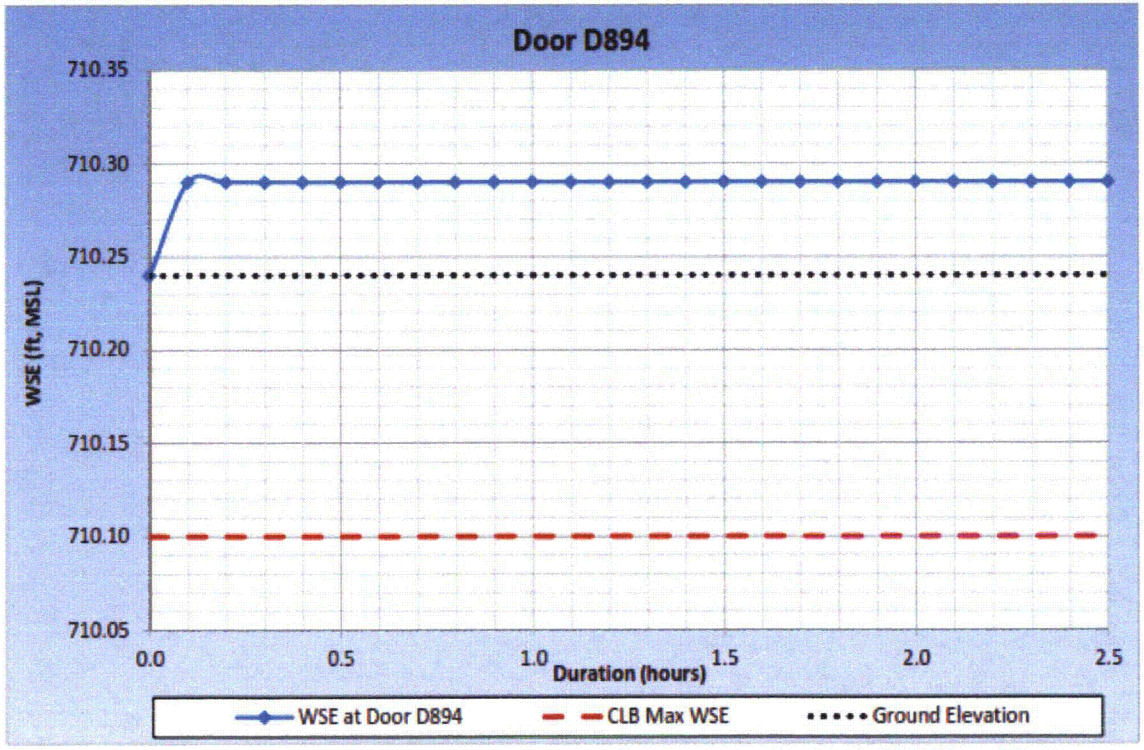
WSE at Door D894 Grid # 29305

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.46	710.24
0.10	0.05	710.51	710.29
0.20	0.05	710.51	710.29
0.30	0.05	710.51	710.29
0.40	0.05	710.51	710.29
0.50	0.05	710.51	710.29
0.60	0.05	710.51	710.29
0.70	0.05	710.51	710.29
0.80	0.05	710.51	710.29
0.90	0.05	710.51	710.29
1.00	0.05	710.51	710.29
1.10	0.05	710.51	710.29
1.20	0.05	710.51	710.29
1.30	0.05	710.51	710.29
1.40	0.05	710.51	710.29
1.50	0.05	710.51	710.29
1.60	0.05	710.51	710.29
1.70	0.05	710.51	710.29
1.80	0.05	710.51	710.29
1.90	0.05	710.51	710.29
2.00	0.05	710.51	710.29
2.10	0.05	710.51	710.29
2.20	0.05	710.51	710.29
2.30	0.05	710.51	710.29
2.40	0.05	710.51	710.29
2.50	0.05	710.51	710.29

Grid Surface Elevation = **710.46** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.24**	**ft, MSL**
0	710.24	
2.5	710.24	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

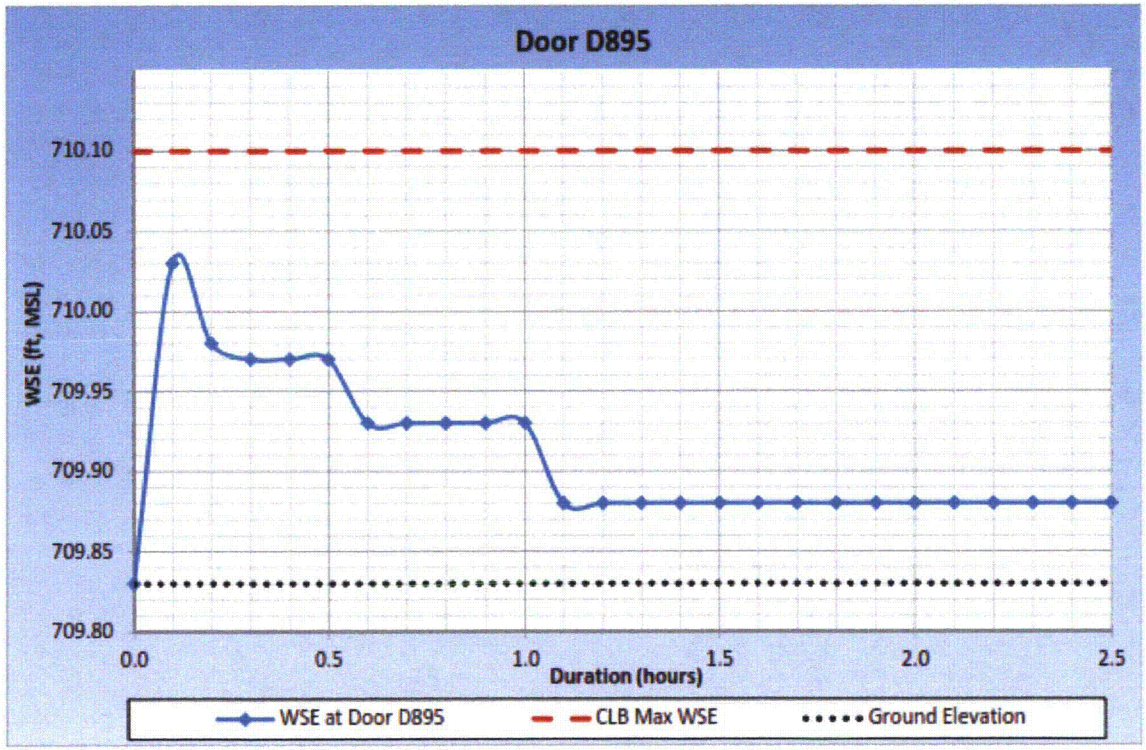
WSE at Door D895 Grid # 29307

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.05	709.83
0.10	0.2	710.25	710.03
0.20	0.15	710.20	709.98
0.30	0.14	710.19	709.97
0.40	0.14	710.19	709.97
0.50	0.14	710.19	709.97
0.60	0.1	710.15	709.93
0.70	0.1	710.15	709.93
0.80	0.1	710.15	709.93
0.90	0.1	710.15	709.93
1.00	0.1	710.15	709.93
1.10	0.05	710.10	709.88
1.20	0.05	710.10	709.88
1.30	0.05	710.10	709.88
1.40	0.05	710.10	709.88
1.50	0.05	710.10	709.88
1.60	0.05	710.10	709.88
1.70	0.05	710.10	709.88
1.80	0.05	710.10	709.88
1.90	0.05	710.10	709.88
2.00	0.05	710.10	709.88
2.10	0.05	710.10	709.88
2.20	0.05	710.10	709.88
2.30	0.05	710.10	709.88
2.40	0.05	710.10	709.88
2.50	0.05	710.10	709.88

Grid Surface Elevation = **710.05** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**709.83**	**ft, MSL**
0	709.83	
2.5	709.83	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

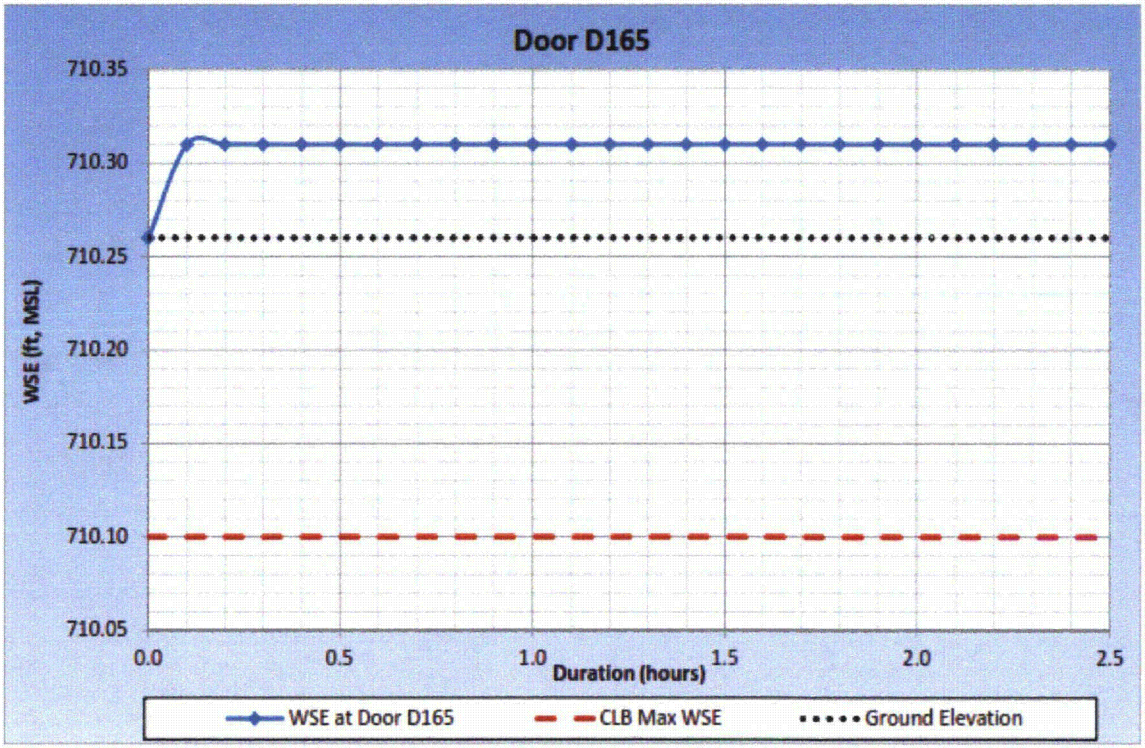
WSE at Door D165 Grid # 30128

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.48	710.26
0.10	0.05	710.53	710.31
0.20	0.05	710.53	710.31
0.30	0.05	710.53	710.31
0.40	0.05	710.53	710.31
0.50	0.05	710.53	710.31
0.60	0.05	710.53	710.31
0.70	0.05	710.53	710.31
0.80	0.05	710.53	710.31
0.90	0.05	710.53	710.31
1.00	0.05	710.53	710.31
1.10	0.05	710.53	710.31
1.20	0.05	710.53	710.31
1.30	0.05	710.53	710.31
1.40	0.05	710.53	710.31
1.50	0.05	710.53	710.31
1.60	0.05	710.53	710.31
1.70	0.05	710.53	710.31
1.80	0.05	710.53	710.31
1.90	0.05	710.53	710.31
2.00	0.05	710.53	710.31
2.10	0.05	710.53	710.31
2.20	0.05	710.53	710.31
2.30	0.05	710.53	710.31
2.40	0.05	710.53	710.31
2.50	0.05	710.53	710.31

Grid Surface Elevation = **710.48** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.26**	**ft, MSL**
0	710.26	
2.5	710.26	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

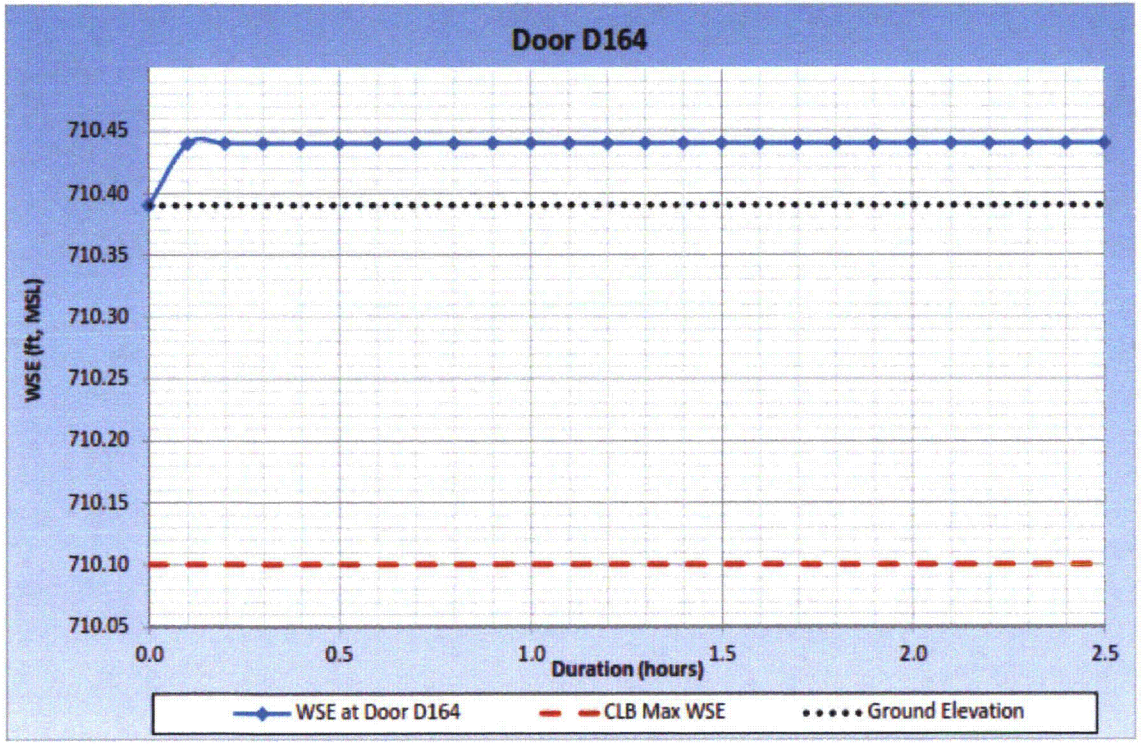
WSE at Door D164 Grid # 31752

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.61	710.39
0.10	0.05	710.66	710.44
0.20	0.05	710.66	710.44
0.30	0.05	710.66	710.44
0.40	0.05	710.66	710.44
0.50	0.05	710.66	710.44
0.60	0.05	710.66	710.44
0.70	0.05	710.66	710.44
0.80	0.05	710.66	710.44
0.90	0.05	710.66	710.44
1.00	0.05	710.66	710.44
1.10	0.05	710.66	710.44
1.20	0.05	710.66	710.44
1.30	0.05	710.66	710.44
1.40	0.05	710.66	710.44
1.50	0.05	710.66	710.44
1.60	0.05	710.66	710.44
1.70	0.05	710.66	710.44
1.80	0.05	710.66	710.44
1.90	0.05	710.66	710.44
2.00	0.05	710.66	710.44
2.10	0.05	710.66	710.44
2.20	0.05	710.66	710.44
2.30	0.05	710.66	710.44
2.40	0.05	710.66	710.44
2.50	0.05	710.66	710.44

Grid Surface Elevation = **710.61** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.39**	**ft, MSL**
0	710.39	
2.5	710.39	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

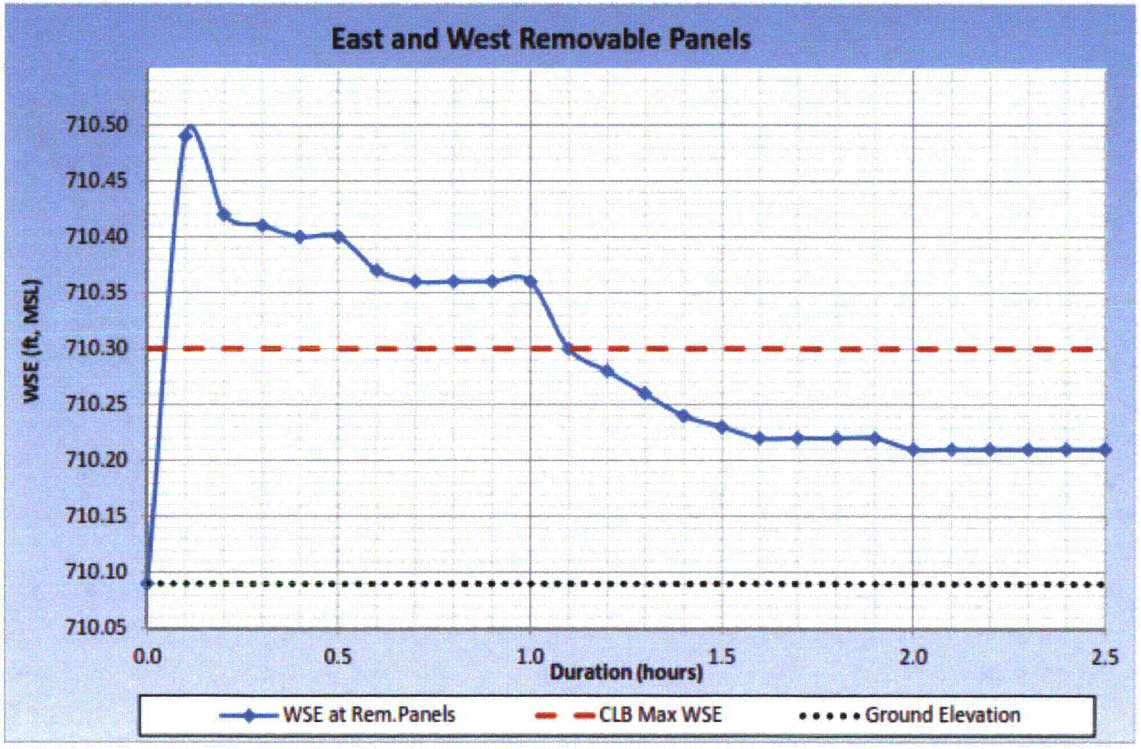
WSE at Rem.Panels Grid # 89145

Time (hours)	Flow Depth (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.31	710.09
0.10	0.4	710.71	**710.49**
0.20	0.33	710.64	**710.42**
0.30	0.32	710.63	**710.41**
0.40	0.31	710.62	**710.40**
0.50	0.31	710.62	**710.40**
0.60	0.28	710.59	**710.37**
0.70	0.27	710.58	**710.36**
0.80	0.27	710.58	**710.36**
0.90	0.27	710.58	**710.36**
1.00	0.27	710.58	**710.36**
1.10	0.21	710.52	**710.30**
1.20	0.19	710.50	710.28
1.30	0.17	710.48	710.26
1.40	0.15	710.46	710.24
1.50	0.14	710.45	710.23
1.60	0.13	710.44	710.22
1.70	0.13	710.44	710.22
1.80	0.13	710.44	710.22
1.90	0.13	710.44	710.22
2.00	0.12	710.43	710.21
2.10	0.12	710.43	710.21
2.20	0.12	710.43	710.21
2.30	0.12	710.43	710.21
2.40	0.12	710.43	710.21
2.50	0.12	710.43	710.21

Grid Surface Elevation = **710.31** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.30**
2.5	710.30

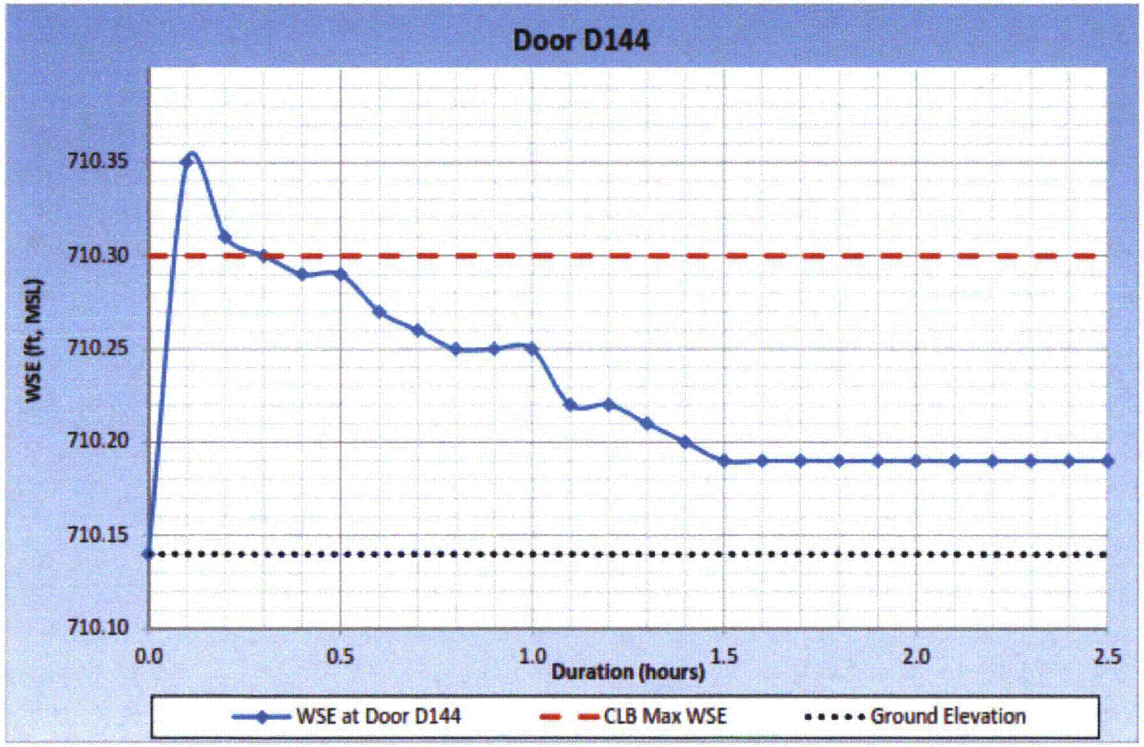
Ground Elevation	**710.09**	**ft, MSL**
0	710.09	
2.5	710.09	



WSE at Door D144		Grid #	83497
Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.36	710.14
0.10	0.21	710.57	**710.35**
0.20	0.17	710.53	**710.31**
0.30	0.16	710.52	**710.30**
0.40	0.15	710.51	710.29
0.50	0.15	710.51	710.29
0.60	0.13	710.49	710.27
0.70	0.12	710.48	710.26
0.80	0.11	710.47	710.25
0.90	0.11	710.47	710.25
1.00	0.11	710.47	710.25
1.10	0.08	710.44	710.22
1.20	0.08	710.44	710.22
1.30	0.07	710.43	710.21
1.40	0.06	710.42	710.20
1.50	0.05	710.41	710.19
1.60	0.05	710.41	710.19
1.70	0.05	710.41	710.19
1.80	0.05	710.41	710.19
1.90	0.05	710.41	710.19
2.00	0.05	710.41	710.19
2.10	0.05	710.41	710.19
2.20	0.05	710.41	710.19
2.30	0.05	710.41	710.19
2.40	0.05	710.41	710.19
2.50	0.05	710.41	710.19

Grid Surface Elevation =	710.36	ft, NAVD88
CLB Max WSE	(ft, MSL)	
0	**710.30**	
2.5	710.30	

Ground Elevation	710.14	ft, MSL
0	710.14	
2.5	710.14	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

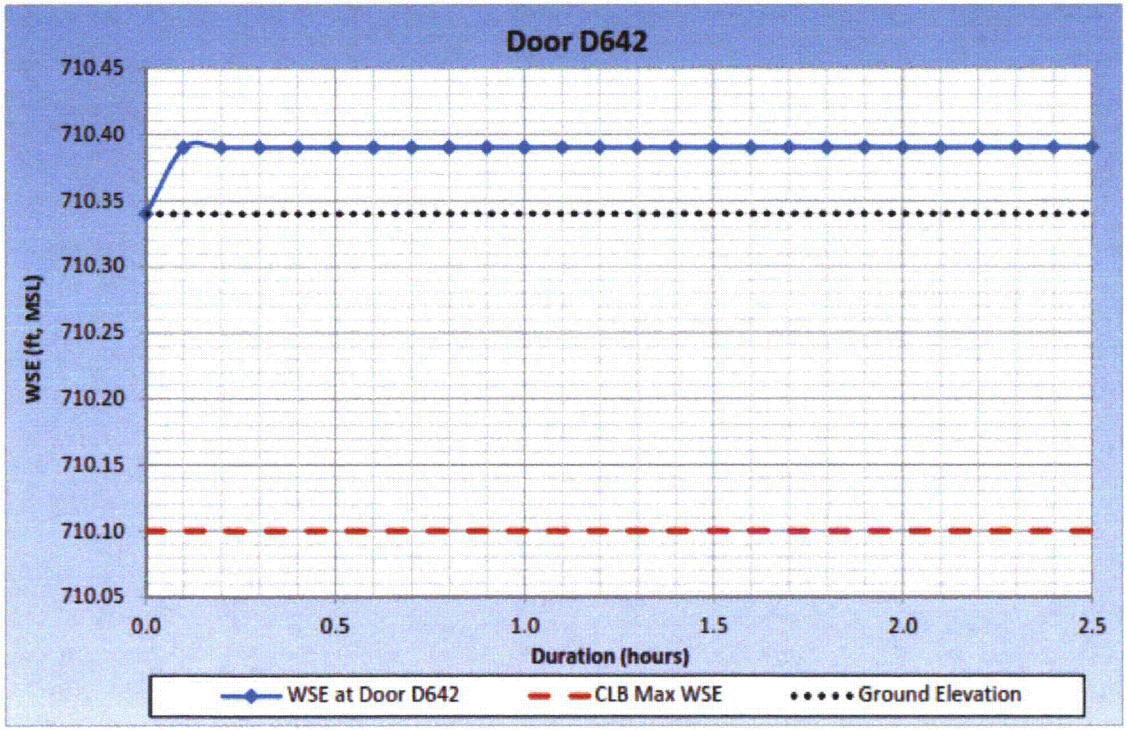
WSE at Door D642 Grid # 30464

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.56	710.34
0.10	0.05	710.61	710.39
0.20	0.05	710.61	710.39
0.30	0.05	710.61	710.39
0.40	0.05	710.61	710.39
0.50	0.05	710.61	710.39
0.60	0.05	710.61	710.39
0.70	0.05	710.61	710.39
0.80	0.05	710.61	710.39
0.90	0.05	710.61	710.39
1.00	0.05	710.61	710.39
1.10	0.05	710.61	710.39
1.20	0.05	710.61	710.39
1.30	0.05	710.61	710.39
1.40	0.05	710.61	710.39
1.50	0.05	710.61	710.39
1.60	0.05	710.61	710.39
1.70	0.05	710.61	710.39
1.80	0.05	710.61	710.39
1.90	0.05	710.61	710.39
2.00	0.05	710.61	710.39
2.10	0.05	710.61	710.39
2.20	0.05	710.61	710.39
2.30	0.05	710.61	710.39
2.40	0.05	710.61	710.39
2.50	0.05	710.61	710.39

Grid Surface Elevation = **710.56** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.34**	**ft, MSL**
0	710.34	
2.5	710.34	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

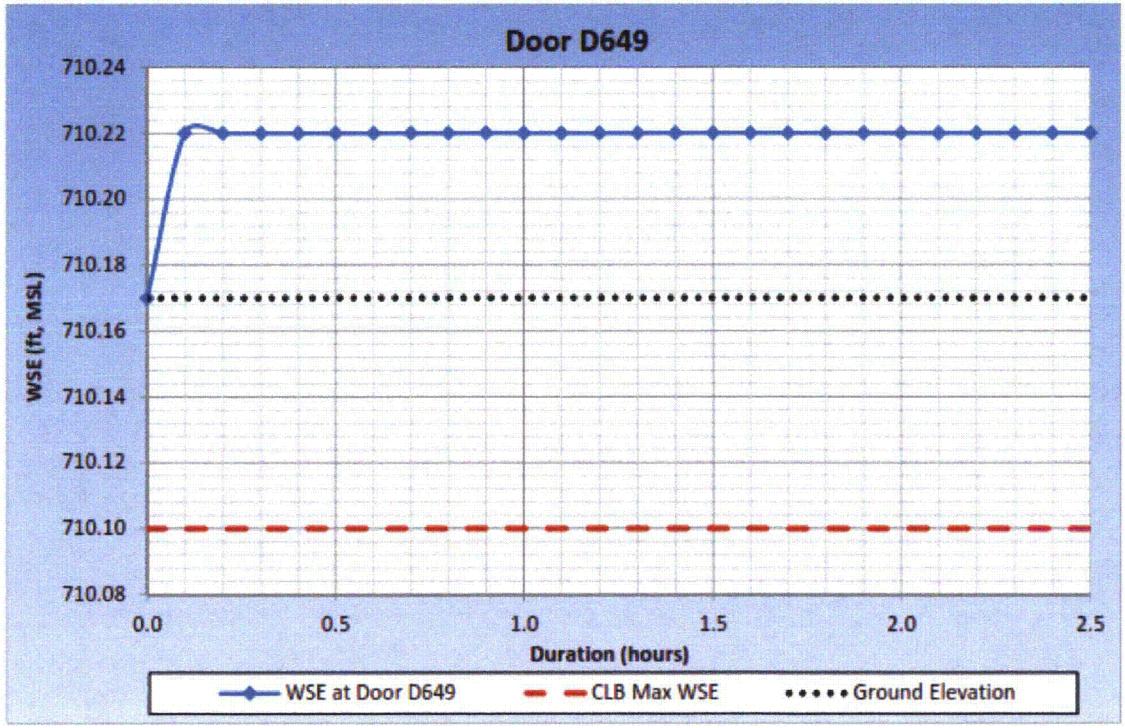
WSE at Door D649 Grid # 24436

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.39	710.17
0.10	0.05	710.44	710.22
0.20	0.05	710.44	710.22
0.30	0.05	710.44	710.22
0.40	0.05	710.44	710.22
0.50	0.05	710.44	710.22
0.60	0.05	710.44	710.22
0.70	0.05	710.44	710.22
0.80	0.05	710.44	710.22
0.90	0.05	710.44	710.22
1.00	0.05	710.44	710.22
1.10	0.05	710.44	710.22
1.20	0.05	710.44	710.22
1.30	0.05	710.44	710.22
1.40	0.05	710.44	710.22
1.50	0.05	710.44	710.22
1.60	0.05	710.44	710.22
1.70	0.05	710.44	710.22
1.80	0.05	710.44	710.22
1.90	0.05	710.44	710.22
2.00	0.05	710.44	710.22
2.10	0.05	710.44	710.22
2.20	0.05	710.44	710.22
2.30	0.05	710.44	710.22
2.40	0.05	710.44	710.22
2.50	0.05	710.44	710.22

Grid Surface Elevation = **710.39** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.17**	**ft, MSL**
0	710.17	
2.5	710.17	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

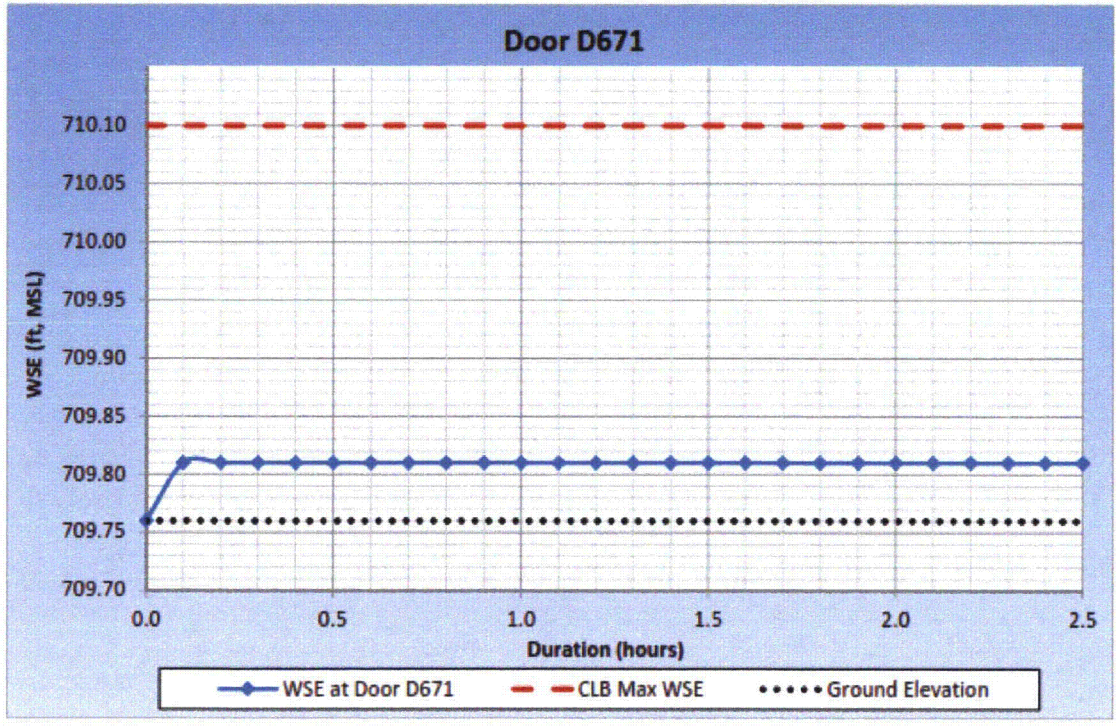
WSE at Door D671 Grid # 24450

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	709.98	709.76
0.10	0.05	710.03	709.81
0.20	0.05	710.03	709.81
0.30	0.05	710.03	709.81
0.40	0.05	710.03	709.81
0.50	0.05	710.03	709.81
0.60	0.05	710.03	709.81
0.70	0.05	710.03	709.81
0.80	0.05	710.03	709.81
0.90	0.05	710.03	709.81
1.00	0.05	710.03	709.81
1.10	0.05	710.03	709.81
1.20	0.05	710.03	709.81
1.30	0.05	710.03	709.81
1.40	0.05	710.03	709.81
1.50	0.05	710.03	709.81
1.60	0.05	710.03	709.81
1.70	0.05	710.03	709.81
1.80	0.05	710.03	709.81
1.90	0.05	710.03	709.81
2.00	0.05	710.03	709.81
2.10	0.05	710.03	709.81
2.20	0.05	710.03	709.81
2.30	0.05	710.03	709.81
2.40	0.05	710.03	709.81
2.50	0.05	710.03	709.81

Grid Surface Elevation = **709.98** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**709.76**	**ft, MSL**
0	709.76	
2.5	709.76	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

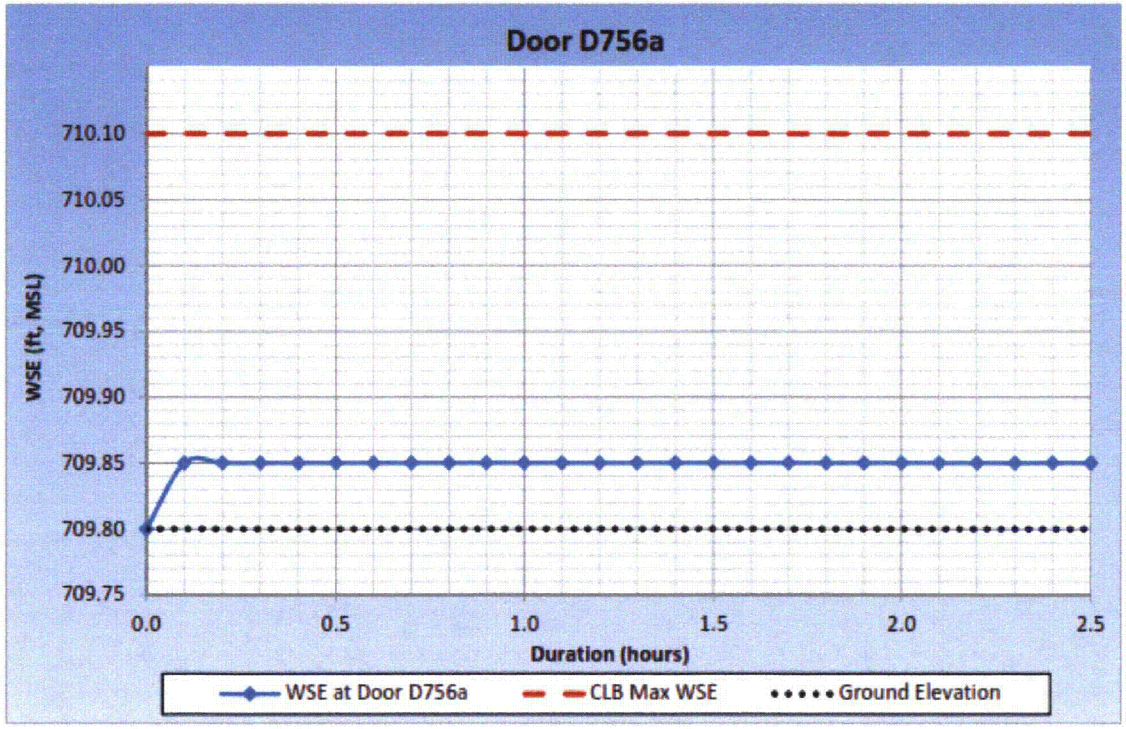
WSE at Door D756a Grid # 24452

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.02	709.80
0.10	0.05	710.07	709.85
0.20	0.05	710.07	709.85
0.30	0.05	710.07	709.85
0.40	0.05	710.07	709.85
0.50	0.05	710.07	709.85
0.60	0.05	710.07	709.85
0.70	0.05	710.07	709.85
0.80	0.05	710.07	709.85
0.90	0.05	710.07	709.85
1.00	0.05	710.07	709.85
1.10	0.05	710.07	709.85
1.20	0.05	710.07	709.85
1.30	0.05	710.07	709.85
1.40	0.05	710.07	709.85
1.50	0.05	710.07	709.85
1.60	0.05	710.07	709.85
1.70	0.05	710.07	709.85
1.80	0.05	710.07	709.85
1.90	0.05	710.07	709.85
2.00	0.05	710.07	709.85
2.10	0.05	710.07	709.85
2.20	0.05	710.07	709.85
2.30	0.05	710.07	709.85
2.40	0.05	710.07	709.85
2.50	0.05	710.07	709.85

Grid Surface Elevation = **710.02** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**709.80**	**ft, MSL**
0	709.8	
2.5	709.8	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

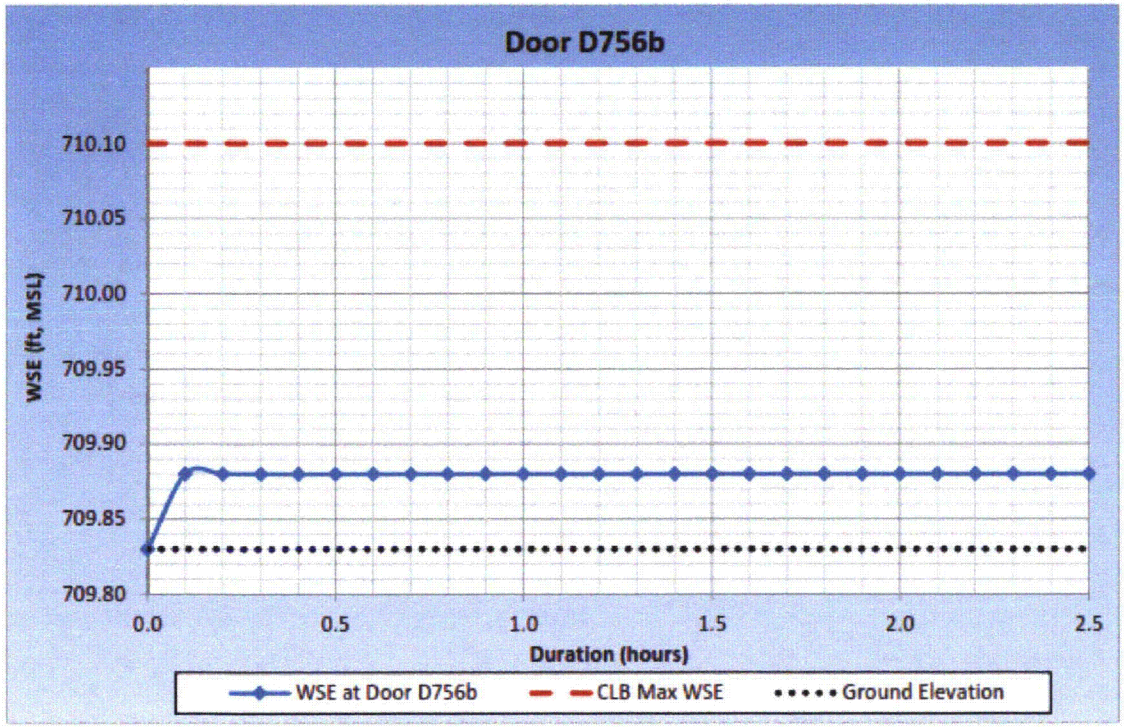
WSE at Door D756b Grid # 24453

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.05	709.83
0.10	0.05	710.10	709.88
0.20	0.05	710.10	709.88
0.30	0.05	710.10	709.88
0.40	0.05	710.10	709.88
0.50	0.05	710.10	709.88
0.60	0.05	710.10	709.88
0.70	0.05	710.10	709.88
0.80	0.05	710.10	709.88
0.90	0.05	710.10	709.88
1.00	0.05	710.10	709.88
1.10	0.05	710.10	709.88
1.20	0.05	710.10	709.88
1.30	0.05	710.10	709.88
1.40	0.05	710.10	709.88
1.50	0.05	710.10	709.88
1.60	0.05	710.10	709.88
1.70	0.05	710.10	709.88
1.80	0.05	710.10	709.88
1.90	0.05	710.10	709.88
2.00	0.05	710.10	709.88
2.10	0.05	710.10	709.88
2.20	0.05	710.10	709.88
2.30	0.05	710.10	709.88
2.40	0.05	710.10	709.88
2.50	0.05	710.10	709.88

Grid Surface Elevation = **710.05** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**709.83**	**ft, MSL**
0	709.83	
2.5	709.83	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

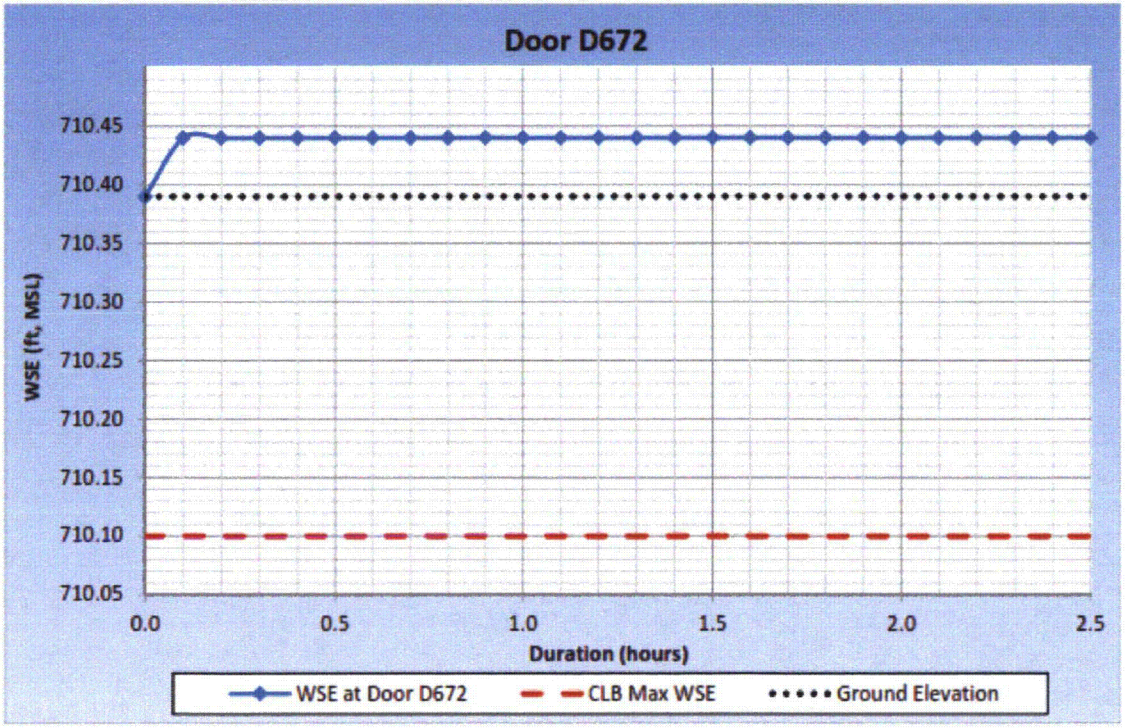
WSE at Door D672 Grid # 24460

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.61	710.39
0.10	0.05	710.66	710.44
0.20	0.05	710.66	710.44
0.30	0.05	710.66	710.44
0.40	0.05	710.66	710.44
0.50	0.05	710.66	710.44
0.60	0.05	710.66	710.44
0.70	0.05	710.66	710.44
0.80	0.05	710.66	710.44
0.90	0.05	710.66	710.44
1.00	0.05	710.66	710.44
1.10	0.05	710.66	710.44
1.20	0.05	710.66	710.44
1.30	0.05	710.66	710.44
1.40	0.05	710.66	710.44
1.50	0.05	710.66	710.44
1.60	0.05	710.66	710.44
1.70	0.05	710.66	710.44
1.80	0.05	710.66	710.44
1.90	0.05	710.66	710.44
2.00	0.05	710.66	710.44
2.10	0.05	710.66	710.44
2.20	0.05	710.66	710.44
2.30	0.05	710.66	710.44
2.40	0.05	710.66	710.44
2.50	0.05	710.66	710.44

Grid Surface Elevation = **710.61** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.39**	**ft, MSL**
0	710.39	
2.5	710.39	



* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

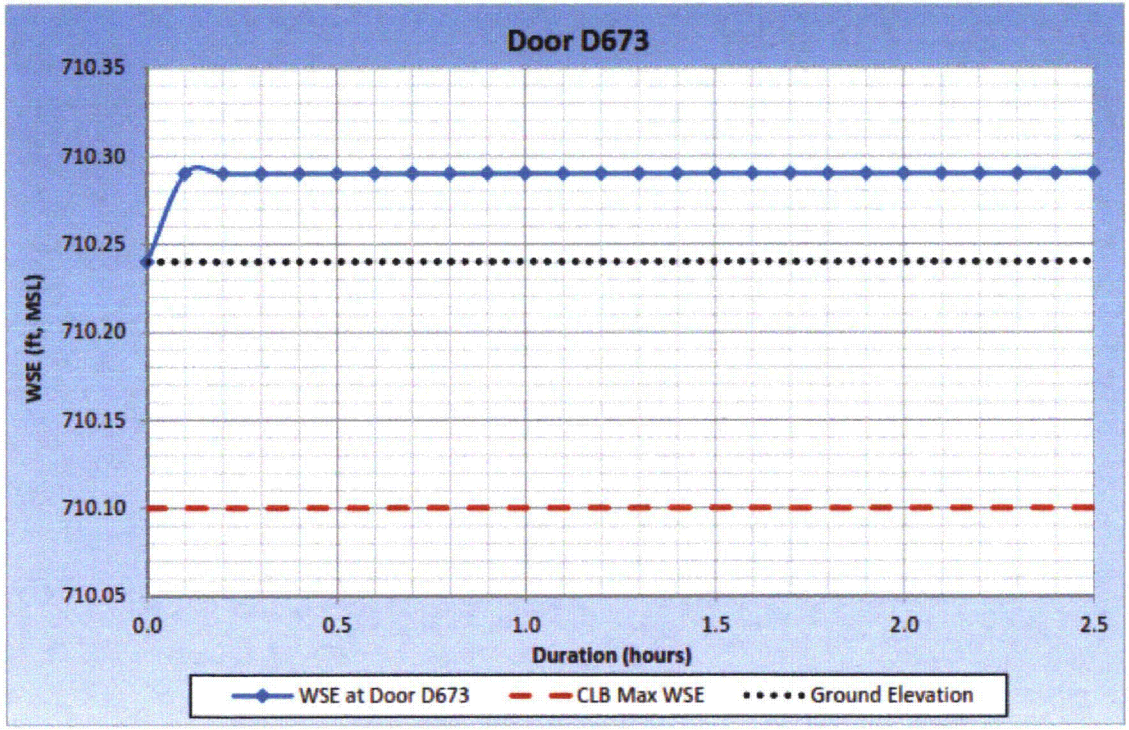
WSE at Door D673 Grid # 24462

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.46	710.24
0.10	0.05	710.51	710.29
0.20	0.05	710.51	710.29
0.30	0.05	710.51	710.29
0.40	0.05	710.51	710.29
0.50	0.05	710.51	710.29
0.60	0.05	710.51	710.29
0.70	0.05	710.51	710.29
0.80	0.05	710.51	710.29
0.90	0.05	710.51	710.29
1.00	0.05	710.51	710.29
1.10	0.05	710.51	710.29
1.20	0.05	710.51	710.29
1.30	0.05	710.51	710.29
1.40	0.05	710.51	710.29
1.50	0.05	710.51	710.29
1.60	0.05	710.51	710.29
1.70	0.05	710.51	710.29
1.80	0.05	710.51	710.29
1.90	0.05	710.51	710.29
2.00	0.05	710.51	710.29
2.10	0.05	710.51	710.29
2.20	0.05	710.51	710.29
2.30	0.05	710.51	710.29
2.40	0.05	710.51	710.29
2.50	0.05	710.51	710.29

Grid Surface Elevation = **710.46** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.24**	**ft, MSL**
0	710.24	
2.5	710.24	

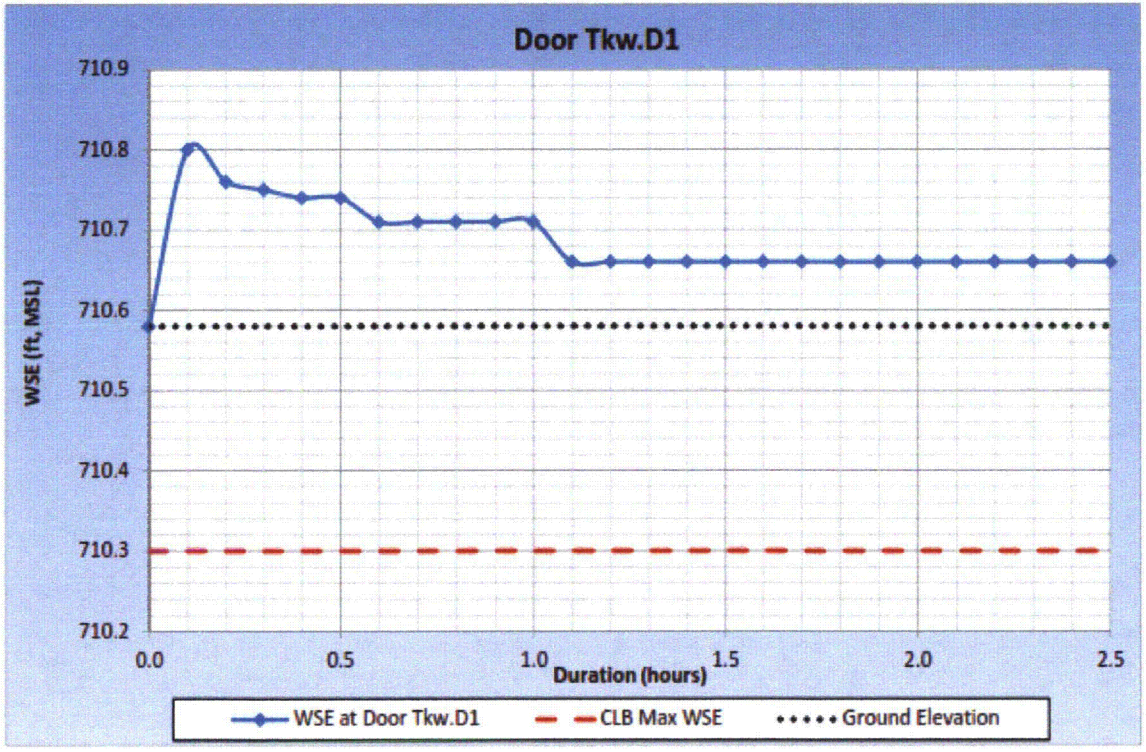


* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

WSE at Door Tkw.D1		Grid #	116609
Time (hours)	Flow Depth (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.8	710.58
0.10	**0.22**	711.02	710.80
0.20	**0.18**	710.98	710.76
0.30	**0.17**	710.97	710.75
0.40	**0.16**	710.96	710.74
0.50	**0.16**	710.96	710.74
0.60	**0.13**	710.93	710.71
0.70	**0.13**	710.93	710.71
0.80	**0.13**	710.93	710.71
0.90	**0.13**	710.93	710.71
1.00	**0.13**	710.93	710.71
1.10	**0.08**	710.88	710.66
1.20	0.08	710.88	710.66
1.30	0.08	710.88	710.66
1.40	0.08	710.88	710.66
1.50	0.08	710.88	710.66
1.60	0.08	710.88	710.66
1.70	0.08	710.88	710.66
1.80	0.08	710.88	710.66
1.90	0.08	710.88	710.66
2.00	0.08	710.88	710.66
2.10	0.08	710.88	710.66
2.20	0.08	710.88	710.66
2.30	0.08	710.88	710.66
2.40	0.08	710.88	710.66
2.50	0.08	710.88	710.66

Grid Surface Elevation = 710.8 ft, NAVD88	
CLB Max WSE (ft, MSL)	
0	710.30
2.5	710.30

Ground Elevation 710.58 ft, MSL	
0	710.58
2.5	710.58



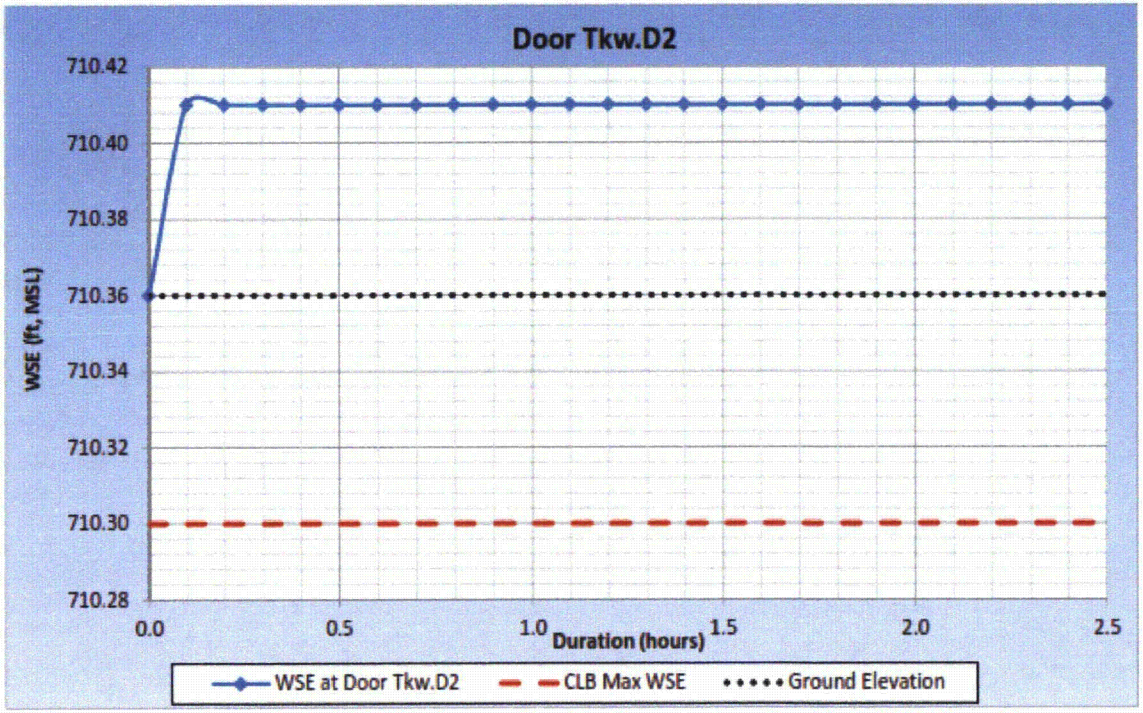
WSE at Door Tkw.D2 Grid # 104721

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.58	710.36
0.10	0.05	710.63	710.41
0.20	0.05	710.63	710.41
0.30	0.05	710.63	710.41
0.40	0.05	710.63	710.41
0.50	0.05	710.63	710.41
0.60	0.05	710.63	710.41
0.70	0.05	710.63	710.41
0.80	0.05	710.63	710.41
0.90	0.05	710.63	710.41
1.00	0.05	710.63	710.41
1.10	0.05	710.63	710.41
1.20	0.05	710.63	710.41
1.30	0.05	710.63	710.41
1.40	0.05	710.63	710.41
1.50	0.05	710.63	710.41
1.60	0.05	710.63	710.41
1.70	0.05	710.63	710.41
1.80	0.05	710.63	710.41
1.90	0.05	710.63	710.41
2.00	0.05	710.63	710.41
2.10	0.05	710.63	710.41
2.20	0.05	710.63	710.41
2.30	0.05	710.63	710.41
2.40	0.05	710.63	710.41
2.50	0.05	710.63	710.41

Grid Surface Elevation = **710.58** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.30**
2.5	710.30

Ground Elevation	**710.36**	**ft, MSL**
0	710.36	
2.5	710.36	

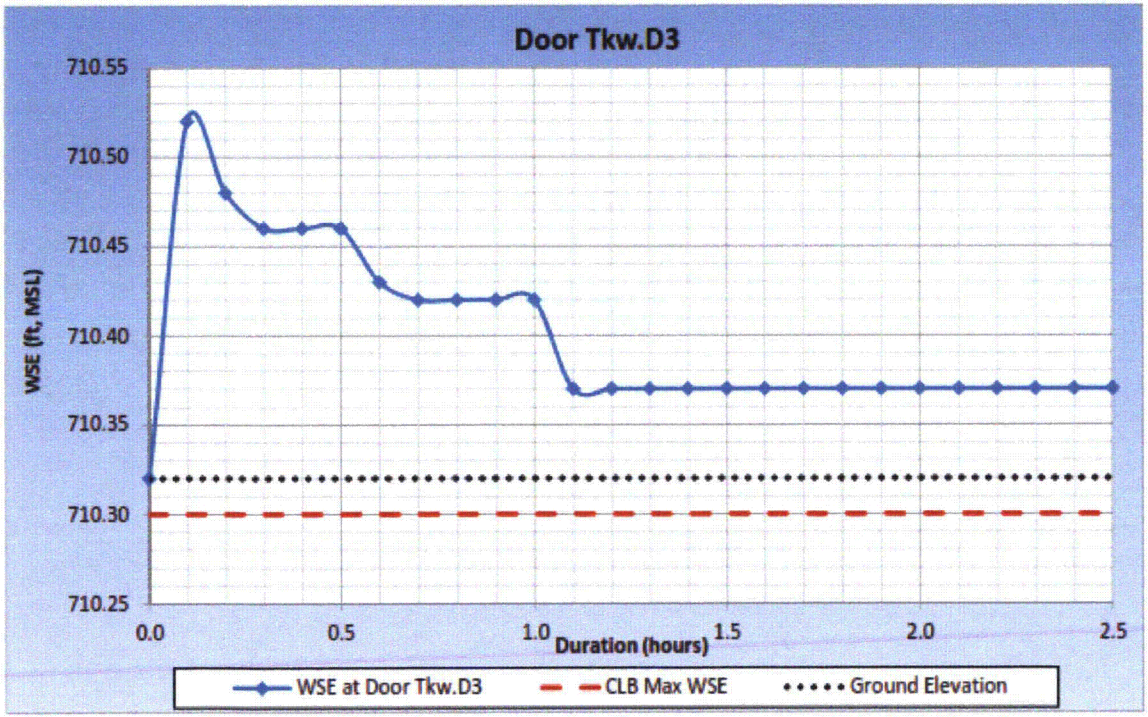


* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

WSE at Door Tkw.D3		Grid #	90452
Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.54	710.32
0.10	**0.2**	710.74	710.52
0.20	**0.16**	710.70	710.48
0.30	**0.14**	710.68	710.46
0.40	**0.14**	710.68	710.46
0.50	**0.14**	710.68	710.46
0.60	**0.11**	710.65	710.43
0.70	**0.1**	710.64	710.42
0.80	**0.1**	710.64	710.42
0.90	**0.1**	710.64	710.42
1.00	**0.1**	710.64	710.42
1.10	**0.05**	710.59	710.37
1.20	0.05	710.59	710.37
1.30	0.05	710.59	710.37
1.40	0.05	710.59	710.37
1.50	0.05	710.59	710.37
1.60	0.05	710.59	710.37
1.70	0.05	710.59	710.37
1.80	0.05	710.59	710.37
1.90	0.05	710.59	710.37
2.00	0.05	710.59	710.37
2.10	0.05	710.59	710.37
2.20	0.05	710.59	710.37
2.30	0.05	710.59	710.37
2.40	0.05	710.59	710.37
2.50	0.05	710.59	710.37

Grid Surface Elevation =	**710.54**	ft, NAVD88
CLB Max WSE	(ft, MSL)	
0	**710.30**	
2.5	710.30	

Ground Elevation	**710.32**	**ft, MSL**
0	710.32	
2.5	710.32	



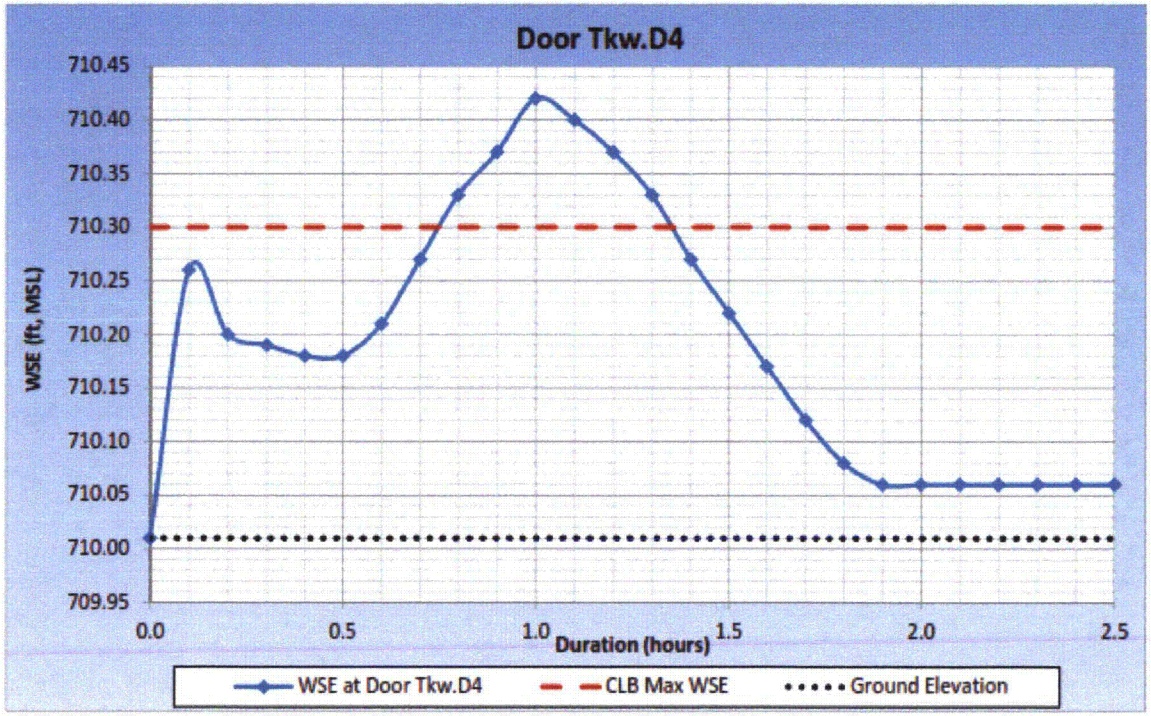
* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

WSE at Door Tkw.D4		Grid #	90893
Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.23	710.01
0.10	0.25	710.48	710.26
0.20	0.19	710.42	710.20
0.30	0.18	710.41	710.19
0.40	0.17	710.40	710.18
0.50	0.17	710.40	710.18
0.60	0.2	710.43	710.21
0.70	0.26	710.49	710.27
0.80	0.32	710.55	**710.33**
0.90	0.36	710.59	**710.37**
1.00	0.41	710.64	**710.42**
1.10	0.39	710.62	**710.40**
1.20	0.36	710.59	**710.37**
1.30	0.32	710.55	**710.33**
1.40	0.26	710.49	**710.27**
1.50	0.21	710.44	710.22
1.60	0.16	710.39	710.17
1.70	0.11	710.34	710.12
1.80	0.07	710.30	710.08
1.90	0.05	710.28	710.06
2.00	0.05	710.28	710.06
2.10	0.05	710.28	710.06
2.20	0.05	710.28	710.06
2.30	0.05	710.28	710.06
2.40	0.05	710.28	710.06
2.50	0.05	710.28	710.06

Grid Surface Elevation = **710.23** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.30**
2.5	710.30

Ground Elevation	**710.01**	**ft, MSL**
0	710.01	
2.5	710.01	

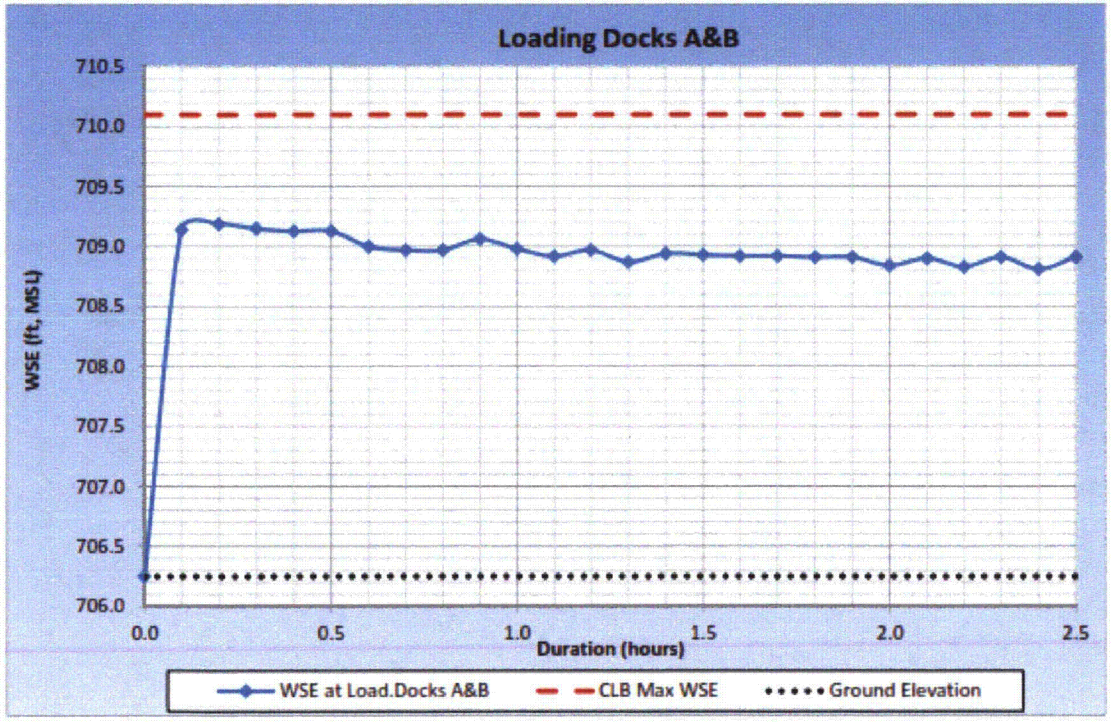


* Minimum computed water depth of 0.05 ft is due to surface detention parameter assigned in the FLO-2D model

WSE at Load.Docks A&B		Grid #	57946
Time (hours)	Flow Depth (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	706.47	706.25
0.10	2.89	709.36	709.14
0.20	2.94	709.41	709.19
0.30	2.9	709.37	709.15
0.40	2.88	709.35	709.13
0.50	2.88	709.35	709.13
0.60	2.75	709.22	709.00
0.70	2.72	709.19	708.97
0.80	2.72	709.19	708.97
0.90	2.81	709.28	709.06
1.00	2.73	709.20	708.98
1.10	2.67	709.14	708.92
1.20	2.72	709.19	708.97
1.30	2.62	709.09	708.87
1.40	2.69	709.16	708.94
1.50	2.68	709.15	708.93
1.60	2.67	709.14	708.92
1.70	2.67	709.14	708.92
1.80	2.66	709.13	708.91
1.90	2.66	709.13	708.91
2.00	2.59	709.06	708.84
2.10	2.65	709.12	708.90
2.20	2.58	709.05	708.83
2.30	2.66	709.13	708.91
2.40	2.56	709.03	708.81
2.50	2.66	709.13	708.91

Grid Surface Elevation = 706.47 ft, NAVD88	
CLB Max WSE (ft, MSL)	
0	710.10
2.5	710.10

Ground Elevation 706.25 ft, MSL	
0	706.25
2.5	706.25



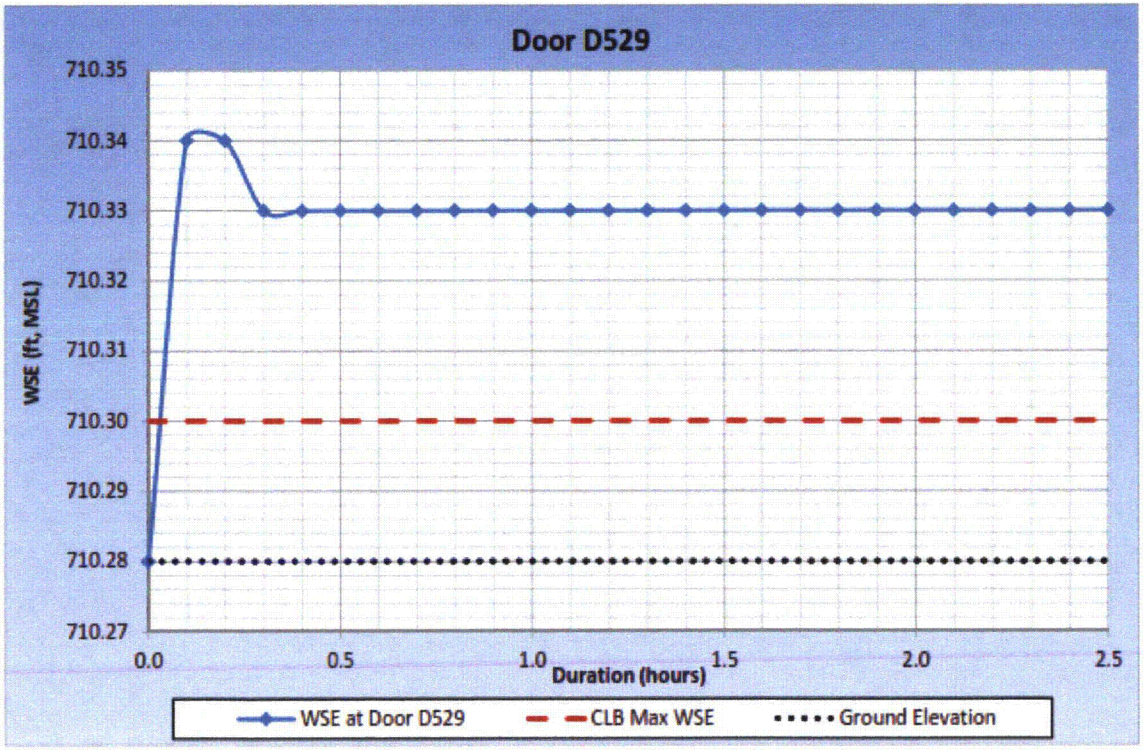
WSE at Door D529 Grid # 66009

Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.5	710.28
0.10	**0.06**	710.56	710.34
0.20	**0.06**	710.56	710.34
0.30	**0.05**	710.55	710.33
0.40	0.05	710.55	710.33
0.50	0.05	710.55	710.33
0.60	0.05	710.55	710.33
0.70	0.05	710.55	710.33
0.80	0.05	710.55	710.33
0.90	0.05	710.55	710.33
1.00	0.05	710.55	710.33
1.10	0.05	710.55	710.33
1.20	0.05	710.55	710.33
1.30	0.05	710.55	710.33
1.40	0.05	710.55	710.33
1.50	0.05	710.55	710.33
1.60	0.05	710.55	710.33
1.70	0.05	710.55	710.33
1.80	0.05	710.55	710.33
1.90	0.05	710.55	710.33
2.00	0.05	710.55	710.33
2.10	0.05	710.55	710.33
2.20	0.05	710.55	710.33
2.30	0.05	710.55	710.33
2.40	0.05	710.55	710.33

Grid Surface Elevation = **710.5** ft, NAVD88

CLB Max WSE (ft, MSL)	
0	**710.30**
2.5	710.30

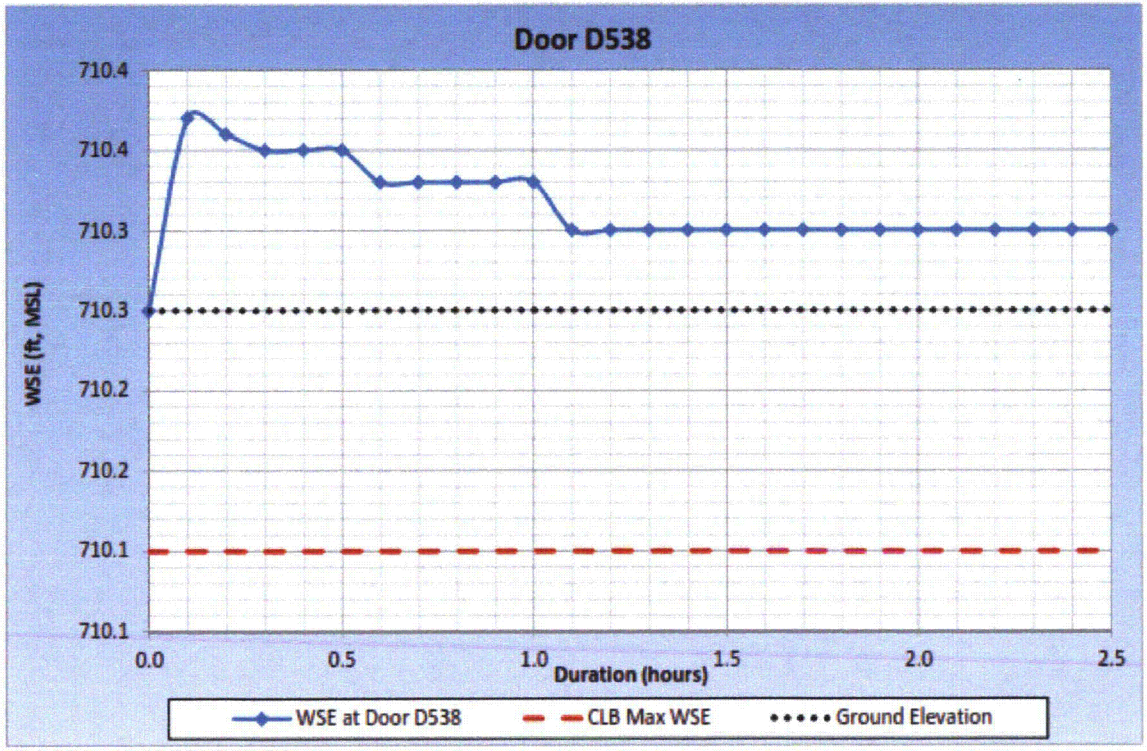
Ground Elevation	**710.28**	**ft, MSL**
0	710.28	
2.5	710.28	



WSE at Door D538		Grid #	50809
Time (hours)	Flow Depth* (ft)	WSE (ft, NAVD88)	WSE (ft, MSL)
0	0	710.47	710.25
0.10	**0.12**	710.59	710.37
0.20	**0.11**	710.58	710.36
0.30	**0.1**	710.57	710.35
0.40	**0.1**	710.57	710.35
0.50	**0.1**	710.57	710.35
0.60	**0.08**	710.55	710.33
0.70	**0.08**	710.55	710.33
0.80	**0.08**	710.55	710.33
0.90	**0.08**	710.55	710.33
1.00	**0.08**	710.55	710.33
1.10	**0.05**	710.52	710.30
1.20	0.05	710.52	710.30
1.30	0.05	710.52	710.30
1.40	0.05	710.52	710.30
1.50	0.05	710.52	710.30
1.60	0.05	710.52	710.30
1.70	0.05	710.52	710.30
1.80	0.05	710.52	710.30
1.90	0.05	710.52	710.30
2.00	0.05	710.52	710.30
2.10	0.05	710.52	710.30
2.20	0.05	710.52	710.30
2.30	0.05	710.52	710.30
2.40	0.05	710.52	710.30

Grid Surface Elevation = **710.47** ft, NAVD88	
CLB Max WSE (ft, MSL)	
0	**710.10**
2.5	710.10

Ground Elevation	**710.25**	**ft, MSL**
0	710.25	
2.5	710.25	



Enclosure 3

LaSalle County Station, Units 1 and 2

LaSalle RAI 1 Response: FLO 2D Modeling Electronic Files

DVD labeled: LaSalle RAI Response TAC Nos. MF3655 and MF3656
RAI 1: FLO 2D Modeling Electronic Files
April 2015