PRELIMINARY DRAINAGE REPORT

Sonoran Sky

Scottsdale, Arizona

Prepared for:

Jade Vista, LLC
7320 E Butherus Drive
Scottsdale, AZ 85260

Prepared by:

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291245004
December 2021

PRELIMINARY DRAINAGE REPORT

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DECEMBER 2021

Prepared By:

Kimley»Horn

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INTRODUCTION

PURPOSE

This Preliminary Drainage Report (PDR) for the proposed Sonoran Sky development (Site) has been prepared to meet the drainage requirements outlined in Chapter 4 of the City of Scottsdale Design Standards and Policies Manual (DS&PM). The Site is currently zoned R1-130.

The main purposes of this report are the following:

- Illustrate compliance with the DS&PM
- Establish drainage parameters and criteria for planning and zoning.
- Provide a preliminary hydrologic analysis for the development of the Site that meets pre- vs post-project condition requirements.

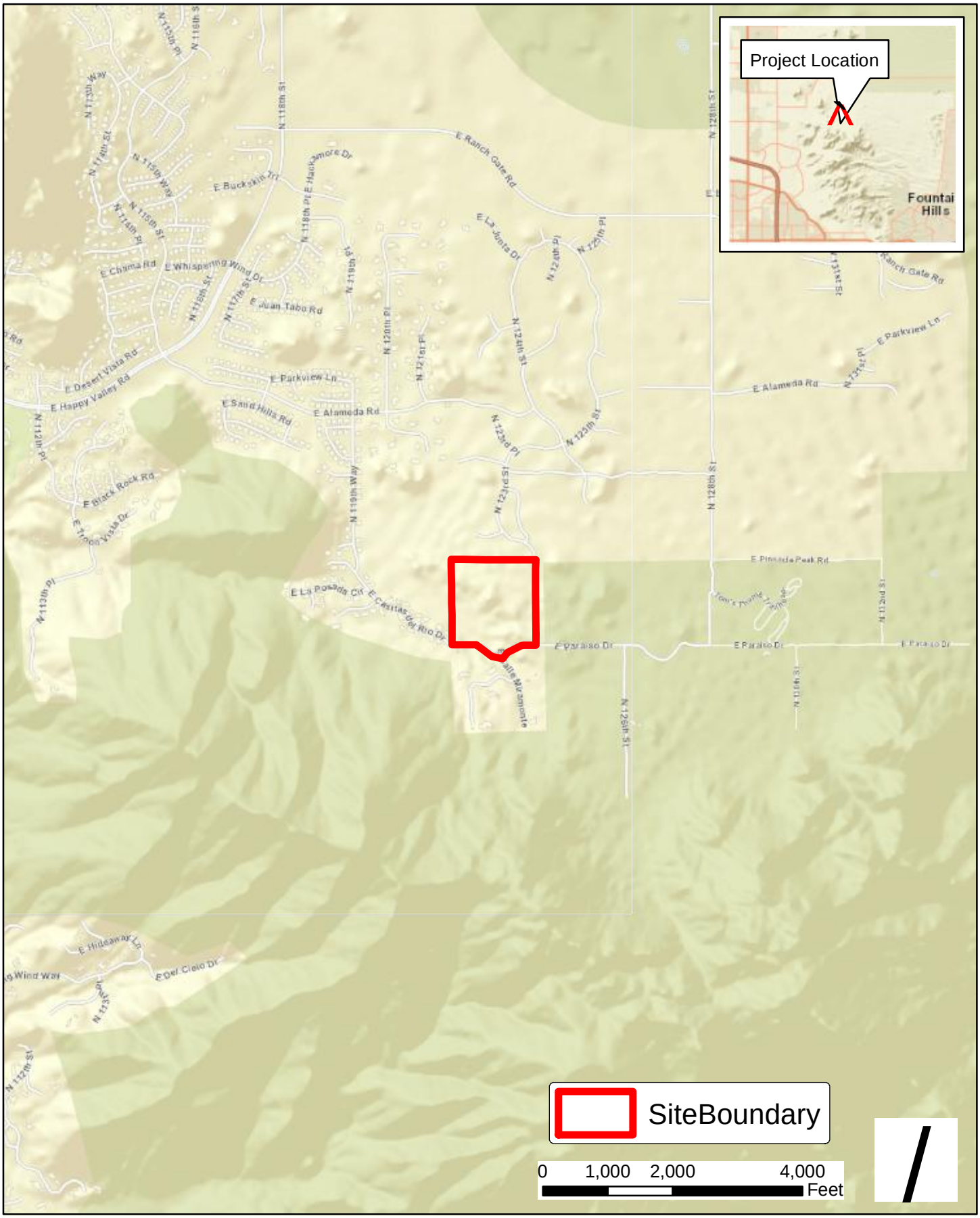
PROJECT SIZE AND DESCRIPTION

The Site is bounded to the south by Casitas del Rio Drive and 123rd Street to the north. The development to the north is a portion of the Sereno Canyon master planned development. The rest of the Site is bounded by undeveloped desert. It lies within a portion of Section 14, Township 4 North, Range 5 East of the Gila and Salt River Base and Meridian. The Site is located within the City of Scottsdale (City) and falls under the City's Environmentally Sensitive Land Overlay (ESLO). The Site consists of 13 lots in the 41-acre Site. It is currently zoned R1-130. See **Figure 1** and **Figure 2** for the Location and Aerial Maps.

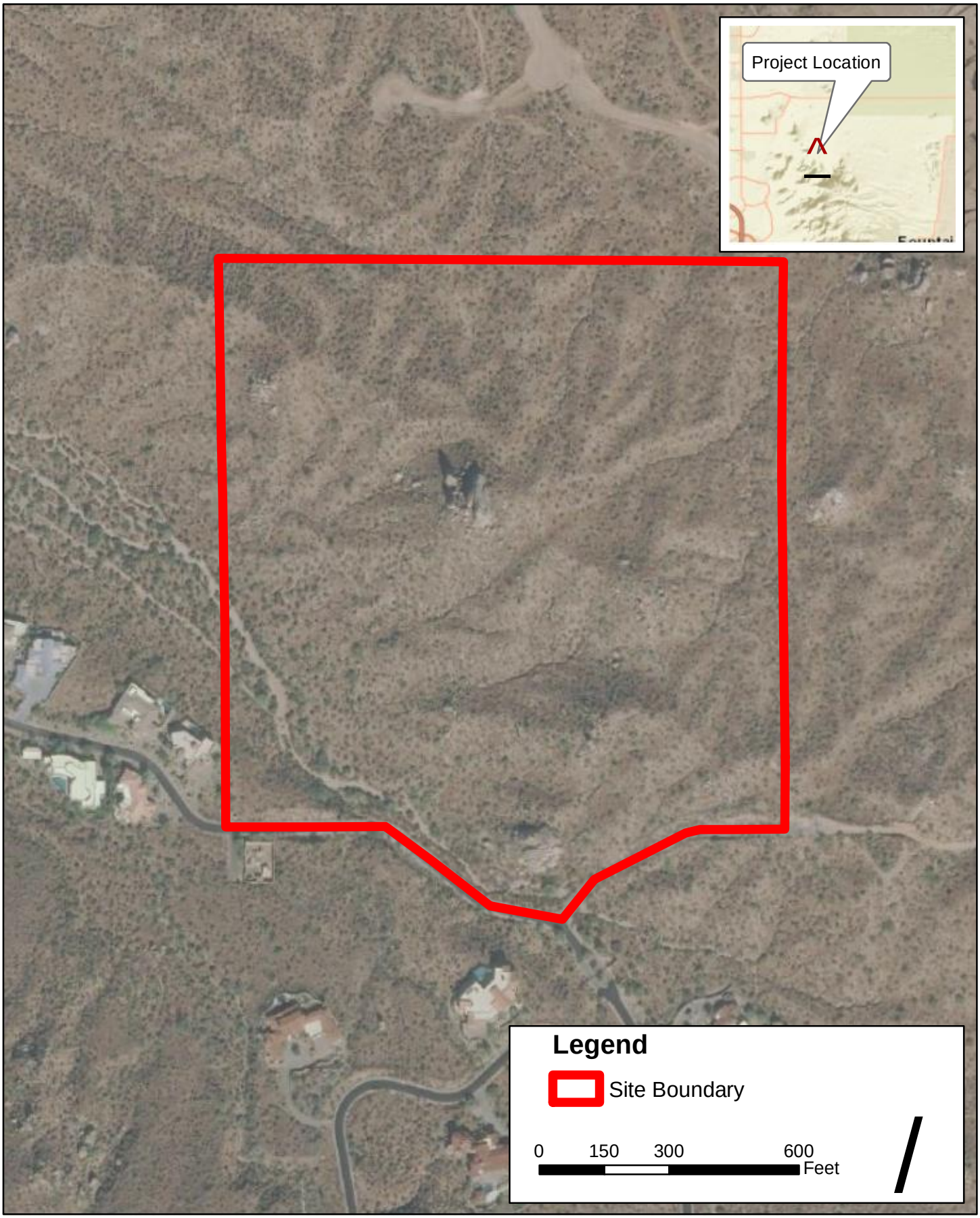
FLOOD INSURANCE RATE MAP (FIRM)

The development is located within one flood zone as shown on Flood Insurance Rate Map (FIRM) panel number 04013C1330L, dated October 16, 2013. Refer to **Figure 3** for the Floodplain Map. The flood zones that pertain to the Site are as follows:

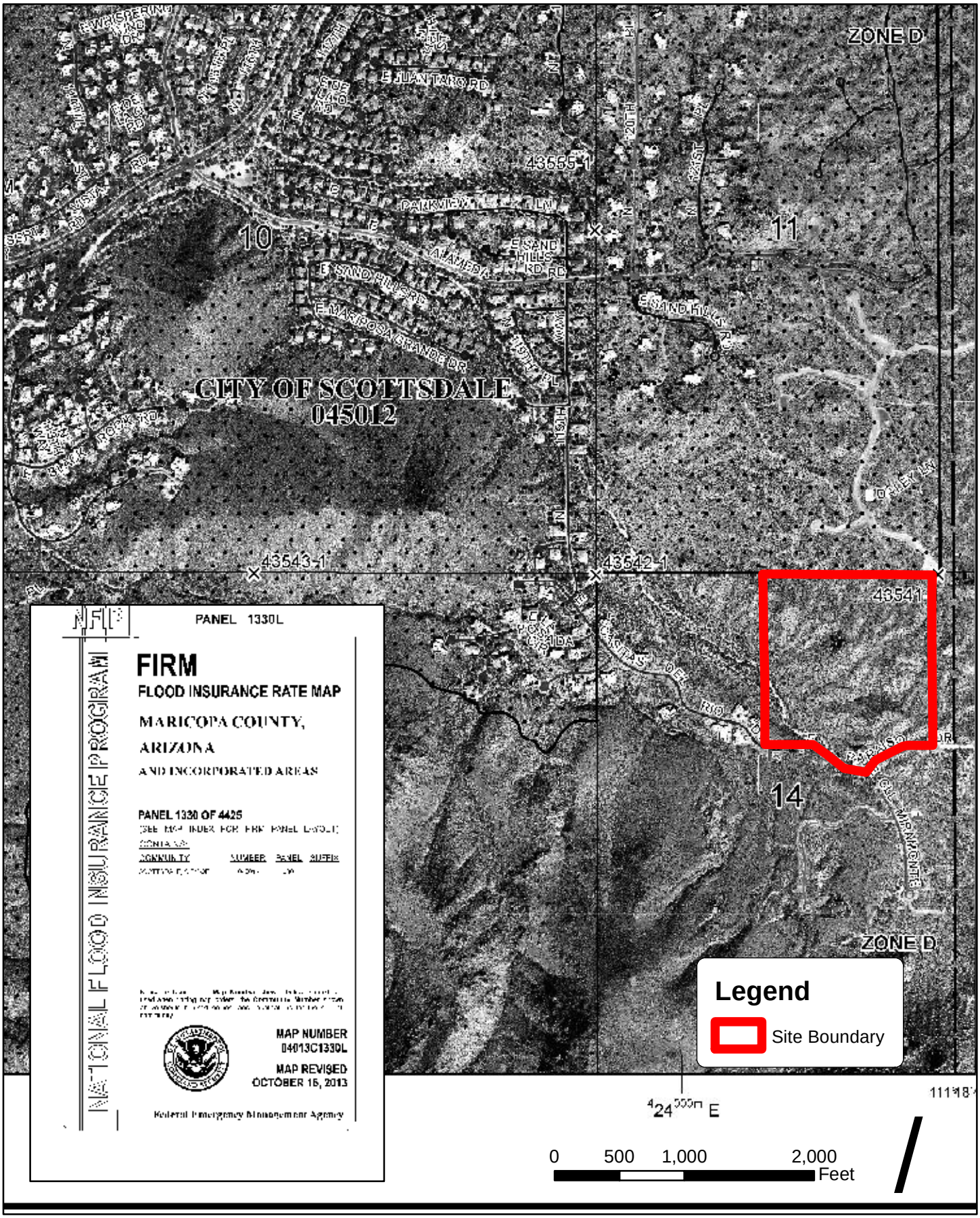
> "Other Flood Areas" Zone X – "Area of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; areas protected by levees from 1% annual chance flood"



Kimley»Horn Expect More. Experience Better.	Sonoran Sky	City of Scottsdale, Maricopa County, AZ
	Figure 1. Vicinity Map	



Kimley»Horn Expect More. Experience Better.	Sonoran Sky	City of Scottsdale, Maricopa County, AZ
	Figure 2. Aerial Map	



Kimley»Horn Expect More. Experience Better.	Sonoran Sky	City of Scottsdale, Maricopa County, AZ
	Figure 3. Floodplain Map	

DESCRIPTION OF EXISTING DRAINAGE CONDITIONS AND CHARACTERISTICS

EXISTING SITE CONDITIONS

The Site is characterized by undeveloped desert rangeland, featuring several small washes, steep terrain, and rock outcroppings. There is a high point in the middle where runoff falls off the Site in all directions. The Site falls within the City of Scottsdale Environmentally Sensitive Lands (ESL) and is subject to the design criteria of the Environmentally Sensitive Lands Ordinance (ESLO). Specifically, the Site is categorized as Upper Desert Landform of ESL. Per the DS&PM “The ESL zoning district requires that a percentage of each property be permanently preserved as Natural Area Open Space (NAOS) and that specific environmental features must be protected, including vegetation, desert washes, mountain ridges and peaks, to assure appropriate development.”.

EXISTING OFFSITE DRAINAGE CONDITIONS

Offsite runoff impacts the Site from the southeast. A large wash conveys runoff to the northwest. The Site is located in the Reatta Wash Letter of Map Revision (LOMR) FLO-2D model. The LOMR model indicates that the wash conveys approximately 100 cubic feet per second (cfs) in the 100-year storm event. Refer to **Figure 4** for the Existing Conditions Hydrology Map.

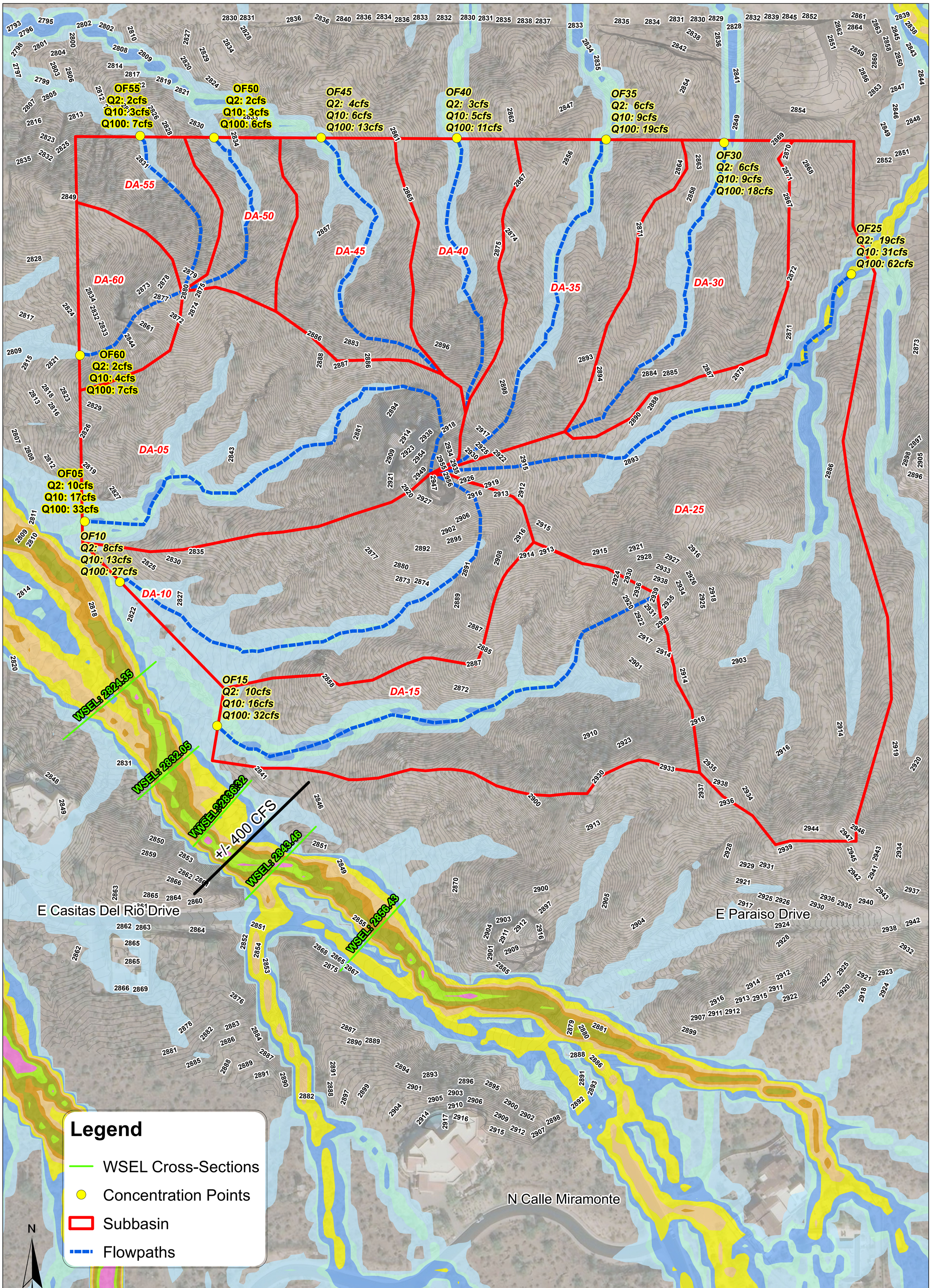
EXISTING ONSITE DRAINAGE CONDITIONS

The Site is currently undeveloped. A large boulder feature is near the center of the existing Site. The boulder is a high point. Runoff is conveyed in small washes to the Site boundary. Site runoff along the northeastern portion of the Site discharges into the Sereno Canyon development. Site runoff along the southern and western boundaries discharges into the major wash.

CONTEXT RELATIVE TO ADJACENT PROJECTS AND IMPROVEMENTS

The Site is within the Reatta Wash LOMR watershed. The Site is on the eastern boundaries of the FLO-2D model. The LOMR model was used to quantify runoff reaching Reatta Wash. No infrastructure is being designed using the results of the modeling. The FLO-2D results are being accepted to determine the base flood elevations (BFE) and inundation boundaries along the southwester side of the Site. The wash will not be impacted.

The Site will tie into the existing end of the Sereno Canyon master planned development northeast of the Site. The Site infrastructure improvements will tie into the existing roadway. Runoff from this Site will not impact existing infrastructure in the Sereno Canyon development.



CITY OF SCOTTSDALE
SONORAN SKY
EXISTING HYDROLOGY
FIGURE 4

PROJECT NO. 291245004
DRAWING NAME EX HYDROLOGY

SCALE(H): 1"= BAR
SCALE(V): NONE
DESIGNED BY: ZRS
DRAWN BY: RDK
CHECKED BY: ZRS
DATE: 12/2021

Kimley»Horn

Engineering, Planning and Environmental Consultants
7740 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

PROPOSED PRELIMINARY DRAINAGE PLAN

PROPOSED ONSITE DRAINAGE PLAN

The proposed development consists of 13 single-family residential units to be constructed in a single phase. The lowest finished floor of the proposed units will be elevated a minimum of 1 foot above adjacent water surfaces or basin high water elevation. Most lots will drain to the onsite street system and runoff will be conveyed by the streets to proposed detention basins throughout the development. Due to grading challenges and roof height restrictions, some lots cannot drain to the street system and will have rear yard discharge to the existing onsite washes crossing through the Site. Post-project hydrologic models reflect these conditions. The amount of runoff from these lots is negligible compared to the amount of runoff being conveyed in the washes and post-project conditions are less than or equal to pre-project conditions in the existing washes.

Three (3) detention basins located throughout the Site capture, store and release runoff from the proposed roadway infrastructure and individual lots. The detention basins are three (3) feet deep. Each detention basin has a 6-inch orifice plate on it. The orifice plate is elevated 6-inches above the bottom of the basins. Each basin also has an overflow weir six (6) inches below the top of the basin. The orifice and overflow weirs are used to control post-project peak discharges at a level equal to or less than the pre-development conditions. Each of the detention basins discharges into the existing washes on the Site. **Table 1** is a summary of the detention basins.

Table 1 Detention Basin Summary

Detention Basin	Volume [ac-ft]	2-yr Max Depth [ft]	10-yr Max Depth [ft]	100-yr Max Depth [ft]
S-05	0.51	0.6	1.0	1.8
S-25	0.61	0.2	0.3	0.7
S-30	0.71	0.4	0.6	1.1

The revised land uses, proposed grading and the detention basins are included with the proposed hydrologic model. Onsite sub-basin boundaries were delineated from the project topography and the proposed overall grading concept. There are multiple culverts throughout the Site to convey runoff to pre-project outfalls. Refer to **Figure 5** for the Proposed Conditions Hydrology Map. Refer to **Appendix B** for proposed conditions hydrology input and output.

PROPOSED OFFSITE DRAINAGE PLAN

The large wash on the southwest portion of the Site will pass through similar to pre-project conditions. No infrastructure is planned on the wash. Runoff from the Site will discharge to the Sereno Canyon infrastructure to the north. Refer to **Figure 5** for the Proposed Conditions Hydrology Map**.**

PROPOSED ONSITE HYDROLOGY

Onsite runoff from the proposed development maintains post-development flows at or below pre-development conditions at the historical discharge locations for the three design storms (2-year, 10-year, and 100-year). A summary of pre- and post-development peak discharges is provided in **Table 2**. Detention basins are proposed at key locations onsite to attenuate peak discharge from onsite runoff. The basins utilize bleed-off pipes with orifice plates with the intent to control post-development runoff exiting

the development, with a weir spillway for larger storm events. The total drain time for each basin is less than 36 hours. Refer to **Appendix B** for the detailed hydrologic model results. Additionally, the Site will be subject to first flush criteria per the revised Stormwater and Floodplain Management Ordinance, Chapter 37 of Scottsdale Revised Code. The total detention volume provided for the surface basin will meet or exceed the first flush requirement for stormwater quality purposes. **Table 2** is a summary of the pre versus post-project condition peak discharges at each of the outfall locations.

Table 2 Pre- Versus Post-Development Runoff Summary

Concentration Point		Q_2 [cfs]		Q_{10} [cfs]		Q_{100} [cfs]	
Pre	Post	Pre	Post	Pre	Post	Pre	Post
OF05	OF05	10	8	17	13	33	25
OF10	OF10	8	5	13	7	27	15
OF15	OF15	10	5	16	7	32	15
OF25	OF25	19	12	31	19	62	40
OF30	OF30	6	1	9	1	18	1
OF35	OF35	6	5	9	8	19	18
OF40	OF40	3	3	5	5	11	10
OF45	OF45	4	2	6	3	13	6
OF50	OF50	2	2	3	3	6	6
OF55	OF55	2	2	3	3	7	7
OF60	OF60	2	2	4	4	7	7

PROPOSED ONSITE HYDRAULICS

Onsite runoff will be conveyed in the local streets, swales, storm drains, and culverts to the detention basins. Per the DS&PM, all interior streets will be designed to convey the peak discharge from the 10-year storm event at or below the top of curb elevation. Additionally, the streets will convey the 100-year runoff and maintain a maximum flow depth of eight inches above the gutter flow line. A catch basin with storm drain or scupper will capture pavement runoff and outfall to the proposed, adjacent detention basins. The catch basin and storm drain will be designed per the DS&PM and FCDMC's Drainage Policies and Standards. Detailed catch basin and street capacity analysis is beyond the scope of this preliminary drainage report and will be completed as part of the final design.

SPECIAL CONDITIONS

ADEQ WATER QUALITY REQUIEMENTS

Development of the project will impact a large enough area to require a submittal of a Notice of Intent (NOI) to the Arizona Department of Environmental Quality (ADEQ). The NOI will be submitted to ADEQ and an approved NOI certificate with an AZCON number will be provided to the city before approval of any improvement plans.

EROSION SETBACK ANALYSIS

Erosion Setback Analysis will be performed on the significant wash near the southwest corner of the Site. Lots or improvements which encroach into the Erosion Hazard Setback will require a form of erosion protection such as concrete scour wall or launchable riprap.

OF55
Q2: 2cfs
Q10: 3cfs
Q100: 7cfs

OF45
Q2: 2cfs
Q10: 3cfs
Q100: 6cfs

OF40
Q2: 3cfs
Q10: 5cfs
Q100: 10cfs

OF35
Q2: 5cfs
Q10: 8cfs
Q100: 18cfs

OF30
Q2: 1cfs
Q10: 1cfs
Q100: 1cfs

OF50
Q2: 2cfs
Q10: 3cfs
Q100: 6cfs

OF25
Q2: 12cfs
Q10: 19cfs
Q100: 40cfs

DA-55

DA-P50

DA-P40A

DA-P35A

S-30

DA-60

DA-P45

DA-P25C

OF60
Q2: 2cfs
Q10: 4cfs
Q100: 7cfs

DA-P05A

DA-P05B

S-05

OF05
Q2: 8cfs
Q10: 13cfs
Q100: 25 cfs

DA-P10

DA-P25B

OF05
Q2: 8cfs
Q10: 13cfs
Q100: 25 cfs

OF10
Q2: 5cfs
Q10: 7cfs
Q100: 15cfs

DA-P05C

S-25

DA-P15A

WSEL: 2824.35

WSEL: 2832.05

WSEL: 2836.32

+/- 400 CFS

WSEL: 2843.46

WSEL: 2856.43

OF15
Q2: 5cfs
Q10: 7cfs
Q100: 15cfs

DA-P25A

E Casitas Del Rio Drive

E Paraiso Drive

N Calle Miramonte

Legend

- Concentration Points
- WSEL Cross- Sections
- Flowpaths
- Proposed Subbasin
- MinorContours
- MajorContours

N

0 100 200 400 Feet

PROJECT NO. 291245004
DRAWING NAME EX HYDROLOGY

CITY OF SCOTTSDALE
SONORAN SKY
PROPOSED HYDROLOGY
FIGURE 5

SCALE(H): 1"= BAR
SCALE(V): NONE
DESIGNED BY: ZRS
DRAWN BY: TWC
CHECKED BY: ZRS
DATE: 12/2021

Kimley»Horn

Engineering, Planning and Environmental Consultants
7740 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

DATA ANALYSIS METHODS

HYDROLOGY

PCSWMM along with the Rational Method was used to determine the 2-, 10-, and 100-year peak discharges for the onsite runoff. SWMM models were prepared for both the pre- and post-project conditions. Time of concentration calculations were done following the Hydrology Manual. The minimum time of concentration was five (5) minutes. Rainfall depths were estimated for the Site from the National Oceanic and Atmospheric Administration Atlas 14 (NOAA 14). Rational coefficients were determined from the DSPM for the various storms. **Table 3** is a summary of the parameters. Refer to **Appendix A** for hydrologic results.

Table 3 Rational Method Coefficients

Existing Conditions		
Land Use	2-25 Year Storm Rational Coefficient	100 Year Storm Rational Coefficient
Mountain Terrain-slopes greater than 10%	0.60	0.80
Proposed Conditions		
Land Use	2-25 Year Storm Rational Coefficient	100 Year Storm Rational Coefficient
R1-130	0.35	0.59
Paved street	0.90	0.95

HYDRAULICS

The results of the Reatta Wash LOMR FLO-2D model were used to estimate inundation boundaries for the significant wash at the southwest corner of the Site. Improvements for the Site do not include impacting the significant wash. Inundation boundaries and peak discharge are used for establishing erosion hazard setbacks. Refer to **Figure 5** for the Proposed Condition Hydrology Map.

STORMWATER STORAGE METHOD

Stormwater runoff generated by the Site is routed to proposed detention basins located adjacent to the roadway tract and outside of the building envelopes on-lot for the development. Each of the detention basins have been added to the SWMM model as storage nodes. Stage-Area curves were created for each detention basin. The new detention basins will be located within a designated drainage easement and will attenuate the peak flows leaving the property. The existing property is a part of the ESLO. Based on City ordinances, a waiver will need to be obtained for any volume less than the 100-year, 2-hour volume. However, there is no waiver fee associated with the volumes that do not result in an increase in downstream runoff. Refer to **Appendix A** and **Appendix B** for the pre- and post-development hydrologic model results.

CONCLUSIONS

- Hydrologic models were prepared for the onsite areas for the pre- and post-development conditions. Onsite detention basins were sized to ensure that the post-development runoff exiting the Site is equal to or less than pre-development conditions. Additionally, the detention basins are sized to meet first flush requirements. Basins are designed to drain within 36 hours and are located within designated drainage easements proposed with the development.
- A significant wash crosses the southwest portion of the Site. The wash is a part of the Reatta Wash LOMR FLO-2D model. The FLO-2D model was used to establish inundation boundaries and water surface elevations. No infrastructure is being designed using the FLO-2D results

REFERENCES

City of Scottsdale, Design Standards and Policies Manual, January 2018.

City of Scottsdale, Stormwater and Floodplain Management Ordinance, Chapter 37, July 2016.

Federal Emergency Management Agency, Flood Insurance Rate Map Panel No 04013C1330L, dated October 16, 2013

Flood Control District of Maricopa County, Drainage Design Manual – Hydrology, 2018.

Appendix A – Existing Conditions Hydrology

- 2-Year Output
- 10-Year Output
- 100-Year Output

PCSWMM Report

Model Calculations

Model SonoranSkyEx-2-year.inp

Kimley-Horn and Associates Inc.

September 1, 2021

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Summary 1: Options

Name	SonoranSkyEx-2-year	SonoranSkyEx - 10-year	SonoranSkyEx -100-year
Flow Units	CFS	CFS	CFS
Infiltration method	Horton	Horton	Horton
Flow routing method	Dynamic Wave	Dynamic Wave	Dynamic Wave
Link offsets defined by	Depth	Depth	Depth
Allow ponding	Yes	Yes	Yes
Skip steady flow periods	No	No	No
Inertial dampening	Partial	Partial	Partial
Define supercritical flow by	Both	Both	Both
Force Main Equation	H-W	H-W	H-W
Variable time step	On	On	On
Adjustment factor (%)	75	75	75
Conduit lengthening (s)	0	0	0
Minimum surface area (ft²)	0	0	0
Starting date	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM
Ending date	Aug-19-2021 01:00:00 AM	Aug-19-2021 03:00:00 AM	Aug-19-2021 03:00:00 AM
Duration of simulation (hours)	1	3	3
Antecedent dry days (days)	0	0	0
Rain interval (h:mm)	n/a	n/a	n/a
Report time step (h:mm:ss)	00:01:00	00:01:00	00:01:00
Wet time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Dry time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Routing time step (s)	1	1	1
Minimum time step used (s)	0.5	0.5	0.5
Average time step used (s)	1	1	1
Minimum conduit slope	0	0	0
Ignore rainfall/runoff	No	No	No
Ignore snow melt	No	No	No
Ignore groundwater	No	No	No
Ignore flow routing	No	No	No
Ignore water quality	No	No	No
Report average results	No	No	No

Table 1: Outfalls-reduced

Name	X-Coordinate	Y-Coordinate	Max. Total Inflow (cfs)	Total inflow (MG)	Flow Error (%)	Avg. Flow (cfs)	Max. Flow (cfs)	Total Flow (MG)
OF-05	730052.3	980999.4	10.25	0.023	0	5.13	10.25	0.023
OF-10	730236.8	980660.8	8.34	0.019	0	4.18	8.34	0.019
OF-15	730798.3	980426.3	9.95	0.022	0	4.98	9.95	0.022
OF-25	731291.3	981516.3	19.02	0.043	0	9.53	19.02	0.043
OF-30	731192.4	981519.5	5.6	0.013	0	2.8	5.6	0.013
OF-35	730953.1	981520	5.86	0.013	0	2.93	5.86	0.013
OF-40	730654.8	981524.8	3.36	0.008	0	1.68	3.36	0.008
OF-45	730469.8	981524.3	4.02	0.009	0	2.01	4.02	0.009
OF-50	730301.2	981525.3	1.86	0.004	0	0.93	1.86	0.004
OF-55	730150.2	981524.8	2.02	0.005	0	1.01	2.02	0.005
OF-60	730055.8	981247.5	2.18	0.005	0	1.09	2.18	0.005

Table 2A: ARM Subcatchments-reduced

Name	Runoff Method	Outlet	Area (ac)	Flow Length (ft)	TC Method	Time of Concentration (min)	Runoff Coef.	IDF Curve	Return Period (y)
DA-05	Modified Rational	OF-05	4.44	650	User entered value	5	0.6	Scottsdale	2
DA-10	Modified Rational	OF-10	3.614	619	User entered value	5	0.6	Scottsdale	2
DA-15	Modified Rational	OF-15	4.309	400	User entered value	5	0.6	Scottsdale	2
DA-25	Modified Rational	OF-25	8.24	1000	User entered value	5	0.6	Scottsdale	2
DA-30	Modified Rational	OF-30	2.424	565	User entered value	5	0.6	Scottsdale	2
DA-35	Modified Rational	OF-35	2.538	580	User entered value	5	0.6	Scottsdale	2
DA-40	Modified Rational	OF-40	1.457	450	User entered value	5	0.6	Scottsdale	2
DA-45	Modified Rational	OF-45	1.742	420	User entered value	5	0.6	Scottsdale	2
DA-50	Modified Rational	OF-50	0.804	310	User entered value	5	0.6	Scottsdale	2
DA-55	Modified Rational	OF-55	0.877	290	User entered value	5	0.6	Scottsdale	2
DA-60	Modified Rational	OF-60	0.945	171	User entered value	5	0.6	Scottsdale	2

Table 2B: ARM Subcatchments-reduced

Name	Peak Rainfall (in/hr)	Hydrograph Fattening	Precipitation (in)	Runoff Depth (in)	Runoff Volume (MG)	Peak Runoff (cfs)
DA-05	3.854	No	0.321	0.191	0.023	10.268
DA-10	3.854	No	0.321	0.191	0.019	8.358
DA-15	3.854	No	0.321	0.191	0.022	9.965
DA-25	3.854	No	0.321	0.191	0.043	19.056
DA-30	3.854	No	0.321	0.191	0.013	5.606
DA-35	3.854	No	0.321	0.191	0.013	5.869
DA-40	3.854	No	0.321	0.191	0.008	3.369
DA-45	3.854	No	0.321	0.191	0.009	4.029
DA-50	3.854	No	0.321	0.191	0.004	1.859
DA-55	3.854	No	0.321	0.191	0.005	2.028
DA-60	3.854	No	0.321	0.191	0.005	2.185

PCSWMM Report

Model Calculations

Model SonoranSkyEx - 10-year.inp

Kimley-Horn and Associates Inc.

September 1, 2021

Table of Contents

Summary 1: Options

Name	SonoranSkyEx-2-year	SonoranSkyEx - 10-year	SonoranSkyEx -100-year
Flow Units	CFS	CFS	CFS
Infiltration method	Horton	Horton	Horton
Flow routing method	Dynamic Wave	Dynamic Wave	Dynamic Wave
Link offsets defined by	Depth	Depth	Depth
Allow ponding	Yes	Yes	Yes
Skip steady flow periods	No	No	No
Inertial dampening	Partial	Partial	Partial
Define supercritical flow by	Both	Both	Both
Force Main Equation	H-W	H-W	H-W
Variable time step	On	On	On
Adjustment factor (%)	75	75	75
Conduit lengthening (s)	0	0	0
Minimum surface area (ft²)	0	0	0
Starting date	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM
Ending date	Aug-19-2021 01:00:00 AM	Aug-19-2021 03:00:00 AM	Aug-19-2021 03:00:00 AM
Duration of simulation (hours)	1	3	3
Antecedent dry days (days)	0	0	0
Rain interval (h:mm)	n/a	n/a	n/a
Report time step (h:mm:ss)	00:01:00	00:01:00	00:01:00
Wet time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Dry time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Routing time step (s)	1	1	1
Minimum time step used (s)	0.5	0.5	0.5
Average time step used (s)	1	1	1
Minimum conduit slope	0	0	0
Ignore rainfall/runoff	No	No	No
Ignore snow melt	No	No	No
Ignore groundwater	No	No	No
Ignore flow routing	No	No	No
Ignore water quality	No	No	No
Report average results	No	No	No

Table 1: Outfalls-reduced

Name	X-Coordinate	Y-Coordinate	Max. Total Inflow (cfs)	Total inflow (MG)	Flow Error (%)	Avg. Flow (cfs)	Max. Flow (cfs)	Total Flow (MG)
OF-05	730054.8	980964.5	16.49	0.037	0	8.26	16.49	0.037
OF-10	730211.4	980687	13.42	0.03	0	6.72	13.42	0.03
OF-15	730738.6	980446.7	16.01	0.036	0	8.02	16.01	0.036
OF-25	731280.6	981509.3	30.64	0.069	0	15.35	30.64	0.069
OF-30	731158.2	981519.5	9	0.02	0	4.51	9	0.02
OF-35	730916.5	981520.8	9.43	0.021	0	4.72	9.43	0.021
OF-40	730694.8	981522.1	5.41	0.012	0	2.71	5.41	0.012
OF-45	730508.9	981523.5	6.47	0.014	0	3.24	6.47	0.015
OF-50	730319	981524.8	2.99	0.007	0	1.5	2.99	0.007
OF-55	730137.1	981526.1	3.26	0.007	0	1.63	3.26	0.007
OF-60	730045.5	981255.3	3.51	0.008	0	1.76	3.51	0.008

Table 2A: ARM Subcatchments-reduced

Name	Runoff Method	Outlet	Area (ac)	Flow Length (ft)	TC Method	Time of Concentration (min)	Runoff Coef.	IDF Curve	Return Period (y)
DA-05	Modified Rational	OF-05	4.44	650	User entered value	5	0.6	Scottsdale	10
DA-10	Modified Rational	OF-10	3.614	619	User entered value	5	0.6	Scottsdale	10
DA-15	Modified Rational	OF-15	4.309	400	User entered value	5	0.6	Scottsdale	10
DA-25	Modified Rational	OF-25	8.25	438.484	User entered value	5	0.6	Scottsdale	10
DA-30	Modified Rational	OF-30	2.424	565	User entered value	5	0.6	Scottsdale	10
DA-35	Modified Rational	OF-35	2.538	580	User entered value	5	0.6	Scottsdale	10
DA-40	Modified Rational	OF-40	1.457	450	User entered value	5	0.6	Scottsdale	10
DA-45	Modified Rational	OF-45	1.742	420	User entered value	5	0.6	Scottsdale	10
DA-50	Modified Rational	OF-50	0.804	310	User entered value	5	0.6	Scottsdale	10
DA-55	Modified Rational	OF-55	0.877	290	User entered value	5	0.6	Scottsdale	10
DA-60	Modified Rational	OF-60	0.945	171	User entered value	5	0.6	Scottsdale	10

Table 2B: ARM Subcatchments-reduced

Name	Peak Rainfall (in/hr)	Hydrograph Fattening	Precipitation (in)	Runoff Depth (in)	Runoff Volume (MG)	Peak Runoff (cfs)
DA-05	6.201	No	0.517	0.307	0.037	16.519
DA-10	6.201	No	0.517	0.307	0.03	13.446
DA-15	6.201	No	0.517	0.308	0.036	16.032
DA-25	6.201	No	0.517	0.307	0.069	30.695
DA-30	6.201	No	0.517	0.308	0.02	9.019
DA-35	6.201	No	0.517	0.307	0.021	9.443
DA-40	6.201	No	0.517	0.307	0.012	5.421
DA-45	6.201	No	0.517	0.307	0.015	6.481
DA-50	6.201	No	0.517	0.307	0.007	2.991
DA-55	6.201	No	0.517	0.307	0.007	3.263
DA-60	6.201	No	0.517	0.308	0.008	3.516

PCSWMM Report

Model Calculations

Model SonoranSkyEx -100-year.inp

Kimley-Horn and Associates Inc.

September 1, 2021

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Summary 1: Options

Name	SonoranSkyEx-2-year	SonoranSkyEx - 10-year	SonoranSkyEx -100-year
Flow Units	CFS	CFS	CFS
Infiltration method	Horton	Horton	Horton
Flow routing method	Dynamic Wave	Dynamic Wave	Dynamic Wave
Link offsets defined by	Depth	Depth	Depth
Allow ponding	Yes	Yes	Yes
Skip steady flow periods	No	No	No
Inertial dampening	Partial	Partial	Partial
Define supercritical flow by	Both	Both	Both
Force Main Equation	H-W	H-W	H-W
Variable time step	On	On	On
Adjustment factor (%)	75	75	75
Conduit lengthening (s)	0	0	0
Minimum surface area (ft²)	0	0	0
Starting date	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM
Ending date	Aug-19-2021 01:00:00 AM	Aug-19-2021 03:00:00 AM	Aug-19-2021 03:00:00 AM
Duration of simulation (hours)	1	3	3
Antecedent dry days (days)	0	0	0
Rain interval (h:mm)	n/a	n/a	n/a
Report time step (h:mm:ss)	00:01:00	00:01:00	00:01:00
Wet time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Dry time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Routing time step (s)	1	1	1
Minimum time step used (s)	0.5	0.5	0.5
Average time step used (s)	1	1	1
Minimum conduit slope	0	0	0
Ignore rainfall/runoff	No	No	No
Ignore snow melt	No	No	No
Ignore groundwater	No	No	No
Ignore flow routing	No	No	No
Ignore water quality	No	No	No
Report average results	No	No	No

Table 1: Outfalls-reduced

Name	X-Coordinate	Y-Coordinate	Max. Total Inflow (cfs)	Total inflow (MG)	Flow Error (%)	Avg. Flow (cfs)	Max. Flow (cfs)	Total Flow (MG)
OF-05	730054.8	980964.5	33.43	0.075	0	16.74	33.43	0.075
OF-10	730211.4	980687	27.21	0.061	0	13.63	27.21	0.061
OF-15	730738.6	980446.7	32.44	0.073	0	16.25	32.44	0.073
OF-25	731293.9	981509.3	62.11	0.14	0	31.11	62.11	0.14
OF-30	731158.2	981519.5	18.25	0.041	0	9.14	18.25	0.041
OF-35	730916.5	981520.8	19.11	0.043	0	9.57	19.11	0.043
OF-40	730694.8	981522.1	10.97	0.025	0	5.49	10.97	0.025
OF-45	730508.9	981523.5	13.11	0.03	0	6.57	13.11	0.029
OF-50	730319	981524.8	6.05	0.014	0	3.03	6.05	0.014
OF-55	730137.1	981526.1	6.6	0.015	0	3.31	6.6	0.015
OF-60	730045.5	981255.3	7.11	0.016	0	3.56	7.11	0.016

Table 2A: ARM Subcatchments-reduced

Name	Runoff Method	Outlet	Area (ac)	Flow Length (ft)	TC Method	Time of Concentration (min)	Runoff Coef.	IDF Curve	Return Period (y)
DA-05	Modified Rational	OF-05	4.44	650	User entered value	5	0.8	Scottsdale	100
DA-10	Modified Rational	OF-10	3.614	619	User entered value	5	0.8	Scottsdale	100
DA-15	Modified Rational	OF-15	4.309	400	User entered value	5	0.8	Scottsdale	100
DA-25	Modified Rational	OF-25	8.25	1000	User entered value	5	0.8	Scottsdale	100
DA-30	Modified Rational	OF-30	2.424	565	User entered value	5	0.8	Scottsdale	100
DA-35	Modified Rational	OF-35	2.538	580	User entered value	5	0.8	Scottsdale	100
DA-40	Modified Rational	OF-40	1.457	450	User entered value	5	0.8	Scottsdale	100
DA-45	Modified Rational	OF-45	1.742	420	User entered value	5	0.8	Scottsdale	100
DA-50	Modified Rational	OF-50	0.804	310	User entered value	5	0.8	Scottsdale	100
DA-55	Modified Rational	OF-55	0.877	290	User entered value	5	0.8	Scottsdale	100
DA-60	Modified Rational	OF-60	0.945	171	User entered value	5	0.8	Scottsdale	100

Table 2B: ARM Subcatchments-reduced

Name	Peak Rainfall (in/hr)	Hydrograph Fattening	Precipitation (in)	Runoff Depth (in)	Runoff Volume (MG)	Peak Runoff (cfs)
DA-05	9.426	No	0.786	0.623	0.075	33.482
DA-10	9.426	No	0.786	0.623	0.061	27.253
DA-15	9.426	No	0.786	0.623	0.073	32.494
DA-25	9.426	No	0.786	0.623	0.14	62.213
DA-30	9.426	No	0.786	0.623	0.041	18.279
DA-35	9.426	No	0.786	0.623	0.043	19.139
DA-40	9.426	No	0.786	0.623	0.025	10.987
DA-45	9.426	No	0.786	0.623	0.029	13.136
DA-50	9.426	No	0.786	0.623	0.014	6.063
DA-55	9.426	No	0.786	0.623	0.015	6.613
DA-60	9.426	No	0.786	0.623	0.016	7.126

Appendix B – Proposed Conditions Hydrology

- 2-Year Output
- 10-Year Output
- 100-Year Output

PCSWMM Report

Model Calculations

Model SonoranSkyPR - 2yr.inp

Kimley-Horn and Associates Inc.

September 1, 2021

Table of Contents

Summary 1: Options

Name	SonoranSkyPR - 2yr	SonoranSkyPR - 10yr	SonoranSkyPR - 100yr
Flow Units	CFS	CFS	CFS
Infiltration method	Horton	Horton	Horton
Flow routing method	Dynamic Wave	Dynamic Wave	Dynamic Wave
Link offsets defined by	Depth	Depth	Depth
Allow ponding	Yes	Yes	Yes
Skip steady flow periods	No	No	No
Inertial dampening	Partial	Partial	Partial
Define supercritical flow by	Both	Both	Both
Force Main Equation	H-W	H-W	H-W
Variable time step	On	On	On
Adjustment factor (%)	75	75	75
Conduit lengthening (s)	0	0	0
Minimum surface area (ft²)	0	0	0
Starting date	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM
Ending date	Aug-19-2021 01:00:00 AM	Aug-19-2021 01:00:00 AM	Aug-19-2021 01:00:00 AM
Duration of simulation (hours)	1	1	1
Antecedent dry days (days)	0	0	0
Rain interval (h:mm)	n/a	n/a	n/a
Report time step (h:mm:ss)	00:01:00	00:01:00	00:01:00
Wet time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Dry time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Routing time step (s)	1	1	1
Minimum time step used (s)	0.5	0.5	0.5
Average time step used (s)	1	1	1
Minimum conduit slope	0	0	0
Ignore rainfall/runoff	No	No	No
Ignore snow melt	No	No	No
Ignore groundwater	No	No	No
Ignore flow routing	No	No	No
Ignore water quality	No	No	No
Report average results	No	No	No

Table 1: Outfalls-reduced

Name	X-Coordinate	Y-Coordinate	Max. Total Inflow (cfs)	Total inflow (MG)	Flow Error (%)	Avg. Flow (cfs)	Max. Flow (cfs)	Total Flow (MG)
OF-05	730054.8	980964.5	7.75	0.029	0	1.09	7.75	0.029
OF-10	730163.3	980681.6	4.58	0.01	0	2.29	4.58	0.01
OF-15	730481.9	980429.3	4.52	0.01	0	2.26	4.52	0.01
OF-25	731311.3	981503.9	11.82	0.029	0	1.09	11.82	0.029
OF-30	731158.2	981519.5	0.32	0.006	0	0.24	0.32	0.006
OF-35	730916.5	981520.8	5.13	0.012	0	2.57	5.13	0.012
OF-40	730694.8	981522.1	2.89	0.006	0	1.45	2.89	0.006
OF-45	730508.9	981523.5	1.84	0.004	0	0.92	1.84	0.004
OF-50	730319	981524.8	1.81	0.004	0	0.91	1.81	0.004
OF-55	730137.1	981526.1	2.03	0.005	0	1.02	2.03	0.005
OF-60	730045.5	981255.3	2.18	0.005	0	1.09	2.18	0.005

Table 2A: ARM Subcatchments-reduced

Name	Runoff Method	Outlet	Area (ac)	Flow Length (ft)	TC Method	Time of Concentration (min)	Runoff Coef.	IDF Curve	Return Period (y)
DA-P05A	Modified Rational	OF-05	1.171	671.675	User entered value	5	0.6	Scottsdale	2
DA-P05B	Modified Rational	OF-05	2.074	300.095	User entered value	5	0.598	Scottsdale	2
DA-P05C	Modified Rational	S-05	6.502	584.607	User entered value	5	0.547	Scottsdale	2
DA-P10	Modified Rational	OF-10	1.99	300.095	User entered value	5	0.598	Scottsdale	2
DA-P15A	Modified Rational	OF-15	1.981	671.675	User entered value	5	0.593	Scottsdale	2
DA-P25A	Modified Rational	S-25	2.467	505.357	User entered value	5	0.517	Scottsdale	2
DA-P25B	Modified Rational	OF-25	5.656	1000	User entered value	5	0.541	Scottsdale	2
DA-P25C	Modified Rational	S-30	4.67	671.675	User entered value	5	0.563	Scottsdale	2
DA-P35A	Modified Rational	OF-35	2.594	671.675	User entered value	5	0.514	Scottsdale	2
DA-P40A	Modified Rational	OF-40	1.535	671.675	User entered value	5	0.489	Scottsdale	2
DA-P45	Modified Rational	OF-45	0.8	490.319	User entered value	5	0.598	Scottsdale	2
DA-P50	Modified Rational	OF-50	0.783	490.319	User entered value	5	0.6	Scottsdale	2
DA-P55	Modified Rational	OF-55	0.878	290	User entered value	5	0.6	Scottsdale	2
DA-P60	Modified Rational	OF-60	0.945	171	User entered value	5	0.6	Scottsdale	2

Table 2B: ARM Subcatchments-reduced

Name	Peak Rainfall (in/hr)	Hydrograph Fattening	Precipitation (in)	Runoff Depth (in)	Runoff Volume (MG)	Peak Runoff (cfs)
DA-P05A	3.854	No	0.321	0.191	0.006	2.708
DA-P05B	3.854	No	0.321	0.19	0.011	4.78
DA-P05C	3.854	No	0.321	0.174	0.031	13.708
DA-P10	3.854	No	0.321	0.19	0.01	4.587
DA-P15A	3.854	No	0.321	0.189	0.01	4.528
DA-P25A	3.854	No	0.321	0.165	0.011	4.916
DA-P25B	3.854	No	0.321	0.172	0.026	11.794
DA-P25C	3.854	No	0.321	0.179	0.023	10.134
DA-P35A	3.854	No	0.321	0.164	0.012	5.139
DA-P40A	3.854	No	0.321	0.156	0.006	2.893
DA-P45	3.854	No	0.321	0.19	0.004	1.844
DA-P50	3.854	No	0.321	0.191	0.004	1.811
DA-P55	3.854	No	0.321	0.191	0.005	2.03
DA-P60	3.854	No	0.321	0.191	0.005	2.185

Table 3: Storages-Reduced

Name	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Max. Total Inflow (cfs)	Total inflow (MG)	Min. Freeboard (ft)	Avg. Volume (1000 ft³)	Avg. Percent Full (%)	Max. Volume (1000 ft³)	Max. Percent Full (%)	Max. Outflow (cfs)
S-05	0.47	0.63	0.63	13.69	0.031	4.37	2.93	7	3.936	9	0.63
S-25	0.17	0.21	0.21	4.91	0.011	4.79	1.171	2	1.44	3	0.14
S-30	0.29	0.36	0.36	10.12	0.023	4.64	2.372	4	2.959	5	0.32

PCSWMM Report

Outfall Graphs

Model SonoranSkyPR - 2yr.inp

Kimley-Horn and Associates Inc.

September 1, 2021

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Graphs

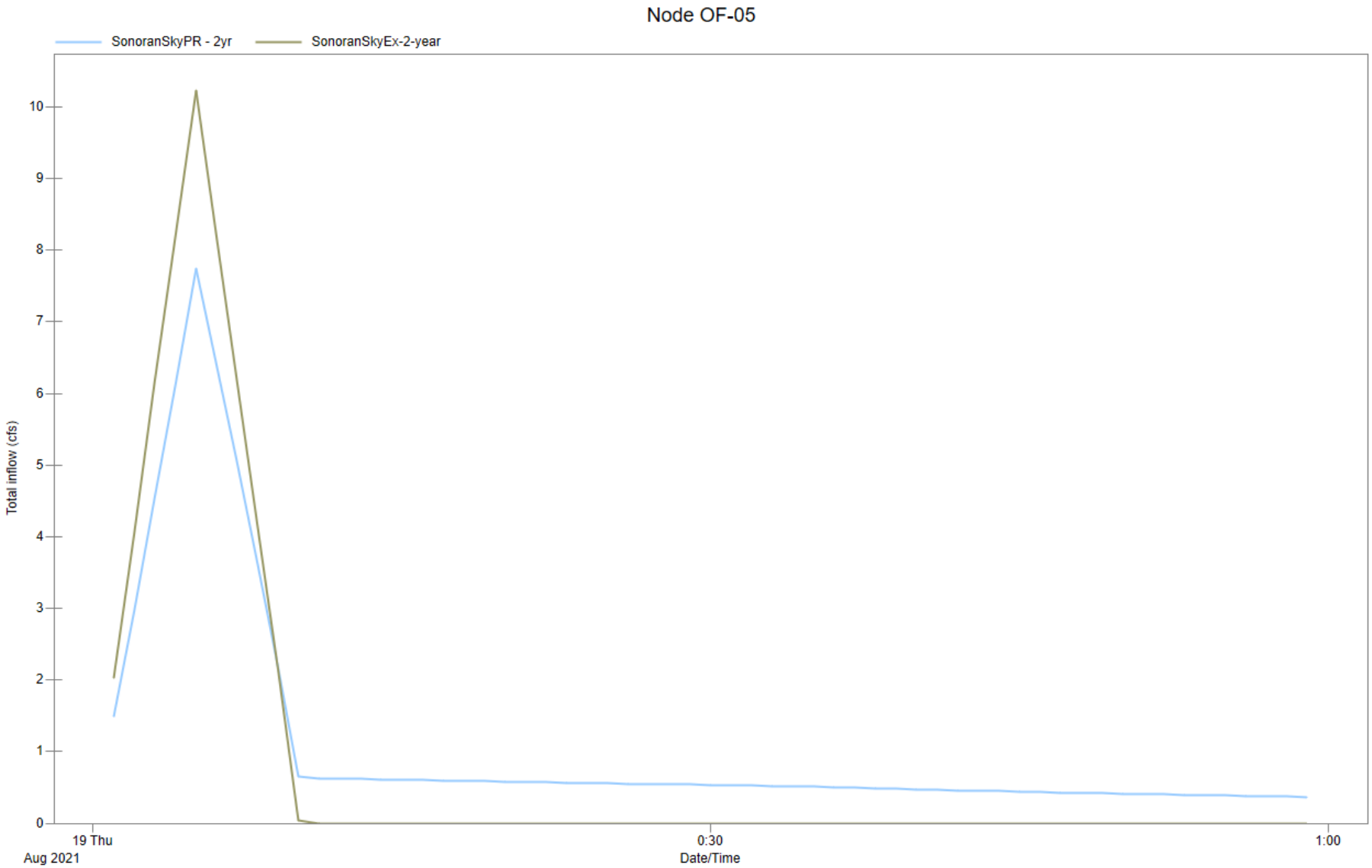


Figure 1: OF-05

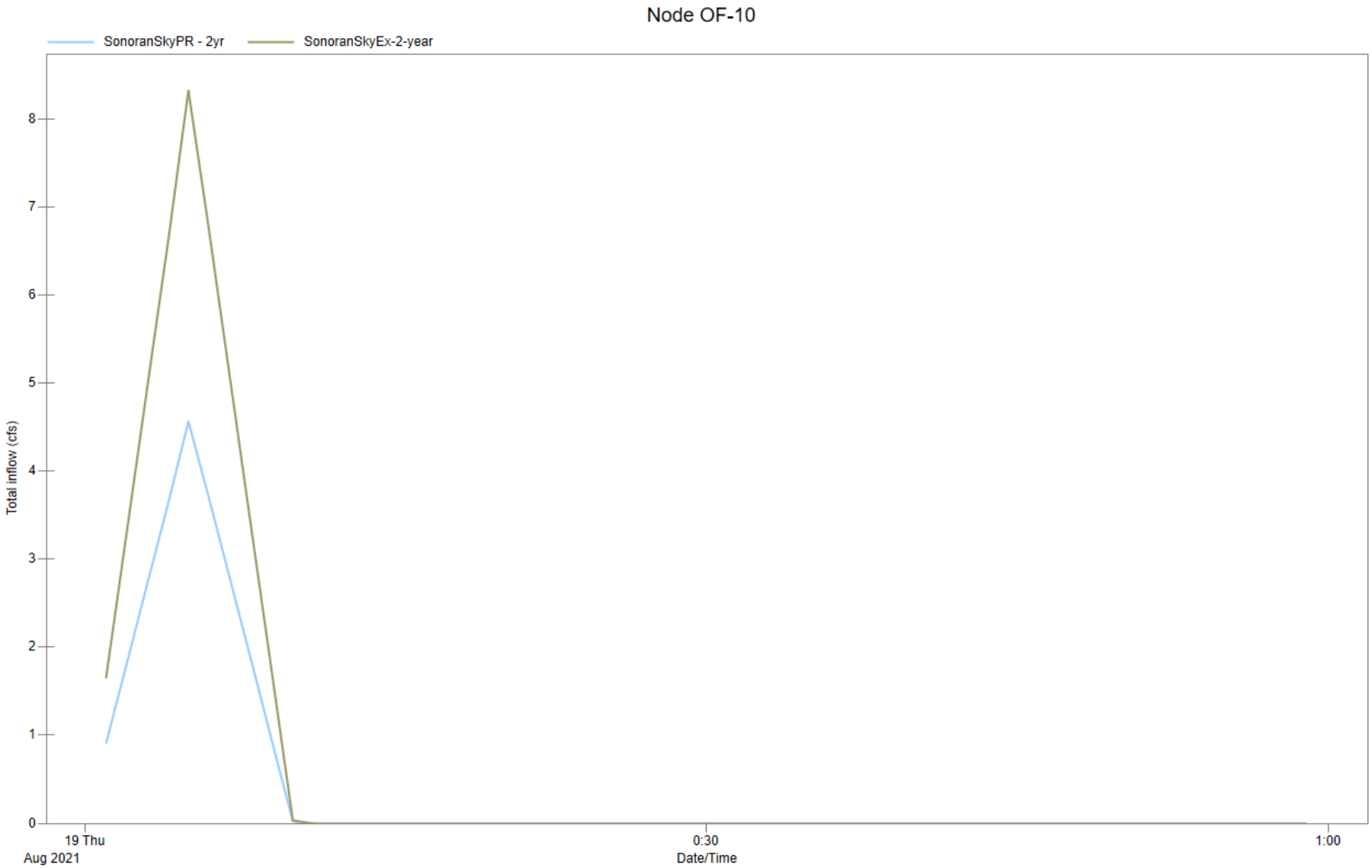


Figure 2: OF-10

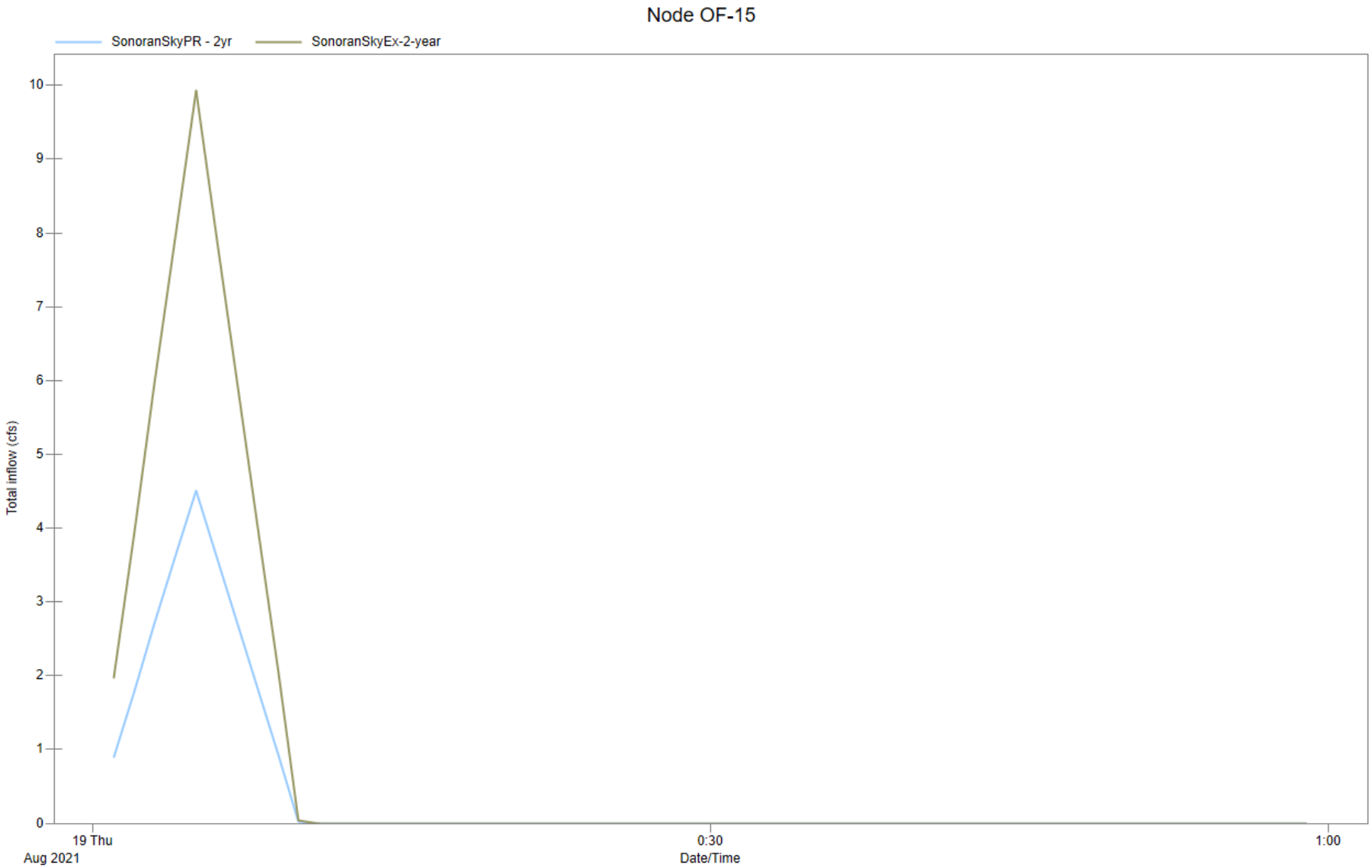


Figure 3: OF-15

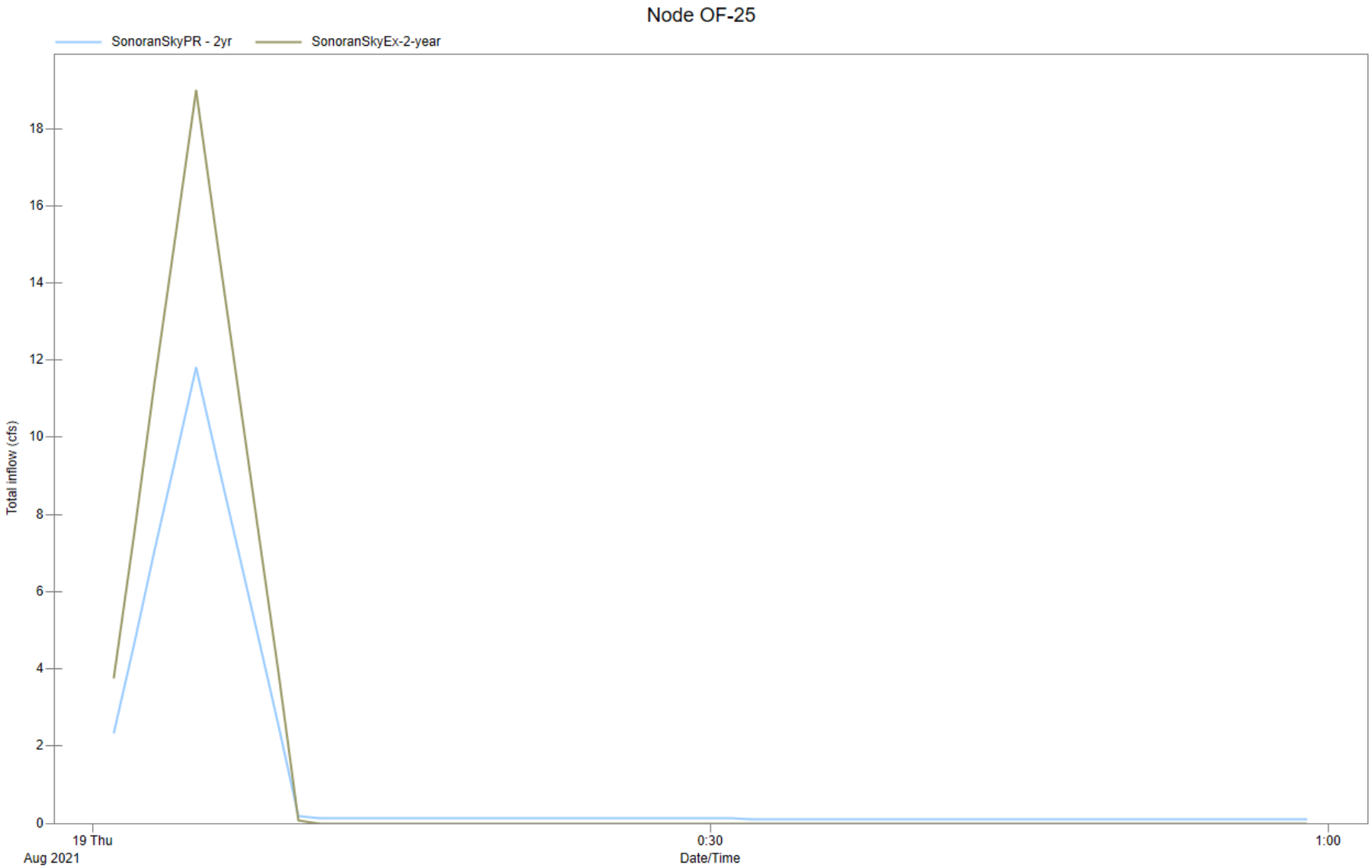


Figure 4: OF-25

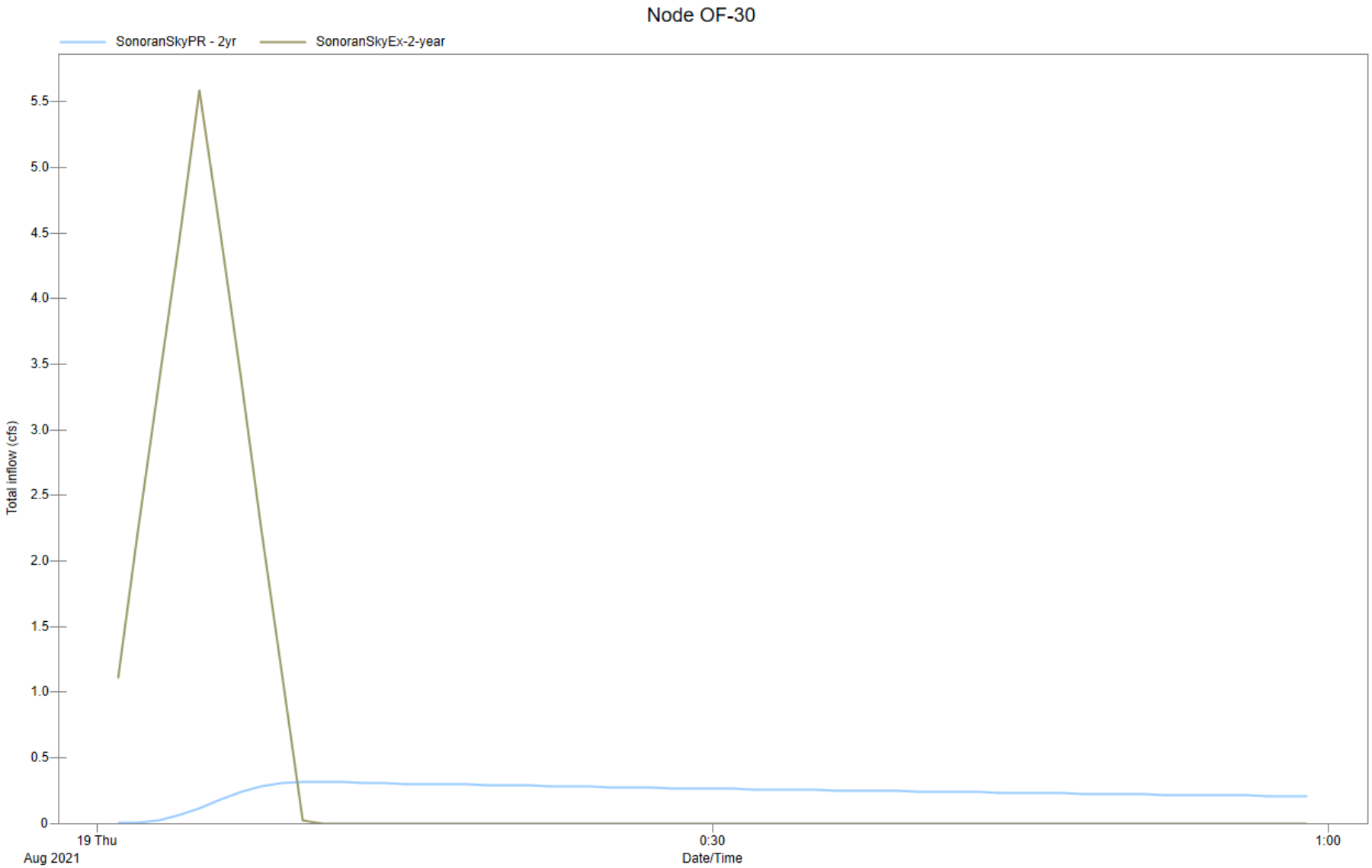


Figure 5: OF-30

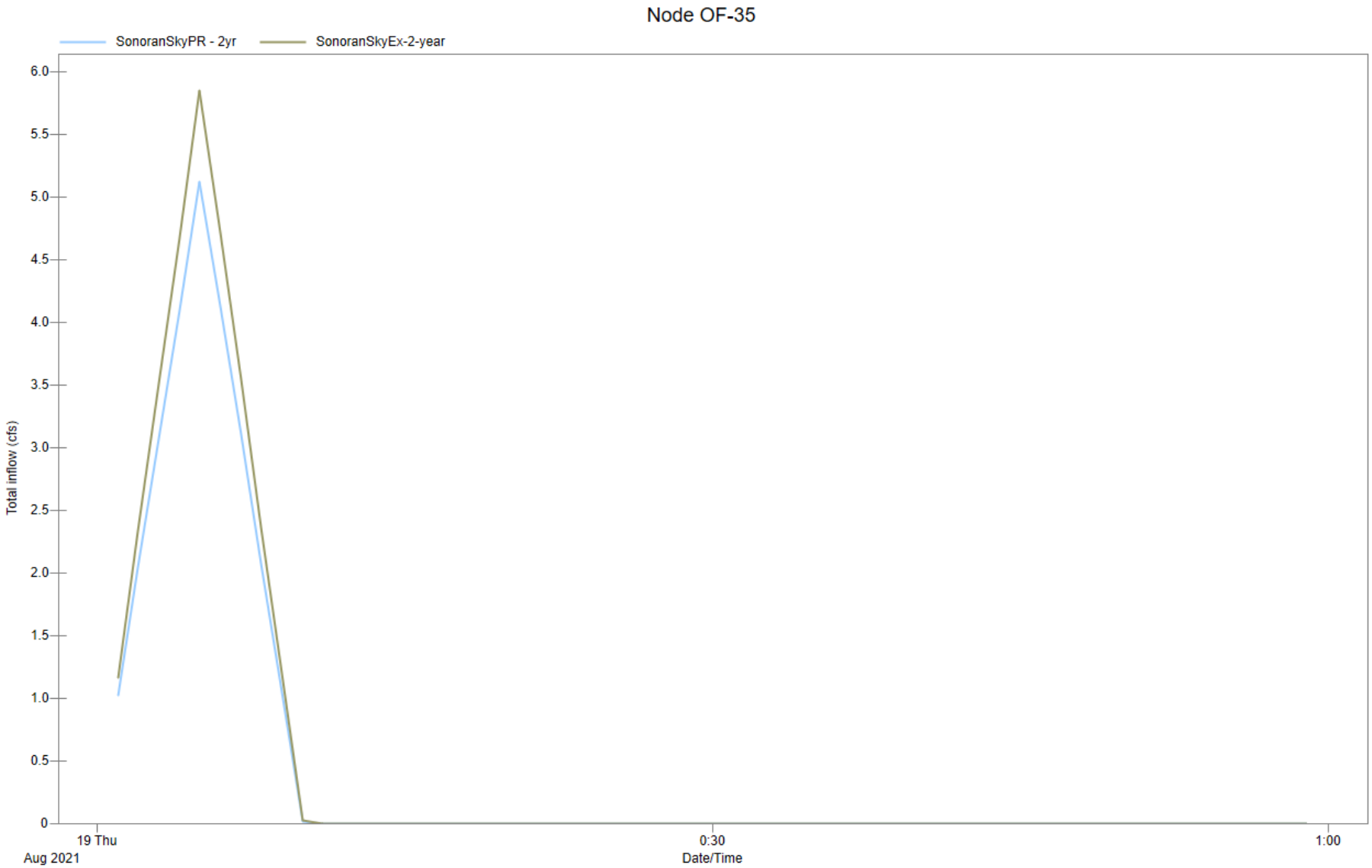


Figure 6: OF-35

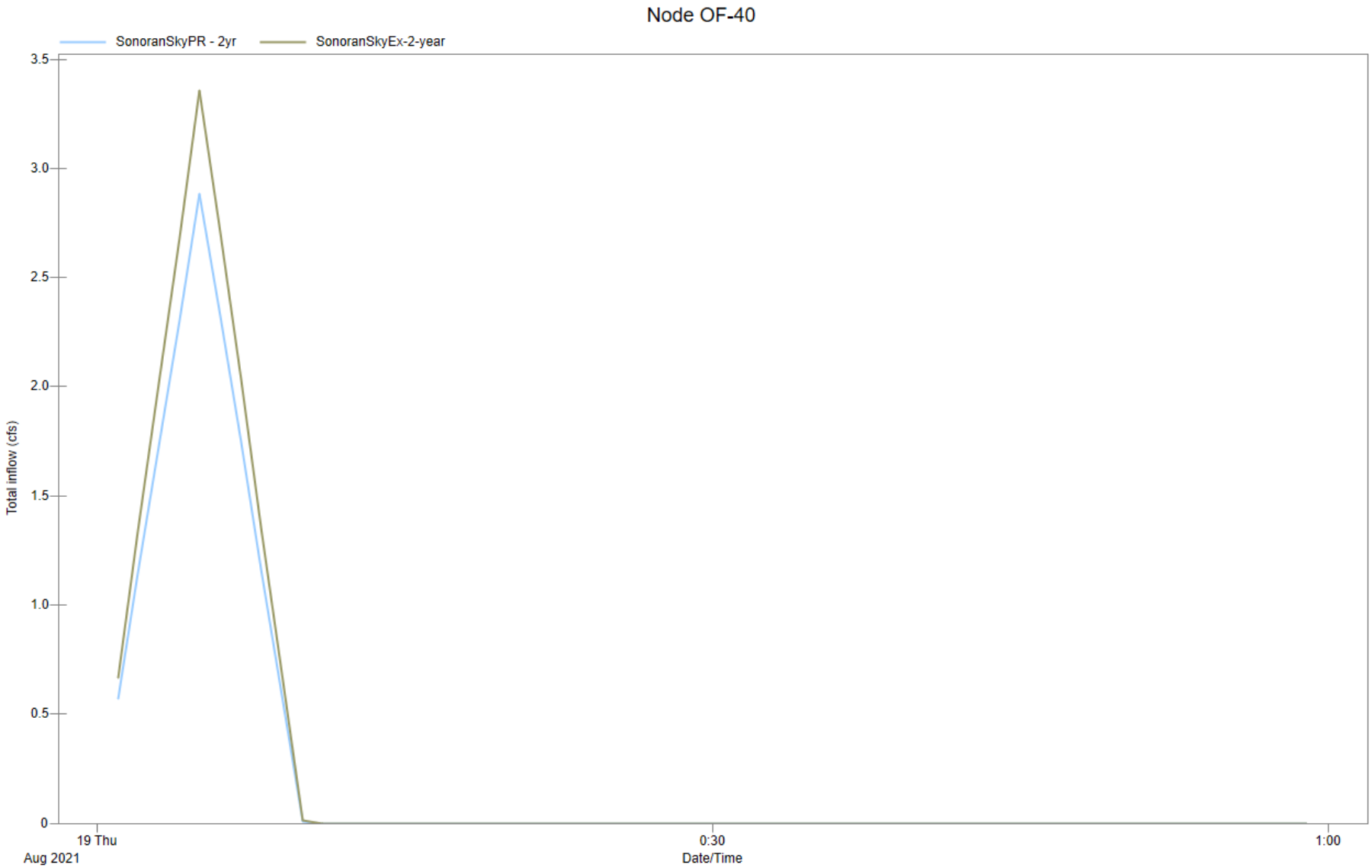


Figure 7: OF-40

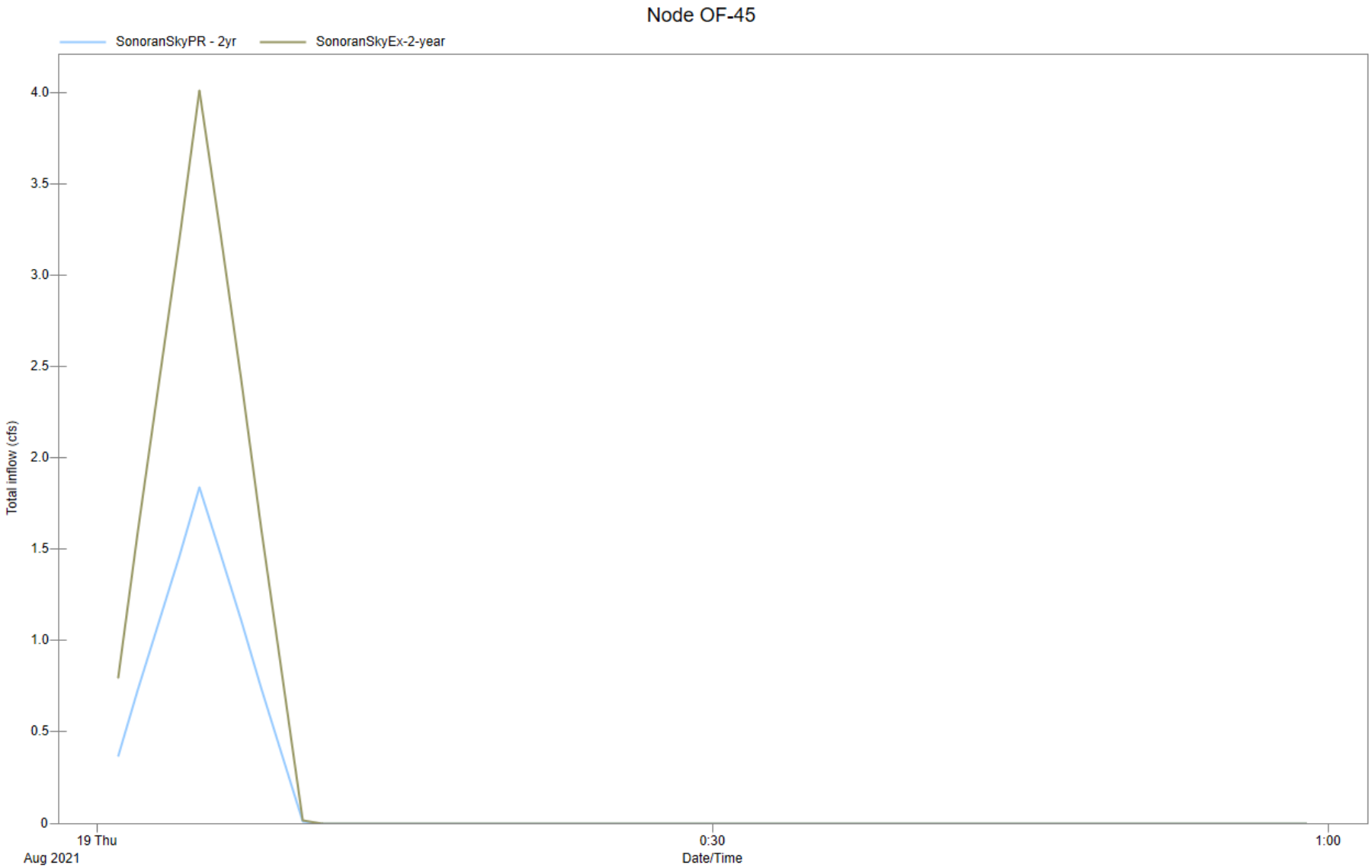


Figure 8: OF-45

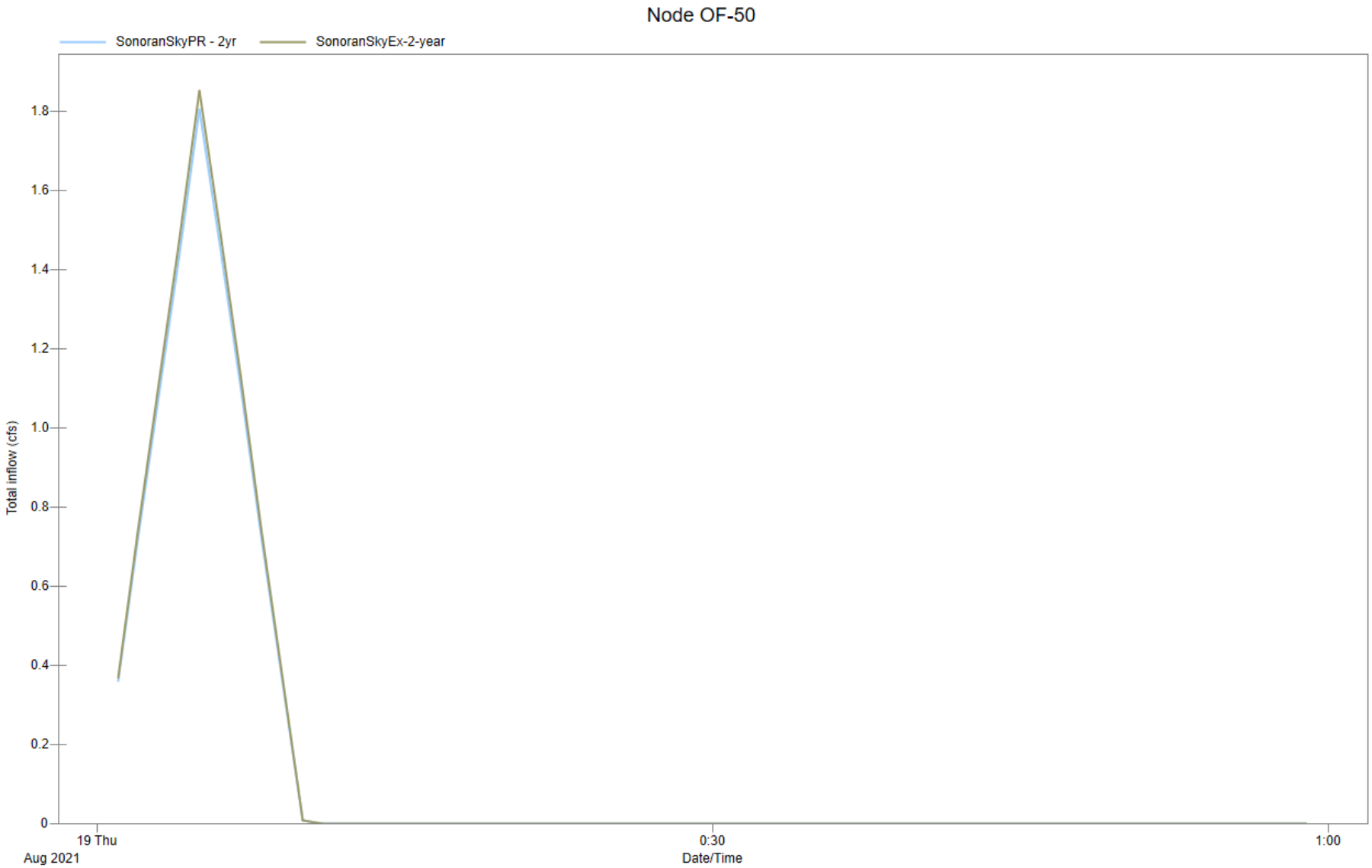
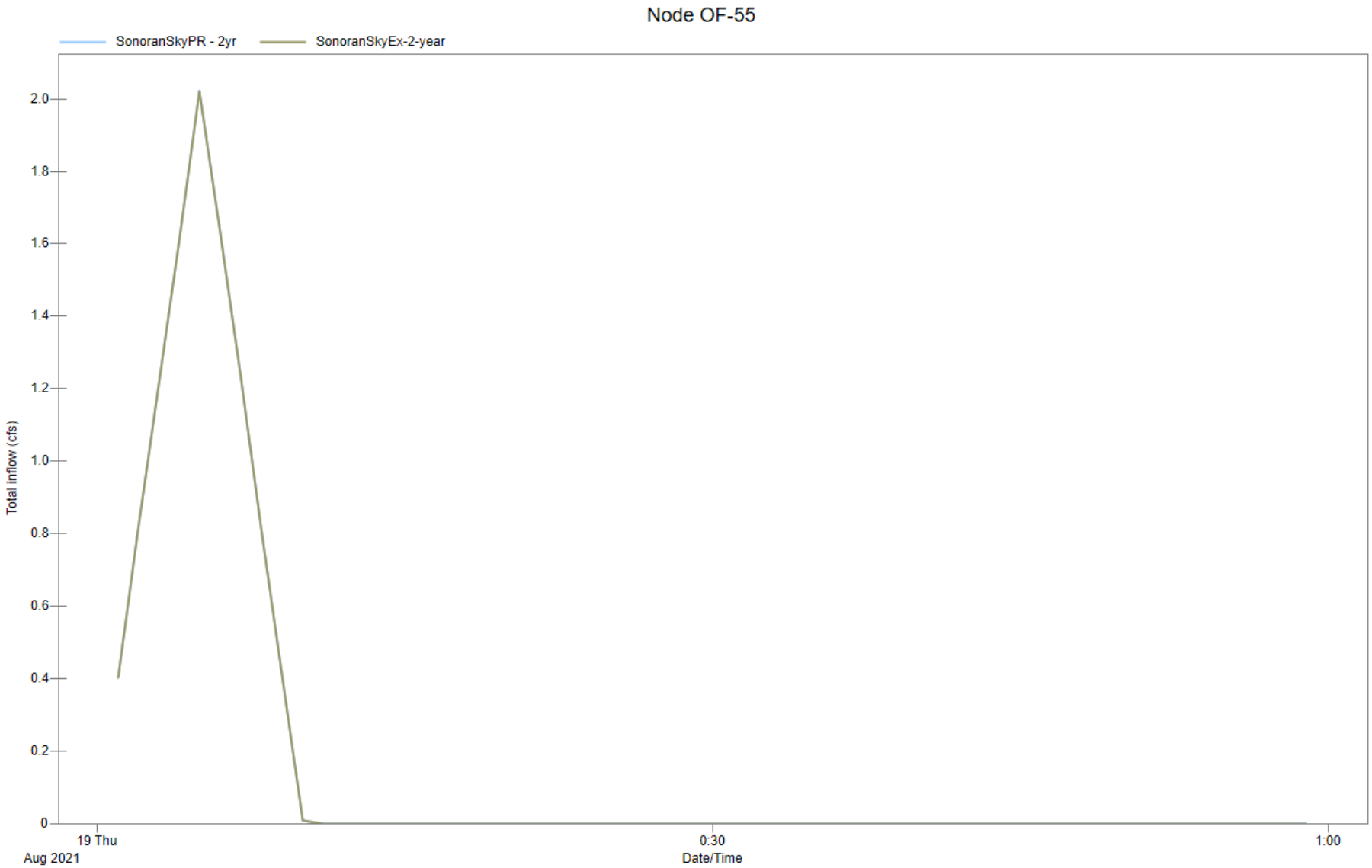


Figure 9: OF-50



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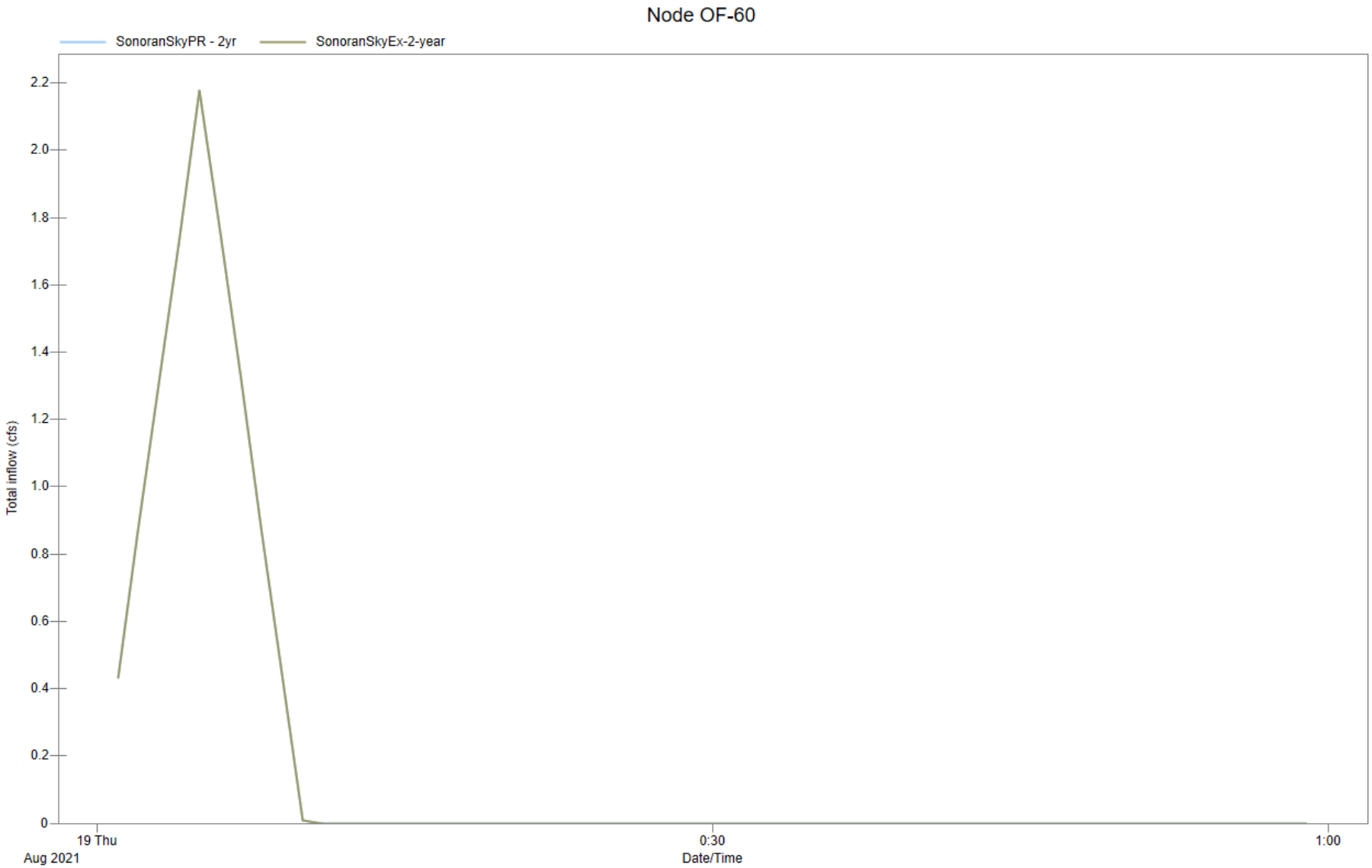

Figure 11: OF-60

PCSWMM Report

Model Calculations

Model SonoranSkyPR - 10yr.inp

Kimley-Horn and Associates Inc.

September 1, 2021

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Summary 1: Options

Name	SonoranSkyPR - 2yr	SonoranSkyPR - 10yr	SonoranSkyPR - 100yr
Flow Units	CFS	CFS	CFS
Infiltration method	Horton	Horton	Horton
Flow routing method	Dynamic Wave	Dynamic Wave	Dynamic Wave
Link offsets defined by	Depth	Depth	Depth
Allow ponding	Yes	Yes	Yes
Skip steady flow periods	No	No	No
Inertial dampening	Partial	Partial	Partial
Define supercritical flow by	Both	Both	Both
Force Main Equation	H-W	H-W	H-W
Variable time step	On	On	On
Adjustment factor (%)	75	75	75
Conduit lengthening (s)	0	0	0
Minimum surface area (ft²)	0	0	0
Starting date	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM
Ending date	Aug-19-2021 01:00:00 AM	Aug-19-2021 01:00:00 AM	Aug-19-2021 01:00:00 AM
Duration of simulation (hours)	1	1	1
Antecedent dry days (days)	0	0	0
Rain interval (h:mm)	n/a	n/a	n/a
Report time step (h:mm:ss)	00:01:00	00:01:00	00:01:00
Wet time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Dry time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Routing time step (s)	1	1	1
Minimum time step used (s)	0.5	0.5	0.5
Average time step used (s)	1	1	1
Minimum conduit slope	0	0	0
Ignore rainfall/runoff	No	No	No
Ignore snow melt	No	No	No
Ignore groundwater	No	No	No
Ignore flow routing	No	No	No
Ignore water quality	No	No	No
Report average results	No	No	No

Table 1: Outfalls-reduced

Name	X-Coordinate	Y-Coordinate	Max. Total Inflow (cfs)	Total inflow (MG)	Flow Error (%)	Avg. Flow (cfs)	Max. Flow (cfs)	Total Flow (MG)
OF-05	730054.8	980964.5	12.55	0.046	0	1.71	12.55	0.046
OF-10	730163.3	980681.6	7.38	0.017	0	3.7	7.38	0.017
OF-15	730481.9	980429.3	7.27	0.016	0	3.64	7.27	0.016
OF-25	731311.3	981503.9	19.04	0.048	0	1.78	19.04	0.048
OF-30	731158.2	981519.5	0.58	0.012	0	0.45	0.58	0.012
OF-35	730916.5	981520.8	8.25	0.019	0	4.13	8.25	0.019
OF-40	730694.8	981522.1	4.65	0.01	0	2.33	4.65	0.01
OF-45	730508.9	981523.5	2.96	0.007	0	1.48	2.96	0.007
OF-50	730319	981524.8	2.91	0.007	0	1.46	2.91	0.007
OF-55	730137.1	981526.1	3.26	0.007	0	1.63	3.26	0.007
OF-60	730045.5	981255.3	3.51	0.008	0	1.76	3.51	0.008

Table 2A: ARM Subcatchments-reduced

Name	Runoff Method	Outlet	Area (ac)	Flow Length (ft)	TC Method	Time of Concentration (min)	Runoff Coef.	IDF Curve	Return Period (y)
DA-P05A	Modified Rational	OF-05	1.171	671.675	User entered value	5	0.6	Scottsdale	10
DA-P05B	Modified Rational	OF-05	2.07	300.095	User entered value	5	0.598	Scottsdale	10
DA-P05C	Modified Rational	S-05	6.502	584.607	User entered value	5	0.547	Scottsdale	10
DA-P10	Modified Rational	OF-10	1.994	300.095	User entered value	5	0.598	Scottsdale	10
DA-P15A	Modified Rational	OF-15	1.981	671.675	User entered value	5	0.593	Scottsdale	10
DA-P25A	Modified Rational	S-25	2.467	505.357	User entered value	5	0.517	Scottsdale	10
DA-P25B	Modified Rational	OF-25	5.656	300	User entered value	5	0.541	Scottsdale	10
DA-P30	Modified Rational	S-30	4.67	671.675	User entered value	5	0.563	Scottsdale	10
DA-P35A	Modified Rational	OF-35	2.594	671.675	User entered value	5	0.514	Scottsdale	10
DA-P40A	Modified Rational	OF-40	1.535	671.675	User entered value	5	0.489	Scottsdale	10
DA-P45	Modified Rational	OF-45	0.8	490.319	User entered value	5	0.598	Scottsdale	10
DA-P50	Modified Rational	OF-50	0.783	490.319	User entered value	5	0.6	Scottsdale	10
DA-P55	Modified Rational	OF-55	0.878	290	User entered value	5	0.6	Scottsdale	10
DA-P60	Modified Rational	OF-60	0.945	171	User entered value	5	0.6	Scottsdale	10

Table 2B: ARM Subcatchments-reduced

Name	Peak Rainfall (in/hr)	Hydrograph Fattening	Precipitation (in)	Runoff Depth (in)	Runoff Volume (MG)	Peak Runoff (cfs)
DA-P05A	6.201	No	0.517	0.307	0.01	4.357
DA-P05B	6.201	No	0.517	0.306	0.017	7.676
DA-P05C	6.201	No	0.517	0.28	0.049	22.054
DA-P10	6.201	No	0.517	0.306	0.017	7.394
DA-P15A	6.201	No	0.517	0.304	0.016	7.284
DA-P25A	6.201	No	0.517	0.265	0.018	7.909
DA-P25B	6.201	No	0.517	0.277	0.043	18.974
DA-P30	6.201	No	0.517	0.289	0.037	16.304
DA-P35A	6.201	No	0.517	0.263	0.019	8.268
DA-P40A	6.201	No	0.517	0.251	0.01	4.655
DA-P45	6.201	No	0.517	0.306	0.007	2.967
DA-P50	6.201	No	0.517	0.307	0.007	2.913
DA-P55	6.201	No	0.517	0.307	0.007	3.267
DA-P60	6.201	No	0.517	0.308	0.008	3.516

Table 3: Storages-Reduced

Name	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Max. Total Inflow (cfs)	Total inflow (MG)	Min. Freeboard (ft)	Avg. Volume (1000 ft³)	Avg. Percent Full (%)	Max. Volume (1000 ft³)	Max. Percent Full (%)	Max. Outflow (cfs)
S-05	0.75	0.97	0.97	22.02	0.05	4.03	4.826	11	6.347	14	0.87
S-25	0.26	0.33	0.33	7.9	0.018	4.67	1.82	4	2.302	5	0.27
S-30	0.45	0.57	0.57	16.28	0.037	4.43	3.699	7	4.733	9	0.58

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Outfall Graphs

Model SonoranSkyPR - 10yr.inp

Kimley-Horn and Associates Inc.

September 1, 2021

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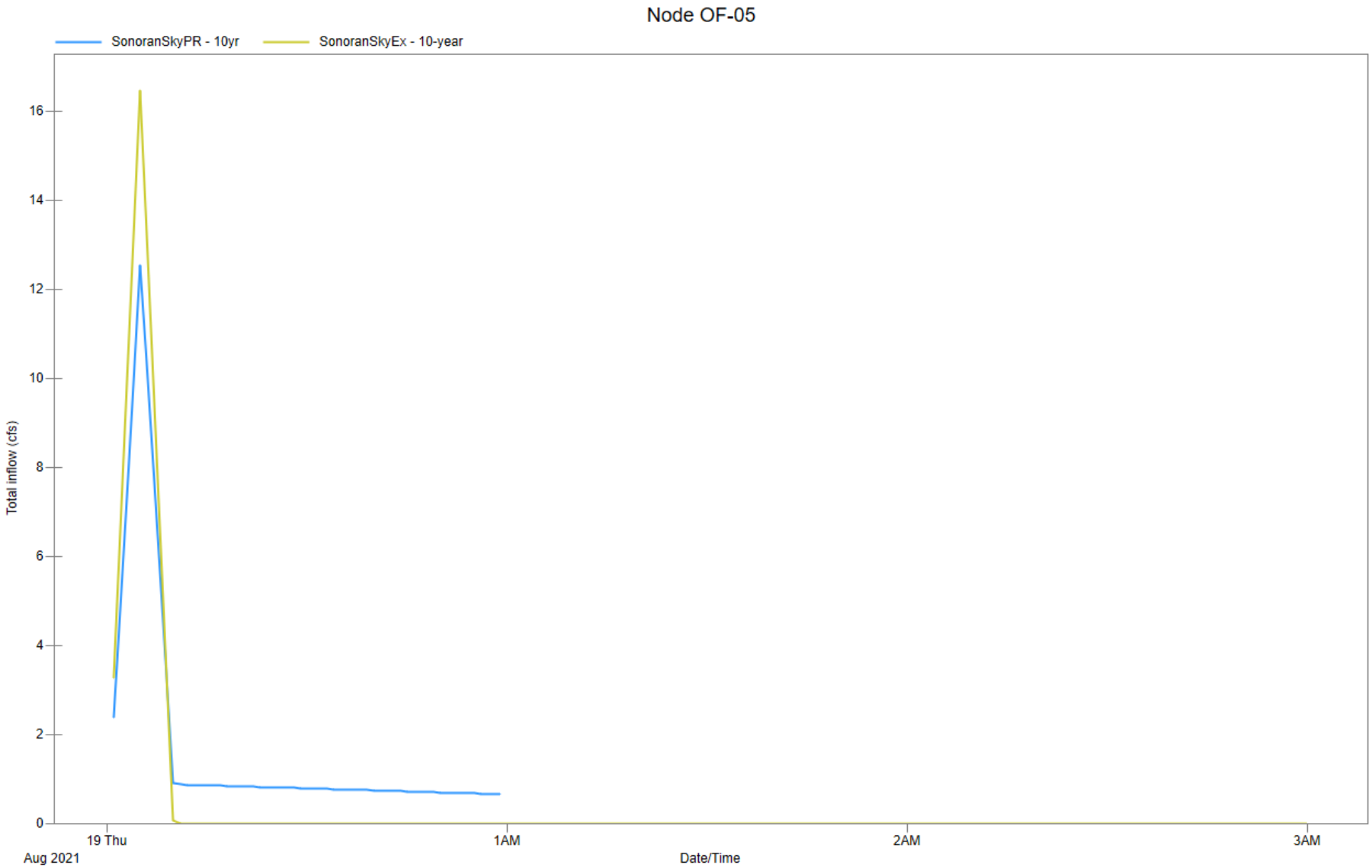

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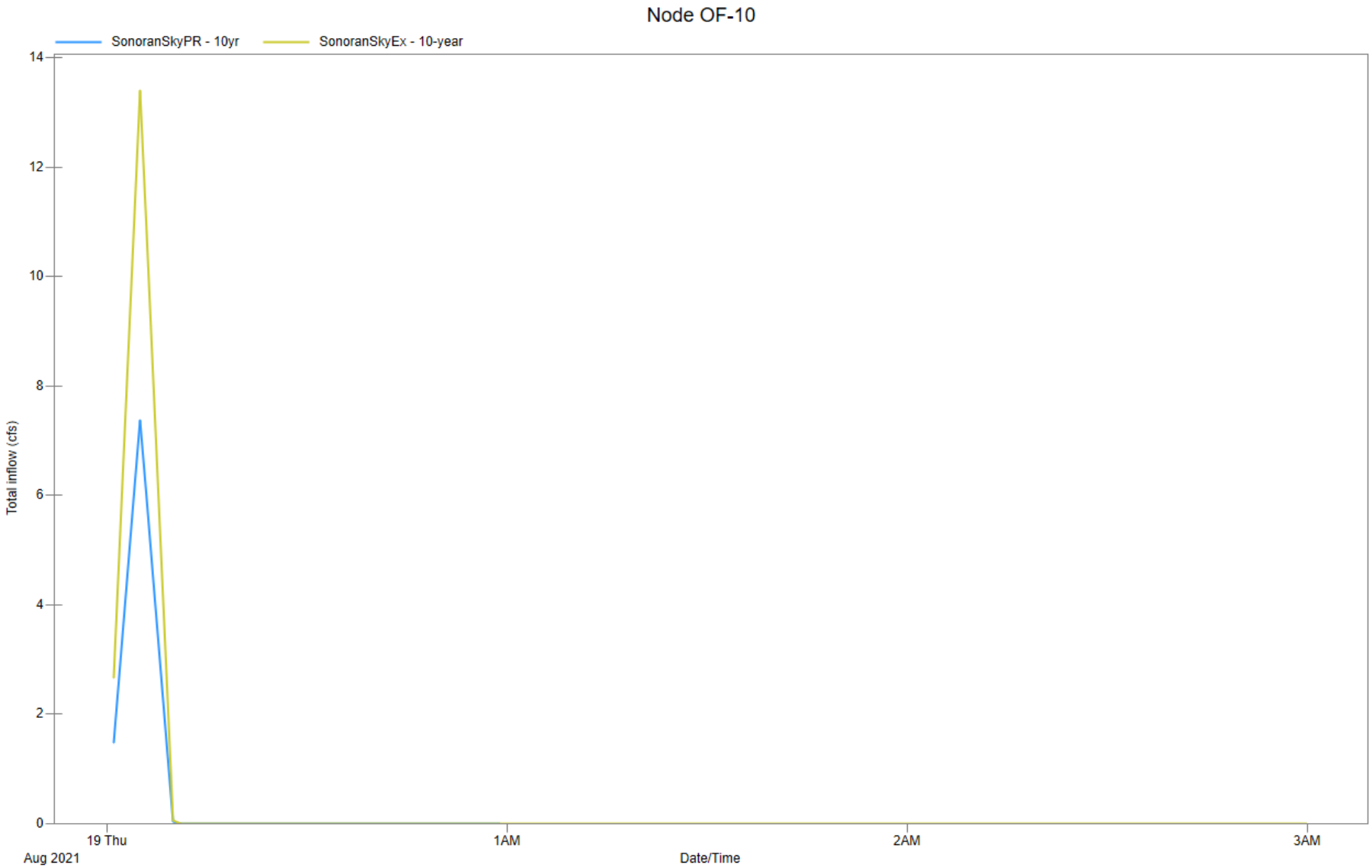

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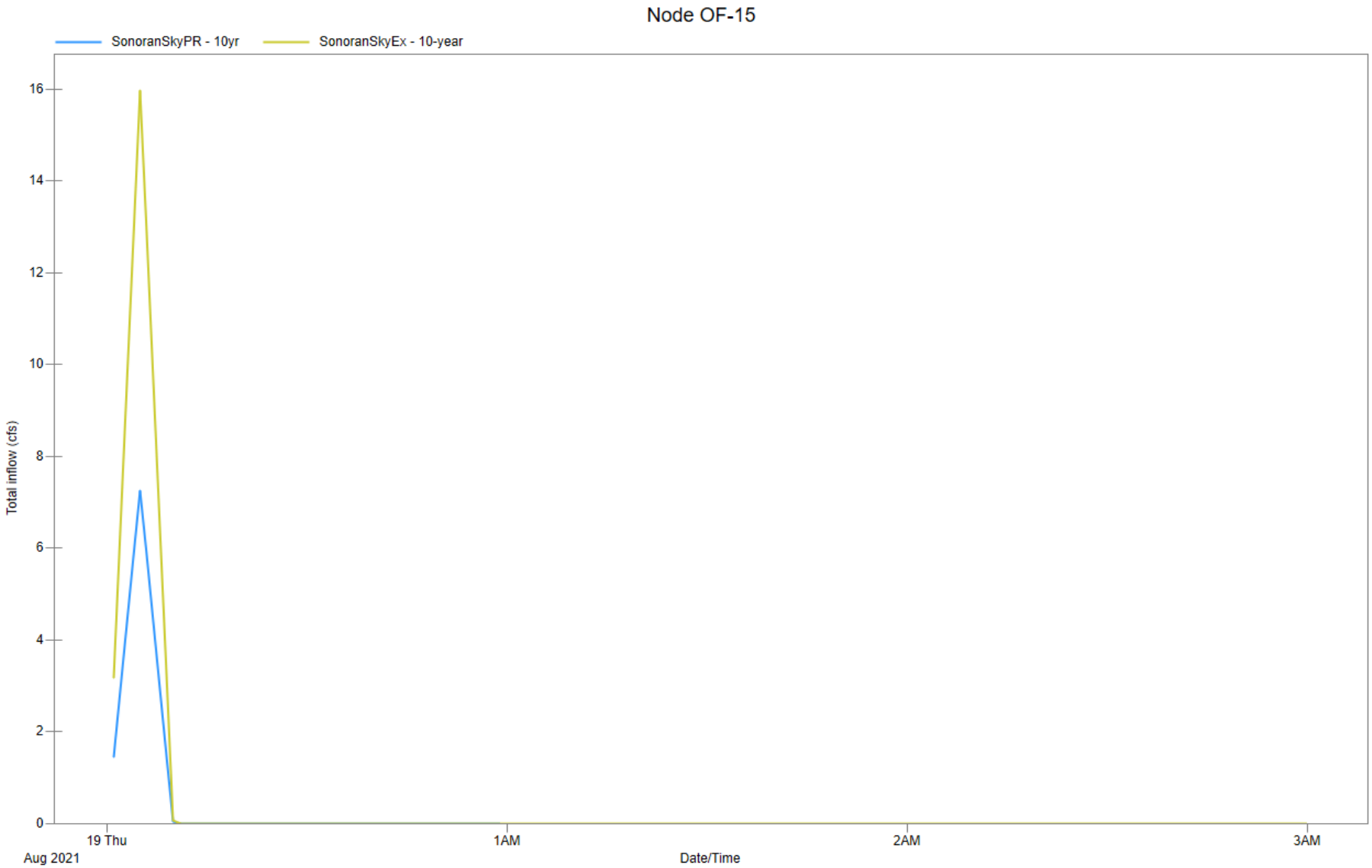

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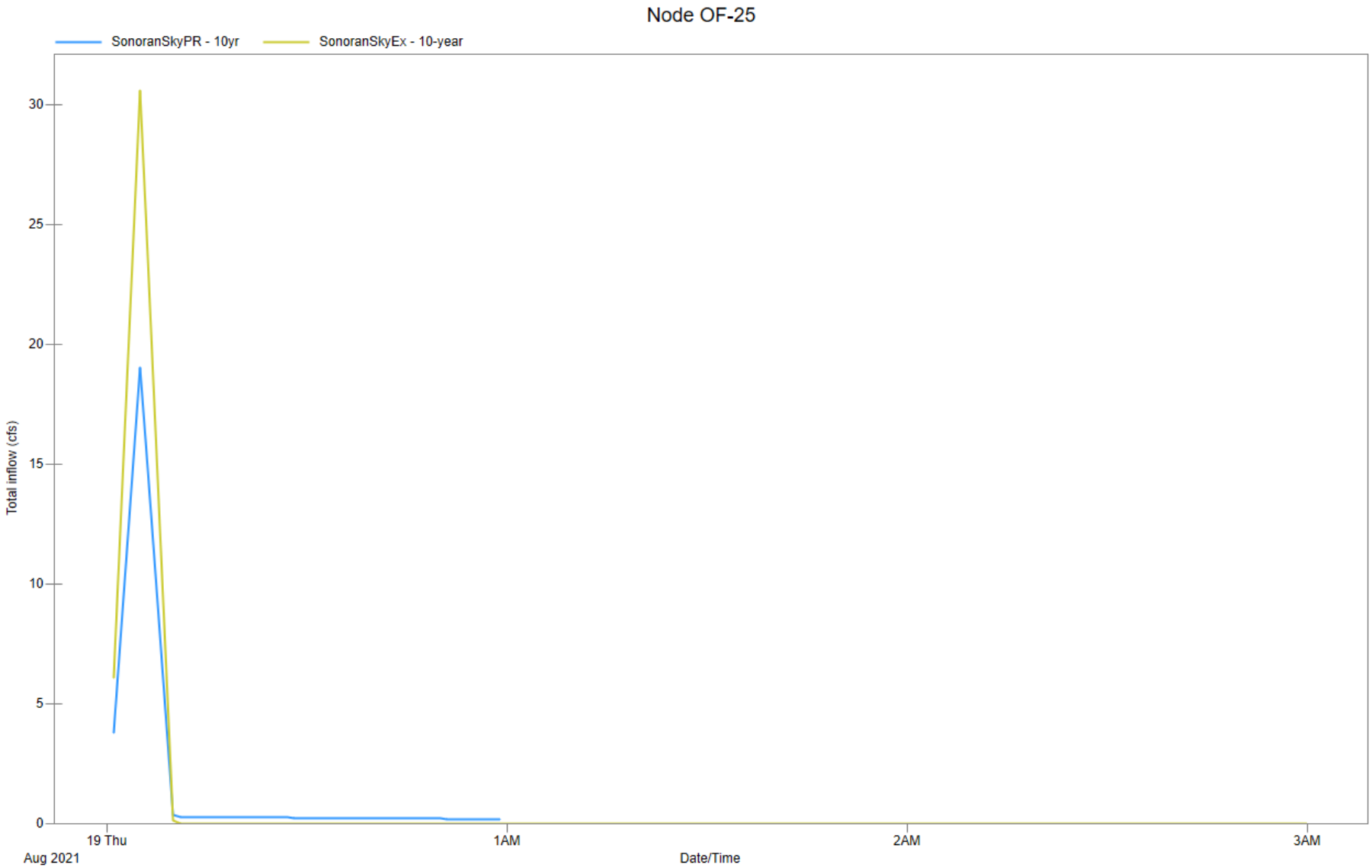


Figure 4: OF-25

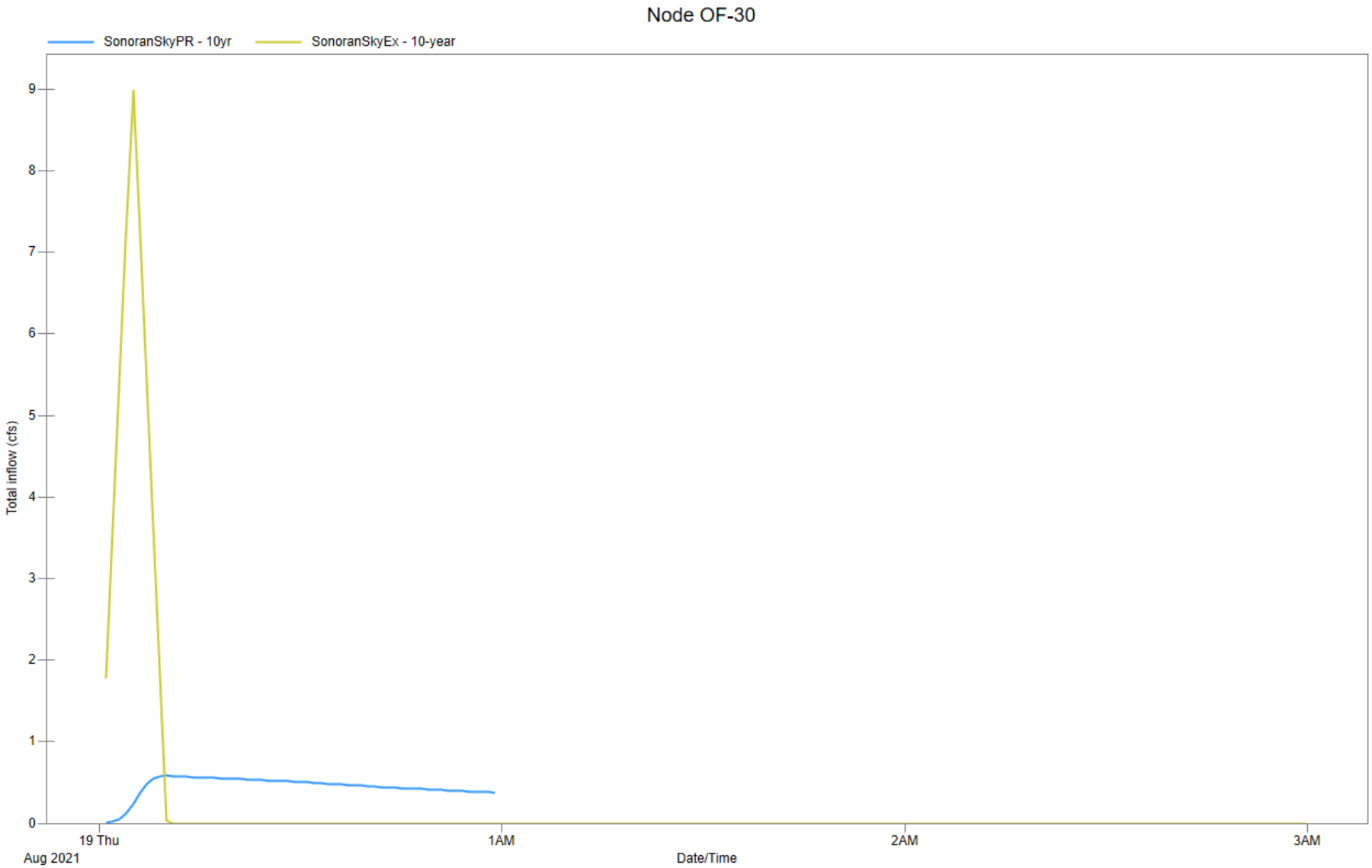


Figure 5: OF-30

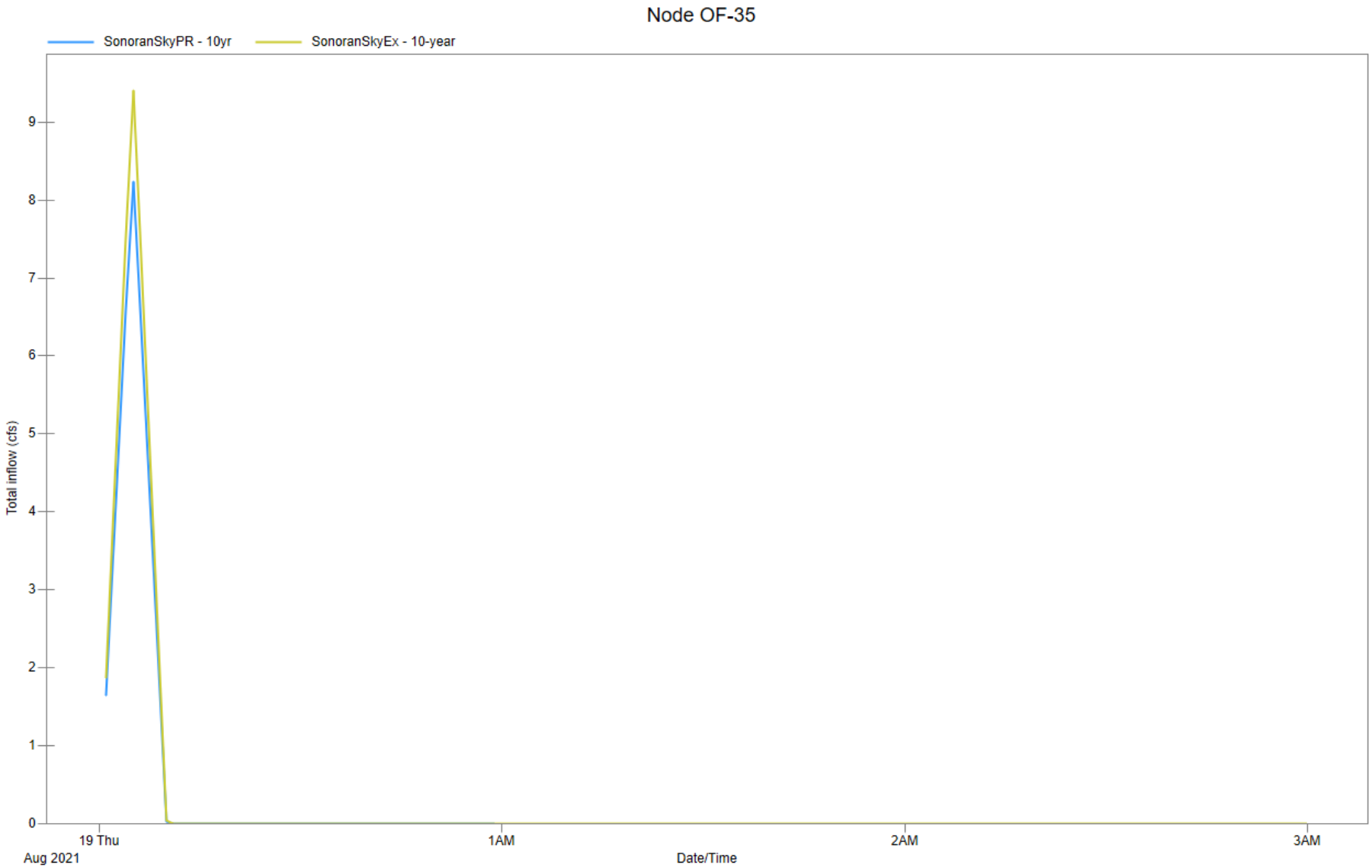
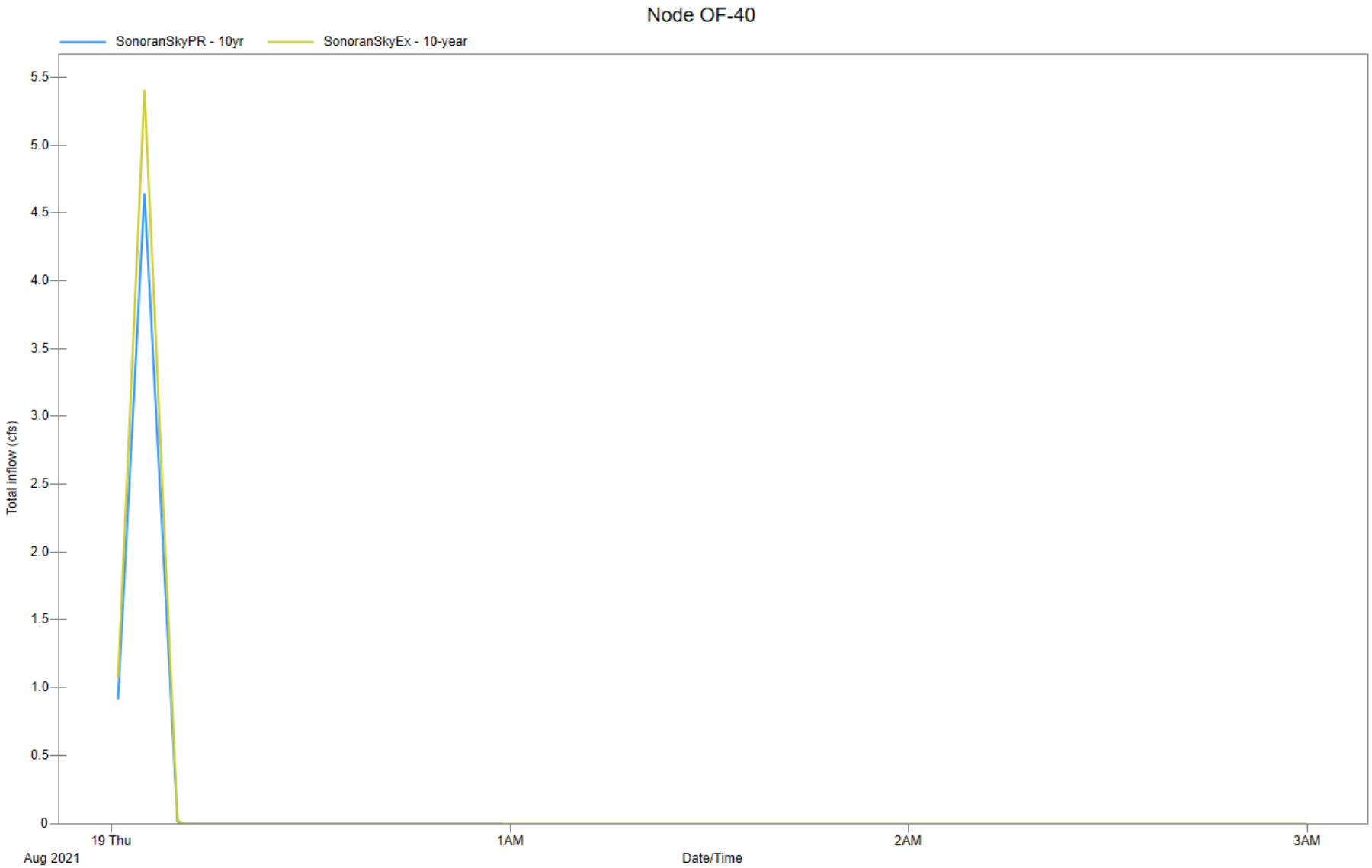


Figure 6: OF-35



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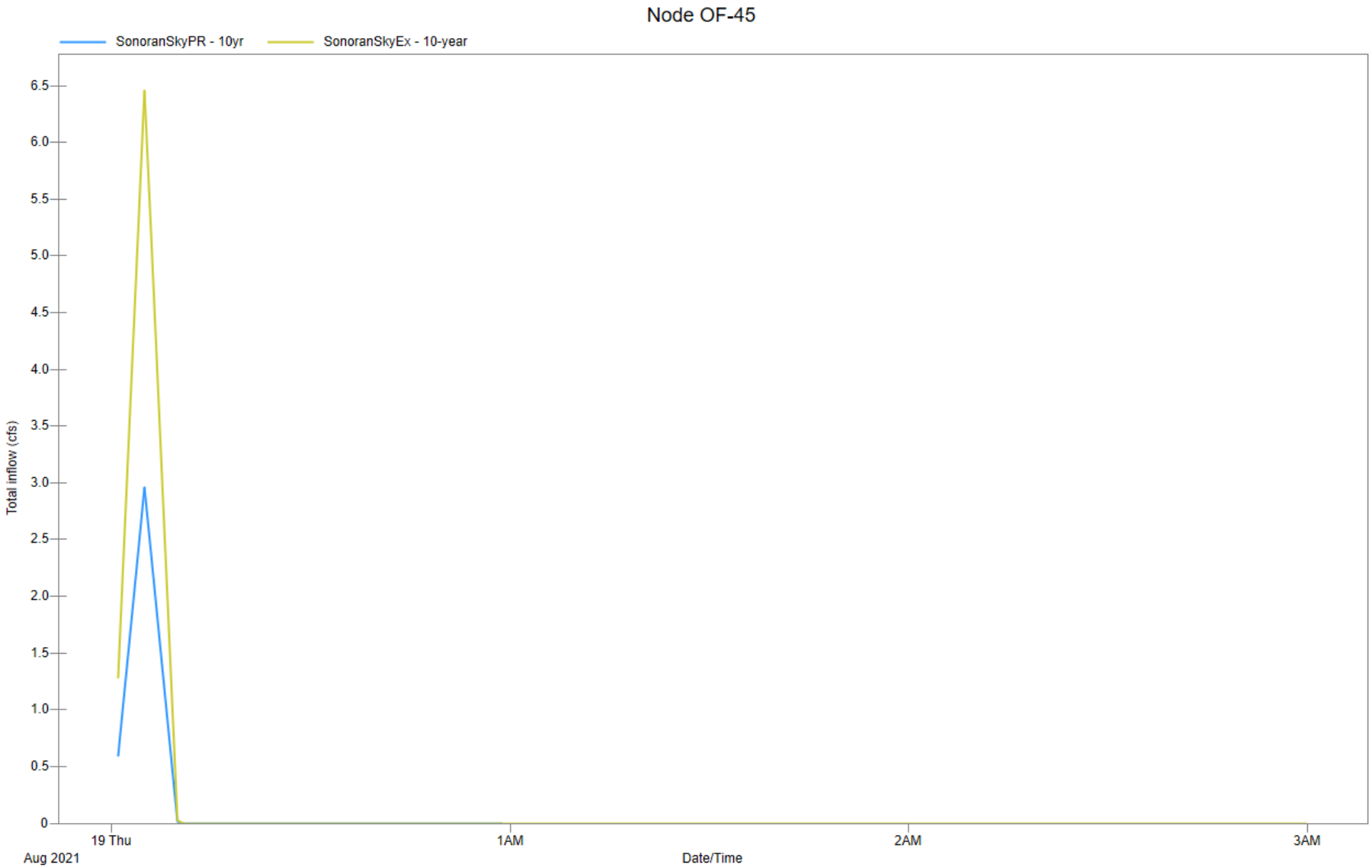

Figure 8: OF-45

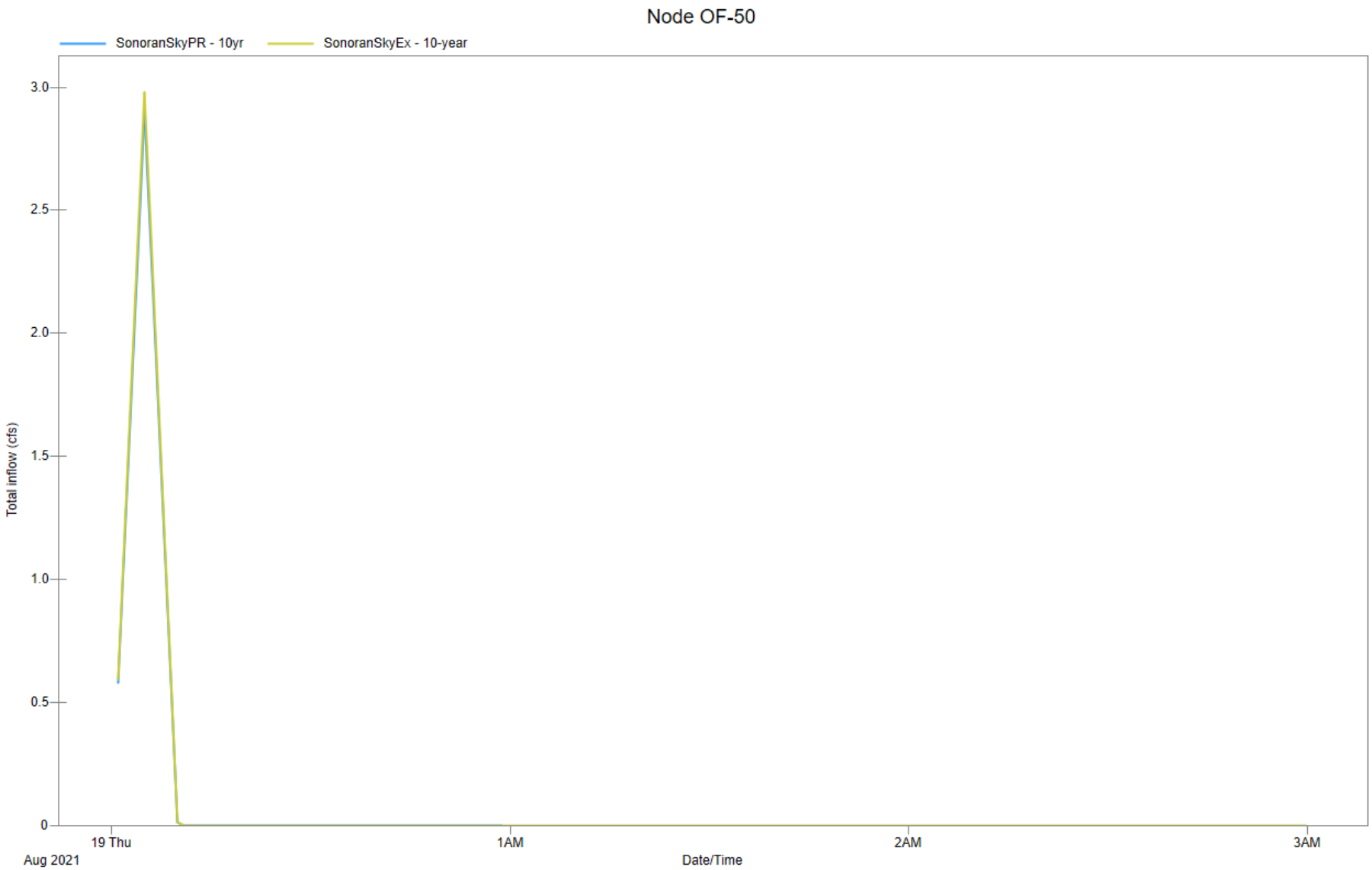

Figure 9: OF-50

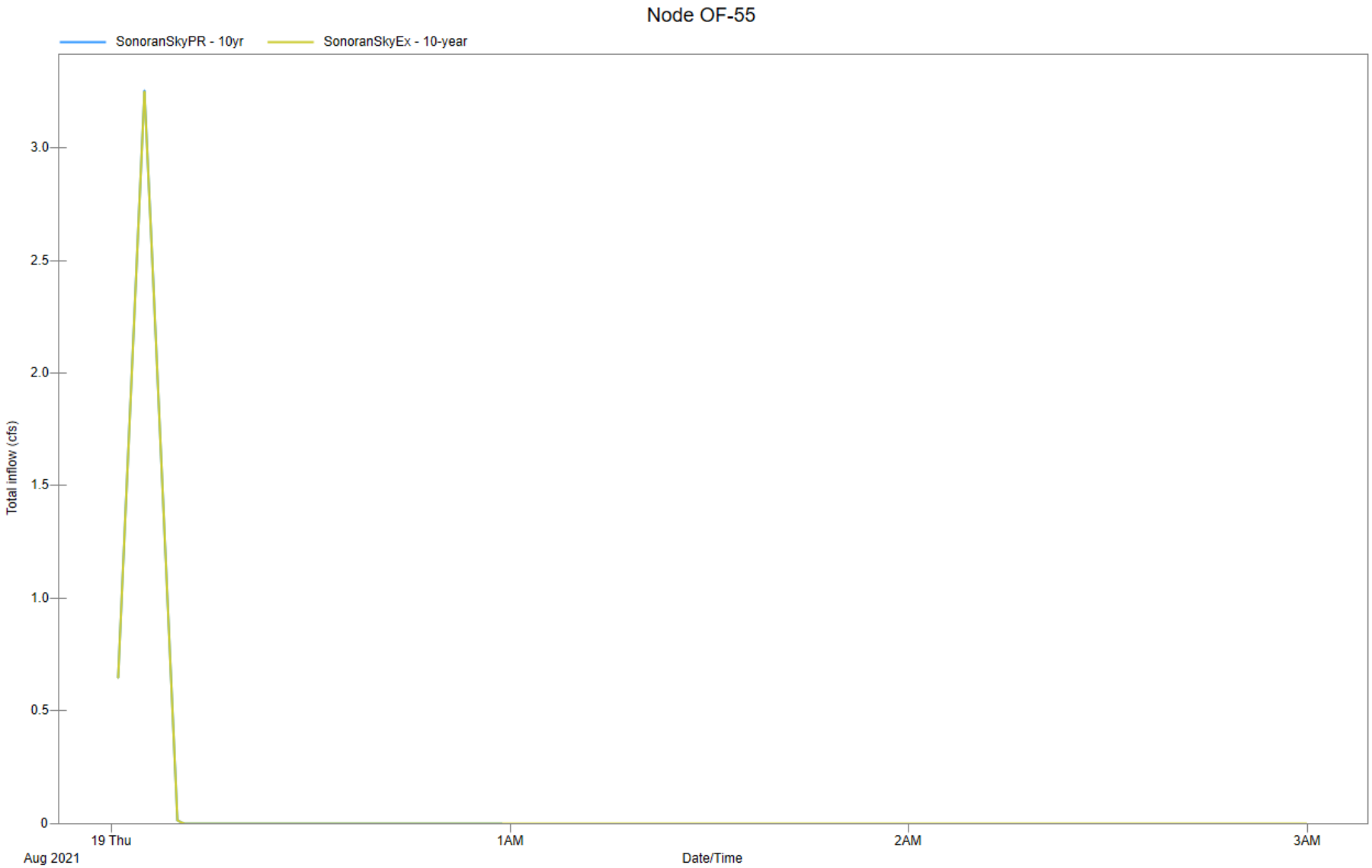

Figure 10: OF-55

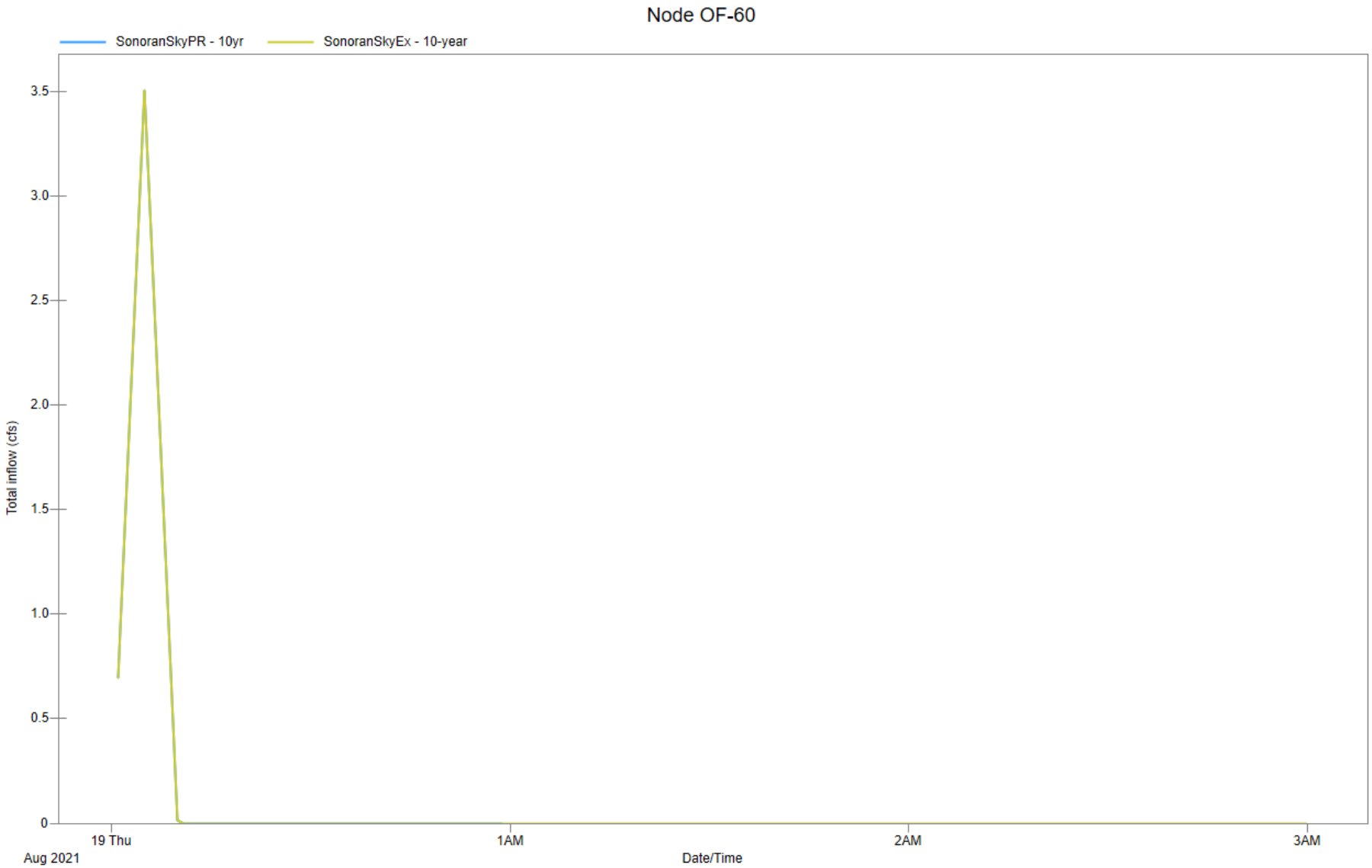

Figure 11: OF-60

PCSWMM Report

Model Calculations

Model SonoranSkyPR - 100yr.inp

Kimley-Horn and Associates Inc.

September 1, 2021

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Summary 1: Options

Name	SonoranSkyPR - 2yr	SonoranSkyPR - 10yr	SonoranSkyPR - 100yr
Flow Units	CFS	CFS	CFS
Infiltration method	Horton	Horton	Horton
Flow routing method	Dynamic Wave	Dynamic Wave	Dynamic Wave
Link offsets defined by	Depth	Depth	Depth
Allow ponding	Yes	Yes	Yes
Skip steady flow periods	No	No	No
Inertial dampening	Partial	Partial	Partial
Define supercritical flow by	Both	Both	Both
Force Main Equation	H-W	H-W	H-W
Variable time step	On	On	On
Adjustment factor (%)	75	75	75
Conduit lengthening (s)	0	0	0
Minimum surface area (ft²)	0	0	0
Starting date	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM	Aug-19-2021 12:00:00 AM
Ending date	Aug-19-2021 01:00:00 AM	Aug-19-2021 01:00:00 AM	Aug-19-2021 01:00:00 AM
Duration of simulation (hours)	1	1	1
Antecedent dry days (days)	0	0	0
Rain interval (h:mm)	n/a	n/a	n/a
Report time step (h:mm:ss)	00:01:00	00:01:00	00:01:00
Wet time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Dry time step (h:mm:ss)	00:05:00	00:05:00	00:05:00
Routing time step (s)	1	1	1
Minimum time step used (s)	0.5	0.5	0.5
Average time step used (s)	1	1	1
Minimum conduit slope	0	0	0
Ignore rainfall/runoff	No	No	No
Ignore snow melt	No	No	No
Ignore groundwater	No	No	No
Ignore flow routing	No	No	No
Ignore water quality	No	No	No
Report average results	No	No	No

Table 1: Outfalls-reduced

Name	X-Coordinate	Y-Coordinate	Max. Total Inflow (cfs)	Total inflow (MG)	Flow Error (%)	Avg. Flow (cfs)	Max. Flow (cfs)	Total Flow (MG)
OF-05	730054.8	980964.5	25.26	0.085	0	3.16	25.26	0.085
OF-10	730163.3	980681.6	14.97	0.034	0	7.5	14.97	0.034
OF-15	730481.9	980429.3	14.8	0.033	0	7.41	14.8	0.033
OF-25	731311.3	981503.9	40.23	0.104	0	3.86	40.23	0.104
OF-30	731158.2	981519.5	0.95	0.022	0	0.82	0.95	0.022
OF-35	730916.5	981520.8	17.77	0.04	0	8.9	17.77	0.04
OF-40	730694.8	981522.1	10.2	0.023	0	5.11	10.2	0.023
OF-45	730508.9	981523.5	6.01	0.014	0	3.01	6.01	0.014
OF-50	730319	981524.8	5.89	0.013	0	2.95	5.89	0.013
OF-55	730137.1	981526.1	6.61	0.015	0	3.31	6.61	0.015
OF-60	730045.5	981255.3	7.11	0.016	0	3.56	7.11	0.016

Table 2A: ARM Subcatchments-reduced

Name	Runoff Method	Outlet	Area (ac)	Flow Length (ft)	TC Method	Time of Concentration (min)	Runoff Coef.	IDF Curve	Return Period (y)
DA-P05A	Modified Rational	OF-05	1.171	671.675	User entered value	5	0.8	Scottsdale	100
DA-P05B	Modified Rational	OF-05	2.07	300.095	User entered value	5	0.798	Scottsdale	100
DA-P05C	Modified Rational	S-05	6.502	584.607	User entered value	5	0.744	Scottsdale	100
DA-P10	Modified Rational	OF-10	1.994	300.095	User entered value	5	0.798	Scottsdale	100
DA-P15A	Modified Rational	OF-15	1.981	671.675	User entered value	5	0.794	Scottsdale	100
DA-P25A	Modified Rational	S-25	2.467	505.357	User entered value	5	0.725	Scottsdale	100
DA-P25B	Modified Rational	OF-25	5.656	300	User entered value	5	0.75	Scottsdale	100
DA-P25C	Modified Rational	S-30	4.67	671.675	User entered value	5	0.758	Scottsdale	100
DA-P35A	Modified Rational	OF-35	2.594	671.675	User entered value	5	0.728	Scottsdale	100
DA-P40A	Modified Rational	OF-40	1.535	671.675	User entered value	5	0.706	Scottsdale	100
DA-P45	Modified Rational	OF-45	0.8	490.319	User entered value	5	0.798	Scottsdale	100
DA-P50	Modified Rational	OF-50	0.783	490.319	User entered value	5	0.8	Scottsdale	100
DA-P55	Modified Rational	OF-55	0.878	290	User entered value	5	0.8	Scottsdale	100
DA-P60	Modified Rational	OF-60	0.945	171	User entered value	5	0.8	Scottsdale	100

Table 2B: ARM Subcatchments-reduced

Name	Peak Rainfall (in/hr)	Hydrograph Fattening	Precipitation (in)	Runoff Depth (in)	Runoff Volume (MG)	Peak Runoff (cfs)
DA-P05A	9.426	No	0.786	0.623	0.02	8.83
DA-P05B	9.426	No	0.786	0.622	0.035	15.571
DA-P05C	9.426	No	0.786	0.58	0.102	45.599
DA-P10	9.426	No	0.786	0.622	0.034	14.999
DA-P15A	9.426	No	0.786	0.619	0.033	14.827
DA-P25A	9.426	No	0.786	0.565	0.038	16.859
DA-P25B	9.426	No	0.786	0.584	0.09	39.986
DA-P25C	9.426	No	0.786	0.59	0.075	33.367
DA-P35A	9.426	No	0.786	0.567	0.04	17.801
DA-P40A	9.426	No	0.786	0.55	0.023	10.215
DA-P45	9.426	No	0.786	0.622	0.014	6.018
DA-P50	9.426	No	0.786	0.623	0.013	5.905
DA-P55	9.426	No	0.786	0.623	0.015	6.621
DA-P60	9.426	No	0.786	0.623	0.016	7.126

Table 3: Storages-Reduced

Name	Avg. Depth (ft)	Max. Depth (ft)	Max. HGL (ft)	Max. Total Inflow (cfs)	Total inflow (MG)	Min. Freeboard (ft)	Avg. Volume (1000 ft³)	Avg. Percent Full (%)	Max. Volume (1000 ft³)	Max. Percent Full (%)	Max. Outflow (cfs)
S-05	1.52	1.85	1.85	45.52	0.102	1.15	10.599	44	13.236	55	1.29
S-25	0.52	0.68	0.68	16.83	0.038	2.32	3.714	14	4.867	19	0.67
S-30	0.91	1.12	1.12	33.31	0.075	1.88	7.782	25	9.709	32	0.95

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Outfall Graphs

Model SonoranSkyPR - 100yr.inp

Kimley-Horn and Associates Inc.

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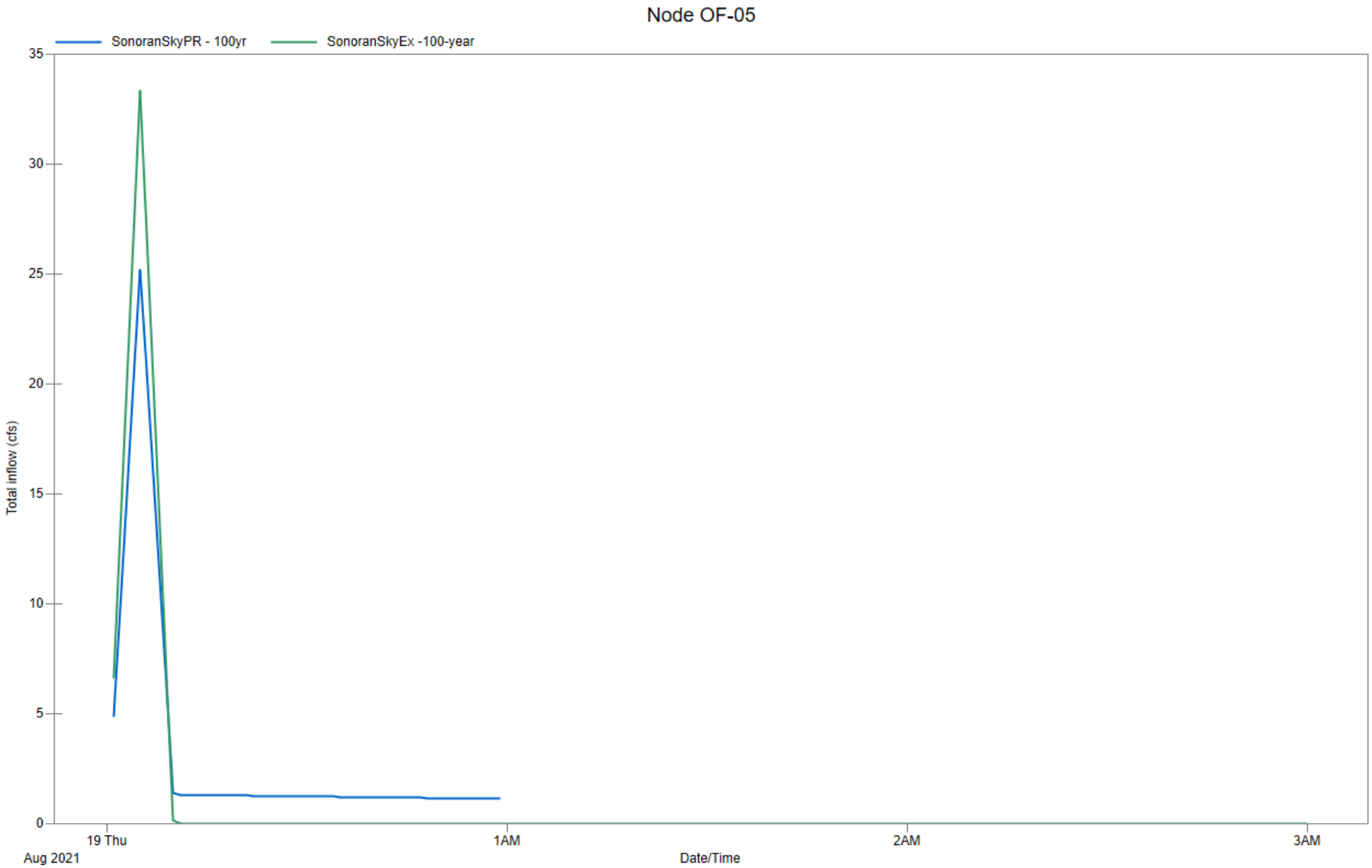

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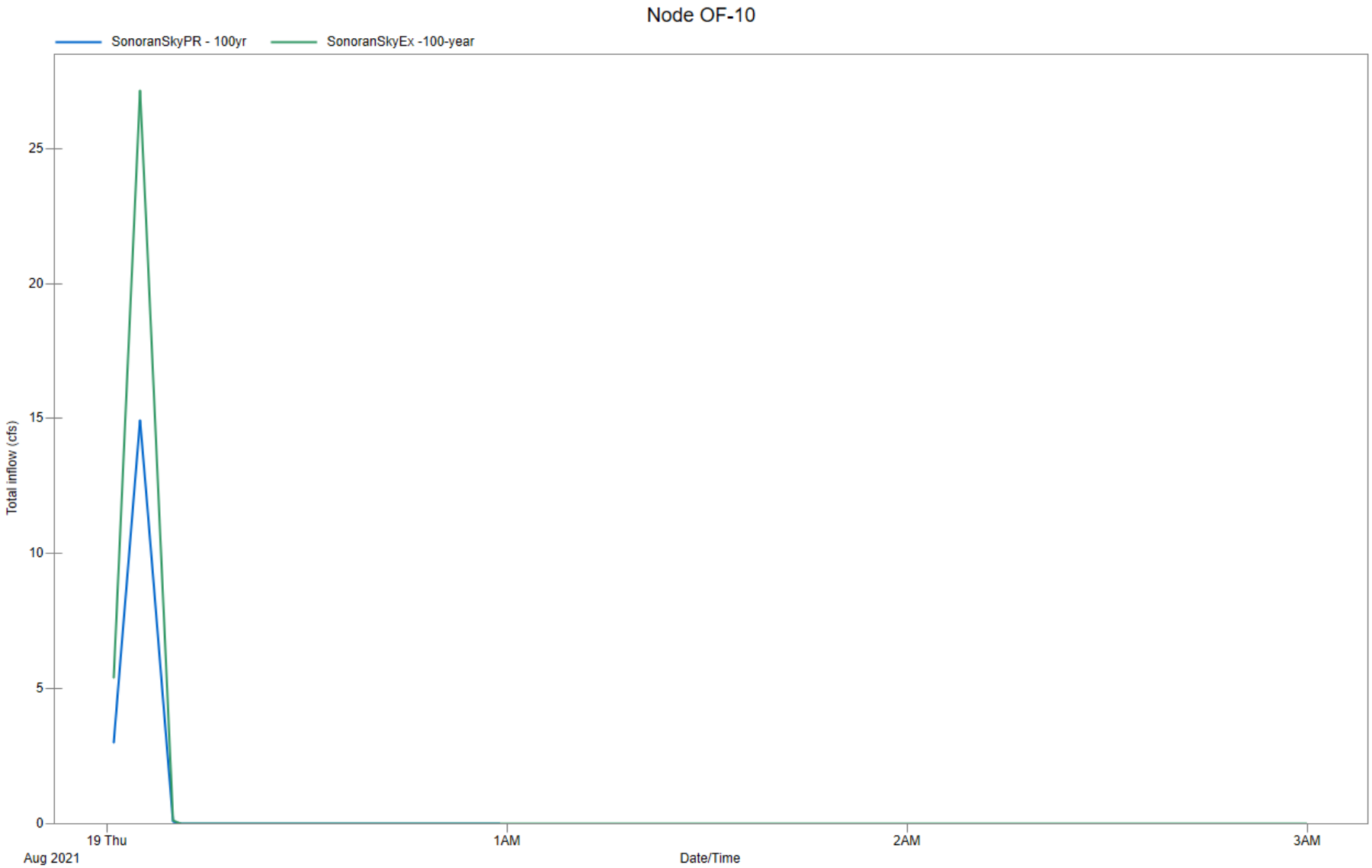
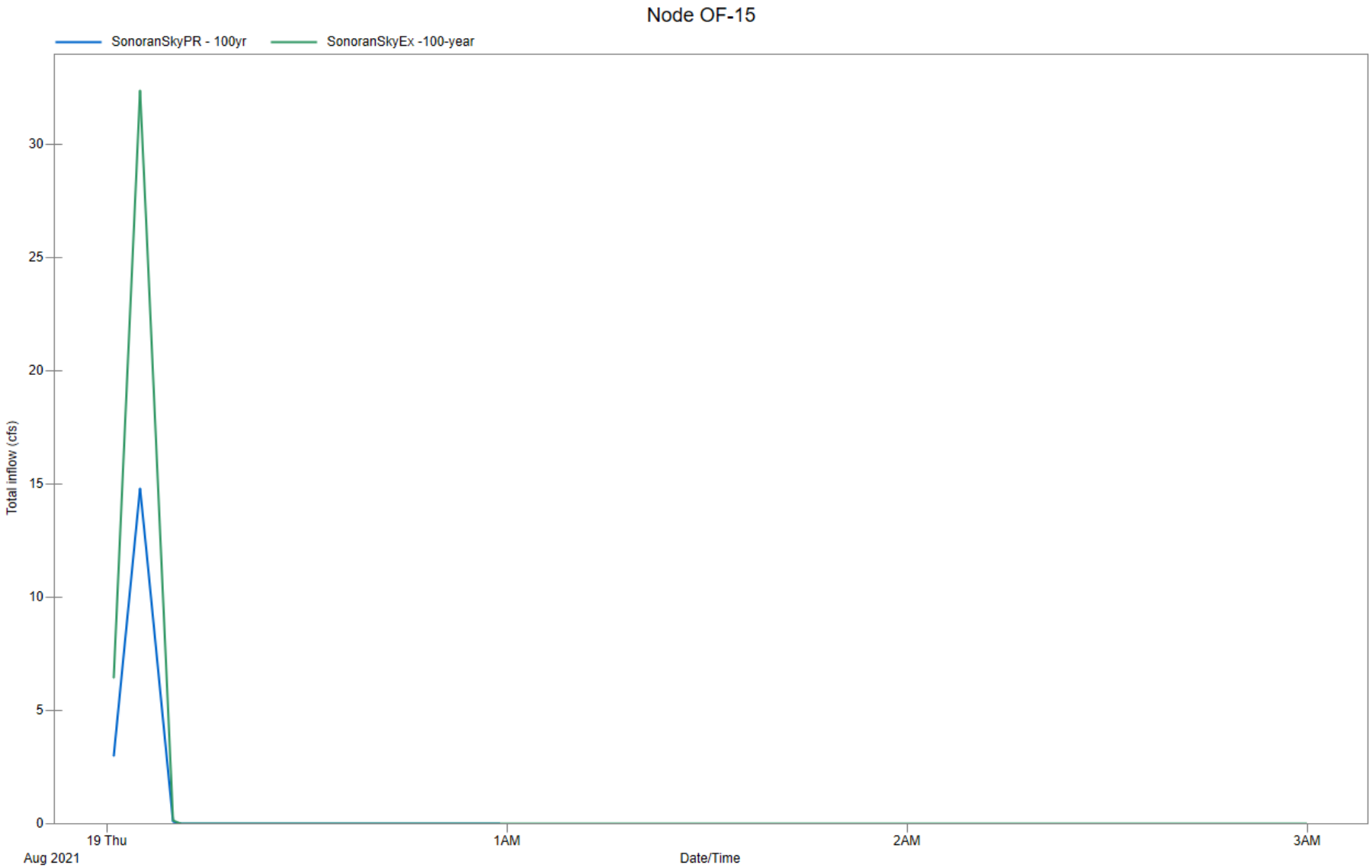


Figure 2: OF-10



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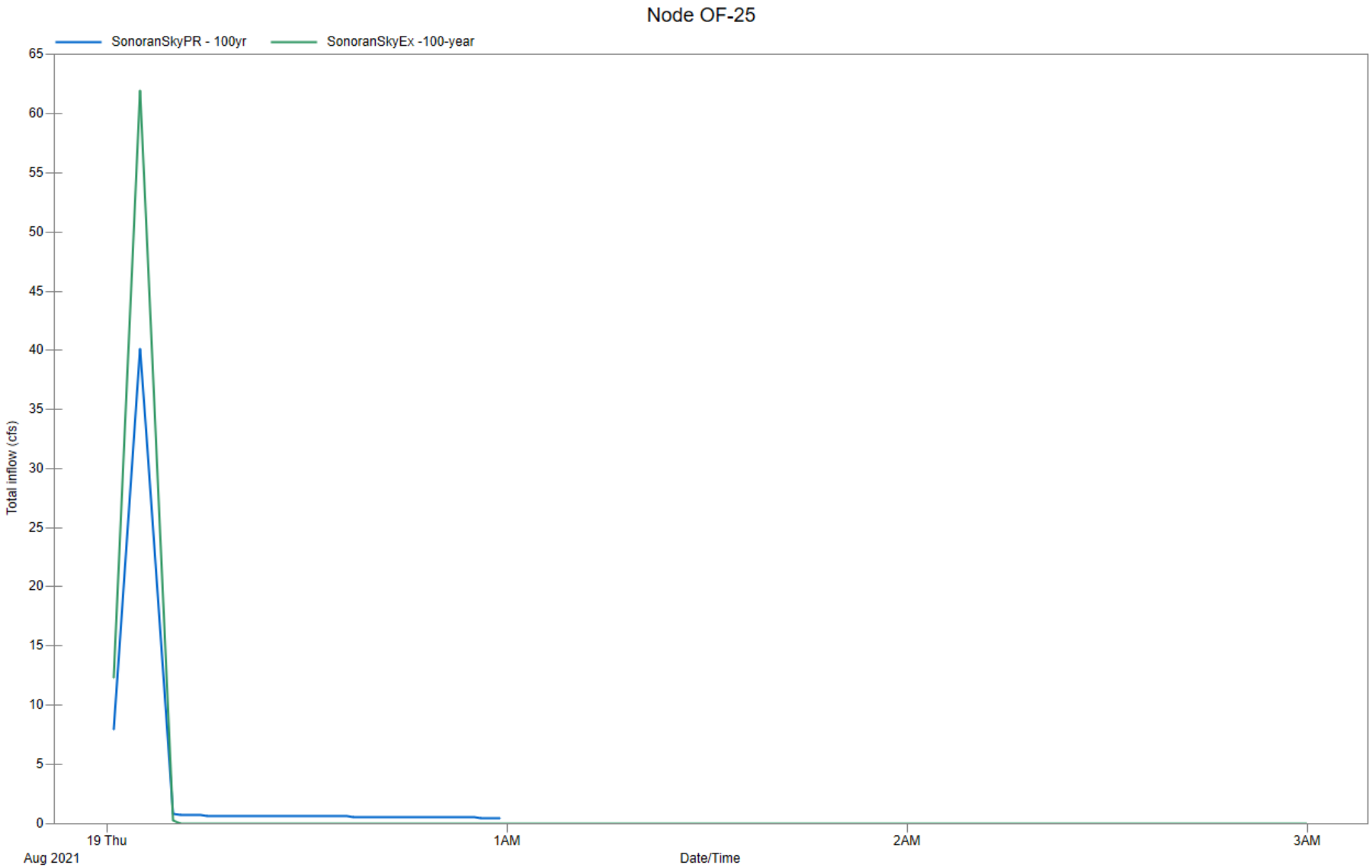


Figure 4: OF-25

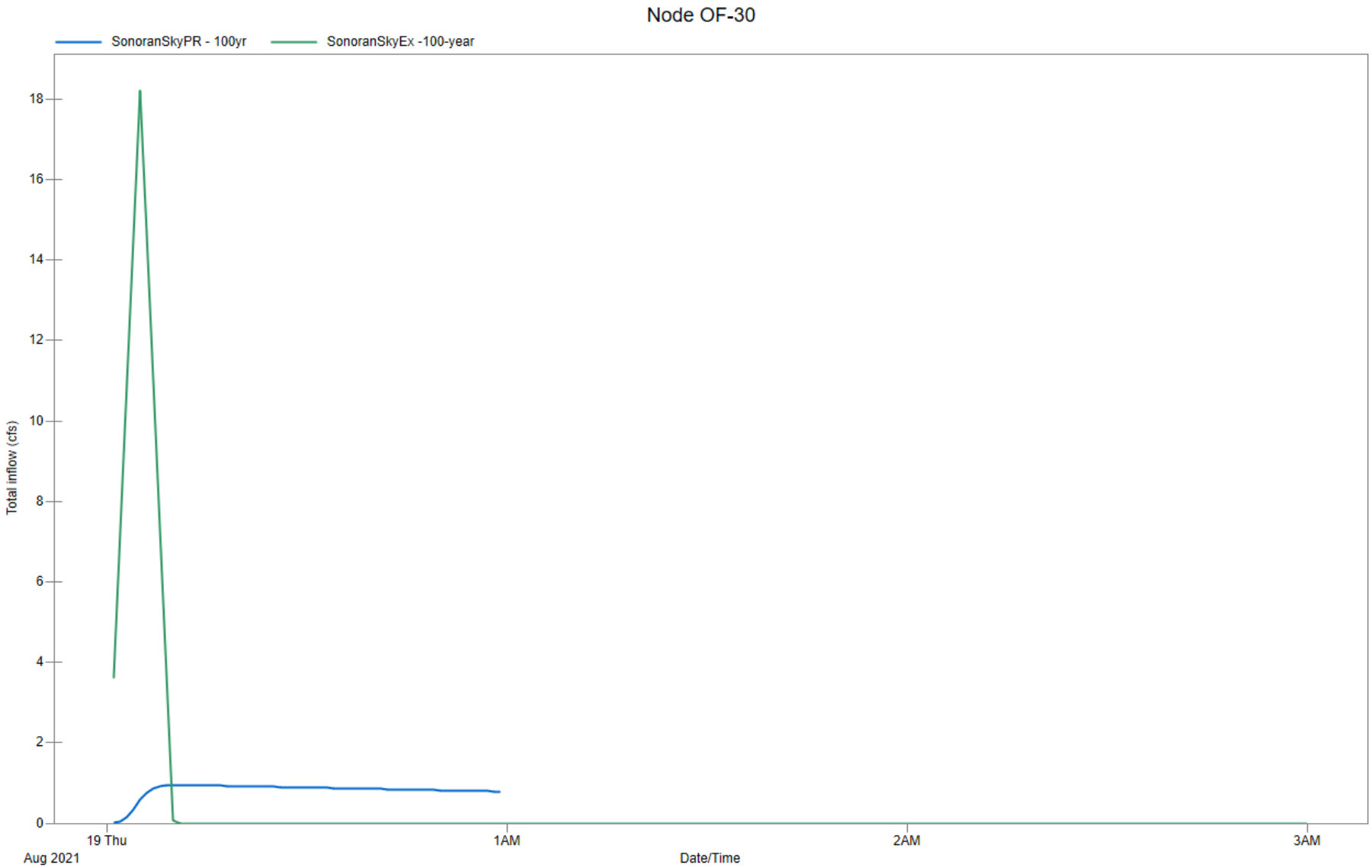


Figure 5: OF-30

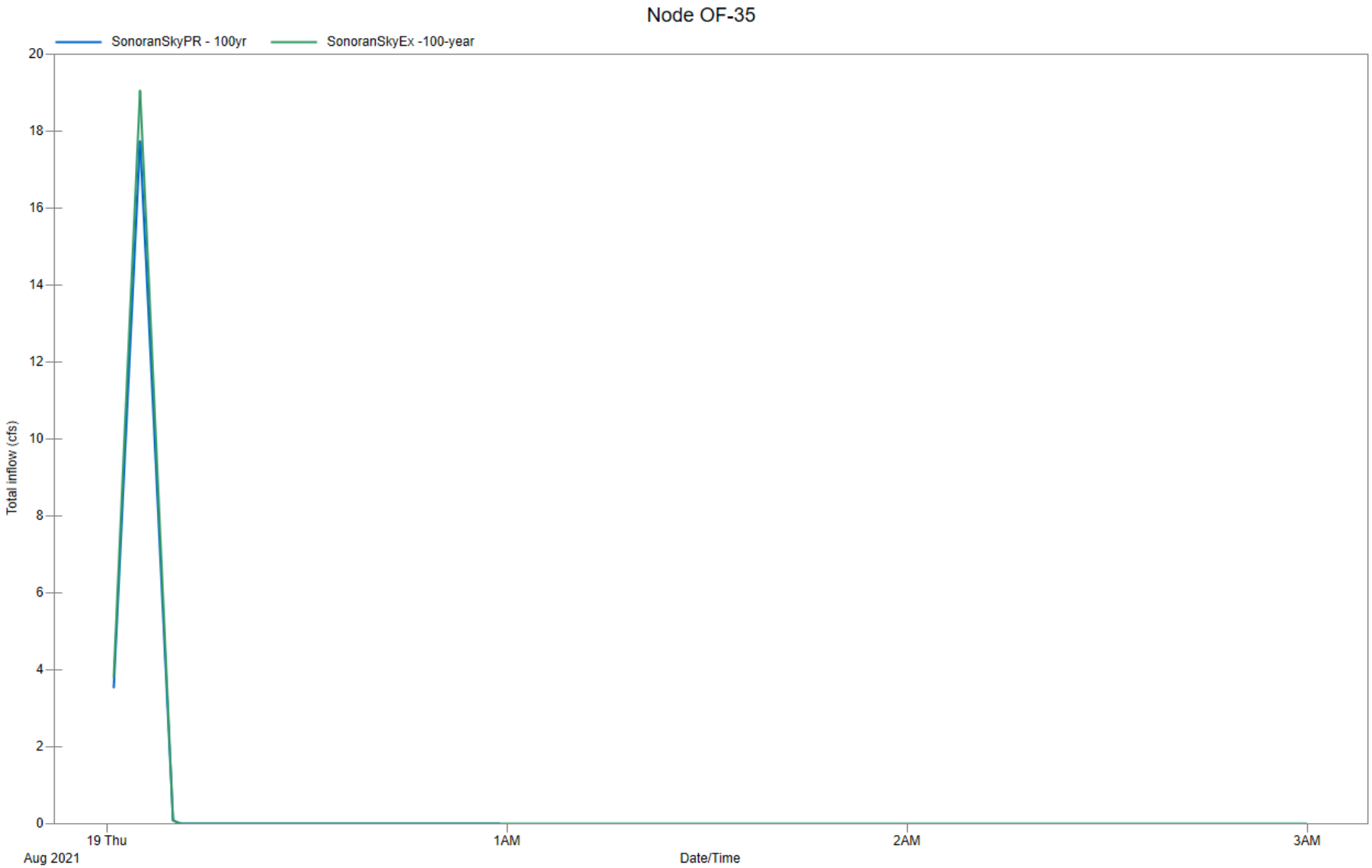
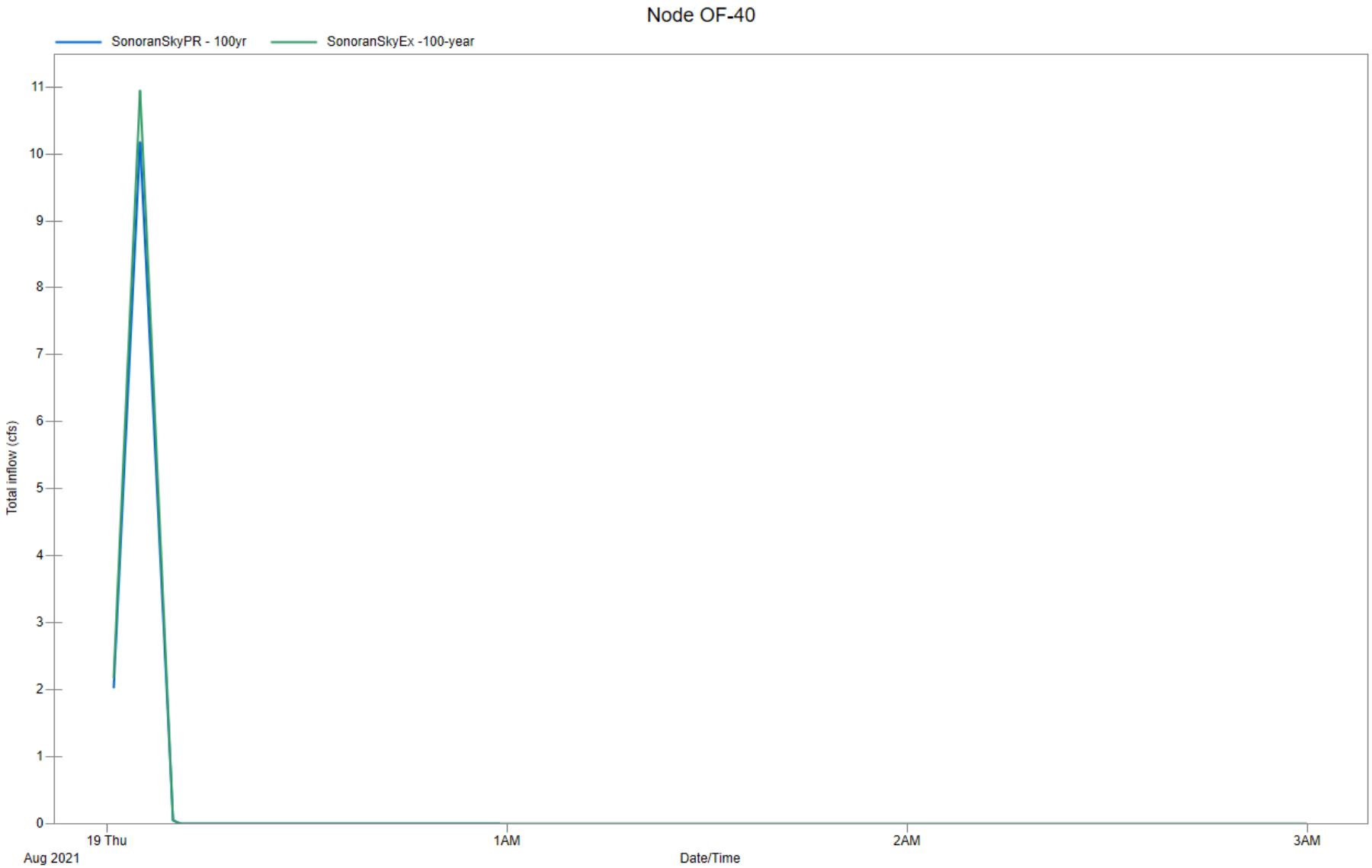


Figure 6: OF-35



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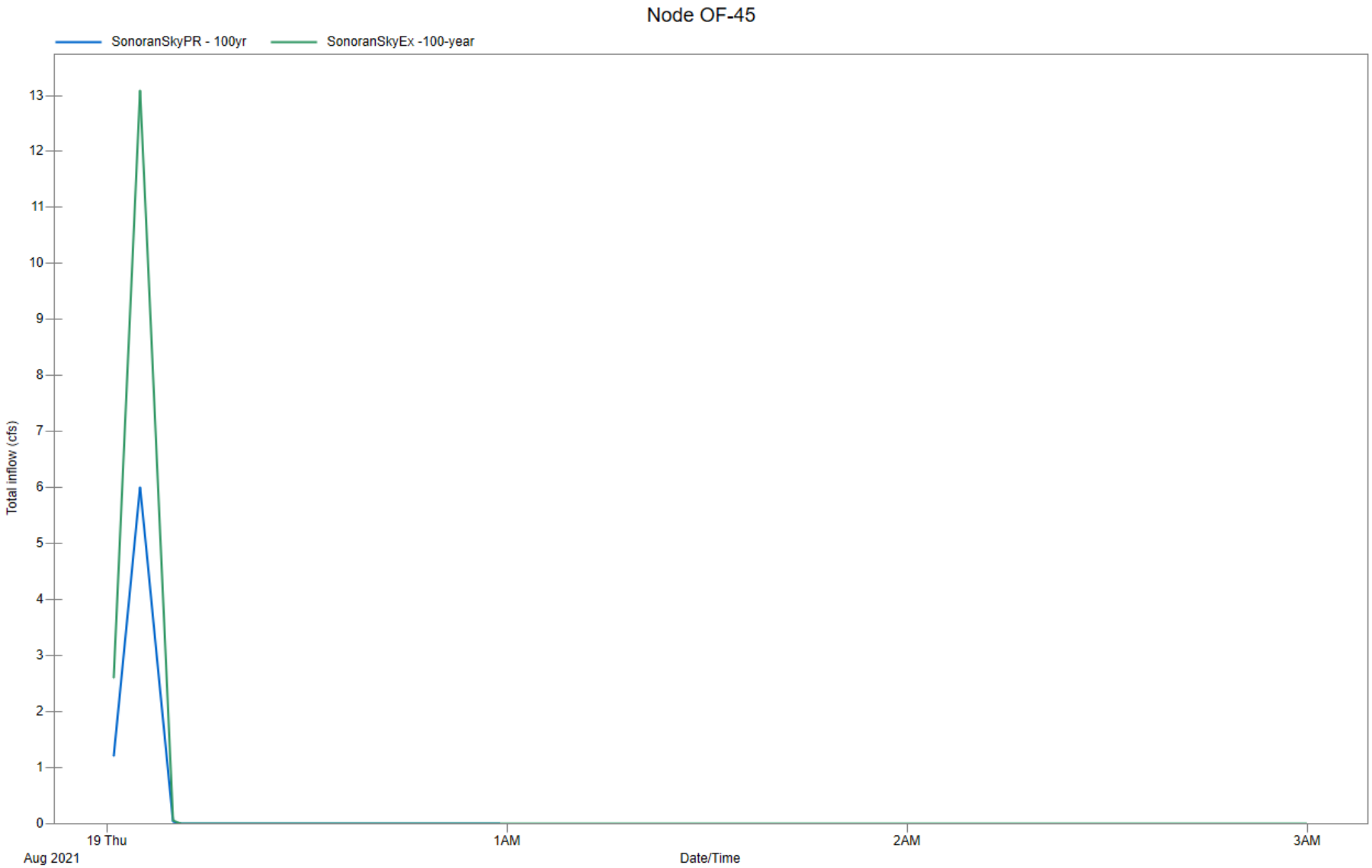

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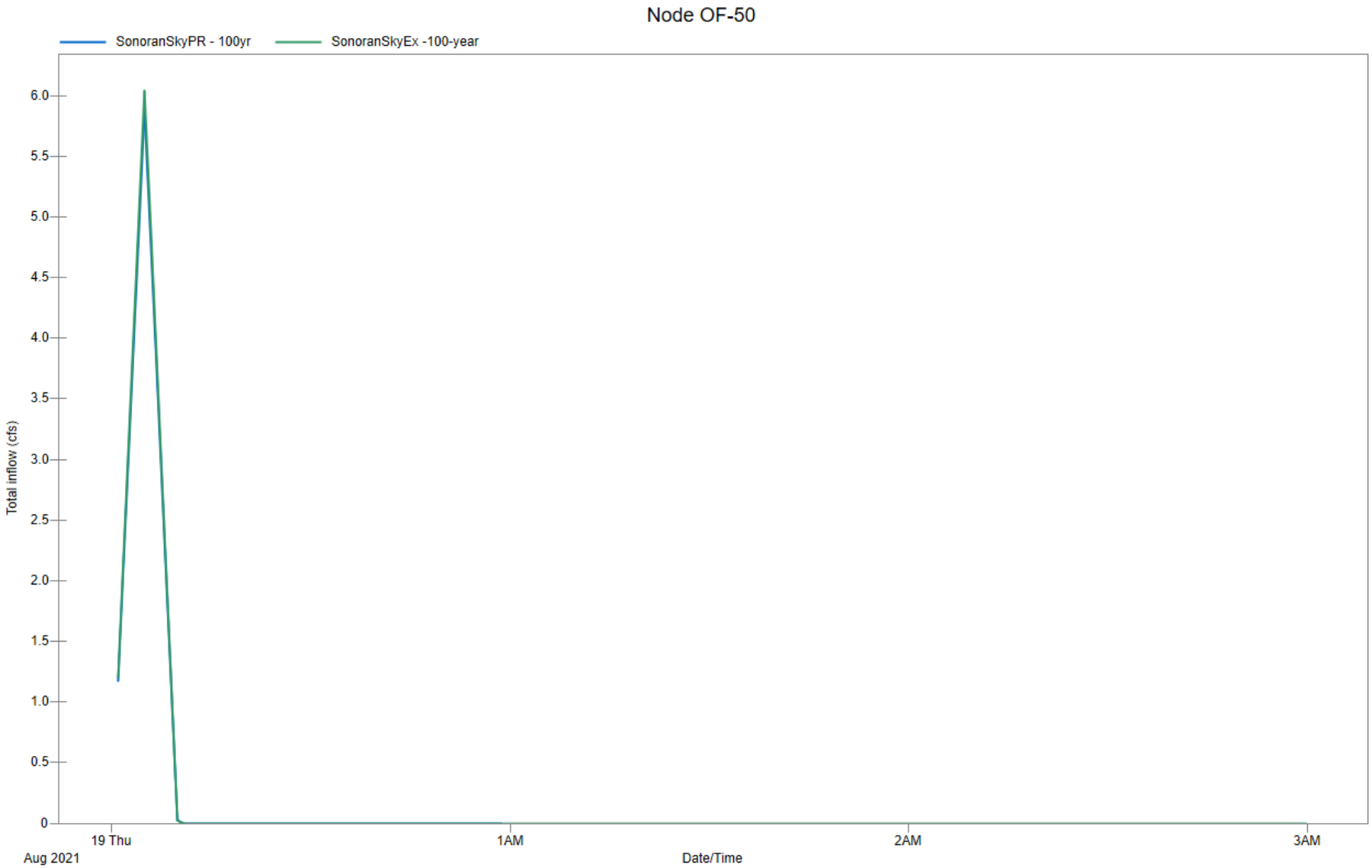

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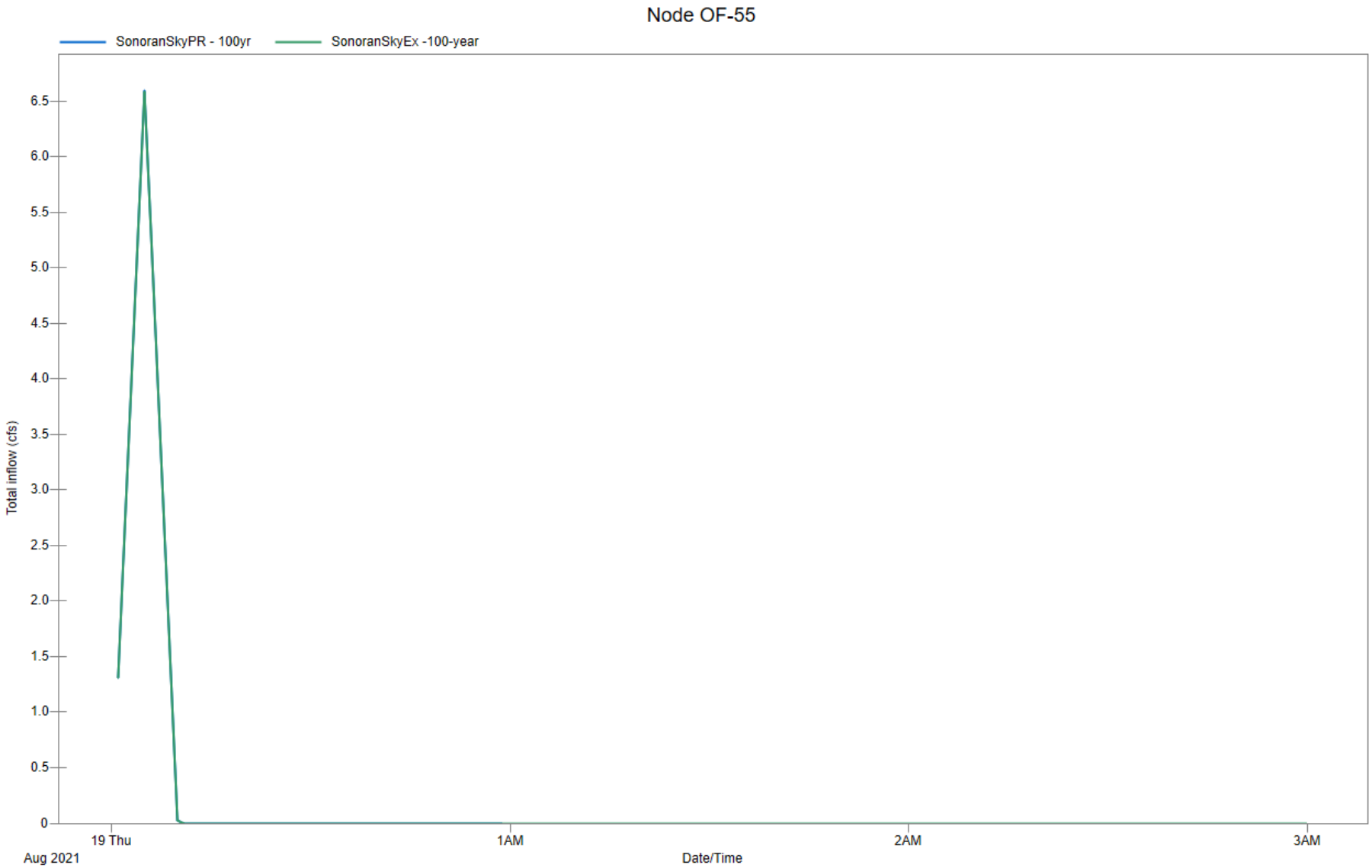

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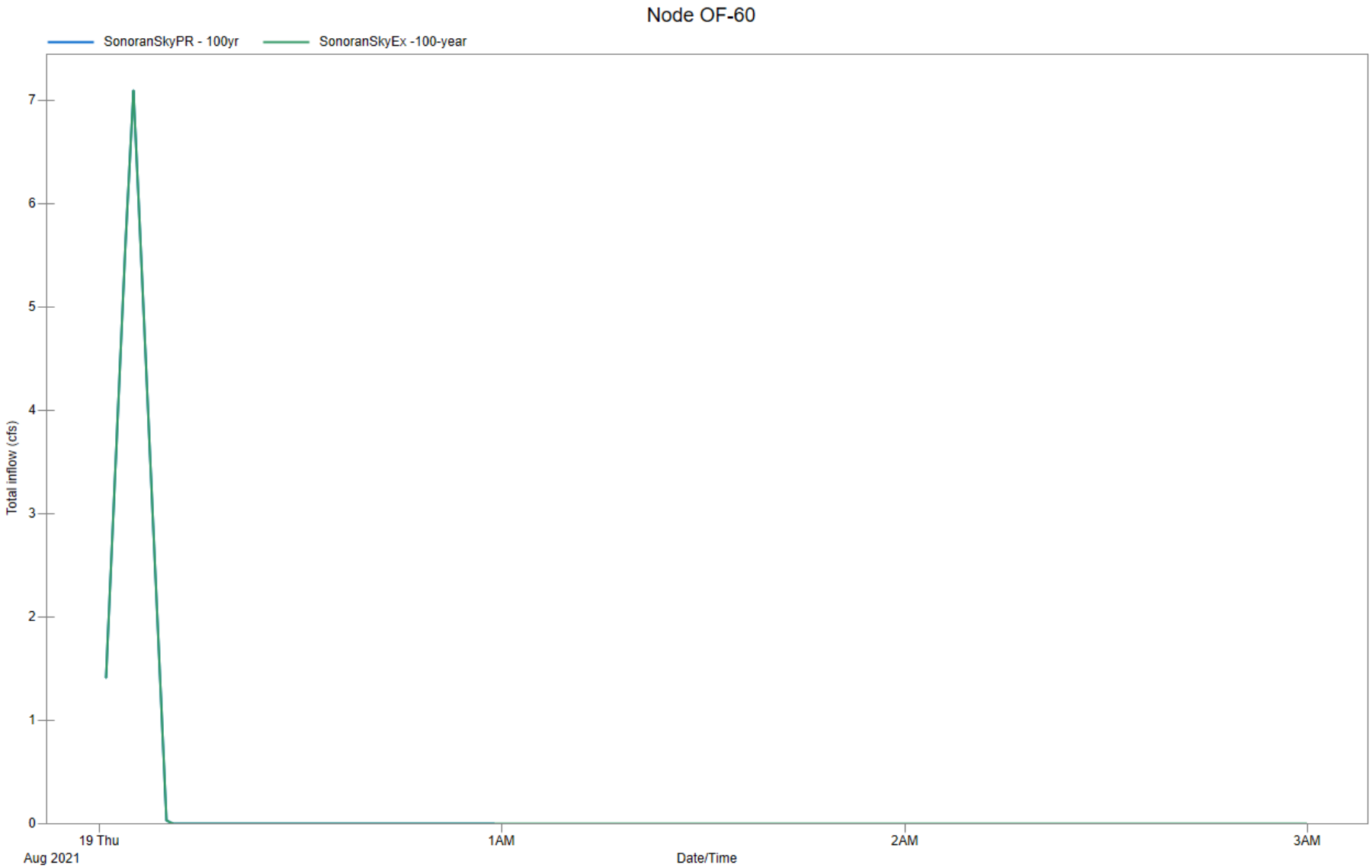

Figure 11: OF-60