

Texas Commission on Environmental Quality Investigation Report

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Customer: San Jacinto River Authority
Customer Number: CN600644595

Regulated Entity Name: WOODLANDS

Regulated Entity Number: RN101513273

Investigation # 1617760

Incident Numbers

327342	326512
327797	328185
327725	327579
325374	327986

Investigator: BERNARD GARRETT

Site Classification DOMESTIC MAJOR

Conducted: 12/18/2019 -- 12/18/2019

NAIC Code: 221320

SIC Code: 4952

Program(s): WASTEWATER

Investigation Type: Compliance Investigation

Location:

Additional ID(s): WQ0011401001
TX0054186

Address: 2436 SAWDUST RD,
THE WOODLANDS, TX , 77380

✓ **Local Unit:** REGION 12 - HOUSTON

Activity Type(s): WWC MPL - WW Complaint

Principal(s):

Role

Name

RESPONDENT

SAN JACINTO RIVER AUTHORITY

Contact(s):

Role	Title	Name	Phone	
REGULATED ENTITY MAIL CONTACT	OPERATIONS & MAINTENANCE MANAGER	MR JASON WILLIAMS	Work	(281) 367-9511
REGULATED ENTITY CONTACT	UTILITY OPERATIONS SUPERINTENDENT	MR RICK MOORE	Cell	(281) 380-3305
			Fax	(281) 362-4385
			Work	(281) 367-9511
PARTICIPATED IN	UTILITY OPERATIONS SUPERINTENDENT	MR RICK MOORE	Work	(281) 367-9511
			Cell	(281) 380-3305
			Fax	(281) 362-4385
PARTICIPATED IN	UTILITY PROJECTS SUPERVISOR	MR STEVE MCKEON	Fax	(281) 362-4385
			Work	(281) 367-9511
			Cell	(832) 381-4295
PARTICIPATED IN	PLANT OPERATOR	MR WILLIAM E PARKS	Work	(832) 381-4300
			Cell	(832) 381-4300
			Home	(832) 381-4300

Other Staff Member(s):

Role	Name
QA Reviewer	MIRANDA JORDAN
Supervisor	KIMBERLY RHODES

Associated Check List

<u>Checklist Name</u>	<u>Unit Name</u>
WQ COMPLAINT INVESTIGATION	WQ

Investigation Comments:**INTRODUCTION**

On November 20, 2019, December 04, 2019, December 19, 2019 and January 02, 2020 the Texas Commission on Environmental Quality (TCEQ) Houston Region Office received eight complaints, Incident No's. 325374, 326512, 327342, 327725, 327579, 327797, 327986 and 328185 alleging an odor. The location alleged in the complaints was the Lakeside Cove Subdivision in The Woodlands, Texas (Attachment 1), specifically concerning The Woodlands Wastewater Treatment Plant (WWTP) (Texas Pollutant Discharge Elimination System (TPDES) Permit Number WQ0011401001, located at 2436 Sawdust Road, The Woodlands. A Water Quality complaint investigation was conducted to determine compliance with applicable regulations.

A Water Quality complaint investigation was conducted at the Lakeside Cove Subdivision, The Woodlands, on December 18, 2019 by Mr. Bernard Garrett, Environmental Investigator with the TCEQ Houston Region Office, to determine compliance with applicable regulations. The investigation was conducted as a result of several complaints; therefore, no notification of the investigation was given.

BACKGROUND

A TCEQ Consolidated Compliance and Enforcement Data System (CCEDS) search and database review was conducted pursuant to this investigation. The TCEQ has received no other complaints regarding this facility within the past five years.

GENERAL FACILITY AND PROCESS INFORMATION

The facility process information was documented during the last Comprehensive Compliance Investigation (CCI) conducted on December 14, 2017 (CCEDS Investigation Number: 1459245).

COMPLAINT INVESTIGATION DESCRIPTION

On December 18, 2019, the investigator conducted odor surveys within the alleged complaint area. The investigator arrived at the first odor survey point located at Secluded Trail Street and Lakeside Cove Street of the Lakeside Cove Subdivision at approximately 10:30 am (Attachment 2: Odor Survey Map and Odor Detection Logs). The Complainant stated that the odor normally occurs around 6:00 pm in the evening. No odors were detected at the first survey point. After completing the odor survey the complainant escorted the investigator to a manhole approximately 0.5 miles away from the Lakeside Cove Subdivision, which he believed to be the source of the odor. Upon arrival the investigator observed a manhole which had been extended, by a metal pipe, approximately 10 to 12 feet above ground with an odor defense system which consisted of 3 atomizers, which disperses aroma approximately every 2 minutes, and a basket at each opening of the extended pipe that odor blocks are dropped into to control odor (Attachment 3, Photographs 1-4). There was a very light odor detected at the manhole for approximately 10 seconds. The investigator then proceeded to the second odor survey point. The investigator arrived at the second odor survey point located at Black Cormorant Place Street and Lakeside Cove Street, at approximately 11:30 a.m. No odors were detected during the 15-minute survey at this location (Attachment 2: Odor Survey Map and Odor Detection Logs). The investigator then proceeded to the third odor survey point.

The investigator arrived at the third odor survey point located upwind of the facility in the 2300 block of Golden Road, at approximately 1:30 p.m. No odors were detected during the 15-minute survey at this location (Attachment 2). The investigator then proceeded to the fourth odor survey point. See attached Odor Detection Logs and Survey Maps (Attachment 2: Odor Survey Map and Odor Detection Logs).

The investigator arrived at the fourth odor survey point located downwind of the facility at the intersection of Golden Road and Sawdust Road, at approximately 2:00 p.m. No odors were detected during the 15-minute survey at this location (Attachment 2: Odor Survey Map and Odor Detection Logs).

The investigator then contacted the San Jacinto River Authority and met with Mr. Rick Moore, Utility Operations

Superintendent, Mr. Steve McKeon, Utility Projects Supervisor, and Mr. William Parks, Lead Operator, all with San Jacinto River Authority, The Woodlands Division. The investigator informed Mr. Moore and Mr. McKeon of the complaint received by the Texas Commission on Environmental Quality (TCEQ) Houston Region Office. The investigator was then escorted to the manhole previously described as located approximately 800 feet off Golden Road and approximately 0.5 miles from the Lakeside Cove Subdivision. Mr. Moore informed the investigator that the facility had received complaints concerning the odor from the manhole and that they have taken numerous steps to ensure that the odor is eliminated. Mr. Moore also informed the investigator that he would be contacting the consultants who installed the odor defense at the manhole to see if further improvements could be made to eliminate odors, he also stated that he would speak to the consultants on increasing the frequency of the atomizers from every two minutes to every 20 to 30 seconds.

According to the Frequency, Intensity, Duration and Offensiveness (FIDO) Odor Protocol, a nuisance condition was not confirmed.

Meteorological data at the time of the odor survey (December 18, 2019) taken from Continuous Air Monitoring Site (CAMS) 0698 – UH WG Jones Forest (Attachment 4: CAMS Data):

Meteorological data at the time of the odor survey is as follows:

December 18, 2019, 10:30 am

Wind Direction: North Northwest – North

Wind Speed: 3.3 – 4.9 miles per hour

Temperature: 47.5 – 50.5 degrees Fahrenheit

Precipitation: 0 inches

ADDITIONAL INFORMATION

On January 08, 2020, Mr. Rick Moore informed Mr. Garrett via-phone that he had met with the consultants who originally installed the odor defense system located at the manhole and a contract was currently being drawn up to make improvements to the system. Mr. Moore also informed the investigator that the contract should be in place in about four to six weeks.

CONCLUSION

The complainants' allegation of odors coming from The Woodlands Wastewater Treatment Plant and a manhole could not be confirmed. A nuisance violation could not be confirmed based on the FIDO Odor Protocol. An odor characterized as unpleasant would need to be present during a single occurrence for at least 12 hours at a very strong intensity. No alleged violations were issued as a result of this investigation.

No Violations Associated to this Investigation

Signed



Environmental Investigator

Date 2/11/20

Signed



Supervisor

Date 2/11/20

Attachments: (in order of final report submittal)

☐ Enforcement Action Request (EAR)

☒ Letter to Facility (specify type) : GC

☐ Investigation Report

☐ Sample Analysis Results

☐ Manifests

☐ Notice of Registration

☐ Maps, Plans, Sketches

☐ Photographs

☐ Correspondence from the facility

☒ Other (specify) :

SEE ATTACHMENTS

List of Attached files

Attachment 1 (4).pdf

Attachment 2 (5).pdf

Attachment 3 (4).pdf

Attachment 4 (4).pdf

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 12, 2020

Mr. Jason Williams
Operations and Maintenance Manager
San Jacinto River Authority
2436 Sawdust Road
The Woodlands, Texas 77380-1681

Re: Complaint Investigation for:
Lakeside Cove Subdivision
The Woodlands Wastewater Treatment Plant
The Woodlands, Montgomery County, Texas 77380
Regulated Entity NO.: 101513273, TCEQ ID No.: WQ0011401001,
Investigation No.: 1617760

Dear Mr. Williams:

On December 18, 2019, Mr. Bernard Garrett of the Texas Commission on Environmental Quality (TCEQ) Houston Region Office conducted an investigation of the above-referenced location to evaluate compliance with applicable requirements for wastewater treatment. No violations are being alleged as a result of the investigation.

The TCEQ appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact Mr. Bernard Garrett in the Houston Region Office at 713-767-3593.

Sincerely,

A handwritten signature in cursive script that reads "Kim Rhodes".

Kimberly Rhodes
Team Leader
Water Quality
Houston Region Office

KR/BG/tj

**Texas Commission on Environmental Quality
Investigation Report
The Woodlands Wastewater Treatment Plant (WWTP)
2436 Sawdust Road, The Woodlands (Montgomery County), Texas 77380
Water Quality Permit No.: WQ0011401001
RN No.: 101513273, CN No.: 600644595
Complaint Investigation No.: 1617760
Incident No's.: 325374, 326512, 327342, 327725, 327579, 327797, 327986
Conducted December 18, 2019**

LIST OF ATTACHMENTS

ATTACHMENT 1 Location Vicinity Map

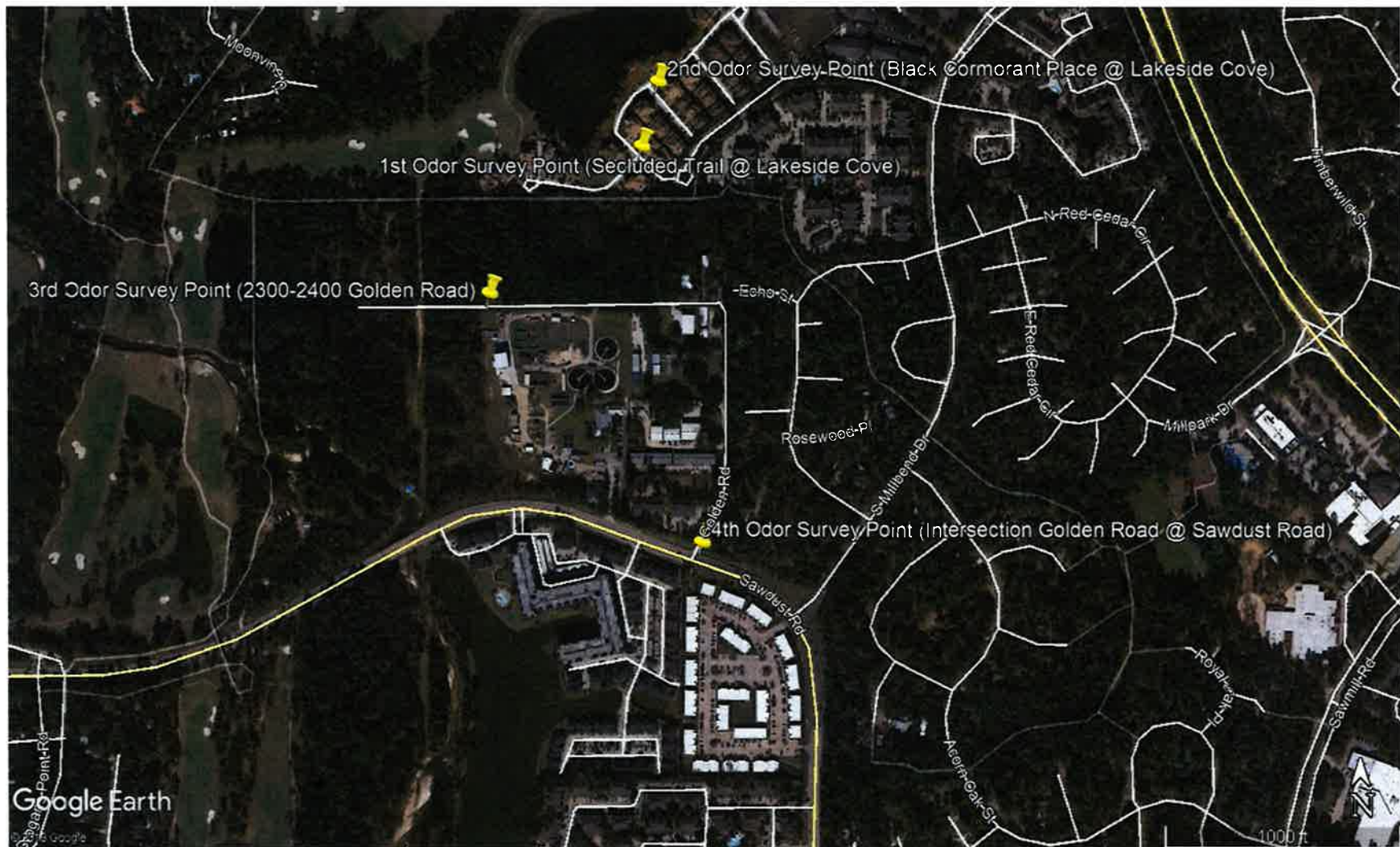
ATTACHMENT 2 Odor Survey Map and Odor Detection Logs

ATTACHMENT 3 Site Photographs

ATTACHMENT 4 Meteorological Data - CAMS

ATTACHMENT 1

Texas Commission on Environmental Quality
Investigation Report
The Woodlands Wastewater Treatment Plant (WWTP)
2436 Sawdust Road, The Woodlands (Montgomery County), Texas 77380
Water Quality Permit No.: WQ0011401001
RN No.: 101513273, CN No.: 600644595
Complaint Investigation No.: 1617760
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Conducted December 18, 2019



ATTACHMENT 2

Supplemental Investigator's Odor Intensity Time Log

Investigator: B. GARRETT

Location: 2 SECLUDED TRAIL @ LAKESIDE COVE

Date of Investigation: 12/18/2019

Start Time: 10:30 AM

Minutes	Odor Intensity VL, L, M, S, VS
1 min	NO ODOR
2	NO ODOR
3	NO ODOR
4	NO ODOR
5	NO ODOR
6	NO ODOR
7	NO ODOR
8	NO ODOR
9	NO ODOR
10	NO ODOR
11	NO ODOR
12	NO ODOR
13	NO ODOR
14	NO ODOR
15	NO ODOR
16	
17	
18	
19	
20	
21	
22	
23	
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25	
26	
27	
28	
29	
30	

Minutes	Odor Intensity VL, L, M, S, VS
31 min	
32	
33	
34	
35	
36	
37	
38	
39	
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41	
42	
43	
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57	
58	
59	
60	

Odor Description: _____

Offensiveness: Highly _____ Offensive _____ Unpleasant _____ Not Unpleasant _____

Weighted Average Intensity:

	VS	S	M	L	VL	No Odor
1 Min						
10 Min						
1 Hour						

Supplemental Investigator's Odor Intensity Time Log

Investigator: B. GARRETT

Location: 2ND SITE BLACK CORMORANT PLAGE LAKESIDE
Cove

Date of Investigation: 12/18/2019

Start Time: 11:30 AM

Minutes	Odor Intensity VL, L, M, S, VS
1 min	No odor
2	No odor
3	No odor
4	No odor
5	No odor
6	No odor
7	No odor
8	No odor
9	No odor
10	No odor
11	No odor
12	No odor
13	No odor
14	No odor
15	No odor
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Minutes	Odor Intensity VL, L, M, S, VS
31 min	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
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53	
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55	
56	
57	
58	
59	
60	

Odor Description: _____

Offensiveness: Highly _____ Offensive _____ Unpleasant _____ Not Unpleasant _____

Weighted Average Intensity:

	VS	S	M	L	VL	No Odor
1 Min						
10 Min						
1 Hour						

3RD SITE - UPWIND Supplemental Investigator's Odor Intensity Time Log

Investigator: D. GARRETT

Location: 2300 - 2400 GOLDEN RD.

Date of Investigation: 12/18/2019

Start Time: 1:30 PM

Minutes	Odor Intensity VL, L, M, S, VS
1 min	No odor
2	No odor
3	No odor
4	No odor
5	No odor
6	No odor
7	No odor
8	No odor
9	No odor
10	No odor
11	No odor
12	No odor
13	No odor
14	No odor
15	No odor
16	
17	
18	
19	
20	
21	
22	
23	
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25	
26	
27	
28	
29	
30	

Minutes	Odor Intensity VL, L, M, S, VS
31 min	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
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49	
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51	
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55	
56	
57	
58	
59	
60	

Odor Description: _____

Offensiveness: Highly _____ Offensive _____ Unpleasant _____ Not Unpleasant _____

Weighted Average Intensity:

	VS	S	M	L	VL	No Odor
1 Min						
10 Min						
1 Hour						

4th SITE - Downwind Supplemental Investigator's Odor Intensity Time Log

Investigator: D. GARRETT

Location: INTERSECTION GOLDEN RD & SAWDUST RD.

Date of Investigation: 12/18/2019

Start Time: 2:00 PM

Minutes	Odor Intensity VL, L, M, S, VS
1 min	No ODR
2	No ODR
3	No ODR
4	No ODR
5	No ODR
6	No ODR
7	No ODR
8	No ODR
9	No ODR
10	No ODR
11	No ODR
12	No ODR
13	No ODR
14	No ODR
15	No ODR
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Minutes	Odor Intensity VL, L, M, S, VS
31 min	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
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59	
60	

Odor Description: _____

Offensiveness: Highly _____ Offensive _____ Unpleasant _____ Not Unpleasant _____

Weighted Average Intensity:

	VS	S	M	L	VL	No Odor
1 Min						
10 Min						
1 Hour						

ATTACHMENT 3

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER QUALITY REPORT**

Facility Permit/ID No.	WQ0011401001	Facility/System Name:	The Woodlands WWTP
Date Photographed	12/18/2019	Taken by Investigator:	B. Garrett
Regulated Entity No.:	101513273	Address:	2436 Sawdust Road, The Woodlands, (Montgomery County), Texas 77380
Investigation No.:	1617760		



Description: Manhole extended above ground with atomizers and baskets.

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER QUALITY REPORT**

Facility Permit/ID No.	WQ0011401001	Facility/System Name:	The Woodlands WWTP
Date Photographed	12/18/2019	Taken by Investigator:	B. Garrett
Regulated Entity No.:	101513273	Address:	2436 Sawdust Road, The Woodlands, (Montgomery County), Texas 77380
Investigation No.:	1617760		



Description: Atomizer dispersing aroma into the air.

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER QUALITY REPORT**

Facility Permit/ID No.	WQ0011401001	Facility/System Name:	The Woodlands WWTP
Date Photographed	12/18/2019	Taken by Investigator:	B. Garrett
Regulated Entity No.:	101513273	Address:	2436 Sawdust Road, The Woodlands, (Montgomery County), Texas 77380
Investigation No.:	1617760		



Description: Extended manhole above ground with odor defenses.

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER QUALITY REPORT**

Facility Permit/ID No.	WQ0011401001	Facility/System Name:	The Woodlands WWTP
Date Photographed	12/18/2019	Taken by Investigator:	B. Garrett
Regulated Entity No.:	101513273	Address:	2436 Sawdust Road, The Woodlands, (Montgomery County), Texas 77380
Investigation No.:	1617760		



Description: Atomizer dispersing aroma into air.

ATTACHMENT 4

CAMS 698 Monthly Resultant Wind Speed Summary Report for December 2019

Report Month: December 2019

Site Description: UH WG Jones Forest C698

EPA Site: 48 339 0698

Report Generated: January 7, 2020 15:13:18 CST

Parameter: Resultant Wind Speed (POC 1) measured in miles per hour

All times are reported in Central Standard Time

Data Reported in General Standard Time																														
Day	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Max	SH	Min	Res	STD	Cap
1	25.0	29.6	17.6	7.2	6.9	7.8	8.3	7.0	29.8	37.5	42.1	43.7	45.6	46.4	47.6	47.2	44.8	32.1	25.9	24.0	19.4	17.5	13.3	14.0	47.6	47.2	6.9	26.6	14.5	100.0
2	5.9	6.2	6.0	6.6	6.7	7.2	7.3	8.0	19.1	31.1	36.9	41.1	43.8	45.1	46.7	47.7	46.1	21.3	6.5	5.2	5.0	8.7	19.1	11.2	47.7	46.7	5.0	19.7	16.4	100.0
3	6.3	4.3	2.8	3.7	7.7	6.3	5.0	5.4	3.9	5.4	7.4	32.0	43.8	45.3	45.8	46.9	43.9	35.5	31.0	29.5	5.1	6.0	3.0	0.4	46.9	45.8	0.4	12.7	18.0	100.0
4	3.1	5.0	4.8	6.2	7.5	10.0	9.7	8.7	21.5	41.3	45.3	48.4	49.8	51.8	50.0	45.9	41.6	36.0	30.3	27.6	27.5	26.3	25.0	23.3	51.8	50.0	3.1	26.8	16.7	100.0
5	23.4	6.2	5.2	3.0	5.5	5.8	5.8	6.4	6.4	36.4	49.2	51.2	52.5	51.9	53.3	51.0	47.6	45.1	41.3	41.4	16.7	38.2	36.5	25.7	53.3	52.5	3.0	26.4	19.3	100.0
6	6.2	6.9	4.5	7.4	6.5	8.3	7.8	7.3	30.2	47.2	48.1	48.9	50.2	50.4	49.3	50.5	21.5	8.5	6.2	6.8	7.5	8.4	9.2	8.9	50.5	50.4	4.5	18.2	19.0	100.0
7	9.7	8.6	8.3	8.3	8.6	9.2	8.6	7.5	5.7	5.6	6.3	16.9	53.2	LIM	LIM	24.8	5.1	6.0	6.4	7.1	7.5	7.0	7.4	6.8	53.2	24.8	5.1	8.6	10.4	91.7
8	6.4	7.4	6.3	6.4	5.7	5.2	6.2	4.7	3.2	3.6	5.5	30.2	50.3	49.7	28.3	8.6	7.5	8.8	9.0	9.0	7.8	7.9	8.0	7.7	50.3	49.7	3.2	2.4	16.3	100.0
9	7.0	8.8	8.0	7.1	5.8	5.9	7.2	8.9	10.1	13.7	12.1	31.6	46.8	48.9	9.2	7.3	7.8	8.2	8.9	7.4	6.9	6.6	5.8	1.2	48.9	46.8	1.2	4.5	14.2	100.0
10	11.5	9.2	10.9	11.8	12.1	15.5	11.0	14.1	14.0	13.2	12.6	12.1	11.6	11.6	11.4	12.0	9.5	12.2	10.1	10.0	11.8	11.7	11.3	11.0	15.5	14.1	9.2	11.5	1.4	100.0
11	10.2	10.9	8.6	9.0	9.0	9.0	9.9	9.2	7.5	7.2	6.3	4.0	7.6	7.7	7.7	9.8	7.6	7.9	7.6	8.0	7.8	7.1	7.6	7.0	10.9	10.2	4.0	8.0	1.4	100.0
12	6.7	6.8	6.8	5.7	8.3	7.5	FEW	LST	LST	LST	LST	LST	LST	FEW	3.2	3.9	3.8	5.7	4.9	4.2	6.0	6.9	9.4	9.5	9.5	9.4	3.2	5.4	2.0	66.7
13	6.9	8.0	6.0	3.3	2.4	4.8	2.3	2.7	2.0	3.5	6.6	9.4	10.7	11.2	10.2	9.3	7.5	6.4	5.1	6.1	5.8	6.2	6.0	5.1	11.2	10.7	2.0	2.9	4.2	100.0
14	5.4	5.3	6.0	5.5	5.5	5.9	7.4	5.7	5.3	4.0	4.3	5.6	7.0	6.9	7.6	7.7	7.8	10.0	9.0	8.6	7.9	5.9	5.9	6.2	10.0	9.0	4.0	2.4	4.4	100.0
15	6.4	7.3	6.7	6.9	8.6	7.6	8.3	10.2	10.2	9.9	11.5	13.0	13.4	14.5	14.3	12.3	11.3	10.4	8.3	9.4	8.5	7.3	8.2	7.7	14.5	14.3	6.4	9.3	2.4	100.0
16	7.2	7.5	7.1	8.1	8.2	7.1	8.1	6.6	9.2	8.2	5.8	11.7	8.9	14.3	16.2	14.5	14.4	14.8	16.1	16.9	12.8	11.5	12.7	14.1	16.9	16.2	5.8	4.3	7.5	100.0
17	14.7	14.6	13.6	12.9	12.7	14.7	15.4	13.7	13.5	14.1	13.8	11.9	14.8	13.6	13.3	14.0	12.9	9.6	6.5	6.8	7.6	6.8	5.9	6.1	15.4	14.8	5.9	11.7	3.2	100.0
18	6.6	8.0	9.4	5.9	4.9	4.5	5.3	5.7	4.2	3.7	3.3	4.9	7.0	7.7	5.1	5.6	6.0	4.4	4.8	3.6	4.7	4.6	4.2	3.8	9.4	8.0	3.3	4.0	2.0	100.0
19	3.5	3.7	3.0	5.8	4.3	4.1	3.8	4.7	3.5	2.6	4.5	6.3	6.1	5.9	5.2	7.3	7.3	7.2	6.4	7.3	7.8	7.6	7.1	7.6	7.8	7.6	2.6	4.6	1.9	100.0
20	7.5	6.7	6.9	7.2	6.6	6.1	6.6	8.1	6.7	6.0	7.2	6.7	6.2	6.1	4.9	5.2	6.7	6.1	6.0	6.1	4.1	4.6	4.7	5.4	8.1	7.5	4.1	6.0	1.0	100.0
21	3.5	7.1	6.2	5.5	4.3	4.2	4.2	5.0	4.4	4.6	4.5	5.0	5.2	4.8	5.2	5.9	6.0	6.3	5.2	5.2	7.3	7.5	7.5	7.6	7.6	7.5	3.5	5.1	1.2	100.0
22	6.9	6.7	6.4	6.4	6.2	5.8	5.5	6.4	6.4	6.5	11.3	9.6	7.7	8.4	8.1	8.3	5.8	5.6	6.1	6.1	7.0	5.6	5.7	5.9	11.3	9.6	5.5	6.4	1.5	100.0
23	6.2	6.6	6.4	5.7	6.4	6.4	5.6	5.0	5.3	4.4	4.6	3.4	5.1	5.2	3.6	5.0	4.3	4.5	4.6	6.0	5.9	2.7	4.6	5.3	6.6	6.4	2.7	4.5	1.2	100.0
24	6.5	8.2	9.0	8.7	7.8	8.3	7.9	8.5	5.4	4.2	4.7	5.3	2.9	2.9	3.0	2.2	2.7	5.3	5.7	6.4	7.2	9.0	7.6	7.8	9.0	9.0	2.2	1.4	5.2	100.0
25	7.1	4.0	5.3	4.5	0.5	2.7	5.5	5.4	5.0	3.1	4.6	6.3	7.7	5.0	5.6	3.7	4.0	6.0	6.4	7.0	7.8	8.3	8.4	7.5	8.4	8.3	0.5	3.9	2.5	100.0
26	5.4	4.0	4.1	1.2	1.2	2.4	3.5	4.3	5.0	6.1	6.0	6.3	5.4	5.0	4.9	5.4	5.7	5.5	4.9	6.3	6.7	6.5	6.0	5.4	6.7	6.5	1.2	4.3	1.6	100.0
27	4.6	5.5	4.0	4.3	5.9	4.8	4.5	5.2	4.1	3.6	5.5	6.3	6.6	4.9	6.9	8.5	7.3	5.8	5.8	5.4	6.2	6.8	7.4	8.1	8.5	8.1	3.6	4.7	1.7	100.0
28	7.8	7.4	6.7	8.3	8.2	7.3	8.0	8.8	8.8	8.2	8.3	10.3	9.2	9.0	11.7	12.6	13.4	10.8	8.1	7.9	6.7	5.9	3.6	5.5	13.4	12.6	3.6	7.2	2.5	100.0
29	4.5	4.1	3.8	4.4	4.5	5.4	7.6	7.5	8.7	5.7	6.0	9.0	11.7	13.0	10.0	10.3	9.5	7.6	7.7	8.5	10.4	10.3	7.8	6.5	13.0	11.7	3.8	7.0	2.6	100.0
30	6.4	5.5	5.0	5.0	5.9	6.2	6.0	6.6	5.3	5.5	7.5	8.3	6.9	8.4	8.4	9.1	8.3	7.0	5.5	6.2	6.2	6.1	6.1	6.2	9.1	8.4	5.0	6.4	1.2	100.0
31	8.1	8.0	8.4	5.1	6.8	8.8	8.9	8.2	6.4	3.9	5.3	6.6	4.5	4.3	6.5	6.5	5.9	3.2	2.9	3.6	1.9	2.4	3.2	1.9	8.9	8.8	1.9	4.4	2.5	100.0
Day	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Max	SH	Min	Res	STD	Cap

Monthly Max	Monthly SH	Monthly Min	Monthly Res	Monthly STD	Monthly Cap
53.3 December 5 14:00	53.2 December 7 12:00	0.4 December 3 23:00	5.7	12.2	98.7

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff.

CAMS 698 Monthly Resultant Wind Direction Summary Report for December 2019

Report Month: December 2019 Site Description: UH WG Jones Forest C698 EPA Site: 48_339_0698 Report Generated: January 7, 2020 15:13:18 CST
 Parameter: Resultant Wind Direction (POC 1) measured in degrees compass All times are reported in Central Standard Time

Day	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Max	SH	Min	Res	STD	Cap
1	16	15	11	358	351	354	4	8	15	16	15	14	16	15	16	16	16	15	14	13	13	13	8	13	358	354	4	14		100.0
2	349	347	341	323	332	346	3	15	15	16	16	15	16	16	16	16	16	17	47	80	77	26	16	16	349	347	3	15		100.0
3	226	239	251	202	180	177	127	131	163	15	223	16	18	17	16	15	17	17	15	16	167	182	168	174	251	239	15	18		100.0
4	21	30	341	349	3	11	15	23	19	18	16	16	19	23	21	16	18	17	15	13	13	12	13	12	349	341	3	16		100.0
5	11	160	180	165	135	140	118	129	163	17	17	17	16	16	17	17	17	16	16	16	17	16	17	16	180	165	11	19		100.0
6	213	226	250	261	273	285	304	300	12	17	18	18	17	18	17	17	21	29	14	3	4	8	19	19	304	300	3	11		100.0
7	18	15	19	14	15	13	16	18	18	61	62	32	18	LIM	LIM	25	93	85	74	73	101	123	137	152	152	137	13	36		91.7
8	158	134	145	162	153	147	147	133	122	138	163	21	18	18	15	216	205	206	211	211	216	212	214	220	220	216	15	48		100.0
9	233	225	227	220	225	206	232	251	258	256	257	13	15	18	269	256	248	237	229	241	228	222	200	48	269	258	13	294		100.0
10	20	15	14	22	37	37	34	33	40	51	47	40	52	57	48	49	54	54	47	41	40	42	51	44	57	54	14	41		100.0
11	59	65	68	67	64	56	62	58	56	64	48	55	87	71	71	52	74	67	57	62	68	70	72	77	87	77	48	64		100.0
12	98	103	123	104	106	121	FEW	LST	LST	LST	LST	LST	LST	FEW	122	127	130	140	121	96	126	165	182	179	182	179	96	131		66.7
13	177	183	191	261	258	21	57	66	201	246	252	253	260	267	276	289	309	316	323	0	9	14	32	25	323	316	0	286		100.0
14	19	303	290	300	294	3	20	12	44	94	88	133	147	164	182	182	167	172	171	170	165	151	147	147	303	300	3	155		100.0
15	169	175	180	188	195	205	215	225	225	231	229	231	226	229	230	222	223	217	211	206	211	205	204	206	231	231	169	215		100.0
16	201	194	197	194	205	206	205	199	216	224	285	349	357	2	9	13	15	17	20	20	20	25	19	25	357	349	2	3		100.0
17	30	31	29	26	15	16	21	19	22	23	23	14	22	24	28	28	29	30	22	16	15	6	358	0	360	358	6	22		100.0
18	356	5	9	356	348	343	345	331	336	348	357	13	26	19	31	16	21	8	2	40	116	119	142	142	357	356	2	13		100.0
19	245	231	76	73	93	127	128	103	117	151	156	158	172	187	168	149	155	167	174	166	181	178	156	154	245	231	73	156		100.0
20	141	145	137	128	131	119	112	114	117	118	126	143	137	118	107	101	86	109	103	107	120	108	106	120	145	143	86	120		100.0
21	65	66	79	80	81	65	33	42	61	56	45	46	54	58	65	52	64	70	46	30	24	18	16	11	81	80	11	49		100.0
22	12	15	7	15	2	4	2	9	18	29	34	31	12	9	4	16	2	0	7	324	320	333	327	345	360	345	2	6		100.0
23	347	335	344	355	357	357	338	344	359	9	18	358	355	350	16	38	16	346	7	75	94	48	355	334	359	358	7	3		100.0
24	354	4	9	32	57	55	76	87	90	130	146	152	206	255	226	240	177	171	165	181	210	229	218	203	354	255	4	129		100.0
25	176	253	304	313	96	127	117	110	130	164	194	213	231	241	193	202	182	145	162	156	178	181	185	174	313	304	96	182		100.0
26	190	215	200	194	12	62	105	123	149	156	157	158	178	171	164	149	128	130	150	163	165	166	180	144	215	200	12	158		100.0
27	104	99	75	46	98	113	107	84	92	101	119	127	155	170	164	163	161	163	169	189	170	164	163	160	189	170	46	139		100.0
28	155	160	173	173	174	171	179	183	173	198	188	198	178	178	209	208	194	219	217	208	216	261	312	11	312	261	11	193		100.0
29	32	75	65	86	67	70	28	16	29	28	359	352	359	3	5	345	350	359	0	3	10	12	5	347	360	359	3	12		100.0
30	353	351	340	335	327	339	340	324	345	14	13	14	0	16	9	8	6	7	357	357	0	0	357	353	360	360	0	357		100.0
31	2	4	9	6	8	15	15	8	8	19	56	44	37	354	8	27	22	10	309	260	75	168	243	196	354	309	2	12		100.0
Day	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Max	SH	Min	Res	STD	Cap

Monthly Max	Monthly SH	Monthly Min	Monthly Res	Monthly STD	Monthly Cap
360	360	0	24		98.7
December 17 23:00	December 22 17:00	December 13 19:00			

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff.

CAMS 698 Monthly Outdoor Temperature Summary Report for December 2019

Report Month: December 2019

Site Description: UH WG Jones Forest C698

EPA Site: 48_339_0698

Report Generated: January 7, 2020 15:13:18 CST

Parameter: Outdoor Temperature (POC 1) measured in degrees Fahrenheit

All times are reported in Central Standard Time

Day	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Max	SH	Min	Avg	STD	Cap
1	62.8	60.7	59.0	57.3	56.0	54.3	53.0	52.2	52.5	53.3	55.0	56.7	58.5	59.6	60.7	61.0	60.3	58.3	55.7	54.1	52.2	51.9	51.4	50.1	62.8	61.0	50.1	56.1	3.6	100.0
2	49.7	48.9	47.3	46.1	44.7	43.4	43.2	43.6	45.6	48.2	50.7	53.4	55.3	57.3	58.4	59.5	59.4	57.6	55.9	53.6	51.9	50.4	50.2	49.6	59.5	59.4	43.2	51.0	5.1	100.0
3	48.4	47.4	46.7	45.9	44.9	43.8	41.0	40.2	43.4	51.1	56.9	60.2	62.4	64.5	65.8	66.8	67.1	66.6	66.1	64.1	57.7	56.2	54.9	54.6	67.1	66.8	40.2	54.9	9.1	100.0
4	53.7	52.8	54.5	52.3	48.7	48.3	49.2	49.3	51.9	56.1	60.6	64.0	66.4	68.2	68.9	68.6	67.8	66.2	64.3	62.8	61.3	59.6	58.5	57.1	68.9	68.6	48.3	58.8	6.9	100.0
5	55.9	55.5	54.9	54.0	52.2	50.9	50.4	50.1	53.1	58.7	63.2	67.0	69.6	70.9	72.2	72.4	71.3	68.3	65.9	65.8	65.1	63.8	62.0	61.7	72.4	72.2	50.1	61.5	7.4	100.0
6	61.7	61.7	61.2	61.7	61.8	62.5	63.8	64.0	64.1	63.0	63.8	65.0	66.3	66.9	67.5	67.1	65.9	63.6	61.8	60.4	60.3	60.1	59.4	58.7	67.5	67.1	58.7	63.0	2.5	100.0
7	57.2	55.6	54.0	52.6	51.4	49.9	48.9	48.3	49.8	53.9	57.8	61.8	64.3	66.0	66.6	67.2	66.7	64.9	63.1	61.8	59.4	57.0	55.9	53.8	67.2	66.7	48.3	57.8	6.1	100.0
8	52.9	51.2	49.4	49.2	49.3	47.6	47.1	47.1	47.5	49.5	53.6	60.0	65.7	68.4	69.8	70.7	70.3	69.2	67.8	66.6	65.1	63.8	62.9	62.8	70.7	70.3	47.1	58.6	8.9	100.0
9	63.3	63.3	63.1	63.2	63.7	64.3	65.5	67.6	68.1	69.5	70.5	72.0	74.6	76.2	77.7	78.1	77.4	76.4	74.9	73.6	73.3	71.9	71.2	68.6	78.1	77.7	63.1	70.3	5.1	100.0
10	61.6	57.8	56.8	53.7	53.0	52.2	50.3	48.0	47.4	47.0	46.8	46.9	46.8	46.9	46.7	46.1	46.1	45.8	45.7	45.5	44.8	44.1	43.5	42.9	61.6	57.8	42.9	48.6	4.7	100.0
11	42.3	42.0	41.6	41.2	41.0	40.9	40.5	39.9	40.4	41.7	44.7	47.8	50.8	52.9	54.3	54.7	54.1	52.2	50.1	48.1	45.8	44.8	43.7	42.6	54.7	54.3	39.9	45.8	5.0	100.0
12	41.6	41.1	40.2	39.7	38.7	38.3	FEW	LST	LST	LST	LST	LST	LST	FEW	57.8	58.1	58.0	56.5	55.5	54.6	53.4	52.7	52.8	51.8	58.1	58.0	38.3	49.4	7.6	66.7
13	51.3	51.3	50.5	50.3	50.7	48.6	49.8	50.0	51.7	55.7	59.3	62.8	65.8	68.0	68.9	69.7	68.7	66.4	65.4	63.0	61.1	59.3	57.3	55.9	69.7	68.9	48.6	58.4	7.2	100.0
14	55.7	53.7	53.2	52.6	50.9	48.4	48.4	48.6	49.2	53.0	59.5	63.8	66.3	68.4	70.2	70.7	70.2	67.5	63.6	60.9	58.7	57.2	56.9	57.2	70.7	70.2	48.4	58.5	7.4	100.0
15	59.0	60.5	61.1	62.0	63.3	64.2	65.3	67.1	68.6	69.6	71.8	75.0	77.9	79.1	79.3	79.2	77.6	75.9	74.4	73.2	72.5	72.0	71.3	71.0	79.3	79.2	59.0	70.5	6.3	100.0
16	70.8	71.0	71.1	70.7	70.8	70.5	70.8	70.9	71.6	72.4	68.9	52.6	51.2	50.3	49.0	48.8	48.6	47.3	46.3	45.1	43.3	42.1	41.3	40.8	72.4	71.6	40.8	57.8	12.4	100.0
17	40.5	39.7	38.7	38.6	38.1	37.2	36.7	36.7	37.5	39.2	41.0	43.5	45.5	47.7	48.8	49.5	49.4	47.9	45.4	43.7	42.1	40.5	39.8	39.1	49.5	49.4	36.7	41.9	4.2	100.0
18	38.5	37.5	37.4	36.1	35.8	35.0	34.5	34.6	37.1	42.7	47.5	50.5	51.9	52.7	53.9	54.7	54.4	54.0	53.6	51.3	49.7	48.7	47.0	45.0	54.7	54.4	34.5	45.2	7.5	100.0
19	43.3	43.2	41.5	40.5	40.2	40.8	40.1	38.9	38.9	43.9	49.0	51.8	53.2	54.1	55.3	55.8	55.3	53.8	52.0	49.5	47.3	46.4	45.0	44.6	55.8	55.3	38.9	46.8	5.7	100.0
20	44.2	43.4	43.4	43.9	44.9	45.1	45.1	45.5	46.0	46.9	48.2	49.5	50.1	49.1	48.2	47.9	47.1	46.9	46.4	46.2	46.3	46.3	45.9	45.8	50.1	49.5	43.4	46.3	1.8	100.0
21	46.0	46.2	46.7	46.8	46.7	46.6	46.8	46.9	47.5	48.7	49.9	51.2	52.3	52.7	52.4	52.4	52.5	51.8	50.9	49.9	49.1	47.8	47.0	46.4	52.7	52.5	46.0	49.0	2.4	100.0
22	44.1	42.8	41.8	40.9	40.6	40.6	39.9	39.9	40.9	44.9	49.7	52.6	54.3	55.5	57.1	57.5	57.7	56.0	54.5	52.7	49.6	47.4	46.3	45.4	57.7	57.5	39.9	48.0	6.3	100.0
23	44.6	44.1	43.3	42.2	42.2	41.4	40.3	40.0	42.7	47.7	53.4	58.8	61.6	63.6	65.9	66.3	66.1	65.0	64.5	61.1	60.2	59.3	56.9	55.1	66.3	66.1	40.0	53.6	9.7	100.0
24	52.6	52.7	51.9	51.1	52.2	51.1	51.3	49.9	49.2	53.4	60.5	64.0	66.1	68.4	69.6	70.6	70.1	68.3	66.6	65.3	61.6	59.2	56.9	55.8	70.6	70.1	49.2	59.1	7.4	100.0
25	54.2	52.7	51.1	50.3	49.9	49.9	49.7	49.0	48.5	52.2	59.4	63.2	65.1	66.7	68.3	69.3	68.7	66.9	64.5	62.2	59.7	58.0	56.7	56.1	69.3	68.7	48.5	58.0	7.1	100.0
26	55.8	56.1	55.6	54.9	54.2	53.9	53.0	51.6	52.0	55.4	61.9	66.2	68.7	70.1	70.9	70.7	70.6	70.0	69.1	66.6	62.8	61.4	60.9	59.9	70.9	70.7	51.6	61.3	6.8	100.0
27	58.9	58.2	57.9	57.3	56.7	56.4	56.2	56.6	57.3	58.6	60.5	62.4	63.0	63.7	64.7	65.1	65.0	64.4	63.8	63.5	63.3	62.9	62.5	61.9	65.1	65.0	56.2	60.9	3.1	100.0
28	61.2	61.2	61.3	61.5	61.9	62.5	63.4	64.0	64.4	65.7	67.0	69.7	69.8	69.6	73.1	74.2	73.2	72.1	69.5	69.2	68.7	67.6	64.4	60.2	74.2	73.2	60.2	66.5	4.3	100.0
29	59.5	59.4	59.5	59.5	59.7	59.8	58.9	56.1	54.0	53.0	54.0	57.1	58.8	60.9	63.3	64.3	62.3	60.0	57.3	55.1	53.1	51.5	50.3	48.6	64.3	63.3	48.6	57.3	4.0	100.0
30	47.1	46.4	46.5	45.1	43.4	42.4	41.3	41.0	42.2	46.1	50.5	53.2	54.5	55.9	57.1	57.4	57.1	55.2	53.1	51.4	50.1	48.4	47.4	45.9	57.4	57.1	41.0	49.1	5.2	100.0
31	43.9	43.3	43.0	42.6	42.1	41.8	40.9	40.6	40.8	45.3	50.2	53.5	56.3	57.7	58.1	58.0	58.0	57.2	56.3	55.4	54.5	54.1	53.3	52.1	58.1	58.0	40.6	50.0	6.7	100.0
Day	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Max	SH	Min	Avg	STD	Cap

Monthly Max	Monthly SH	Monthly Min	Monthly Avg	Monthly STD	Monthly Cap
79.3	79.2	34.5	55.4	9.7	98.9
December 15 14:00	December 15 15:00	December 18 06:00			

PLEASE NOTE: This data has not been verified by the TCEQ and may change. This is the most current data, but it is not official until it has been certified by our technical staff.

CAMS 698 Monthly Precipitation Summary Report for December 2019

Report Month: December 2019 Site Description: UH WG Jones Forest C698 EPA Site: 48 339 0698 Report Generated: January 7, 2020 15:13:18 CST
 Parameter: Precipitation (POC 1) measured in inches (rainfall) All times are reported in Central Standard Time

Day	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Max	SH	Min	Cum	STD	Cap
1	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
2	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
3	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
4	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
5	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
6	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
7	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
8	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
9	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<u>0.01</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	100.0
11	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
12	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	FEW	LST	LST	LST	LST	LST	LST	FEW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.7
13	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
14	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
15	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
16	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
17	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
18	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
19	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
20	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
21	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
22	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
23	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
24	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
25	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
26	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
27	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<u>0.01</u>	0.01	0.00	0.01	0.01	100.0
29	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
30	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
31	<u>0.00</u>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Day	Mid	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Max	SH	Min	Cum	STD	Cap

Monthly Max	Monthly SH	Monthly Min	Monthly Cum	Monthly STD	Monthly Cap
0.01 December 10 07:00	0.01 December 28 21:00	0.00 December 1 00:00	0.03	0.03	98.9

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