

From: [Barth Thomas](#)
To: [REDACTED]
Subject: NTSB Investigation of Tesla crash and fire HWY17FH013
Date: Wednesday, November 28, 2018 2:13:00 PM
Attachments: [OCFA Factual Info for Review.pdf](#)

Hello Justin,

I spoke to you this morning regarding the OCFA official incident report 2017-0093071-000 that we received via subpoena dated October 30, 2017. This concerns the Tesla crash into a private home and fire that occurred on August 25, 2017.

The NTSB has used information from the report to describe the emergency response in our factual report. Because your incident report was labeled "Not for Public Release", I'm providing an advanced draft copy of the factual information we have in our factual report related to the emergency response.

Please review this information and provide comments and/or indicate that the OCFA approves of its public release.

Feel free to contact me with any questions.

Thanks and Regards,

Tom

Thomas Barth, Ph.D.

Investigator, Biomechanics Engineer

NTSB – Denver Regional Office

4760 Oakland St. Denver, CO 80524

[REDACTED]
[REDACTED]

1 **NTSB Investigation of Tesla Model X collision with private home and post-crash fire**
2 **HWY17FH013**

3
4 The emergency response section of the NTSB factual report uses information obtained from the
5 Orange County Fire Authority (OCFA) Official Incident Report: Incident 2017-0093071-000.

6
7 The OCFA report was obtained by subpoena in a letter dated October 30, 2017. The content was
8 marked “Not for Public Release”.

9
10 The following draft factual information is provided in advance of public release for review by
11 the OCFA.

12
13 Request for review dated November 28, 2018

14 Response giving approval for the eventual release of this content or comments to the content are
15 requested by December 19, 2018.

16
17 Provide response or comments to:

18 NTSB Investigator Thomas Barth

19 [REDACTED]
20 [REDACTED]
21 [REDACTED]

22
23 **1. Emergency Response**

24 **1.1. Law Enforcement Information**

25 The Orange County Sheriff’s Department (OCSD) had jurisdiction for the crash. The
26 OCSD conducted an investigation, case number 17-033594, and the Traffic Collision Report was
27 obtained.¹ The report provided location and persons involved, scene diagrams and descriptions of
28 the evidence at the scene, narrative reports from law enforcement responders, statements from
29 persons involved, results of vehicle inspection, and opinions and conclusions from the crash.

30 OCSD was dispatched to an injury traffic collision at [REDACTED] Countryside at 6:16 p.m. on
31 8/25/17. At 6:20 p.m., the call updated that the vehicle was on fire. About 30 seconds later the
32 call updated that the garage was on fire. OCSD officers first arrived on scene at 6:28 p.m. and
33 identified the Tesla driver, Tesla passenger, owners of the house and bystanders. A unified

¹ Attachment: OCSD Traffic Collision Report

command was established in front of the house and officers worked setting perimeter points and scene management. Officers took witness statements at the scene and sent a unit to Mission Viejo Hospital, where the driver was transported, [REDACTED]

An OCSD officer performed a vehicle inspection on the Tesla on August 30, 2017, and a search warrant to obtain hardware containing data from the Tesla Electronic Control Unit (ECU) was obtained on September 6, 2017. The OCSD released the ECU hardware to the NTSB, who extracted data and coordinated assistance from Tesla to interpret the data. Refer to the Vehicle Data Recorder Specialist's Factual report for ECU data, available in the crash docket. Data was also processed by Tesla to create the Event Data Recorder (EDR) report as previously referenced.

1.2. Orange County Fire Authority

The Orange County Fire Authority (OCFA) had primary jurisdiction for the crash and provide fire, rescue and Emergency Medical Services (EMS). The OCFA is dispatched by the Orange County Emergency Command Center (ECC). The ECC serves as a secondary 911 Public Service Answering Point and dispatch center for fire and medical in the county. ECC also serves as the operational area coordinator for fire and rescue mutual aid for all Orange County fire service agencies. The OCFA and ECC are located at 1 Fire Authority Road, Irvine, California 92602.

The Orange County Fire Authority Incident Information Fact Sheet for incident number 2017093071 was obtained.² The fire incident was established at 6:17 pm and was reported as a building fire with the origin noted as a vehicle. The building was noted as a single family private residence, in normal use. The OCFA response included a total of 28 total responding apparatus.

The OCFA Official Incident Report was obtained, and was marked not for public release. The following sub-sections summarize pertinent content of the report and have been approved by OCFA for public release.

1.2.1. Responding Apparatus

² Attachment: OCFA Incident Information Fact Sheet

The alarm time was at 6:17 p.m., the first unit arrival time was arrival time was at 6:25 p.m., and the last unit cleared time was 12:43 a.m. The incident detail report (computer aided dispatch log), provided the list of responding units, the number of personnel in each, the response times, and the actions take, as shown in Table 1.

Table 1. OCFA Apparatus Response

Unit	Unit Type	# Of Personnel	Assigned	Enroute	Arrival	Action Taken
E31	Engine	4	8/25/2017 18:17:51	8/25/2017 18:18:43	8/25/2017 18:26:59	Incident Commander/Extinguishment
T45	Truck/Aerial	4	8/25/2017 18:17:51	8/25/2017 18:18:41	8/25/2017 18:29:25	Ventilation/Extinguishment
B7	Chief Officer	1	8/25/2017 18:17:51	8/25/2017 18:19:03	8/25/2017 18:25:29	<u>FIRST ON SCENE</u> - Incident Commander
CAR8131	Sheriff	1	8/25/2017 18:18:49	8/25/2017 18:20:46	8/25/2017 18:28:21	Investigation
E19	Engine	4	8/25/2017 18:22:22	8/25/2017 18:22:47	8/25/2017 18:27:58	Advanced Life Support (ALS)
E38	Engine	4	8/25/2017 18:22:22	8/25/2017 18:24:16	8/25/2017 18:31:02	Extinguishment
T22	Truck/Aerial	4	8/25/2017 18:25:39	8/25/2017 18:26:31	8/25/2017 18:35:09	Ventilate/Extinguishment
E45	Engine	3	8/25/2017 18:25:39	8/25/2017 18:27:48	8/25/2017 18:35:50	Extinguishment/Salvage and Overhaul
B4	Chief Officer	1	8/25/2017 18:25:39	8/25/2017 18:25:45	8/25/2017 18:32:01	Interior Command
SS1	Fire Department	1	8/25/2017 18:25:39	8/25/2017 18:38:33	8/25/2017 19:11:45	Salvage/Vehicle Removal
I6	Investigator	1	8/25/2017 18:25:39	8/25/2017 18:27:45	8/25/2017 18:49:16	Investigation
N1	Fire Captain	1	8/25/2017 18:25:39	8/25/2017 18:25:47	8/25/2017 18:34:25	General Support
SAFE27	Public Safety	1	8/25/2017 18:25:39	8/25/2017 18:29:14	8/25/2017 18:45:00	Scene Securement
HR6	Heavy Rescue	4	8/25/2017 18:33:06	8/25/2017 18:33:52	8/25/2017 19:02:56	Structural Shoring/Vehicle Removal
T9	Truck/Aerial	4	8/25/2017 18:43:29	8/25/2017 18:45:03	8/25/2017 19:04:34	Provide Manpower
T22	Truck/Aerial	4	8/25/2017 18:46:23	8/25/2017 18:46:35	8/25/2017 20:45:18	Ventilate/Extinguishment
E42	Engine	3	8/25/2017 18:50:13	8/25/2017 18:51:02	8/25/2017 18:56:34	Extinguishment
E222	Engine	4	8/25/2017 18:50:13	8/25/2017 18:50:41	8/25/2017 19:00:52	Extinguishment/Salvage and Overhaul
E20	Engine	4	8/25/2017 19:06:55	8/25/2017 19:07:36	8/25/2017 19:13:01	Assist Firefighter Rehab
CAR8127	Sheriff	1	8/25/2017 19:09:25	8/25/2017 19:10:56	8/25/2017 19:19:14	Investigation

1.2.2. Fire/Rescue/EMS initial response

The Emergency Communications Center (ECC) received the first 911 call for the incident at 6:17 p.m, and began coordination of medical support within a minute. The initial notification

71 was of conflicting reports of a structure and possible vehicle fire, and an unconfirmed report of a
72 vehicle fire with 2 people out of the car was received at 6:19 p.m. Notification obtained from a
73 responding OCSD officer indicated a structure and vehicle were on fire at 6:22 p.m.

74 The response was upgraded to a structure response and Battalion Chief 7 (B7) arrived first
75 on the scene at 6:25 p.m. and assumed Incident Command (IC). Upon arrival, the IC noted a
76 single-story home with fire venting from the north side of a three-car garage, with obvious
77 structural damage to the area connecting the two-car portion and the one car portion of the garage.
78 Engine 31 (E31) was the first crew to arrive and initiated a fire attack on the vehicles in the garage.

79 Mutual aid for EMS support was requested at 6:26 p.m. Engine 19 (E19) arrived on the
80 scene at 6:27 p.m. The driver of the Tesla and an involved passenger were located near the scene.

81 Between 6:33 p.m. and 6:44 p.m. requests for materials to shore up the front of garage were
82 coordinated. While E31 had knocked down the initial fire in the garage, the structural sagging
83 prevented access to the unprotected attic space above the garage. At 6:44 p.m. it was noted that
84 the bulk of the fire had been knocked down, but that it appeared there was a fuel source in the
85 garage and that there was still fire above the garage. The fire grew in the false dormer area and
86 eventually threatened the interior portion of the dwelling. B4, interior command, requested
87 additional companies to assist with stopping the progress of the fire in the structural portion of the
88 garage, which included Heavy Rescue 6 (HR6), Truck 9 (T9), Engine 42 (E42), and Engine 222
89 (E222), which were assigned by dispatch between 6:33 p.m. and 6:50 p.m.

90 At 6:47:00 p.m., B4 was assigned interior Incident Commander and B7 assigned exterior
91 Incident Commander. While E31 provided extinguishment, Truck 45 (T45), assigned to ventilation
92 group, first ensured the fire had not extended into the living portion of the home, and then placed
93 a gas-powered ventilation blower in service at the front door, made access to the roof, and
94 attempted to check for extension of the fire into a false dormer directly above the garage. T45 had
95 limited access to the involved portion and was unable to progress to the alpha side of the dormer,
96 due the sagging header connection where the post between the garages was missing. At 6:48 p.m.
97 the dispatch report noted that entering the garage remained restricted due to structural concerns.

98 E19 was assigned to care for the driver, while the passenger refused to go to the hospital
99 and declined medical attention. E19 left the scene with the one patient at 6:50:32 p.m. He was

transported as a trauma patient to Mission Hospital in Mission Viejo, CA with OCSD officers following up. E19 arrived at Mission Hospital with the patient at 7:12:47 p.m.

It was noted at 6:55 p.m. that the garage fire continued to grow. After the structural fire progress was stopped, the fire under the Tesla continued to re-ignite on and off until cooling measures were temporarily successful. It was reported by HR6 that the Tesla battery pack compromise was the primary source of fire. Figure 16 shows the house with the Tesla in the garage from a photo taken by the OCFA with a time stamp of 6:56 p.m. The fire in the upper portion of the garage appeared to be separate from the vehicle, but flames can still be seen at the bottom front end of the Tesla. Note that the photograph has been cropped from their original form.



Figure 1: Residence and Tesla at approximately 6:56 p.m. (source: OCFA)

Notification of building officials and utility company occurred from 7:03 p.m to 7:10 p.m. HR6 placed two spot shores under the sagging garage headers to stabilize the wall of the garage. B7 responded with All Clear on the garage and residence at 7:17:52 p.m. Once the building was stabilized, focus turned to the removal of the Tesla. Figure 17 shows a view of the garage and Tesla with a winch cable connected to the right rear wheel of the Tesla, and the photograph was taken by the OCFA with a timestamp of 7:26 p.m.



Figure 2: Garage and Tesla at approximately 7:26 p.m. (source: OCFA)

At 8:04 p.m. the Tesla had been removed from the garage with the winch on HR6, and the Tesla battery was noted as still on fire. The structure was still deemed unsafe to enter by the Incident Commander. Figure 18 shows the Tesla as photographed by the OCFA at approximately 8:05 p.m. The vehicle was now on the driveway and has fire emanating from the bottom of the car.



Figure 3: Tesla at approximately 8:05 p.m. (source: OCFA)

The flames were reportedly quickly extinguished, and the Tesla was noted to be stable for approximately 45 minutes before it began to emit heavy white smoke from the floor of the vehicle. The smoke ignited and began burning in what was described as a blow-torch manner, and emitted

high pressure flames out of the driver side floor area. It was noted that a 1.75 inch diameter line was initially used to extinguish these flames, but was unsuccessful. Crews then allowed the vehicle to free burn in an effort to eliminate as many ordinary vehicle combustibles as possible. Once they observed that the fire was limited to what appeared to be the battery trays and floor assembly, they used two preconnected 1.75 inch lines at 200 Gallons per Minute (GPM) and eventually a 2.5 inch line simultaneously for more than 45 minutes to cool the lower portion of the Tesla.

When it was extinguished, a skid steer was requested at 9:02 p.m. for use in accessing the underside of the car, however the estimated arrival time for this equipment was 1.5 to 2 hours. Instead, Fire Fighter (FF) propped up the car with cribbing blocks and a floor jack. The skid steer did arrive later and was used to reposition the Tesla as well as the other car that was in the garage during the collision. Figure 19 shows the Tesla being cribbed up in a photograph taken by the OCFA at approximately 9:13 p.m.



Figure 4: Tesla at approximately 9:13 p.m. (source: OCFA)

1.2.3. Post-Structure/Vehicle Fire/Reignition

The Southside Towing dispatch log (shown in section 3.2 of this report) indicated that they received the call to tow the Tesla at 10:40 p.m., and the tow truck arrived at 11:09 p.m. The IC noted that the Tesla began to smoke again, as the vehicle was being loaded onto the tow truck. Figure 120 shows a still image frame of a cell phone video taken by a Southside Towing worker, which shows a view of the Tesla on fire while partially loaded onto the tow truck. This still image shows the vehicle mostly on the flatbed, with the bed near the ground.

149



150

151 Figure 5: Tesla reignited on the flatbed towtruck. (source: OCFA)

152 As described by the tow truck driver, the Tesla was raised in elevation and the Tesla
153 unloaded further off the flatbed in order to open up space underneath the car for better application
154 of water. Figure 21 shows a still image from a video taken by an OCSD officer of the same event.
155 This image is later in time, and shows the Tesla further off the truck with the flatbed raised.

156



157

158 Figure 6: Tesla reignited on the flatbed tow truck. (source: OCSD)

159 The incident log noted that the Tesla was being towed from the scene at 12:21 a.m. The
160 Southside Towing log noted that they started towing at 12:25 p.m. and arrived at the tow yard at
161 12:38 p.m. As noted by the tow truck driver, the Tesla reportedly began to smoke and make
162 popping sounds during unloading at the yard, but did not emit flames and stopped. The Southside
163 Towing log noted that the job was completed at 1:15 a.m.