National Aeronautics and Space Administration

Headquarters
Washington, DC 20546-0001

July 22, 2021

Reply to attn. of: Office of Communications

John Greenewald, Jr.
27305 W. Live Oak Rd.
Suite #1203
Castaic, Ca. 91384
john@greenewald.com

Re: FOIA Tracking Number 21-JSC-F-00358

Dear Mr. Greenewald:

This is an interim response to] your Freedom of Information Act (FOIA) request to the National Aeronautics and Space Administration (NASA), dated April 26, 2021, and received in this office on the same day. Your request was assigned the above-referenced tracking number. You seek:

I respectfully request a copy of records (which includes videos/photos), electronic or otherwise, which pertain to the Friday, April 23, 2021, launch of SpaceX Falcon 9, and a near miss with an unknown object during launch. According to the NY Post, as published at https://nypost.com/2021/04/25/spacex-craft-close-call-with-ufo-afterlaunching-into-orbit/ :

SpaceX's Crew Dragon Endeavor spacecraft had a close call with an unidentified object before successfully reaching the International Space Station, a report said.

US Space Command warned the crew aboard the spacecraft of a possible collision with an unknown object after launching into orbit on Friday, Futurism reported.

"The possibility of the conjunction came so close to the closest approach time that there wasn't time to compute and execute a debris avoidance maneuver with confidence, so the SpaceX team elected to have the crew don their pressure suits out of an abundance of caution," NASA spokesperson Kelly Humphries told Futurism.

I ask that you include all records pertaining to this event. That would include, but not be limited to, emails, reports, letters, the notification by US Space Command, photos, videos, and all other records that would pertain to the above.

In NASA Acknowledgement Letter, dated April 29, 2021, NASA assigned a search to relevant JSC's Flight Operations Directorate staff for their emails and other communications using the search terms "conjunction, "near miss", "orbital debris", "debris avoidance maneuver", and associated acronyms involving the SpaceX Falcon 9 launch from April 23, 20121 until the date of search. In addition to these communications, NASA processed the relevant portion of the console log for this flight in response to this request.

This letter responds to the located records where NASA has the full equities. The remaining records may be proprietary and NASA has provided SpaceX an opportunity to provide its input in accordance with Executive Order 12,600. We reviewed the responsive records under the FOIA to determine whether they may be disclosed to you. Based on that review, this office is providing the following:

11 page(s) are released in full (RIF);
8 page(s) are released in part (RIP).

NASA redacted from the enclosed documents certain information pursuant to the following FOIA exemptions:

Exemption 6, 5 U.S.C. § 552(b)(6)

Exemption 6 allows withholding of "personnel and medical files and *similar files* the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6)(emphasis added). NASA invokes Exemption 6 to protect telephone numbers, work cell phone numbers, and e-mail addresses.

Fees

Provisions of the FOIA allow us to recover part of the cost of complying with your request. In this instance, because the cost is below the $50 minimum, there is no charge.

Appeal

Because processing is not yet complete, we ask that you defer any appeals until NASA completes its work on your request. You do, however, have the right to appeal my action regarding your request. Your appeal must be received within 90 days of the date of this response. Please send your appeal to:

Administrator
NASA Headquarters
Executive Secretariat
ATTN: FOIA Appeals
MS 9R17
300 E Street S.W.
Washington, DC 20546

Both the envelope and letter of appeal should be clearly marked, "Appeal under the Freedom of Information Act." You must also include a copy of your initial request, the adverse determination, and any other correspondence with the FOIA office. In order to expedite the appellate process and ensure full consideration of your appeal, your appeal should contain a brief statement of the reasons you believe this initial determination should be reversed. Additional information on submitting an appeal is set forth in the NASA FOIA regulations at 14 C.F.R. § 1206.700.

Assistance and Dispute Resolution Services

If you have any questions, please feel free to contact me at robert.s.young@nasa.gov. For further assistance and to discuss any aspect of your request you may contact:

Stephanie Fox
Chief FOIA Public Liaison
Freedom of Information Act Office
NASA Headquarters
300 E Street, S.W., 5P32
Washington D.C. 20546
Phone: 202-358-1553
Email: Stephanie.K.Fox@nasa.gov

Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services it offers. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

Important: Please note that contacting any agency official including myself, NASA's Chief FOIA Public Liaison, and/or OGIS is not an alternative to filing an administrative appeal and does not stop the 90 day appeal clock.

Sincerely,

Robert Young

Robert Young FOIA Officer
Headquarters, Office of Communications

From: Nelson, Emily J. (JSC-CA811)
To: JSC-DL-FOD-ISS-CONT-Status
Subject: Crew2 Launch Status - Prop load in progress
Date: Friday, April 23, 2021 5:12:14 AM

The teams have worked a couple of different challenges during the count this morning, including evaluation of a late conjunction threat that was resolved as a non-issue for this morning's launch.

All parties have polled go for Launch Escape System arm, Propellant Load and Launch. The Launch Escape System is armed and Prop Load has begun. The crew continues to do well and the team is proceeding to launch at 04:49 CDT.

Sent: Friday, April 23, 2021 3:01 AM
Subject: Crew2 Launch Status - Crew in the Dragon

The Endeavour crew are doing well and have ingressed the capsule. Comm checks and suit leak checks were nominal and the Dragon hatch is now closed and has passed leak checks. The team is approximately 30 min or more ahead of the nominal timeline.

Weather continues to be go for today's launch. The team is monitoring winds at the launch site and they are currently within Flight Rule limits.

The final GO/NO-GO call for Launch Escape System arming and Propellant Load is scheduled to occur at approximately 0400 CDT.

Emily Nelson
Flight Director
Flight Operations Directorate
JSC Bldg 4N/364
(cell) **(b) (6)**

From:	Lacourt, Vincent A. (JSC-CA811)
To:	Nelson, Emily J. (JSC-CA811); Ridings, Holly E. (JSC-CA811); Knight, Norman D. (JSC-CA111); Koerner, Stephen A. (JSC-CA111); Tingle, Scott D. (JSC-CA111); Wiseman, G. Reid (JSC-CA111)[MILITARY ASTRONAUTS]; Feustel, Andrew J. (JSC-CB111)
Cc:	Henfling, Rick (JSC-CA811); Lammers, Michael L. (JSC-CA811); Bolinger, Allison T. (JSC-CA811); Stover, Scott A. (JSC-CA811); Boulos, Adi M. (JSC-CA811); Vareha, Anthony (JSC-CA811); Meir, Jessica U. (JSC-CB611); Scoville, Zebulon C (JSC-CA811); Howorth, William [Lark] (JSC-CM111); Pascucci, Joseph E. (JSC-CM471)
Subject:	Dragon Late Notice Conjunction and Space Force Communication Error
Date:	Friday, April 23, 2021 3:25:38 PM
Attachments:	DMMT_FOD_Crew2_FOD_Status_4_23_21.pptx

I have built the attached draft DMMT charts for this evening. TOPO management is working with Space Force to confirm what happened and exactly what words should be used to describe the error. Based on current data, the object we were concerned about, was not in fact, a real object. See charts for details.

Vincent LaCourt
Flight Director
Work: 281-483-1823
Cell: **(b) (6)**
B4N/358

Post Launch DMMT

FOD Status

JSC Flight Operations Directorate

Flight Director/Emily Nelson, Vincent LaCourt

April 23, 2021

FOD Status

- **Late Notice Conjunction**
  - Late Notice Conjunction discovered during nominal post insertion trajectory clearing [OIP G.7.16.2 Data Exchange]
  - Timeline of Events:
    - ~16:50 Post Insertion Clearing results found 17:43 TCA, total miss 1.14 km. Nominal error due to trajectory propagation at that point expected to be 6-7km.
      - New unknown object that was not seen during previous clearing.
      - TOPO and SpaceX worked together to produce new state vector and work with Space Force for more accurate analysis
    - 17:00 Presleep begins
    - 17:24 SpaceX Requested crew to don suits as risk mitigation, took 13 mins to don suits
    - 17:38 TOPO combining the best available data from USSF and SpX/Nav to compute the updated miss distance of 45 km
    - 17:43 TCA passed with no impact to vehicle and crew doff suits
    - 18:30 We learned this object was an “analyst sat”. This is not a real object but a ghost object that is input into the system by space force for their internal purposes. Should not have been delivered to NASA as conjunction.
    - **Conclusion**: No expected impact to tomorrow’s timeline due to crew working during presleep.
    - **Lessons Learned Action**: work with Space Force to prevent “analyst sat” from being used in conjunction analysis
- **ISS is go for docking pending nominal planned activities**

From: Scoville, Zebulon C (JSC-CA811)
To: Kris Young
Subject: Fwd: Potential Conjunction with Crew Dragon-
Date: Friday, April 23, 2021 1:42:02 PM

Assume you are getting this as well. Showing total miss of 28km. Just reported from TOPO.

Begin Forwarded Message:

> **From:** "Boulos, Adi M. (JSC-CA811)" <adi.m.boulos@nasa.gov>
> **Subject:** Potential Conjunction with Crew Dragon-
> **Date:** 23 April 2021 10:38
> **To:** "JSC-DL-FOD-ISS-CONT-Status" <jsc-dl-fod-iss-cont-status@mail.nasa.gov>
>
> TOPO has been informed that the Crew Dragon has a potential conjunction with an unknown object with a time of closest approach of 12:43pm Houston Local time. Due to the late notice, Crew Dragon is unable to perform a debris avoidance maneuver. The crew has been directed to don their pressure suits and await the time of closest approach.

Adi Boulos
NASA Johnson Space Center
Flight Director
Cell Phone: (b) (6)
Adi.M.Boulos@nasa.gov

From: Boulos, Adi M. (JSC-CA811)
To: JSC-DL-ISS-FD-HO
Subject: Hand_21_FD113_O2_Exp_65_-_O2_(Boulos_Zenith_FCR1)_to_O3_(Vareha_Enterprise_WFCR).docx
Date: Friday, April 23, 2021 4:40:34 PM

Dragon

Conjunction	BLUF: Space Force did not clear a fake analyst satellite from their catalog. SpaceX took action and had crew donn suits, we were not in an elevated risk of a conjunction. At GMT 17:05, TOPO informed me that Endeavour has a very late notice conjunction with an unknown object with a TCA at 17:45. Initial reports indicated a miss distance of 1 km. TOPO requested updated state vectors from SpaceX which ended up being off the propagated state vectors by 7km. With the relatively close proximity to the PCA a DAM was not an option and SpaceX elected to have the crew Donn their suits while waiting for the TCA. TOPO ran the updated state vectors and reported that the miss distance was about 45km. After the TCA passed TOPO was informed that the "unknown" object that we had a TCA with is in fact an analyst satellite that was inserted into the catalog for Space Force's internal purposes. In other words, this object does not exist. Vincent is working on potential DMMT charts for this incident. Crew ended up staying up an extra 30ish minutes.
Temp	Endeavour crew reported they felt cold in Dragon so temperatures were kept around the 80 F range. Just an SA item since FR X18-3 the upper limit for payloads is 85F
O1 Draco 3	Ox inlet pressure was declared invalid because it went below the lower sanity bounds. SpaceX assumed this was an intermittent issue so they re-enabled it but it ended up having the same issue and going invalid again. No impact to rndz and docking we still have two good sensors on that thruster.

ISS Systems

ROBO Ops	On the timeline, 1 of the 2 MSC transfers are complete
CASA	This ended up being a cluster. The procedure wasn't very clear and Ike actually installed the bump out panel backwards. Once everything was installed correctly (an extra 1.5 hours on Ike), Soichi performed the veloci-cal measurements as well as the acoustic measurements. At the end of the day the plan was to stow the bumpout and remove the air duct from the CASA. The crew reported that the air duct has tight clearing and that they are concerned it may crack. After some lengthy discussions with the MER and COL-CC we elected to not uninstall the air duct and leave the bump outs deployed.

Repress	Nors O2 Repress Complete
TAS	Had a known fault, reoccurrence to AR 9155. Recovered in 4-bed mode.

Payloads/CHeCS

NTR

MCC

12001	Maintenance mentioned in O2 handover is complete.

Planning/Other

eDPC	Cancelled, crew was happy.

Comm with Inc Lead

Phew.

Open Work

NTR.

COVID-19 Recurring Tasks

- **Forward FCR-1 console phone as needed. WFCR FD console is x28347**
- **FCR-1 FD: update handover log binder, print Daily Summary**
- **Review F098992 "MCC-H Coronavirus (COVID-19) Response Plan"**

From: Vareha, Anthony (JSC-CA811)
To: JSC-DL-ISS-FD-HO
Subject: Hand_21_FD113_O3_Exp_65_-_O3_(Vareha_Enterprise_WFCR)_to_O1_(Stover_Keystone_FCR1).docx
Date: Saturday, April 24, 2021 1:09:30 AM

Dragon Endeavour

Burns	All burns done nominally; VVO thinking we'll show up at ISS 10 minutes early. TIG for AI is ~07:30 In addition to the big Boost burn at 124z (crew sleep was supposed to be until 0200z but no way they slept through the Boost burn), the Dragon NAV system added two small phasing burns throughout the crew sleep shift. One at 2102z, and one at around 0000z. Both were small, about 1.5 m/s, but thrusters are loud and…we might have a tired crew is the takeaway.
Dracos	Have seen instances of squirrely SX50 sensors on the O1D3 Ox Inlet and the O2D8 combustion chamber. They are still enabled as MCC-X monitors performance. No impact – and reminder, per X6-1 we can lose two of them on each thruster and still be fine.
Coord Table	1B, 2B, 3B, 4A, 6A, 7A, 8A, 9B, 10B complete

ISS Systems

C2V2	Was looking unhealthy for audio, but CRONUS just recovered it in time for O1! AR pending. Normally, the KCU should be putting out some filler packets to C2V2 for audio, even though we don't have C2V2 linked to any particular public call. C2V2 is not seeing them. We tried cycling KCU by sending the autonegotiation command – no joy. We pulled the timelined C2V2 swap B->A early, still no joy. The KCU 2 AVIC group and the RTF interfaces are the last commonality. AVIC card cycle was no joy. RTF reset was just performed and…joy. We're now seeing packets incrementing.
ROBO	Had issues with the RMCT during MISSE ops where the indicator wasn't responding. The mechanism was working fine, which was proven with some test drives (concurred by the MER). Continued operation knocked the indicator loose to where it was working again. ROBO's ops took the arm in front of a retroreflector. X12-1 says that the SSRMS needed to be clear by 6 hours before docking, which we met easily. ROBO systems are go for docking.

Payloads/CHeCS

ntr

MCC

PMC Miss	Ahead of the DMMT tonight I got a question from MMI about "hey are you guys going to discuss the PMC mixup earlier today" and this was news to me. I talked to Adi and Paul K and neither of them were aware

of an issue (it happened on Paul K's shift and all the Surgeon told him was 'nominal no mission impact pmc'). Then GC/BME/Hawthorne Surgeon gave me the story – that during the timelined Endeavour crew PMC earlier today the Hawthorne surgeon was planning to support from a conference room via a phone patch – a phone patch which is implemented in Houston. Someone dropped the ball and didn't set up that patch, and so what they did at MCC-X was to kick everybody out of the mission control support room (including AERO/SNO) so that Surgeon could support via one of the SpX comm panels. IR52012. This story came together just in time for Emily to verbalize at the DMMT.

Planning/Other

DMMT	Met, and gave go to proceed. Topics included the Conjunction fiasco, the PMC issue described above, the Draco pressure ducer issue, and some fod released when Dragon sep'd from stage 2.
Sat 114	Reviewed.
Mon 116	Reviewed. Will add Daily Summary words suggesting that the Crew-2 guys take their uphill Debrief Conference somewhere other than the Lab due to the Crew-1 PAO event.

Comm with Inc Lead

So many apologetic military brass called the console tonight…including Space Command General Dickinson's office, asking for Jurczyk's phone number (which we got from Metrocavage) so they could apologize.

Dragon Wake-up Music: An off-key all-flute version of A-Ha's "Take On Me". Apparently selected by Thomas. Not broadcast on the SpaceX webcast, apparently, since we didn't secure the rights. Perhaps SpaceX legal didn't have enough time to contact the owner of the Youtube channel "Shittyflute"

Open Work

ntr

COVID-19 Recurring Tasks

- **Forward FCR-1 console phone as needed. WFCR FD console is x28347**
- **FCR-1 FD: update handover log binder, print Daily Summary**
- **Review F098992 "MCC-H Coronavirus (COVID-19) Response Plan"**

From: Corley, Bryan M. (JSC-CM471)
To: Beaver, Brian (KSC-VAH10)
Subject: RE: Crew-2 conjunction
Date: Wednesday, May 5, 2021 1:00:00 PM

I haven't actually seen that video (actually recall seeing something live but didn't think anything of it) but I heard that could be getting confused with this other conjunction. There was also last minute LCOLA case that came up about 90 min prior to liftoff so after the final actual LCOLA run. There was a Russian Molniya that was expected to re-enter and didn't fully before launch and initial indications showed entry should be during ascent and relatively close. We were able to get some data that showed no violations so launch proceeded.

From: Beaver, Brian (KSC-VAH10) <brian.beaver-1@nasa.gov>
Sent: Wednesday, May 5, 2021 10:49 AM
To: Corley, Bryan M. (JSC-CM471) <bryan.m.corley@nasa.gov>
Subject: Re: Crew-2 conjunction

Thanks for the clarification, Bryan. I think we're talking about the same incident. I'm also aware of a video making the rounds on line that shows something drfiting through the camera field of view right after Dragon separation, which was almost certainly generated by the Falcon 9. Was there something else in addition to these two?

Brian

Brian Beaver
NASA Launch Services Program
Flight Dynamics Branch
Kennedy Space Center
(b) (6) (cell)

From: "Corley, Bryan M. (JSC-CM471)" <bryan.m.corley@nasa.gov>
Date: Wednesday, May 5, 2021 at 11:17 AM
To: "Beaver, Brian (KSC-VAH10)" <brian.beaver-1@nasa.gov>
Subject: RE: Crew-2 conjunction

We had a couple different things so want to make sure I am addressing the correct one. It is hard to keep track of what is internal knowledge and what has made it out. You are referring to the one that came up once they were already on-orbit. There was also a pre-launch conjunction that came up pretty late in the count. There was an official statement put out by USSPACECOM with inputs from NASA/SpX. I'm not actually sure if they did a press release or sent the statement to specific reporters who had coverage of the conjunction at first. But it is confirmed there was no conjunction and it was an error at 18SPCS. As with most failures like this there are multiple LL and areas things could have been better which we are still combing through.

From: Beaver, Brian (KSC-VAH10) <brian.beaver-1@nasa.gov>

Sent: Wednesday, May 5, 2021 8:53 AM
To: Corley, Bryan M. (JSC-CM471) <bryan.m.corley@nasa.gov>
Subject: Crew-2 conjunction

Bryan,

I've been getting questions about the widely reported "near miss" on Crew-2. Can you give me a little insight into what happened? There are lots of sensational reports about the supposed conjunction, but much more subdued reporting on the fact that it was some kind of reporting error. Any details you might be able to provide would be much appreciated.

Thanks,

Brian

Brian Beaver
NASA Launch Services Program
Flight Dynamics Branch
Kennedy Space Center
(b) (6) (cell)

From:	Howorth, William [Lark] (JSC-CM111)
To:	Lacourt, Vincent A. (JSC-CA811); Nelson, Emily J. (JSC-CA811); Ridings, Holly E. (JSC-CA811); Knight, Norman D. (JSC-CA111); Koerner, Stephen A. (JSC-CA111); Tingle, Scott D. (JSC-CA111); Wiseman, G. Reid (JSC-CA111) [MILITARY ASTRONAUTS]; Feustel, Andrew J. (JSC-CB111)
Cc:	Henfling, Rick (JSC-CA811); Lammers, Michael L. (JSC-CA811); Bolinger, Allison T. (JSC-CA811); Stover, Scott A. (JSC-CA811); Boulos, Adi M. (JSC-CA811); Vareha, Anthony (JSC-CA811); Meir, Jessica U. (JSC-CB611); Scoville, Zebulon C (JSC-CA811); Pascucci, Joseph E. (JSC-CM471)
Subject:	RE: Dragon Late Notice Conjunction and Space Force Communication Error
Date:	Friday, April 23, 2021 5:33:28 PM

I talked to the Technical Director of the 18th Space Control Squadron about the situation and this 1-pager. He's good with the words as written here. There are obviously a lot of details and sausage-making behind what happened at the 18th, but this chart is good at the high-level concept of the event and completely accurate in saying this is being worked with the 18th and the TOPOs so that it doesn't happen again. And it's good not to go into the nuts and bolts of their internal processes and where the failures happened tonight.

On background for you all, phone calls we've had in the last couple of hours point to this being considered an extremely high-visibility failure within the Space Force, and has been elevated to high levels. Bryan, Joe, and the TOPOs will be able to provide all the details as we go forward of what happened, and what's changing to fix it.

Thanks,
Lark

From: Lacourt, Vincent A. (JSC-CA811) <vincent.a.lacourt@nasa.gov>
Sent: Friday, April 23, 2021 2:25 PM
To: Nelson, Emily J. (JSC-CA811) <emily.j.nelson@nasa.gov>; Ridings, Holly E. (JSC-CA811) <holly.e.ridings@nasa.gov>; Knight, Norman D. (JSC-CA111) <norman.d.knight@nasa.gov>; Koerner, Stephen A. (JSC-CA111) <stephen.a.koerner@nasa.gov>; Tingle, Scott D. (JSC-CA111) <scott.d.tingle@nasa.gov>; Wiseman, G. Reid (JSC-CA111)[MILITARY ASTRONAUTS] <gregory.r.wiseman@nasa.gov>; Feustel, Andrew J. (JSC-CB111) <andrew.j.feustel@nasa.gov>
Cc: Henfling, Rick (JSC-CA811) <rick.henfling@nasa.gov>; Lammers, Michael L. (JSC-CA811) <michael.l.lammers@nasa.gov>; Bolinger, Allison T. (JSC-CA811) <allison.t.bolinger@nasa.gov>; Stover, Scott A. (JSC-CA811) <scott.a.stover@nasa.gov>; Boulos, Adi M. (JSC-CA811) <adi.m.boulos@nasa.gov>; Vareha, Anthony (JSC-CA811) <anthony.vareha@nasa.gov>; Meir, Jessica U. (JSC-CB611) <jessica.u.meir@nasa.gov>; Scoville, Zebulon C (JSC-CA811) <zebulon.c.scoville@nasa.gov>; Howorth, William [Lark] (JSC-CM111) <william.l.howorth@nasa.gov>; Pascucci, Joseph E. (JSC-CM471) <joseph.e.pascucci@nasa.gov>
Subject: Dragon Late Notice Conjunction and Space Force Communication Error

I have built the attached draft DMMT charts for this evening. TOPO management is working with Space Force to confirm what happened and exactly what words should be used to describe the error. Based on current data, the object we were concerned about, was not in fact, a real object. See charts for details.

Vincent LaCourt

Flight Director
Work: 281-483-1823
Cell: (b) (6)
B4N/358

From:	Stich, J S. (KSC-FA000)
To:	Knight, Norman D. (JSC-CA111); Jones, Richard S. (JSC-VA411); Scoville, Zebulon C (JSC-CA811); Hess, Michael G. (JSC-VA111)
Subject:	RE: Potential Conjunction with Crew Dragon- ALL CLEAR
Date:	Friday, April 23, 2021 7:04:37 PM

This reminds me of my time as a FDO working with USSPACECOM …

From: Knight, Norman D. (JSC-CA111) <norman.d.knight@nasa.gov>
Sent: Friday, April 23, 2021 1:44 PM
To: Stich, J S. (KSC-FA000) <j.s.stich@nasa.gov>; Jones, Richard S. (JSC-VA411) <richard.s.jones@nasa.gov>; Scoville, Zebulon C (JSC-CA811) <zebulon.c.scoville@nasa.gov>; Hess, Michael G. (JSC-VA111) <michael.g.hess@nasa.gov>
Subject: Re: Potential Conjunction with Crew Dragon- ALL CLEAR

Including Hess.

On: 23 April 2021 13:26, "Knight, Norman D. (JSC-CA111)" <norman.d.knight@nasa.gov> wrote:

Begin Forwarded Message:

From: "Boulos, Adi M. (JSC-CA811)" <adi.m.boulos@nasa.gov>
Subject: RE: Potential Conjunction with Crew Dragon- ALL CLEAR
Date: 23 April 2021 13:24
To: "Koerner, Stephen A. (JSC-CA111)" <stephen.a.koerner@nasa.gov>
Cc: "Knight, Norman D. (JSC-CA111)" <norman.d.knight@nasa.gov>, "Nelson, Emily J. (JSC-CA811)" <emily.j.nelson@nasa.gov>

This was not the same object.

Adi Boulos
NASA Johnson Space Center
Flight Director
Cell Phone: **(b) (6)**
Adi.M.Boulos@nasa.gov

From: Koerner, Stephen A. (JSC-CA111) <stephen.a.koerner@nasa.gov>
Sent: Friday, April 23, 2021 1:04 PM
To: Boulos, Adi M. (JSC-CA811) <adi.m.boulos@nasa.gov>
Cc: Knight, Norman D. (JSC-CA111) <norman.d.knight@nasa.gov>; Nelson, Emily J. (JSC-CA811) <emily.j.nelson@nasa.gov>
Subject: RE: Potential Conjunction with Crew Dragon- ALL CLEAR

Was this the same object we dealt with prelaunch or something different?

From: Boulos, Adi M. (JSC-CA811) <adi.m.boulos@nasa.gov>
Sent: Friday, April 23, 2021 12:50 PM
To: JSC-DL-FOD-ISS-CONT-Status <jsc-dl-fod-iss-cont-status@mail.nasa.gov>
Subject: RE: Potential Conjunction with Crew Dragon- ALL CLEAR

The time of closest approach has passed with no impact, the Endeavour crew has been directed to doff their pressure suits.

Adi Boulos
NASA Johnson Space Center
Flight Director
Cell Phone: (b) (6)
Adi.M.Boulos@nasa.gov

From: Boulos, Adi M. (JSC-CA811) <adi.m.boulos@nasa.gov>
Sent: Friday, April 23, 2021 12:39 PM
To: JSC-DL-FOD-ISS-CONT-Status <jsc-dl-fod-iss-cont-status@mail.nasa.gov>
Subject: Potential Conjunction with Crew Dragon-

TOPO has been informed that the Crew Dragon has a potential conjunction with an unknown object with a time of closest approach of 12:43pm Houston Local time. Due to the late notice, Crew Dragon is unable to perform a debris avoidance maneuver. The crew has been directed to don their pressure suits and await the time of closest approach.

Adi Boulos
NASA Johnson Space Center
Flight Director
Cell Phone: (b) (6)
Adi.M.Boulos@nasa.gov

Transcript from MS Teams Chat during event. - **SBU**

[4/23 12:10 PM] Boulos, Adi M. (JSC-CA811)
Topo is reporting a conjunction with an unknown object with a TCA at 17:43 GMT or 12:43 local time

[4/23 12:10 PM] Boulos, Adi M. (JSC-CA811)
so in 30 minutes

[4/23 12:10 PM] Boulos, Adi M. (JSC-CA811)
Miss distence is 1/15 Km

[4/23 12:10 PM] Boulos, Adi M. (JSC-CA811)
1.14*

[4/23 12:10 PM] Boulos, Adi M. (JSC-CA811)
TOPO and Nav are talkning about a DAM

[4/23 12:10 PM] Boulos, Adi M. (JSC-CA811)
I tried to call Lammers

[4/23 12:10 PM] Boulos, Adi M. (JSC-CA811)
and he is not answering

[4/23 12:12 PM] Boulos, Adi M. (JSC-CA811)
this is with Dragon

[4/23 12:12 PM] Vareha, Anthony (JSC-CA811)
Copy.

[4/23 12:15 PM] Boulos, Adi M. (JSC-CA811)
sounds like TOPOs Dragon State Vectors are off by 7Kms

[4/23 12:16 PM] Boulos, Adi M. (JSC-CA811)
Too late to do a DAM but the 7Km state vector delta clears the risk

[4/23 12:18 PM] Vareha, Anthony (JSC-CA811)
Why the fuck are their state vectors off by 7km, and how does that affect rndz?

[4/23 12:24 PM] Boulos, Adi M. (JSC-CA811)
SpaceX is having crew don Suits

[4/23 12:24 PM] Vareha, Anthony (JSC-CA811)
For the close approach?

[4/23 12:24 PM] Boulos, Adi M. (JSC-CA811)

yeah
too many unkowns

[4/23 12:25 PM] Boulos, Adi M. (JSC-CA811)
where is Lammers?

[4/23 12:25 PM] Vareha, Anthony (JSC-CA811)
I tried calling him and it went straight to voice mail

[4/23 12:26 PM] Boulos, Adi M. (JSC-CA811)
same

[4/23 12:26 PM] Boulos, Adi M. (JSC-CA811)
Do i need to send out a contingency?

[4/23 12:27 PM] Vareha, Anthony (JSC-CA811)
Yes.

[4/23 12:31 PM] Vareha, Anthony (JSC-CA811)
Lammers about to call console

[4/23 12:33 PM] Scoville, Zebulon C (JSC-CA811)
Do I need to come in?

[4/23 12:33 PM] Scoville, Zebulon C (JSC-CA811)
Good morning.

[4/23 12:38 PM] Scoville, Zebulon C (JSC-CA811)
Just dialed into bridge 1

[4/23 12:42 PM] Scoville, Zebulon C (JSC-CA811)
Copy 45km. CORE might tell crew. ..

[4/23 12:43 PM] Vareha, Anthony (JSC-CA811)
I guess DG1 isn't on DICES?

[4/23 12:43 PM] Boulos, Adi M. (JSC-CA811)
i am happy with their overall repsonse to this

[4/23 12:43 PM] Scoville, Zebulon C (JSC-CA811)
Good.

[4/23 12:43 PM] Vareha, Anthony (JSC-CA811)
Was the crew supopsed to be sleeping?

[4/23 12:43 PM] Boulos, Adi M. (JSC-CA811)
not yet

[4/23 12:44 PM] Boulos, Adi M. (JSC-CA811)
presleep though

[4/23 12:44 PM] Vareha, Anthony (JSC-CA811)
Once we get past this we gotta dig hard into any disagreements about their state vector

[4/23 12:44 PM] Boulos, Adi M. (JSC-CA811)
its normal

[4/23 12:44 PM] Boulos, Adi M. (JSC-CA811)
they only clear after the phasing burn

[4/23 12:45 PM] Boulos, Adi M. (JSC-CA811)
and the propogation since then caused a 7Km discrepency

[4/23 12:45 PM] Scoville, Zebulon C (JSC-CA811)
That was a good experience for SpaceX.

[4/23 12:46 PM] Scoville, Zebulon C (JSC-CA811)
Going back to sleep.

[4/23 12:46 PM] Vareha, Anthony (JSC-CA811)
I'm gonna get a shower and start getting ready to come in

[4/23 12:46 PM] Vareha, Anthony (JSC-CA811)
before adi PrK's the Dragon

[4/23 12:47 PM] Vareha, Anthony (JSC-CA811)
But seriously - do we not have DG1 access on DICES?

[4/23 12:48 PM] Boulos, Adi M. (JSC-CA811)
put NASA tv on there

[4/23 12:48 PM] Boulos, Adi M. (JSC-CA811)
LOL

[4/23 1:08 PM] Scoville, Zebulon C (JSC-CA811)
Adi, can you over airwaves ask TOPO if the “unknown” object was one that had been in the catalog for a while, or if it was a new object?

[4/23 1:11 PM] Boulos, Adi M. (JSC-CA811)
object has been in the catalog but just popped up for us when it was reported

(1 liked)

[4/23 1:11 PM] Boulos, Adi M. (JSC-CA811)
high uncertiantity on it

[4/23 1:38 PM] Boulos, Adi M. (JSC-CA811)
UGHH

[4/23 1:38 PM] Boulos, Adi M. (JSC-CA811)
so the "object" that we had a TCA with

[4/23 1:38 PM] Boulos, Adi M. (JSC-CA811)
was an analyst sat

[4/23 1:39 PM] Boulos, Adi M. (JSC-CA811)
in other words its the dragon place holder the space force uses and is supposed to clear out of the catalog once the Dragon launches

[4/23 1:39 PM] Boulos, Adi M. (JSC-CA811)
so this object didnt exist

[4/23 1:41 PM] Spencer, Ron (JSC-CA811)
Some analyst sats are real objects

[4/23 1:41 PM] Boulos, Adi M. (JSC-CA811)
yeah

[4/23 1:41 PM] Boulos, Adi M. (JSC-CA811)
but this one wasnt
(1 liked)

[4/23 6:52 PM] Scoville, Zebulon C (JSC-CA811)
No wonder it was a close approach.