

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

In the Matter of	)	
	)	
Space Exploration Holdings, LLC	)	Call Sign: S3018
	)	
Application for Approval for Orbital Deployment and Operating Authority for the Space Exploration Holdings NGSO Satellite System Supplement	)	File No. SAT-LOA-20170726-00110

**COMMENTS OF WORLDVU SATELLITES LIMITED**

WorldVu Satellites Limited, d/b/a OneWeb (“OneWeb”), pursuant to Section 25.154(a) of the rules of the Federal Communications Commission (the “Commission”) and the Commission’s recent public notice,<sup>1</sup> hereby comments on the Application of Space Exploration Holdings, LLC (“Space Exploration Holdings” or “SEH”) for operating authority for a non-geostationary orbit (“NGSO”) satellite system in the Fixed Satellite Service (“FSS”) using Ku-band and Ka-band frequencies.<sup>2</sup>

In its Application, Space Exploration Holdings once again seeks authority for an NGSO FSS constellation that would not only fail to meet the Commission’s milestone and domestic

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<sup>1</sup> See 47 C.F.R. § 25.154(a); *Satellite Policy Branch Info.; Space Station Applications Accepted for Filing*, Public Notice, Report No. SAT-01277, 2017 WL 4737179 at \*1 (Oct. 20, 2017).

<sup>2</sup> Space Exploration Holdings, LLC, *Application for Approval for Orbital Deployment and Operating Authority for the SpaceX NGSO Satellite System Supplement*, IBFS File No. SAT-LOA-20170726-00110 (Call Sign S3018) (filed July 26, 2017) (“Application”). This Application is supplementary to SEH’s previous application for use of Ku- and Ka-band frequencies filed in November 2016 in response to an ongoing processing round. See Space Exploration Holdings, LLC, *Application for Approval for Orbital Deployment and Operating Authority for the SpaceX NGSO Satellite System*, IBFS File No. SAT-LOA-20161115-00118 (Call Sign S2983) (filed Nov. 15, 2016) (“First SEH Application”).

coverage requirements, but would also dangerously overlap the orbital locations of other NGSO constellations, creating orbital debris risk in excess of any previously proposed constellation. The Commission should not grant this Application unless and until SEH can demonstrate that it can safely operate its constellation, which will be difficult to do given its direct contravention of safety recommendations for mitigating orbital debris risk.

Equally important, the Commission should deny the milestone and domestic coverage waivers SEH seeks. Waiving the buildout milestone would effectively provide SEH an unlimited grant of considerable spectral resources and orbital positions. With such a waiver, SEH could permanently block other operators from utilizing these resources to serve those in need. Similarly, waiving the coverage milestone would eliminate the last remaining requirement to use these resources as intended, enabling SEH to focus on areas with the wealthiest customers and bypass the U.S. consumers most in need of broadband. Both requests would seriously undermine the Commission's efforts to bridge the digital divide.

**I. SPACE EXPLORATION HOLDINGS HAS FAILED TO DEMONSTRATE THAT ITS CONSTELLATION WILL NOT INCREASE COLLISION RISKS FOR NEARBY OPERATORS OR CASUALTY RISKS UPON DEORBIT.**

As OneWeb has previously explained, SEH's proposed constellation overlaps dangerously with the altitudes of OneWeb and other NGSO FSS operators, which flies in the face of Inter-Agency Space Debris Coordination Committee recommendations.<sup>3</sup> The planned

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<sup>3</sup> See *In re Space Exploration Holdings, LLC, Application for Approval for Orbital Deployment and Operating Authority for the Space Exploration Holdings NGSO Satellite System*, File No. SAT-LOA-20161115-00118 (Call Sign S2983), Comments of WorldVu Satellites Ltd., at 11-12 (filed June 26, 2017) ("OneWeb Comments"); Letter from Brian D. Weimer, Counsel to OneWeb, to Marlene H. Dortch, Secretary, FCC, IBFS File No. SAT-LOA-20170301-00027 (Nov. 17, 2017) ("November 17 Ex Parte"); Inter-Agency Space Debris Coordination Committee, *IADC Statement on Large Constellations of Satellites in Low Earth Orbit*, IADC-15-03 (Sept. 2017), available at [http://www.iadc-online.org/index.cgi?item=docs\\_pub](http://www.iadc-online.org/index.cgi?item=docs_pub), at § 4.2.1.

overlaps, combined with the sheer number of satellites SEH seeks authorization to deploy, lead to a dramatically increased risk of collision at those altitudes – either between the satellites of SEH and other operators or between other operators’ satellites and debris from the potential fragmentation (resulting either from collision or explosion) of an SEH satellite. Furthermore, the aggregate human casualty risk of the new debris created by the SEH constellation upon disposal, based on its anticipated number of objects striking the Earth with force in excess of 15 Joules, leads to serious safety concerns for which SEH has failed to adequately account. SEH has failed to demonstrate how its plan is safe, instead providing only broad statements about its “advanced space-situational awareness” and maneuvering techniques.<sup>4</sup>

The Commission should not act on this Application until SEH provides quantitative demonstrations of the risks presented to other operators’ constellations<sup>5</sup> and the risks presented to innocent bystanders from elements of its satellites striking the ground with lethal levels of energy.<sup>6</sup> Such quantitative demonstration should begin with SEH submitting the satellite-failure risk studies requested by the Commission in June of this year.<sup>7</sup>

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<sup>4</sup> Application at 3.

<sup>5</sup> See OneWeb Comments at 9-10.

<sup>6</sup> See OneWeb Comments at 7-15; *In re Space Exploration Holdings, LLC, Application for Approval for Orbital Deployment and Operating Authority for the Space Exploration Holdings NGSO Satellite System*, File No. SAT-LOA-20170301-00027 (Call Sign S2992), Comments of WorldVu Satellites Ltd., at 4-9 (filed Sept. 25, 2017); November 17 Ex Parte at 13.

<sup>7</sup> Letter from Jose Albuquerque, Chief, Satellite Division, to William Wiltshire, Counsel for Space Exploration Holdings, Re: Space Exploration Holdings, LLC, IBFS File No. SAT-LOA-20170301-00027, Call Sign S2992 (June 22, 2017).

**II. SPACE EXPLORATION HOLDINGS' WAIVER REQUEST TO INDEFINITELY DELAY DEPLOYMENT OF ITS SYSTEM IS NOT IN THE PUBLIC INTEREST AND SHOULD BE DENIED.**

SEH's request to comply with a leisurely milestone rule of its own choosing in lieu of either the current or the recently-adopted milestone rule is simply not in the public interest. Allowing SEH to evade compliance with both the existing milestone rule and the recently-adopted milestone rule would seriously undermine the Commission's ability to rely on its milestone regime to adequately deter speculative satellite applications.

The Commission's substantial relaxation of the NGSO milestone rule generously allows a licensee to retain its license and avoid losing its surety bond by launching merely 50% of its authorized constellation within six years of license grant and the remainder within nine years.<sup>8</sup> SEH is now asking to lower the bar even further – to deploy substantially less than 50% of its satellites within six years of its license grant, with no commitment to ever launch the remainder.<sup>9</sup>

The Commission has already explicitly rejected milestone arrangements that demonstrate this lack of commitment to deployment: “[p]roposals that allow applicants to set their own milestone objectives . . . would not achieve [the Commission's] milestone goals,” including effectively deterring applications for speculative or unrealistic constellations.<sup>10</sup> The Commission's previous conclusion is correct and controls here.

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<sup>8</sup> *In re Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report & Order and Further Notice of Proposed Rulemaking, FCC 17-122, at ¶¶ 66-67 (rel. Sept. 27, 2017) (“NGSO R&O”).

<sup>9</sup> Application at 13 & n.16.

<sup>10</sup> NGSO R&O at ¶ 66.

Granting SEH this waiver would allow it to tie up spectrum and orbital resources indefinitely – to the detriment of other NGSO operators and consumers. Indeed, combined with SEH’s plan to evade the domestic coverage requirement discussed below, SEH’s proposal would severely undermine the Commission’s efforts to bring broadband to the rural and underserved consumers who remain on the wrong side of the digital divide. Applicants should be held to requesting only the resources they can actually use in a timely fashion.

**III. SPACE EXPLORATION HOLDINGS SHOULD BE REQUIRED TO PROVIDE SERVICE THAT MEETS THE COMMISSION’S DOMESTIC COVERAGE REQUIREMENTS.**

As in the First SEH Application,<sup>11</sup> Space Exploration Holdings proposes a multi-stage deployment that does not guarantee full U.S. coverage until the final satellites are in place (at an indefinite time in the future). SEH’s initial deployment of 1,600 satellites would not meet the Commission’s mandate to “provid[e] fixed-satellite service on a continuous basis throughout the fifty states, Puerto Rico and the U.S. Virgin Islands,”<sup>12</sup> and would deny service in particular to remote areas of Alaska in desperate need of broadband access.<sup>13</sup> This failure to provide service

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<sup>11</sup> First SEH Application at 7.

<sup>12</sup> 47 C.F.R. §§ 25.145(c), 25.146(i).

<sup>13</sup> See Letter from Rex Allen Rock, Sr., President & CEO, Arctic Slope Regional Corporation, to Ajit Pai, Chairman, Federal Communications Commission, *FCC’s Update to Satellite Rules*, Docket No. 16-408 (Aug. 9, 2017); see also Alex DeMarban, “FCC: Internet speed in rural Alaska lags far behind most of nation,” ALASKA DISPATCH NEWS (pub. Jan. 30, 2015 and updated Sept. 28, 2016), available at <https://www.adn.com/rural-alaska/article/fcc-internet-service-alaska-lags-nation-worse-rural-alaska/2015/01/31/>; Naomi Nix, “Alaska’s Disconnected Schools,” THE ATLANTIC (Dec. 16, 2015), available at <https://www.theatlantic.com/education/archive/2015/12/alaska-schools-internet/420648/>.

in remote areas of the United States undermines the purpose of the Commission’s geographic coverage rules and harms the public interest.<sup>14</sup>

The Commission allocated spectrum to NGSO FSS systems and imposed the domestic coverage requirement with the goal of expanding affordable means of communication to regions that cannot be easily reached by terrestrial or even geostationary orbit (“GSO”) operators.<sup>15</sup>

SEH’s plan to indefinitely delay service to these areas would undercut the Commission’s goals and impair the Commission’s “foremost” focus “on bridging the digital divide.”<sup>16</sup> Waivers of Commission rules that undermine this goal are not in the public interest.<sup>17</sup>

#### IV. CONCLUSION

For the foregoing reasons, the Commission should not act on Space Exploration Holdings’ Application for orbital positions and spectrum until SEH has demonstrated that its

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<sup>14</sup> The Commission has issued a Further Notice of Proposed Rulemaking (“FNPRM”) that raises the possibility of removing the domestic coverage requirement. *See* NGSO R&O at ¶ 76. However, the stated purpose of such an amendment would be to permit the operation of specialized services, such as a high-altitude constellation focused on connecting northern Alaska or an equatorial constellation focused on connecting the shipping industry. *See id.* at ¶ 75. OneWeb intends to file comments in response to the FNPRM conclusively demonstrating that the Commission must retain the current domestic coverage rule to serve the public interest. At a minimum, any rule change resulting from the FNPRM should not permit operators of networks with several thousand satellites and purported nationwide coverage to delay or deny service to those most in need of connectivity.

<sup>15</sup> *See Ka-Band Satellite Application and Licensing Procedures*, 62 Fed. Reg. 61448-01, 61451 (1997) (adopting domestic coverage requirements for NGSO FSS systems in recognition of their ability to “provide universal access throughout the U.S. and the world” and “foster[] a seamless global communications network”).

<sup>16</sup> “Morning in Digital America,” Remarks by FCC Chairman Ajit Pai at the Ronald Reagan Presidential Library, Simi Valley, California (Oct. 10, 2017), *available at* [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2017/db1010/DOC-347182A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db1010/DOC-347182A1.pdf).

<sup>17</sup> *See id.* (“If we bridge the digital divide, we can raise distressed communities and bring new hope to people who feel like they’ve been left behind. But if we don’t, the gap between those who have and those who don’t will only widen.”).

proposed constellation will not create unacceptable risks of collision with other systems, contribute to the creation of additional orbital debris, or cause an unacceptable risk of human casualty upon de-orbit. Furthermore, the Commission should deny Space Exploration Holdings' request for waivers of the domestic coverage requirement and the milestone rule.

Respectfully submitted,

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November 20, 2017

**CERTIFICATE OF SERVICE**

I, Ashley Yeager, hereby certify that on this 20<sup>th</sup> day of November 2017, a copy of the foregoing Comments is being sent via first class, U.S. Mail, postage paid, to the following:

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