

ORIGINAL

BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, D.C. 20554

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JAN - 6 2006

Federal Communications Commission  
Office of Secretary

In the Matter of	)	
	)	
Application of Pegasus Development DBS Corporation for Authority to Construct, Launch, and Operate a System of Direct Broadcast Satellites in the Broadcasting Satellite Service	)	Files Nos. SAT-LOA-20020322-00032 SAT-LOA-20020322-00033 SAT-LOA-20020322-00034

To: The Secretary  
The International Bureau

Received

JAN 09 2006

PETITION FOR RECONSIDERATION

Pegasus Development DBS Corporation ("Pegasus"), pursuant to 47 C.F.R. § 1.106,  
Policy Branch International Bureau

hereby files this Petition for Reconsideration of the International Bureau ("Bureau") decision to dismiss the above-captioned application (the "Application").<sup>1</sup> The Application had been pending at the FCC for over three and a half years, and as a result of an inadvertent oversight, Pegasus failed to meet a 30-day deadline to amend the Application to include an orbital debris mitigation plan, as required for the first time in a recent public notice. Because waiver of that deadline and acceptance of a late-filed orbital debris mitigation plan does not frustrate Commission policy and dismissal of the Application is unduly harsh, Pegasus respectfully requests that the Commission reconsider its decision and reinstate the Application, as amended by the attached plan, *nunc pro tunc*.

**Background**

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<sup>1</sup> See Public Notice, DA No. 05-3152 (December 7, 2005).

On March 22, 2002, Pegasus filed its Application to construct, launch, and operate a system of satellites at the 110°W, 101°W, and 91°W orbital locations in the Broadcasting Satellite Service (“BSS”) operating in the 17.3 - 17.8 GHz (downlink) and 24.75 - 25.25 GHz (uplink) bands.<sup>2</sup> Pegasus submitted its application, in part, to assist in preserving U.S. orbital priority for certain full-CONUS orbital locations. The FCC did not put the Application on public notice but entered it into the FCC’s IBFS database with a status of “system entry.”

More than three and a half years later, the Bureau released a general public notice stating that the FCC’s orbital debris disclosure rules, 47 C.F.R. § 25.114, would take effect on October 19, 2005.<sup>3</sup> Under those rules, an applicant for space station authority must submit with its application a narrative description of its plans to mitigate orbital debris. As part of that notice, the FCC stated that satellite applications that were pending as of October 19, 2005 were required to be amended by November 18, 2005 to include orbital debris mitigation plans or would be dismissed as incomplete. *See* October Notice, at 2.

On December 2, 2005, Pegasus realized that it had inadvertently failed to submit an orbital debris mitigation plan for the Application. Pegasus, through its counsel, verbally notified the Commission of that fact and indicated that it was in the process of preparing such a plan and would request a waiver of the November deadline. Five days later, the FCC released a public notice dismissing the Application without prejudice to refile. The sole justification for the

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<sup>2</sup> Domestically, BSS is referred to as Direct Broadcast Satellite (“DBS”) service.

<sup>3</sup> *See* “Disclosure of Orbital Debris Mitigation Plans, Including Amendment of Pending Applications,” Public Notice, DA 05-2698 (October 13, 2005) (“October Notice”).

dismissal was Pegasus's failure to submit an orbital debris mitigation plan by the November deadline.

In this Petition for Reconsideration, Pegasus seeks a waiver of the November filing deadline and requests that the Bureau reinstate the Application, as amended by the attached orbital debris mitigation plan, *nunc pro tunc*.

### Discussion

The FCC may waive a rule or deadline if there is "good cause" to do so.<sup>4</sup> As the Bureau has stated, "a waiver is appropriate if (1) special circumstances warrant a deviation from the general rule, and (2) such deviation would better serve the public interest than would strict adherence to the general rule."<sup>5</sup> Circumstances that would justify a waiver include "considerations of hardship, equity, or more effective implementation of overall policy."<sup>6</sup> In general, "the Commission may grant a waiver of its rules in a particular case only if the relief requested would not undermine the policy objective of the rule in question, and would otherwise serve the public interest."<sup>7</sup> As explained below, the Commission's waiver criteria are met in this case. Accordingly, the Bureau should accept the attached orbital debris mitigation plan and reinstate the Application.

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<sup>4</sup> See, e.g., *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153, 1157-59 (D.C. Cir. 1969); see also 47 C.F.R. § 1.3.

<sup>5</sup> *In the Matter of NetSat 28 Company, L.L.C.*, 16 FCC Rcd 11025, at ¶ 6 (2001).

<sup>6</sup> *WAIT Radio*, 418 F.2d at 1159.

<sup>7</sup> *NetSat*, at ¶ 6; *WAIT Radio*, 418 F.2d at 1157.

The logical purpose of the FCC's October Notice, establishing a date certain for applicants to amend pending satellite applications, was to ensure that the Bureau timely received orbital debris mitigation plans in order to act on such applications expeditiously, consistent with the FCC's first-come, first-serve licensing process applicable to most satellite applications.<sup>8</sup> That justification, however, is not applicable to the Application.

The Commission has not yet established any service, technical, or licensing rules for the Ka-band BSS spectrum, and there is no indication that the Application will be processed before such rules are developed and implemented. Accordingly, the attached amendment, for all practical purposes, is timely.

Moreover, the dismissal of the Application, which had been entered into the FCC's database more than three years and a half years ago, is unduly harsh. While Pegasus is in the process of refileing the Application with an orbital debris mitigation plan,<sup>9</sup> the future licensing rules of this spectrum have not been determined and could in theory be based in whole or in part on the date priority of the filing.<sup>10</sup> The gross hardship that such action could impose on Pegasus is completely unjustified. As an additional consideration, Pegasus in good faith promptly informed the Bureau once Pegasus learned that it had missed the deadline, but the Bureau acted

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<sup>8</sup> See *In the Matter of Amendment of the Commission's Space Station Licensing Rules and Policies*, 18 FCC Rcd 10760 (2003).

<sup>9</sup> Since 2002, the FCC has adopted new electronic filing procedures (i.e. Schedule S) necessitating substantial additional engineering work in order to refile the application. Because of that additional burden and because of the intervening holidays, Pegasus has been delayed in refileing its application.

<sup>10</sup> See *McElroy v. FCC*, 990 F.2d 1351, 1358 (1993) (the fact that an applicant may refile a dismissed application does not necessarily address the applicant's interest in seeking reinstatement of the dismissed application).

before Pegasus could submit its waiver request and amendment.<sup>11</sup> For these same reasons, the public interest would be better served by grant of this waiver request than strict application of the November filing deadline.

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<sup>11</sup> See, e.g., *Longstreet Communications International, Inc. Request for Waiver of Section 24.711(a)(2) of the Commission's Rules Regarding Market No. B012*, 12 FCC Rcd 1549, at ¶ 8 (1997) (granting waiver of payment deadline in part because of "applicant's prior record of compliance . . . and its prompt action to remedy the delinquency."); *Roberts-Roberts & Associates, LLC Request for Waiver of Section 24.711(a)(2) of the Commission's Rules Regarding Various BTA Markets*, 12 FCC Rcd 1825, at ¶ 8 (same).

**Conclusion**

For the reasons stated above, the Bureau should grant the waiver request, accept the attached late-filed orbital debris mitigation plan, and reinstate the Application *nunc pro tunc*.

Respectfully submitted,



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Dated: January 6, 2006

**Attachment**

## ORBITAL DEBRIS MITIGATION PLAN

In 2002, Pegasus Development DBS Corporation ("Pegasus") filed an application for authorization to operate three satellites in the Ka-band BSS spectrum at three orbital locations: 110°W, 101°W, and 91°W.<sup>1</sup> Pegasus hereby amends the application to include this orbital debris mitigation plan.

Pegasus has had discussions with a spacecraft manufacturer and with its consultants concerning the acquisition of technical data pertaining to the mitigation of orbital debris and submits the following information in compliance with the requirements of Part 25.283. *See also* Second Report & Order, IB Docket 02-54, Released June 21, 2004, Part 25.114 of the FCC Rules and Public Notice DA – 2698 "Disclosure of Orbital Debris Mitigation Plans, Including Amendment of Pending Applications".

The Statement of Work and Test Plans of the final executed satellite contract will include provisions to review orbit debris mitigation as part of PDR and CDR and to incorporate these requirements, as appropriate, into a Test Plan, including a formal Failure Mode Verification Analysis, FMVA, for orbital debris mitigation involving particularly the TT&C, propulsion and energy systems. Procurement, manufacture and test of the Pegasus satellites may result in minor changes to the satellite parameters described herein.<sup>2</sup> In this event, Pegasus will submit a minor amendment updating the parameters given in its application and, if necessary, modify the orbital debris mitigation parameters appropriately.

**SPACECRAFT HARDWARE DESIGN.** The Pegasus satellites will not be a source of debris either during the launch, drift or operating mode; no debris is planned to be released. All separation and deployment mechanisms, and any other potential source of debris will be retained by the spacecraft or launch vehicle.

The spacecraft TT&C system, vital for orbit raising, will be extremely rugged with regard to meteoroids smaller than 1 cm, by virtue of its redundancy, shielding, separation of components and physical characteristics. Omnidirectional antennas are mounted on opposite sides of the spacecraft. These antennas, each providing greater than hemispherical coverage patterns, are extremely rugged and capable of providing adequate coverage even if struck and bent or otherwise damaged by a small or medium sized particle. Either omni-directional antenna, for either command or telemetry, is sufficient to enable orbit raising. The command receivers and decoders and telemetry encoders and transmitters will be located within a shielded area and will be totally redundant and physically separated. A single rugged thruster and shielded propellant tank will provide the energy for orbit raising. Otherwise, there are no single points of failure in the system. Pegasus will continue to review these aspects of on-orbit operations with the spacecraft

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<sup>1</sup> Although the application has been dismissed, Pegasus has filed a Petition for Reconsideration of that decision.

<sup>2</sup> The Commission has not yet established any service, technical, or licensing rules for the Ka-band BSS spectrum.



manufacturer and will make such adjustments and improvements as are appropriate to assure that its spacecraft will not become sources of debris during operations or become derelicts in space due to a collision with a small or large object.

**MINIMIZING ACCIDENTAL EXPLOSIONS.** The Pegasus spacecraft design will limit the probability of accidental explosions that might fragment the satellite during or after completion of mission operations. All batteries and fuel tanks will be monitored for pressure and temperature. Excessive battery charging or discharging will be avoided by a monitoring and control system which will automatically limit the possibility of fragmentation. Corrective action, if not automatically undertaken, will be immediately undertaken by the Satellite Operations Center to avoid destruction and fragmentation. Thruster temperatures, impulse, and thrust duration will be carefully monitored; any thruster may be turned off via redundant valves. Consequently, there is no possibility of explosion during the operating mission.

All TWTAs will be outgassed prior to post-mission disposal. After post-mission disposal, all residual fuel will be consumed or expelled, all fuel latch valves will be placed in an "open" position, and any pressurized system will be vented. Spacecraft battery trickle charge and all automatic battery charging sequences will be disabled.

Consequently, via its spacecraft documentation, design reviews, FMVA, test plans and testing, Pegasus will assess and limit the possibility of accidental explosions during mission operations and ensure that all stored energy at the end of the spacecraft's mission operation will be removed.

**SAFE FLIGHT PROFILES.** Pegasus has considered the possibility of its spacecraft becoming a source of debris by collision with large debris other than spacecraft. Extensive damage may be done, perhaps rendering the spacecraft inoperative with respect to its communications mission yet enabling the TT&C and propulsion systems to function sufficiently to permit the achievement of a parking orbit. This capability is due to the inherent ruggedness and redundancy of the TT&C and propulsion systems, as previously discussed. The preservation of this capability will be emphasized in Pegasus' procurement documents, design reviews, test plans and FMVA, as described above. Through these methods, Pegasus intends to limit the probability of its spacecraft becoming a source of debris by collisions with large debris or other operational space stations.

With regard to physical coordination, LyngSat, the ITU's Satellite Network Systems, SNS, and the ITU circular (IFIC) documents have been reviewed to indicate possible physical conflicts on orbit. It is apparent that the orbital stations proposed by Pegasus are already occupied by satellites in various services (FSS, BSS, etc.) and that additional satellites in these services are to be launched. The actual orbital stations occupied or to be occupied are in a state of flux since changes from publicized orbital locations are made from time to time. The published orbital locations, within approximately 1 degree of Pegasus' proposed locations are listed below;

Pegasus Proposed Orbital Location @ 110W

DirectTV 5/6 (109.8W)

Echostar 6/8 (110.0W)

Anik E2R/F2 (111.1W)

Pegasus Proposed Orbital Location @ 101W

DirectTV 1/1R/2/4S/8 (101.0W)

AMC 4 (101.0W) AMSC 1 (101.1W)

Solidaridad 1 (101.5W in inclined orbit)

Spaceway 1 (102.8W)

Pegasus Proposed Orbital Location @ 91W

Nimiq 1/3 (91.0W)

Galaxy 9/11 (91.0W)

Brasilsat B4 (92.0W)

Also, launch manifest data indicates that Spaceway 2 is expected to be launched into orbit either at 99.2W or 101.0W.

Separations of 0.2 degrees are sufficient to eliminate the possibility of physical collision during normal station keeping procedures with FCC-mandated station keeping maintained within +/-0.05 degrees. Larger separations may be required for satellites licensed by other administrations.

Pegasus, initiating a new system, will be able to operate with offset orbital locations. To determine suitable and non-conflicting orbital locations, Pegasus plans, with the assistance of its Satellite Operations Center personnel, to contact all possibly-affected administrations in order to develop an orbital plan. On-going contact with these administrations, via the Satellite Operations Center personnel, will assure that the integrity of the established orbital plan will be maintained and that unplanned situations may be resolved as they develop. This coordination can begin after rules for the service are established by the FCC and operators designated.

At the appropriate time, Pegasus intends to contract with an appropriate agency which can supply information regarding large orbital debris that may pose a threat to Pegasus' satellites.

With the situation as described in this section, only normal station keeping regimens are necessary to avoid collisions.

Frequency and physical coordination during launch and orbital drift cannot be undertaken until a Launch Plan is developed identifying the launch vehicle and launch scenario.

No pre-operational orbits requiring STA authority are now anticipated.

POST-MISSION DISPOSAL. At the end of the operational life, each satellite will be maneuvered to a disposal orbit with a minimum perigee 360 km above the normal GSO operational orbit. This proposed disposal orbit altitude is based on the following calculation, as required in §25.283:

$$\text{Solar array area} = 160 \text{ m}^2$$

$$\text{Satellite body area (oriented for max antenna exposure)} = 12 \text{ m}^2$$

$$\text{Ku-band antenna area} = 11 \text{ m}^2$$

$$\text{Total Solar Pressure Area "A"} = 183 \text{ m}^2$$

$$\text{"M"} = \text{Dry Mass of Satellite} = 3300 \text{ kg for high energy electric propulsion}$$

$$\text{"C}_R\text{"} = \text{Solar Pressure Radiation Coefficient (worst case)} = 2$$

Therefore the Minimum Disposal Orbit Perigee Altitude:

$$= 36,021 \text{ km} + 1000 \times C_R \times A/m$$

$$= 36,021 \text{ km} + 1000 \times 2 \times 183/3300$$

$$= 36,132 \text{ km}$$

or 346 km above GSO

To provide adequate margin, the nominal disposal orbit will be increased above this calculated value of 346 km to a value of 360 km.

The propulsion subsystem design and the satellite fuel budget account for the post-mission disposal of the satellite. Approximately 13 kg of propellant will be allocated and reserved for the final orbit raising maneuvers.

This budgeted propellant provides assurance that the disposal orbit will be achieved despite fuel gauge uncertainty.