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July 8, 2011

Via IBFS

Karl Kensinger Associate Division Chief Satellite Division, International Bureau Federal Communications Commission 445 12th Street, S.W. Washington, D.C. 20554

## Re: Supplemental Filing of EchoStar Satellite Operating Corporation, File Nos. SAT-STA-20110627-00122, Call Sign S2621

Dear Mr. Kensinger:

EchoStar Satellite Operating Corporation hereby submits the following additional information regarding the above-referenced application for Special Temporary Authority ("STA") to deorbit the EchoStar 4 satellite from its current orbital location at 76.85° W.L.

The first phase of the deorbiting will involve firing the pyros to isolate the oxidizer tank after the satellite arrives at the disposal orbit. An orbit-raising procedure will be initiated to achieve a minimum perigee of 350 km. This will be achieved through a sequence of multiple maneuvers. EchoStar anticipates that it will take between five and seven days to complete the orbit-raising sequence. The resulting drift rate will be approximately 4.4°/day west at the 350 km minimum perigee. EchoStar expects that it will take around 20 days after orbit-raising before EchoStar 4 drifts outside EchoStar's earth station antenna coverage. EchoStar will make available its ground earth station resources until the fuel is burned to depletion. In the second phase, EchoStar will execute propellant depletion maneuvers while maintaining a 350 km minimum perigee above the GSO. It will perform the bus shutdown sequence prior to losing antenna coverage. EchoStar expects that it will take approximately 14 days to complete propellant depletion and bus shut down, leaving six days of margin.

At the satellite's end of life, the batteries will be left in a permanent state of discharge and all sources of stored energy, with the exception of the helium and oxidizer, will be removed so that the fuel will be expended to depletion to the fullest extent possible. However, there could be as much as 18.69

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kg of the  $N_2O_4$  oxidizer and less than 4 kg of helium (pressurant) remaining in the oxidizer tank; there could also be as much as 2.38 kg remaining in the helium (pressurant) tank. The tank volume is 328 L for the oxidizer tank and 68 L for the helium (pressurant) tank. The helium tank is sealed off from the oxidizer tank. These amounts of oxidizer and helium are far below the respective margins for the burst pressure in these tanks. As EchoStar has stated in its STA request, Lockheed Martin, the satellite's manufacturer, strongly recommends against venting this residual oxidizer, as venting through the LAE after the burn to depletion could create the risk of accidental detonation and explosion of the residual hydrazine (which, in the worst-case scenario, could be as much as 4 kg). Lockheed Martin has also determined that doing so would cause a catastrophic structural failure of the satellite appendage hinges. Specifically, Lockheed Martin has opined that, at certain forces, the hinges are certain to fail catastrophically, independent of satellite appendage angle.

Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/

Pantelis Michalopoulos Christopher Bjornson Counsel for EchoStar Satellite Operating Corporation

cc: Robert Nelson – International Bureau (via e-mail) Sankar Persaud – International Bureau (via e-mail)