DAS Output Log Appendix

Overall changes to DAS run

* Re-ran DAS analysis using DAS3.2.1, previous assessment was done using DAS3.2.0

* Req 4.7-1 still shows a non-compliance, but risk of human casualty is now showing 1:8100

* Req 5.4-1 still complies with an updated value of 9.0688E-06

Below is the DAS output:

Processing Requirement 4.3-1: Return Status : Not Run

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No Project Data Available

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========== End of Requirement 4.3-1 ==========

Processing Requirement 4.3-2: Return Status : Passed

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No Project Data Available

==========

========== End of Requirement 4.3-2 ==========

Processing Requirement 4.5-1: Return Status : Passed

==========

Run Data

==========

INPUT

Space Structure Name = Sherpa_LTC1

Space Structure Type = Payload

Perigee Altitude = 1048.000 (km)

Apogee Altitude = 1064.000 (km)

Inclination = 54.000 (deg)

RAAN = 0.000 (deg)

Argument of Perigee = 0.000 (deg)

Mean Anomaly = 0.000 (deg)

Final Area-To-Mass Ratio = 0.0089 (m^2/kg)

Start Year = 2023.900 (yr)

Initial Mass = 180.000 (kg)

Final Mass = 140.000 (kg)

Duration = 2.000 (yr)

Station-Kept = False

PMD Perigee Altitude = 300.000 (km)

PMD Apogee Altitude = 1064.000 (km)

PMD Inclination = 0.000 (deg)

PMD RAAN = 0.000 (deg)

PMD Argument of Perigee = 0.000 (deg)

PMD Mean Anomaly = 0.000 (deg)

Long-Term Reentry = False

OUTPUT

Collision Probability = 9.0688E-06

Returned Message: Normal Processing

Date Range Message: Normal Date Range

Status = Pass

==========

========== End of Requirement 4.5-1 ==========

Processing Requirement 4.5-2: Compliant

========== End of Requirement 4.5-2 ==========

Processing Requirement 4.6 Return Status : Passed

==========

Project Data

==========

INPUT

Space Structure Name = Sherpa_LTC1

Space Structure Type = Payload

Perigee Altitude = 1048.000000 (km)

Apogee Altitude = 1064.000000 (km)

Inclination = 54.000000 (deg)

RAAN = 0.000000 (deg)

Argument of Perigee = 0.000000 (deg)

Mean Anomaly = 0.000000 (deg)

Area-To-Mass Ratio = 0.008900 (m^2/kg)

Start Year = 2023.900000 (yr)

Initial Mass = 180.000000 (kg)

Final Mass = 140.000000 (kg)

Duration = 2.000000 (yr)

Station Kept = False

Abandoned = False

Long-Term Reentry = False

OUTPUT

Suggested Perigee Altitude = 300.000000 (km)

Suggested Apogee Altitude = 1064.000000 (km)

Returned Error Message = Passes LEO reentry orbit criteria.

Released Year = 2028 (yr)

Requirement = 61

Compliance Status = Pass

==========

========== End of Requirement 4.6 ==========

*********Processing Requirement 4.7-1

Return Status : Passed

**********INPUT****

Item Number = 1

name = Sherpa_LTC1

quantity = 1

parent = 0

materialID = 5

type = Cylinder

Aero Mass = 140.000000

Thermal Mass = 140.000000

Diameter/Width = 0.813000

name = LT upper 24-in separation sytem

quantity = 1

parent = 1

materialID = 5

type = Box

Aero Mass = 1.800000

Thermal Mass = 1.800000

Diameter/Width = 0.610000

Length = 0.610000

Height = 0.031000

name = 24inch Jchannel spacer ring

quantity = 1

parent = 1

materialID = 8

type = Box

Aero Mass = 5.260000

Thermal Mass = 5.260000

Diameter/Width = 0.666750

Length = 0.666750

Height = 0.082550

name = solar panel wing

quantity = 4

parent = 1

materialID = 8

type = Box

Aero Mass = 2.500000

Thermal Mass = 2.500000

Diameter/Width = 0.546350

Length = 0.548500

Height = 0.060000

name = LT Hex Plate1

quantity = 2

parent = 1

materialID = 8

type = Box

Aero Mass = 10.000000

Thermal Mass = 10.000000

Diameter/Width = 0.100000

Length = 0.822000

Height = 0.050000

name = LT Interior Wall

quantity = 6

parent = 1

materialID = 8

type = Flat Plate

Aero Mass = 0.830000

Thermal Mass = 0.830000

Diameter/Width = 0.118000

Length = 0.318000

name = LT Corner Brace

quantity = 6

parent = 1

materialID = 8

type = Box

Aero Mass = 1.100000

Thermal Mass = 1.100000

Diameter/Width = 0.151000

Length = 0.178000

Height = 0.151000

name = Port 4 adapter plate

quantity = 1

parent = 1

materialID = 8

type = Flat Plate

Aero Mass = 1.800000

Thermal Mass = 1.800000

Diameter/Width = 0.311000

Length = 0.350000

name = LT QuadPack adapter plate

quantity = 4

parent = 1

materialID = 8

type = Flat Plate

Aero Mass = 1.800000

Thermal Mass = 1.800000

Diameter/Width = 0.297000

Length = 0.311000

name = V-band radio payload

quantity = 1

parent = 1

materialID = 8

type = Box

Aero Mass = 5.500000

Thermal Mass = 5.500000

Diameter/Width = 0.393000

Length = 0.791000

Height = 0.196000

name = Port 4 ballast

quantity = 1

parent = 1

materialID = 5

type = Box

Aero Mass = 4.000000

Thermal Mass = 4.000000

Diameter/Width = 0.180000

Length = 0.414000

Height = 0.130000

name = torque rod

quantity = 3

parent = 1

materialID = 38

type = Cylinder

Aero Mass = 0.450000

Thermal Mass = 0.450000

Diameter/Width = 0.020000

Length = 0.300000

name = CCS Avionics

quantity = 1

parent = 1

materialID = 8

type = Box

Aero Mass = 22.000000

Thermal Mass = 22.000000

Diameter/Width = 0.393000

Length = 0.791000

Height = 0.196000

name = RWA enclosure

quantity = 3

parent = 1

materialID = 5

type = Box

Aero Mass = 0.570000

Thermal Mass = 0.570000

Diameter/Width = 0.140000

Length = 0.150000

Height = 0.042000

name = RWA rotor

quantity = 3

parent = 1

materialID = 62

type = Box

Aero Mass = 0.400000

Thermal Mass = 0.400000

Diameter/Width = 0.135000

Length = 0.135000

Height = 0.037000

name = 100535_OX TANK ASSEMBLIES

quantity = 3

parent = 1

materialID = 8

type = Cylinder

Aero Mass = 4.770000

Thermal Mass = 4.770000

Diameter/Width = 0.384000

Length = 0.402000

name = 100733_FUEL TANK ASSEMBLY

quantity = 1

parent = 1

materialID = 8

type = Cylinder

Aero Mass = 4.750000

Thermal Mass = 4.750000

Diameter/Width = 0.315000

Length = 0.402000

name = 100688_OCELOT ENGINE ASSEMBLIES

quantity = 4

parent = 1

materialID = 47

type = Cylinder

Aero Mass = 0.510000

Thermal Mass = 0.510000

Diameter/Width = 0.086000

Length = 0.202000

name = 100504_AFT CAB BULKHEAD

quantity = 1

parent = 1

materialID = 8

type = Flat Plate

Aero Mass = 3.320000

Thermal Mass = 3.320000

Diameter/Width = 0.572000

Length = 0.572000

name = 100602_DMLS PRESSURANT TANK_POLARIS 100417 CONFIG

quantity = 2

parent = 1

materialID = 65

type = Cylinder

Aero Mass = 0.980000

Thermal Mass = 0.980000

Diameter/Width = 0.085000

Length = 0.327000

name = FLUID COMPONENTS TOP HALF

quantity = 1

parent = 1

materialID = 59

type = Cylinder

Aero Mass = 3.270000

Thermal Mass = 3.270000

Diameter/Width = 0.529000

Length = 0.416000

name = FLUID COMPONENTS BOTTOM HALF

quantity = 1

parent = 1

materialID = 59

type = Cylinder

Aero Mass = 3.600000

Thermal Mass = 3.600000

Diameter/Width = 0.554000

Length = 0.387000

name = 100719_A LEEG THRUSTER DECK

quantity = 3

parent = 1

materialID = 9

type = Box

Aero Mass = 0.220000

Thermal Mass = 0.220000

Diameter/Width = 0.020000

Length = 0.243000

Height = 0.020000

name = 100719_THRUST BULKHEAD POLARIS

quantity = 1

parent = 1

materialID = 9

type = Cylinder

Aero Mass = 1.030000

Thermal Mass = 1.030000

Diameter/Width = 0.440000

Length = 0.400000

**********OUTPUT****

Item Number = 1

name = Sherpa_LTC1

Demise Altitude = 77.999466

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = LT upper 24-in separation sytem

Demise Altitude = 74.864792

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = 24inch Jchannel spacer ring

Demise Altitude = 70.008217

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = solar panel wing

Demise Altitude = 74.228477

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = LT Hex Plate1

Demise Altitude = 63.121811

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = LT Interior Wall

Demise Altitude = 74.125763

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = LT Corner Brace

Demise Altitude = 74.968056

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = Port 4 adapter plate

Demise Altitude = 72.952560

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = LT QuadPack adapter plate

Demise Altitude = 72.222992

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = V-band radio payload

Demise Altitude = 74.160057

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = Port 4 ballast

Demise Altitude = 71.582504

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = torque rod

Demise Altitude = 66.548836

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = CCS Avionics

Demise Altitude = 61.978394

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = RWA enclosure

Demise Altitude = 74.407455

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = RWA rotor

Demise Altitude = 0.000000

Debris Casualty Area = 1.502729

Impact Kinetic Energy = 128.197006

****

name = 100535_OX TANK ASSEMBLIES

Demise Altitude = 74.435181

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = 100733_FUEL TANK ASSEMBLY

Demise Altitude = 73.565117

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = 100688_OCELOT ENGINE ASSEMBLIES

Demise Altitude = 0.000000

Debris Casualty Area = 2.142142

Impact Kinetic Energy = 152.901871

****

name = 100504_AFT CAB BULKHEAD

Demise Altitude = 71.774117

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = 100602_DMLS PRESSURANT TANK_POLARIS 100417 CONFIG

Demise Altitude = 0.000000

Debris Casualty Area = 1.175714

Impact Kinetic Energy = 365.161255

****

name = FLUID COMPONENTS TOP HALF

Demise Altitude = 0.000000

Debris Casualty Area = 1.142996

Impact Kinetic Energy = 423.326935

****

name = FLUID COMPONENTS BOTTOM HALF

Demise Altitude = 0.000000

Debris Casualty Area = 1.130036

Impact Kinetic Energy = 512.503784

****

name = 100719_A LEEG THRUSTER DECK

Demise Altitude = 76.125443

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

name = 100719_THRUST BULKHEAD POLARIS

Demise Altitude = 77.343895

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

****

========== End of Requirement 4.7-1 ==========