



February 23, 2021

Director  
Office of Federal and State Materials and Environmental Management Programs  
U.S. Nuclear Commission  
Washington, DC 20555-0001

RE: Annual Record and Report of Transfer for 2020

Attn: Document Control Desk/Exempt Distribution

To whom it may concern,  
This annual report is being filed for the following Licensee:

Champion Aerospace, LLC  
1230 Old Norris Road  
Liberty, SC 29657

NRC Materials License No. 39-23825-01E  
SC DHEC Radioactive Material License No. 505

Champion Aerospace manufactures ignition exciters, some of which contain a small amount of radioactive Tritium gas in the high voltage switching component referred to in this document as a "Spark Gap". Spark gaps have been used in turbine engine ignition systems on aircraft since the 1940s. They are a simple and reliable high voltage switch. They do require a small dose of radioactive gas in their construction. The fundamental issue is that a radioactive isotope is required to maintain a consistent spark gap ionization voltage over the unit's operating life. Without the small amount of tritium gas in the spark gap, the ionization voltage of the gap can vary significantly over time and result in a potential decrease in the delivered energy of the exciter. There is no alternative material that Champion can propose for use in our spark gaps that is more benign than Tritium. Currently Champion produces six different spark gaps and transfer these in either top level exciters or as spare parts. The part numbers are as follows:

307083, 307083-1, 307083-2, 307083-3, 307226, 307532 and 307535

Champion currently purchases the Tritium gas from a commercial supplier of the material. That manufacturer is Canadian Nuclear Laboratories in Chalk River, Ontario Canada. Their contact information is listed below for future reference:

*Canadian Nuclear Laboratories (Formerly AECL)  
286 Plant Road  
Chalk River, Ontario  
K0J 1J0  
Phone: (613) 584-3311*

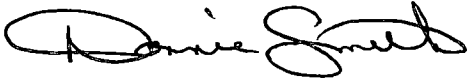
All of the spark gaps listed in this report were transferred for use under 10 CFR 30.15 (a)(8)(i) and are listed by year, part number, quantity transferred, and total micro-curies transferred. See attachments.

**SPARK ✶ IGNITE ✶ EXCITE**

1230 Old Norris Rd • Liberty, SC • 29657

If there are any questions concerning this report please contact me at 864-843-7801.

Sincerely,

A handwritten signature in black ink, appearing to read "Donnie Smith". The signature is fluid and cursive, with the first name "Donnie" being more prominent than the last name "Smith".

Donnie Smith  
Radiation Safety Officer  
Manager, Maintenance  
Champion Aerospace, LLC

cc: Scott Wilson  
Health Physicist  
Division of Nuclear Materials Safety  
Division I  
[scott.wilson@nrc.gov](mailto:scott.wilson@nrc.gov)

Enclosures

Champion Aerospace LLC  
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**2020 Total Tritium Transferred**

Spark Gap Part Number	# Transferred	Tritium Dose/Gap $\mu$ Curie	Total Tritium Transferred $\mu$ Curie
307083	655	28	18340
307083-1	516	28	14448
307083-2	1590	28	44520
307083-3	0	28	0
307226	338	5.9	1994.2
307532	1396	4.6	6421.6
307535	267	28	7476
<b>Totals</b>	<b>4762</b>		<b>93199.8</b>