**Texas A&M Cyclotron Radiation Effects Facility**
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The activity of the Radiation Effects Facility (REF) increased substantially from last year and was the highest reported year ever. In this reporting period, the facility was used for 4,386 hours, which is a 19% increase over the hours of 2022-2023. Users of the facility (and hours used) over the past year were:

**Table 1**. Radiation Effects Facility usage by commercial and government customers for this and previous reporting years.

| Reporting Year | Total Hours | Commercial Hours (%) | Government Hours (%) |
|---|---|---|---|
| 2023-2024 | 4,386 | 3,581 (82%) | 805 (18%) |
| 2022-2023 | 3,684 | 2,991 (81%) | 693 (19%) |
| 2021-2022 | 3,852 | 3,122 (81%) | 730 (19%) |
| 2020-2021 | 3,300 | 2,435 (74%) | 865 (26%) |
| 2019-2020 | 3,982 | 2,862 (72%) | 1120 (28%) |
| 2018-2019 | 3,678 | 2,939 (80%) | 739 (20%) |
| 2017-2018 | 3,681 | 2,622 (71%) | 1,059 (29%) |
| 2016-2017 | 3,355 | 2,501 (75%) | 854 (25%) |
| 2015-2016 | 3,042 | 2,326 (76%) | 716 (24%) |
| 2014-2015 | 3,024 | 1,975 (65%) | 1,049 (35%) |
| 2013-2014 | 2,399 | 1,517 (63%) | 882 (37%) |
| 2012-2013 | 2,626 | 1,856 (71%) | 770 (29%) |
| 2011-2012 | 2,673 | 1,630 (61%) | 1,043 (39%) |
| 2010-2011 | 3,042 | 1,922 (63%) | 1,121 (37%) |
| 2009-2010 | 2,551 | 1,692 (66%) | 859 (34%) |
| 2008-2009 | 2,600 | 1,828 (70%) | 772 (30%) |
| 2007-2008 | 2,373 | 1,482 (62%) | 891 (38%) |
| 2006-2007 | 2,498 | 1,608 (64%) | 890 (36%) |
| 2005-2006 | 2,314 | 1,314 (57%) | 1,000 (43%) |
| 2004-2005 | 2,012 | 1,421 (71%) | 591 (29%) |
| 2003-2004 | 1,474 | 785 (53%) | 689 (47%) |
| 2002-2003 | 1,851 | 1,242 (67%) | 609 (33%) |
| 2001-2002 | 1,327 | 757 (57%) | 570 (43%) |
| 2000-2001 | 1,500 | 941 (63%) | 559 (37%) |
| 1999-2000 | 548 | 418 (76%) | 131 (24%) |
| 1998-1999 | 389 | 171 (44%) | 218 (56%) |
| 1997-1998 | 434 | 210 (48%) | 224 (52%) |
| 1996-1997 | 560 | 276 (49%) | 284 (51%) |
| 1995-1996 | 141 | 58 (41%) | 83 (59%) |

Northrop Grumman (276), Renesas (260), Lockheed Martin (227), Texas Instruments (234), Honeywell (233), RTS (228), Raytheon (216), Scientic (198.5), Sandia (188), Boeing (177), Navy Crane (164), AFRL (160), Draper (147), Infineon (130), EPC Space (112), Frontgrade (104), SEAKR (80), Trusted Semiconductor (80), VPT Inc (80), Thales Alenia Space (72), Vanderbilt (64), Johns Hopkins (56), Troxel Engineering (56), Aerospace (48), BroadCom (48), Space X (48), Blue Origin (40), Crane AE (40), NASA GSFC (40), NASA JSC (37.5), Analog Devices (35), L3Harris (32), NASA JPL (32), Signal Analysis (32), UT Dallas (32), Axiom Space (26), Amazon (24), Malin Space (24), Milanowski (24), Millennium (24), T2 Research (24), BAE Systems (16), Cisco (16), GSI Technology (16), Microchip (16), QualComm (16), Teledyne (16), Trystine (16), VPT RAD (16), Avalanche (14), General Dynamics (14), Volta Space (13), SMU (12), Astranis (8), Colorado University (8), JD Instruments (8), Aria Labs (8), Los Alamos (8), NuTrek (8), and TAMU Physics (4). Malin Space and Volta Space were new users.

Table I compares the facility usage by commercial and government customers. While commercial hours still dominate, the ratio from this reporting year (82% to 18%) is similar to the usage in the most recent reporting periods (see Fig 1). Commercial usage increased by 20% and was the highest commercial usage ever. Government usage increased by 16% but was still low compared to earlier reporting periods.

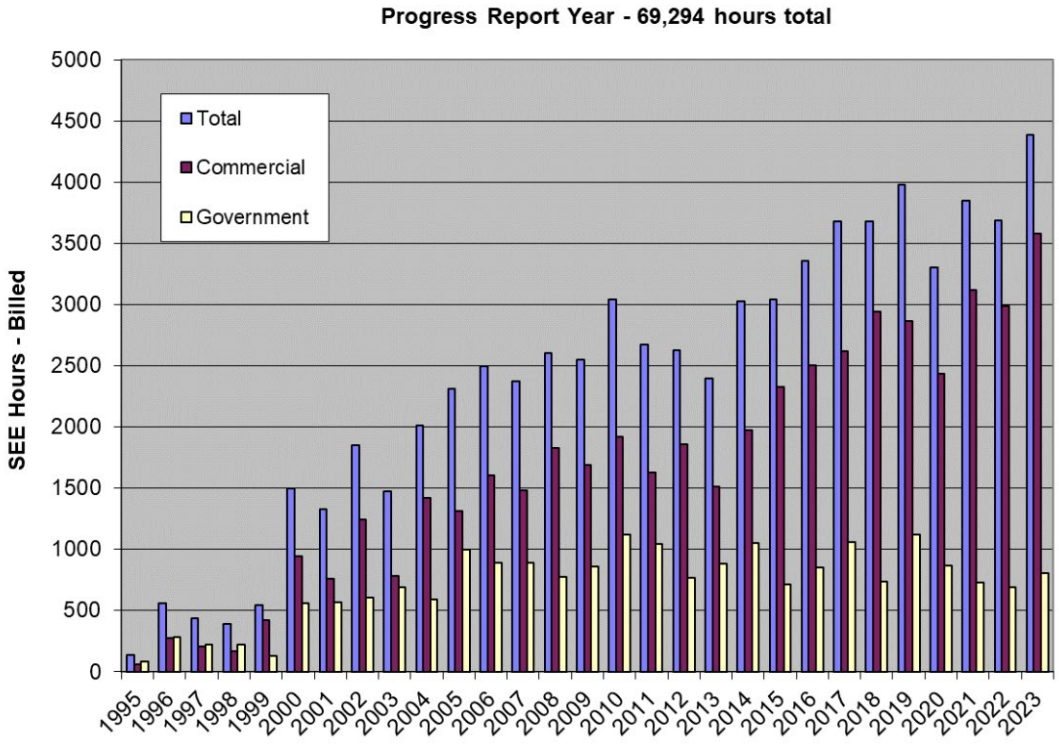


FIG. 1. Radiation Effects Facility usage by commercial and government customers for this and previous reporting years. While commercial hours still dominate, the ratio from this reporting year (82% to 18%) is similar compared to usage from prior reporting periods. Usage hours increased significantly from last year's reporting period (by 19%) was the highest amount in history. 69,294 hours have been billed since the start of the project in 1995.

The 15 MeV/u ions were the most utilized and especially 15 MeV/u Ag and Au. No new beams were added to the K500 cyclotron SEELine users list. Much of the testing conducted at the facility continues to be for defense systems by both government and commercial agencies. We had three foreign users at the facility: Thales Alenia Space-Spain and France (72 hours), Teledyne-Canada (16 hours) and Volta Space-Canada (13 hours).