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(U) Commercial passenger space flight



From Intellipedia

(U) This article, or article section, needs updating

(U) When you feel it is up-to-date, remove this banner.

(U) More popularly known as space tourism, commercial passenger space flight is a subset of the general commercial space industry, which generated over \$97.2 billion in economic activity in 2004. Dozens of companies are investing in the tourism field with new vehicles and businesses plans. In 2005, then-Secretary of Transportation Norman Mineta stated that he hoped to sign the first license for commercial space tourists in 2008^[1]. Several states such as New Mexico and Wisconsin have begun designs and fund raising to build spaceports to support an expected boom in space travel. This is not just an American industry, however, as the United Arab Emirates now plans to build a spaceport in cooperation with Space Adventures Ltd, the only company that has sent customers into space. Other nations such Singapore are also planning commercial space facilities. Sir Richard Branson of Virgin Galactic has stated he intends to train 3000 new astronauts worldwide. [2][3]



(U) Virgin Galactic's SpaceShipOne



Bigelow Aerospace's concept modular space station

Contents

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- 2 (U) Facilities
- 3 (U) Forecast
- 4 (U) Companies
- 5 (U) Related industries
- 6 (U) Security Concerns
- 7 (U) See also
- 8 (U) References

(U) Chronology

Main article: Timeline of Commercial Passenger Space Flight

- (U) 2 December 1990 -- Toyohiro Akiyama arguably became the first space tourist by flying on a Soyuz TM-11, sparking interest in commercial space travel.
- (U) 21 June 2004 -- "SpaceShipOne [4]" made the first private manned spaceflight
- (U) 16 December 2006 the first rocket was launched from the commercial Mid-Atlantic Regional Spaceport.
- (U) 13 September 2007-- Google and the X-Prize Foundation announce a new lunar lander competition, 20 million dollars to the first private entity to land a rover on the moon.
- (U) 26 October 2010 -- Private US company SpaceX has pushed back the launch of its rocket and space cargo craft to 18 November 2010. [5]
- (U) 29 April 2013: SpaceShipTwo flew under its own power for the first time as test pilots fired the spacecraft's rocket engine during a short flight over the Mojave Desert in California. Around 45 minutes into the flight, test pilots Mark Stucky and Mike Alsbury ignited SpaceShipTwo's rocket in midair after being dropped by a carrier vessel from a height of around 46,000 feet (14,020 meters) above the Earth. After the rocket was fired, the spacecraft soared forward and upward, reaching a peak altitude of 56,000 feet (17,068 meters) and breaking the sound barrier, before gliding safely back to the ground. During this time, SS2 went supersonic, achieving Mach 1.2. The engine burn lasted 16 seconds as planned, Virgin Galactic said. [6][7]
- (U) 10 January 2014: The third rocket powered test flight of SpaceShipTwo successfully tested the spaceship's Reaction Control System (RCS) and the newly installed thermal protection coating on the vehicle's tail booms. Virgin Galactic CEO George Whitesides said "With each flight test, we are progressively closer to our target of starting commercial service in 2014". [8]
- (U) 31 October 2014: SpaceShipTwo broke apart in flight over California's Mojave Desert after a device to slow the space plane's descent deployed too soon, federal investigators said. The crash killed one pilot and seriously injured the other. [9]

(U) Facilities

Approved for Release by NSA on 09-14-2018, FOIA Case # 103173

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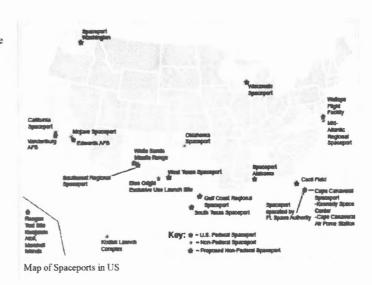
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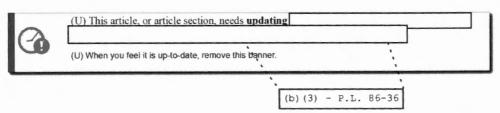
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Main article: Spaceport

(U) The picture to the right shows the current spaceports existing in the United States, as well as those under consideration. [10][11] New Mexico is the leader in this area, with plans to build "America's Spaceport" well underway. According to the FAA website, there are 4 commercially licensed spaceports (sites authorized to launch spacecraft), 5 Federal spaceports, and over 12 proposed spaceports. Such a large number of proposed spaceports (see attachment) indicates that the market believes the demand for such facilities is real. While there are a number of reasons to remain cautious about overestimating the growth this industry may have, the reasons listed above are cause for guarded optimism.



(U) Forecast



- (U) The Futron Corporation's Space Tourism Market Study (completed in 2002)^[12] indicates that the combined initial market for suborbital and orbital tourism will involve at least hundreds of customers, quickly rising to the thousands within 8-10 years. Furthermore, this industry has attracted the attention of such well-known entrepreneurs as Robert Bigelow, Richard Branson, and Jeff Bezos. These people, along with the many smaller companies seeking to compete in the market, are an indicator that the industry is ready to begin significant gains.
- (U) The latest update (c. 2006) to the Futron study utilizes the same polling data, but changes some of the assumptions about price, required fitness levels, and when regular flights would begin. Based on the new data, there will likely be fewer than 1000 suborbital space tourists in 2008, with sharp increases in the next 12 years to over 10,000 suborbital space tourists by 2020. Orbital tourists are expected to remain rare in comparison, with 1 tourist in 2006, and 1-2 a year with a very slow rise. By 2020, it is estimated there may be up to 60 orbital space tourists a year.

(U) Companies

(U) Not all of the companies below are necessarily trying to launch commercial passengers into space. Some are working on lowering launch costs in general, while others are simply interesting or notable in their own right.^[13]

- Virgin Galactic
- Bigelow Aerospace
- Blue Origin
- Canadian Arrow
- Sea Launch (Partnership between Boeing, RSC Energia, SDO Yuzhonove, and Aker ASA)
- Space Exploration Technologies Inc. (SpaceX)
- JP Aerospace
- Scaled Composites
- Space Adventures Ltd
- wp:UP Aerospace
- wp:Orbital Sciences Corporation (Listed on the NYSE)
- wp:t/Space
- wp:SpaceDev (Is publicly traded and listed on the OTCBB)
- · wp:Space Services Inc.

(U) Related industries



(U) Virgin Galactic WhiteKnightTwo is designed to reach an altitude of 50,000 feet (15.5 km) and release SpaceShipTwo, which will transport passengers to space at 361,00 feet (110 km) in the future. Courtesy Reuters

	(b) (3) - P.L. 86-36
	6636409 Paries Regist League and the V. Prize cup, all of which are intended to build
publi Subo	There are related industries and issues as well, such as the Zero-G Company, Racing Rocket League, and the X-Prize cup, all of which are intended to build c interest in the space industry. Founder Peter Diamandis hopes to attract 100,000 people to these events, and informal studies support this possibility. [1] rbital spacecraft may also have the capability to shorten cargo delivery times to mere hours anywhere on Earth, which has interested rapid delivery panies such as Federal Express and DHL. [14]
(U)	Security Concerns
	Main article: Space Security Concerns
(U//I The I	Terrorists have attacked every existing mode of commercial transportation. There is no evidence that commercial space travel will be any different FAA has already recommended that the TSA No Fly List be used to screen space passengers. Related issues include:
	Passenger Screening. Will procedures be the same? At what level of widespread use does this become an issue - early on, will the exclusive nature (due cost) and media attention act as a screening mechanism?
- 1	Office of Transportation Vetting and Credentialing. How will space pilots be integrated into the process? Spaceports. Have current design proposals been made with security in mind?
	Space Events. If large crowds materialize, will they be considered National Special Security Events (NSSEs)?
	Hijacking/Suicide Attacks. Are they possible? If so, how can they be prevented?
	Political/Economic. Real or perceived security issues may call into question TSA's foresight, or lack thereof.
	Point to point suborbital travel. How much warning time will we have of inbound No Fly List persons?
•	Will visitors to orbital facilities be subject to customs inspections?
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(U)	See also
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(U//FOUO) Commercial Passenger Space **Flight**



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From Intellipedia

More popularly known as Space Tourism, commercial passenger space flight is a subset of the general commercial space industry, which generated over \$97.2 Billion in economic activity in 2004. Dozens of companies are investing in the tourism field with new vehicles and businesses plans, and Secretary of Transportation Norman Mineta has stated in recent speeches that he hopes to sign the first license for commercial space tourists in 2008. Additionally, several states such as New Mexico and Wisconsin have begun designs and fund raising to build spaceports to support this expected boom in space travel. This is not just a US industry however, as the United Arab Emirates now plans to built a spaceport in cooperation with Space Adventures Ltd, the only company to have sent customers into space. Other areas such Singapore also plan commercial space facilities, and Sir Richard Branson of Virgin Galactic has stated he intends to train 3000 new astronauts worldwide.

There are related industries and issues as well, such as the Zero-G Company, Racing Rocket League, and the X-Prize cup, all of which are intended to build public interest in the space industry. Founder Peter Diamandis hopes to attract 100,000 people to these events, and informal studies support this possibility. Suborbital spacecraft may also have the capability to shorten cargo delivery times to mere hours anywhere on Earth, interesting companies such as FedEx and DHL.



Spaceship One



Bigelow Inflatable Habitat



Goddard

Contents

- 1 Significant Events
- 2 Facilities
- 3 Forecast
- 4 Companies
- 5 Security Concerns
- 6 Blogs
- 7 Links

Significant Events

- 20 MAR 2007. SpaceX launches it's Flacon 1 rocket semi sucessfully, definately reaching space, but failing to achieve the desired orbit.
- 13 November 2006: Blue Origin launches the Goddard suborbital space vehicle, as a test.
- 18 SEP 2006: Anousheh Ansari launches to become the forth paying space tourist. She is the first female muslim in space.
- 12 July 2006: Bigelow Aerospace launches the "Genesis I" pathfinder mission. This inflatable

Doc ID: 6636413 habitat is a scaled-down version of planned habitats. It was launched from Russian SS-18 intercontinental ballistic missile.

- 24 March 2006: Space Exploration Technologies Inc. launches the "Falcon 1" rocket, which was intended to be the first of a series of rockets that will lower the costs of putting payloads into space. At T+34 seconds the rockets engines cut off due to fire from a leaky valve.
- 1 October 2005: Gregory Olsen becomes the third paying space tourist.
- November 2004: Robert Bigelow announces the "America's Space prize".
- 4 October 2004: Scaled Composites craft "Spaceship one", piloted by Brian Binnie, wins the Ansari X-Prize by making second flight in two weeks.
- 29 September 2004: Scaled Composites craft "Spaceship one", piloted by Mike Melville, makes first X-prize qualification flight.
- 21 June 2004: Scaled Composites craft "Spaceship one", piloted by Mike Melville, makes first private manned spaceflight.
- 25 April 2002: Mark Shuttleworth becomes the second paying customer to travel to the ISS.
- 28 April 2001: Dennis Tito becomes the first fee paying space tourist. He reportedly paid \$20 million to fly to the International Space Station (ISS) about a Soyuz capsule.
- 18 May 1996: the \$2,000,000 X-prize, modeled on the Ortega prize of Charles Limburgh fame, is announced. Later to be known as the Ansari X-prize for two financial donors, the prize is to be given to the team or individual that without government help/financing can send a space craft on a minimum 62 mile suborbital flight twice in two weeks, while carrying three passengers or their weight equivilant.
- 2 DEC 1990: Toyohiro Akiyama arguably becomes the first space idurists, on the Soyuz TM-11. Since he was sent by his company as a journalist, it is argued this was actually business travel.

Facilities

The picture to the left shows the current Spaceports existing in the United States, as well as those under consideration. New Mexico is the leader in this area, with plans to build "Americas Spaceport" well underway. According to the FAA website, there are 4 commercially licensed spaceports (sites authorized to launch spacecraft), 5 Federal spaceports, and over 12 proposed spaceports. Such a large number of proposed spaceports (see attachment) indicates that the market believes the demand for such facilities is real. While there are a number of reasons to remain cautious about overestimating the growth this industry may have, the reasons listed above are cause for guarded optimism.



Map of Spaceports in US

For a list of spaceports, both foreign and domestic, please see the article: Spaceport.

Forecast

The Futron Corporation's Space Tourism Market Study (completed in 2002) indicates that the combined initial market for suborbital and orbital tourism will involve at least hundreds of customers, quickly rising to the thousands within 8-10 years. Furthermore, this industry has attracted the attention of such well-known entrepreneurs as Robert Bigelow, Richard Branson, and Jeff Bezos. These people, along with the many smaller companies seeking to compete in the market, are an indicator that the industry is ready to begin significant gains.

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about price, required fitness levels, and when regular flights would begin. Based on the new data, there Doc 1D: 6636413 be fewer than 1000 suborbital space tourists in 2008, with sharp increases in the next 12 years to over 10,000 suborbital space tourists by 2020. Orbital tourists are expected to remain rare in comparison, with 1 tourist in 2006, and 1-2 a year with a very slow rise. By 2020, it is estimated there may be up to 60 orbital space tourists a year.

Companies

Not all of the companies below are necessarily trying to launch commercial passengers into space. Some are working on lowering launch costs in general, while others are simply interesting or notable in their own right.

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- Bigelow Aerospace
- Blue Origin
- Canadian Arrow
- Sea Launch (Partnership between Boeing, RSC Energia, SDO Yuzhonove, and Aker ASA)
- SpaceX
- JP Aerospace
- Scaled Composites
- Space Adventures Ltd.
- UP Aerospace Inc
- Orbital Sciences Corp. (Listed on the NYSE)
- T/Space
- SpaceDev (Is publically traded and listed on the OTCBB)

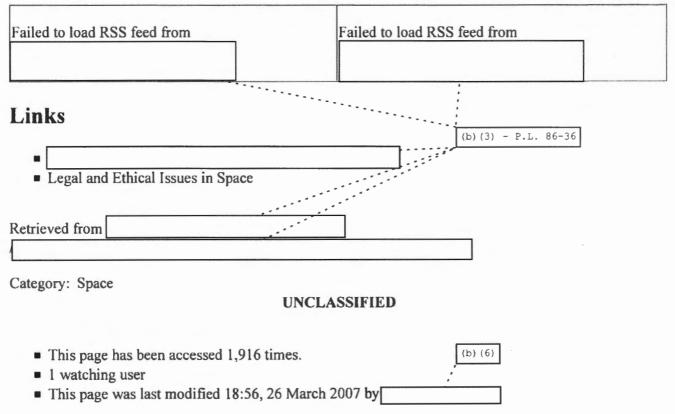
Security Concerns

It is generally accepted that terrorists will attack any and all modes of transportation if they believe it helps achieve their goals, and there is no evidence to suggest that the mode of Commercial Space Travel will be any different. The FAA has already recommended that the TSA No Fly List be used to screen space passengers. Related issues include:

- Passenger Screening. Will procedures be the same? At what level of widespread use does this become an issue - early on, will the exclusive nature (due to cost) and media attention act as a screening mechanism?
- Office of Transportation Vetting and Credentialing. How will space pilots be integrated into the process?
- Spaceports. Have current design proposals been made with security in mind?
- Space Events. If large crowds materialize, will they be considered NSSEs?
- Hijacking/Suicide Attacks. Are they possible? If so, how can they be prevented?
- Political/Economic. Real or perceived security issues may call into question TSA's foresight, or lack thereof.
- Point to point suborbital travel. How much warning time will we have of inbound No Fly List persons?
- Will visitors to orbital facilities be subject to customs inspections?

(Also see main article: Space Security Concerns.)
Doc ID: 6636413

Blogs



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(U) Template: Featured Article/November 4, 2014



(b) (1) (b)(3)- P.L. 86-36

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(U) More popularly known as space tourism, commercial passenger space flight is a subset of the general commercial space industry, which generated over \$97.2. billion in economic activity in 2004. Dozens of companies are investing in the tourism field with new vehicles and businesses plans. Several states such as New Mexico (Spaceport America) and Wisconsin have begun to build spaceports to support an expected boom in space travel. This is not just an American industry, the United Arab Emirates plans to build a spaceport in cooperation with Space Adventures Ltd, the only company that has sent customers into space. Other nations such as Singapore and the United Kingdom are also planning commercial space facilities. Early predictions that commercial passenger space flight could begin as



(U) Bigelow Aerospace concept modular space station

early as 2008 have proven overly optimistic. Following the 31 October 2014 test flight crash of Virgin Galactic's SpaceShipTwo, resulting in the death of one pilot and serious injury of the other, Sir Richard Branson wrote on the company's website: "Space is hard - but worth it. We will persevere and move forward together."

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(b) (3) - P.L. 86-36

(U//FOUO) Timeline of Commercial Passenger Space Flight



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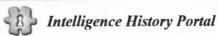
From Intellipedia



(U) This article is historical.

(U) It will be updated only occasionally, if at all. However, editors are still encouraged to update and refine it. Please retain it for reference purposes.

Since December 2, 1990, when Toyohiro Akiyama arguably became the first space tourist by space tourist by flying on a Soyuz TM-11, there has been a growing interest in Commercial Passenger Space Flight. On June



21, 2004, **SpaceShipOne** made the first private manned spaceflight and on December 16, 2006, the first rocket was launched from the commercial Mid-Atlantic Regional Spaceport.

Key Events

- 14 OCT 2008, Entrepreneur (and son of a NASA astronaut) Richard Garriott becomes the 6th paying space tourist to visit the ISS.
- On August 29, 2008 SpaceX finally has a successful launch and orbit of their Falcon 1 rocket.
- August 3, 2008 SpaceX launches a Falcon 1 rocket, but fails to achieve orbit. This is the third failure for the company of the Falcon 1.
- August 1, 2008 wp:Rocket Racing League begins exibition flights.
- September 13, [2007]. Google and the wp:X Prize Foundation announce a new lunar lander competition, 20 million dollars to the first private entity to land a rover on the moon.
- April 7, 2007. wp:Charles Simonyi becomes the 5th paying space tourist, launching from Baikonur Cosmodrome about a Soyuz rocket.
- March 20, 2007 SpaceX launches its Falcon 1 rocket semi-successfully. The rocket is part of owner Elon Musk's plan to reduce commercial launch costs to 7 million USD.
- December 16, 2006 Mid-Atlantic Regional Spaceport launches its first rocket, a wp:Minotaur I by wp:Orbital Sciences, with a payload of 2 government satellites.
- November 13 2006. Blue Origin test flies its Goddard suborbital space craft.
- September 18 2006: wp:Anousheh Ansari launches to become the fourth paying space tourist. She is the first female Muslim in space.
- July 12 2006: wp:Bigelow Aerospace launches the *wp:Genesis I* pathfinder mission. This inflatable habitat is a scaled-down version of planned habitats. It was launched from a Russian SS-18 intercontinental ballistic missile.
- March 24 2006: Space Exploration Technologies Inc. launches a *Falcon 1* rocket, which was intended to be the first of a series of rockets that will lower the costs of putting payloads into space. At T+34 seconds the rockets engines cut off due to fire from a leaky valve.
- October 1, 2005: wp:Gregory Olsen becomes the third paying space tourist.
- November 2004: Robert Bigelow announces the "America's Space prize".

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- October 4, 2004: Scaled Composites craft wp: SpaceShipOne, piloted by Brian Binnie, wins the Ansari X-Prize by making second flight in two weeks.
- September 29, 2004: Scaled Composites craft SpaceShipOne, piloted by Mike Melville, makes first X-prize qualification flight.
- June 21 2004: Scaled Composites craft *SpaceShipOne*, piloted by Mike Melville, makes first private manned spaceflight.
- April 25, 2002: Mark Shuttleworth becomes the second paying customer to travel to the ISS.
- April 28, 2001: wp:Dennis Tito becomes the first fee paying space tourist. He reportedly paid \$20 million to fly to the International Space Station (ISS) about a Soyuz capsule.
- May 18, 1996: the \$2,000,000 X-prize, modeled on the Ortega prize of wp:Charles Lindbergh fame, is announced. Later to be known as the Ansari X-prize for two financial donors, the prize is to be given to the team or individual that without government help/financing can send a space craft on a minimum 62 mile suborbital flight twice in two weeks, while carrying three passengers or their weight equivalent.
- December 2, 1990: wp:Toyohiro Akiyama arguably becomes the first space tourist, on the Soyuz TM-11. (Since he was sent by his company as a journalist, it is argued this was actually business travel.)

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NATIONAL SECURITY AGENCY FORT GEORGE G. MEADE, MARYLAND 20755-6000

FOIA Case: 103173A 14 September 2018

JOHN GREENEWALD 27305 W LIVE OAK ROAD SUITE 1203 CASTAIC CA 91384

Dear Mr. Greenewald:

This responds to your Freedom of Information Act (FOIA) request of 19 December 2017 for Intellipedia records on Bigelow Aerospace. As stated in our initial response to you dated 19 December 2017, your request has been assigned Case Number 103173. For purposes of this request and based on the information you provided, you are considered an "all other" requester. As such, you are allowed 2 hours of search and the duplication of 100 pages at no cost. There are no assessable fees for this request. Your request has been processed under the provisions of the FOIA.

For your information, NSA provides a service of common concern for the Intelligence Community (IC) by serving as the executive agent for Intelink. As such, NSA provides technical services that enable users to access and share information with peers and stakeholders across the IC and DoD. Intellipedia pages are living documents that may be originated by any user organization, and any user organization may contribute to or edit pages after their origination. Intellipedia pages should not be considered the final, coordinated position of the IC on any particular subject. The views and opinions of authors do not necessarily state or reflect those of the U.S. Government.

We conducted a search across all three levels of Intellipedia and located documents that are responsive to your request. The documents are enclosed. Certain information, however, has been deleted from the documents.

Some of the withheld information has been found to be currently and properly classified in accordance with Executive Order 13526. The information meets the criteria for classification as set forth in Subparagraph (c) of Section 1.4 and remains classified CONFIDENTIAL as provided in Section 1.2 of Executive Order 13526. The information is classified because its disclosure could reasonably be expected to cause damage to the national security.

FOIA Case: 103173A

Because the information is currently and properly classified, it is exempt from disclosure pursuant to the first exemption of the FOIA (5 U.S.C. Section 552(b)(1)).

Also, this agency is authorized by statute to protect certain information concerning its activities (in this case, internal URLs), as well as the names of its employees. Such information is exempt from disclosure pursuant to the third exemption of the FOIA, which provides for the withholding of information specifically protected from disclosure by statute. The specific statute applicable in this case is Section 6, Public Law 86-36 (50 U.S. Code 3605). We have determined that such information exists in this record, and we have excised it accordingly.

In addition, personal information regarding individuals has been deleted from the enclosure in accordance with 5 U.S.C. 552 (b)(6). This exemption protects from disclosure information that would constitute a clearly unwarranted invasion of personal privacy. In balancing the public interest for the information you request against the privacy interests involved, we have determined that the privacy interests sufficiently satisfy the requirements for the application of the (b)(6) exemption.

Since these deletions may be construed as a partial denial of your request, you are hereby advised of this Agency's appeal procedures. If you decide to appeal, you should do so in the manner outlined below.

• The appeal must be in sent via U.S. postal mail, fax, or electronic delivery (e-mail) and addressed to:

NSA FOIA/PA Appeal Authority (P132) National Security Agency 9800 Savage Road STE 6932 Fort George G. Meade, MD 20755-6932

The facsimile number is (443)479-3612.

The appropriate email address to submit an appeal is FOIARSC@nsa.gov.

- It must be postmarked or delivered electronically no later than 90 calendar days from the date of this letter. Decisions appealed after 90 days will not be addressed.
- Please include the case number provided above.
- Please describe with sufficient detail why you believe the denial was unwarranted.
- NSA will endeavor to respond within 20 working days of receiving your appeal, absent any unusual circumstances.

FOIA Case: 103173A

For further assistance and to discuss any aspect of your request, you may contact our FOIA Public Liaison at foialo@nsa.gov. You may also contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. OGIS contact information is: Office of Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, MD 20740-6001; e-mail: ogis@nara.gov; main: 202-741-5770; toll free: 1-877-684-6448; or fax: 202-741-5769.

Sincerely,
Purel N

JOHN R. CHAPMAN Chief, FOIA/PA Office NSA Initial Denial Authority

Encls: a/s