

John C. Stennis Space Center

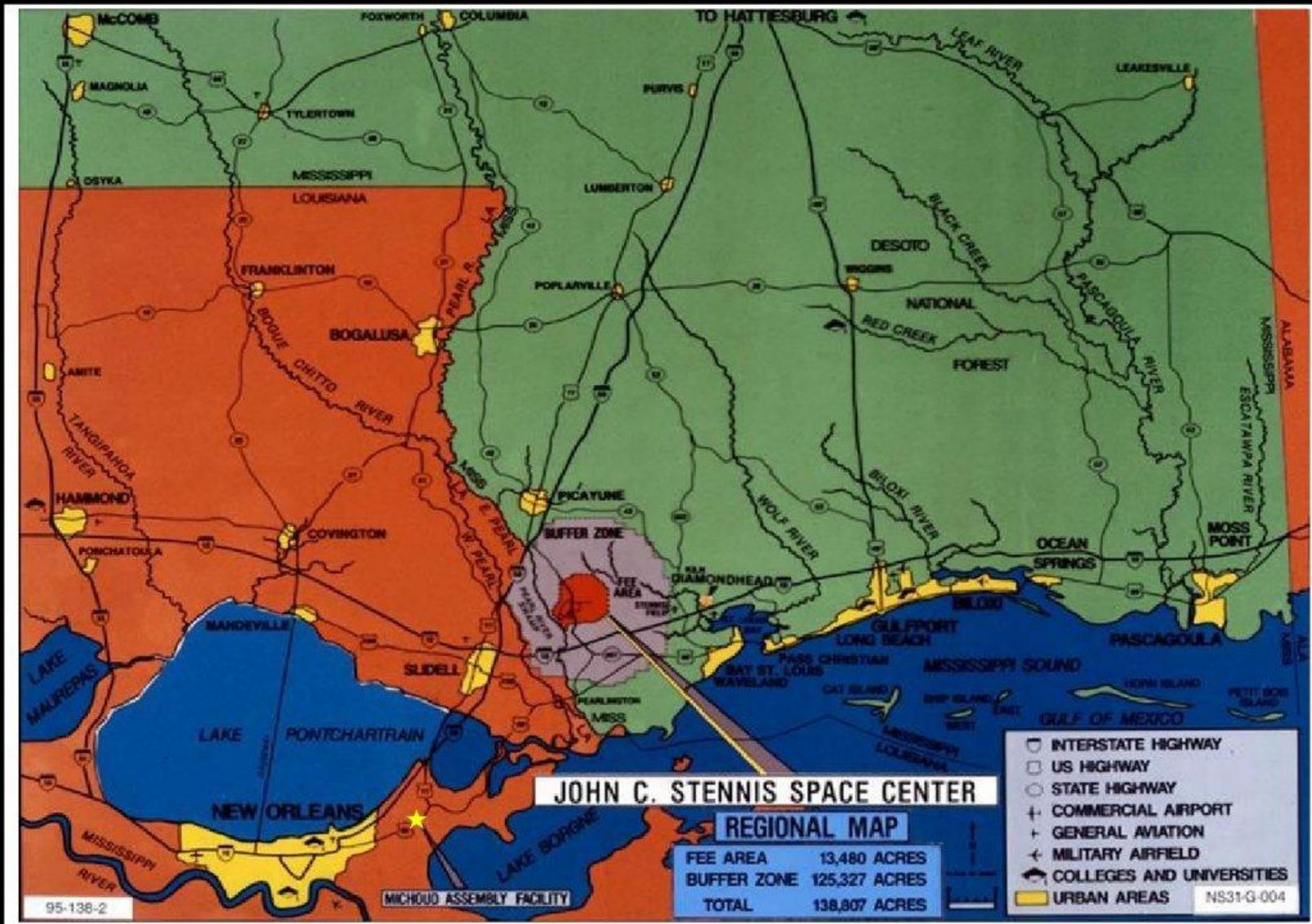


NASA Advisory Council Presentation

Rick Gilbrech, Director

January 14, 2015

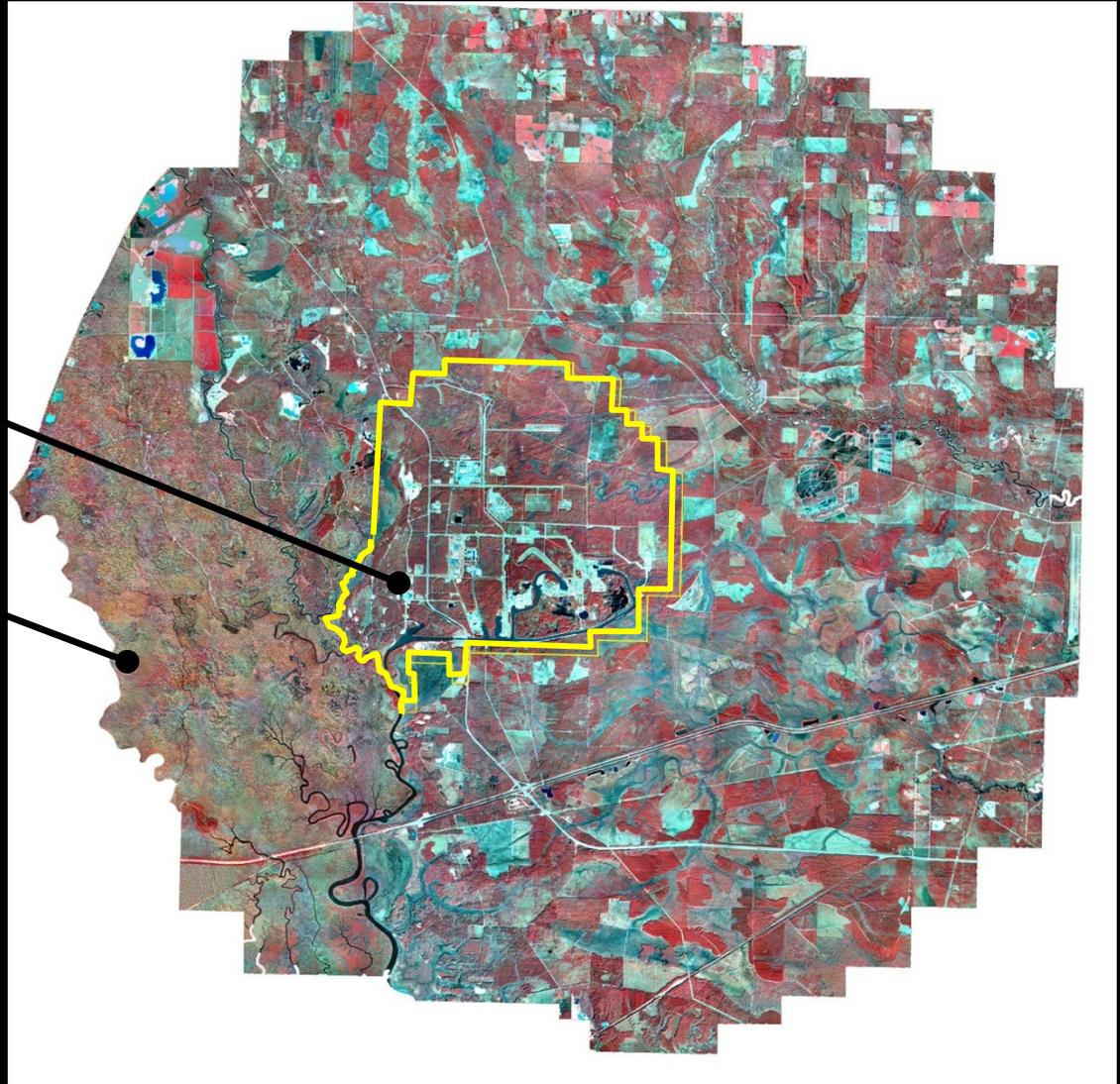
Nationally Unique Buffer Zone



Buffer Zone

**13,800 Acre
Fee Area**

**125,000 Acre
Buffer Zone**



The 7 ½ mile Panama Canal-like lock-and-dam waterway system links the Stennis Space Center test complex to the Pearl River, providing access for delivery of rocket propellants, large rocket components and other materials.

Stennis Over DC Metro



Rocket Propulsion Test Heritage



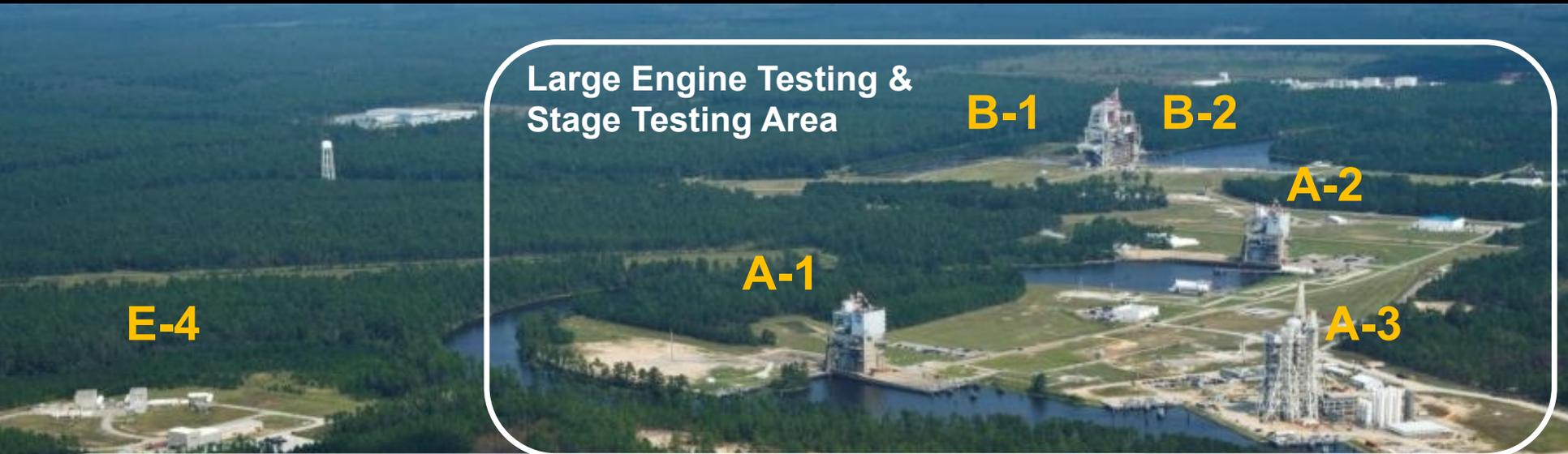
**First Saturn V rocket engine test firing
April 23, 1966**

**First Space Shuttle Main Engine test firing
(to achieve ignition)
June 12, 1975**

**First J-2X engine component test
December 18, 2007**



SSC Test Complex



Large Engine Testing &
Stage Testing Area

B-1

B-2

A-2

A-1

A-3

E-4



Sub-scale & Full Scale
Component Testing Area

E-2

E-3

E-1

Canal System
Allows Barge
Transportation
of Large Stages
Between SSC,
MAF, KSC, etc
and Allows Long
Duration Hotfire
Tests

SSC Test Facilities

E-3 Test Facility Cell 2

Max Thrust (Klbf) 25
Altitude (Kft) Ambient
Propellants LOX/H2O2/CH4/JP-8



B-1 Test Stand

Max Thrust (Klbf) 11,000 (designed)
 750 (current)
Altitude (Kft) Ambient
Propellants LOX/LH2



B-2 Test Stand

Max Thrust (Klbf) 11,000 (designed)
Altitude (Kft) Ambient
Propellants LOX/LH2

E-3 Test Facility Cell 1

Max Thrust (Klbf) 60
Altitude (Kft) Ambient
Propellants LOX/H2O2/JP-8/Hybrid



COMPONENTS

STAGES

ENGINES

A-2 Test Stand

Max Thrust (Klbf) 1,500 (designed)
 650 (current)
Altitude (Kft) 60
Propellants LOX/LH2



A-1 Test Stand

Max Thrust (Klbf) 1,500 (designed)
 650 (current)
Altitude (Kft) Ambient
Propellants LOX/LH2



A-3 Test Stand

Max Thrust (Klbf) 1,000 (designed)
 300+ (altitude)
Altitude (Kft) 100 (designed)
Propellants LOX/LH2



E-2 Test Facility Cell 2

Max Thrust (Klbf) 150
Altitude (Kft) Ambient
Propellants LOX/RP/H2O2



E-1 Test Facility Cells 1-3

Max Thrust (Klbf) 1,200
Altitude (Kft) Ambient
Propellants LOX/LH2/RP/Hybrid



SSC Test Support Services



Cryogenic Propellant Storage

Six (6) 100,000 gal LOX barges
Three (3) 240,000 gal LH barges



High Pressure Industrial Water (HPIW)

330,000 gpm (66 M gallon reservoir storage capacity)
(Provides Deflector Cooling and Firex to A/B Complex)



High Pressure Gas Facility (HPGF)

Storage and Distribution of GN, GHe, GH, Air

Available Additional Support

- Laboratories
 - Environmental
 - Gas and Material Analysis
 - Measurement Standards and Calibration
- Shops
 - Machine/Weld/Carpenter/Paint/Electrical
 - Valve/Component Cleaning/Rework

Current/Recent Rocket Propulsion Testing Engines and Components



Space shuttle main engine
375,000 lbs. thrust



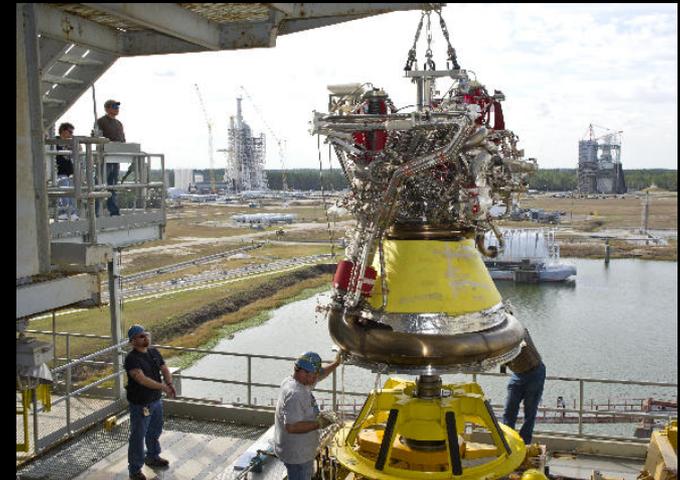
RS-68
660,000 lbs. thrust



AJ26
367,000 lbs. thrust



BE-3 Thrust Chamber Testing
100,000 lbs. thrust



J-2X engine
294,000 lbs. thrust

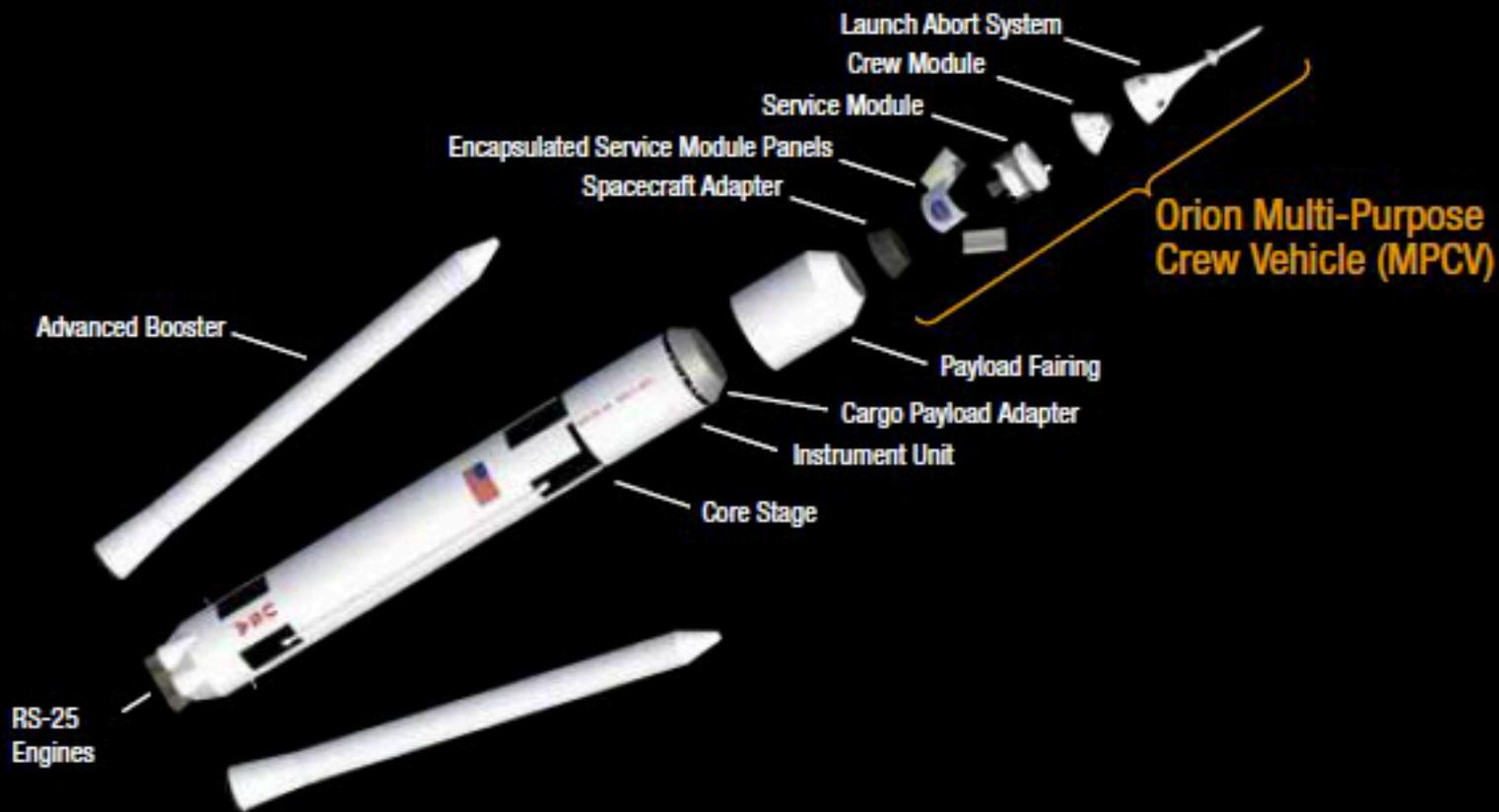
Space Launch System (SLS)

Apollo Saturn V

Space Shuttle



SLS and Orion



2014 Test Complex Highlights



A1 – RS-25 Engine Installed



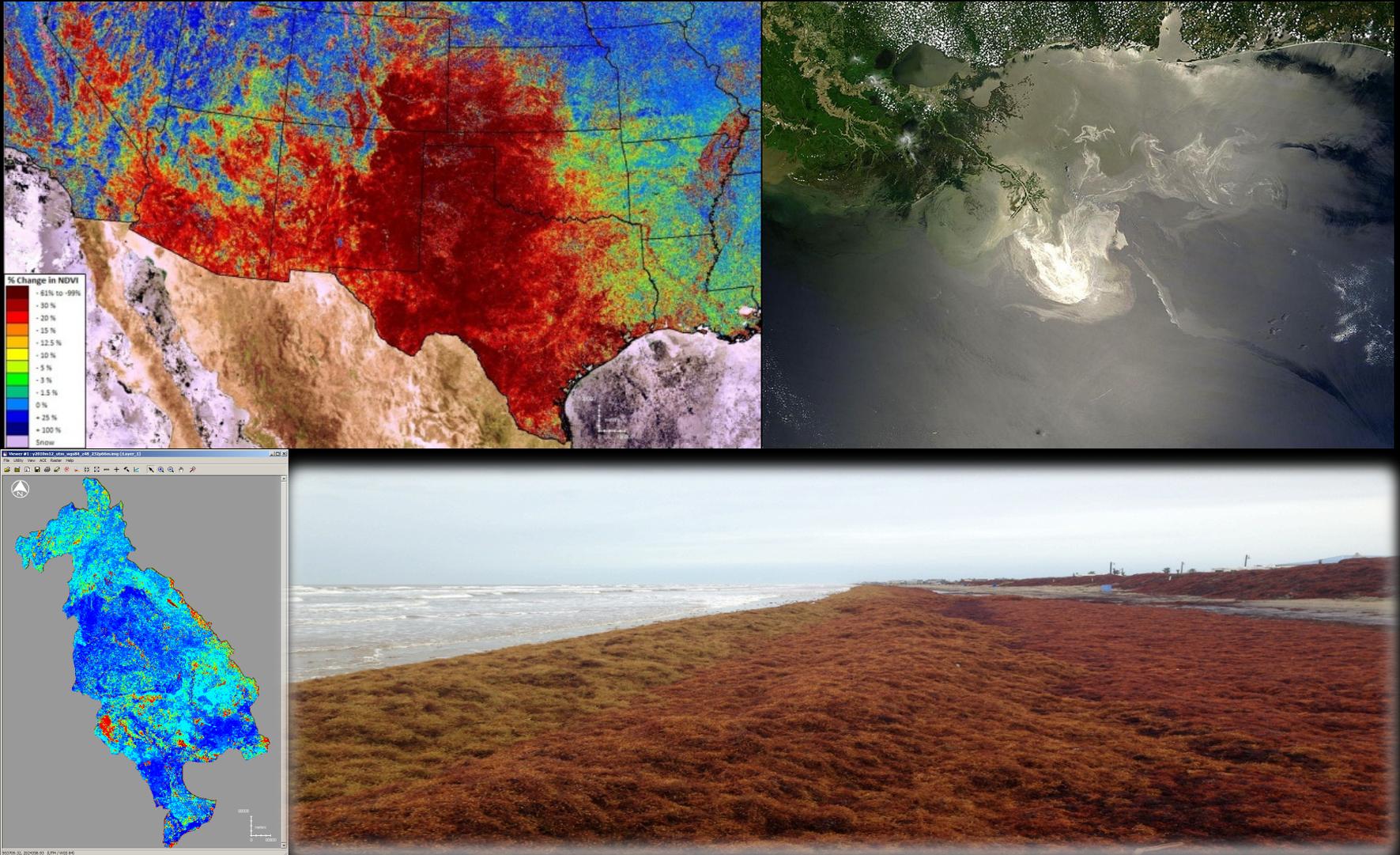
B2 – SLS Core Stage Mods



High Pressure Industrial Water
Pipe Replacement

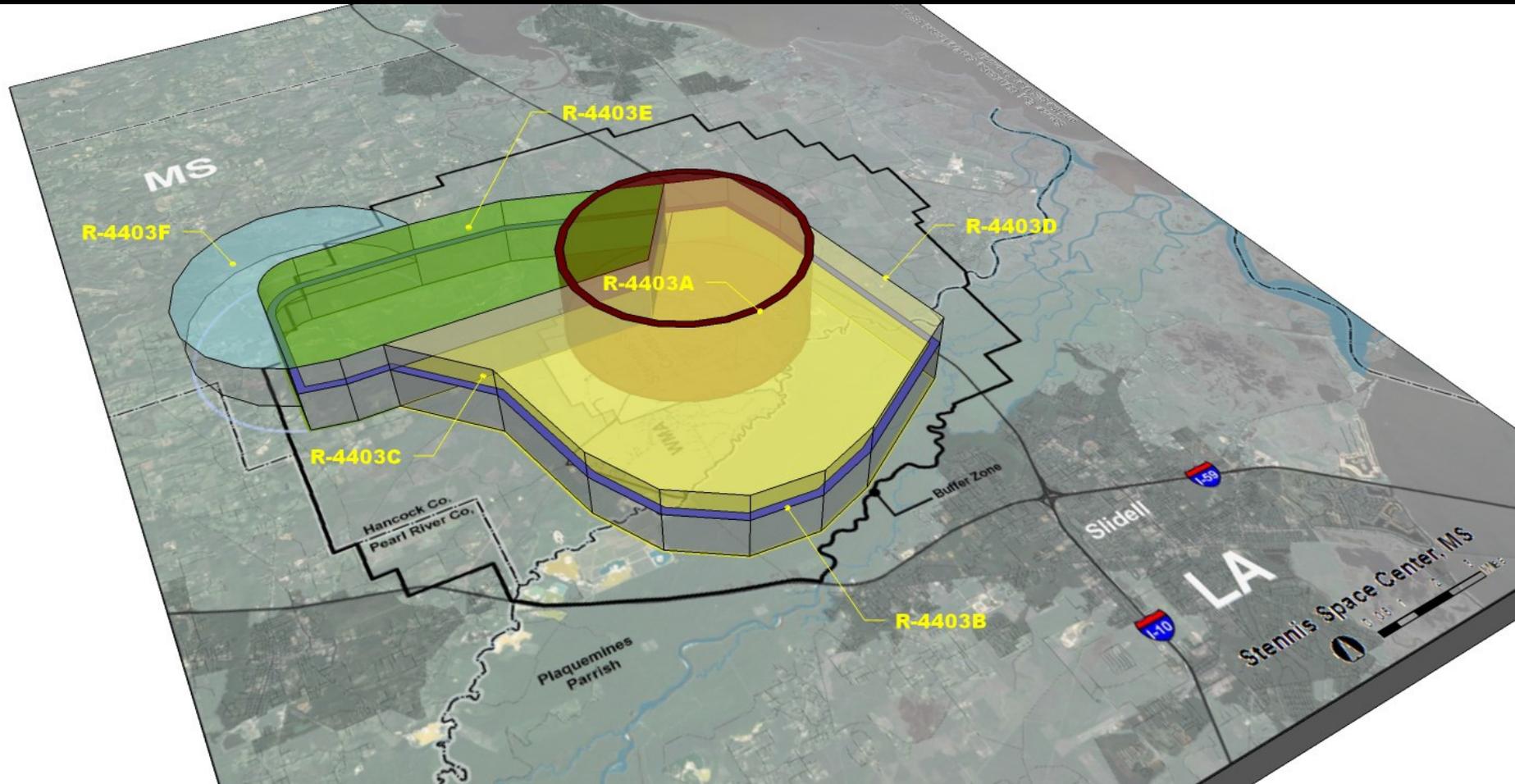
2014 Rocket Test Highlights

SSC Applied Sciences



- (Top left) ForWarn, deployed by the USFS, and chosen as one of the top 25 tools in the US Climate Resilience toolkit
- (Top right) Satellite ocean oil spill detection tools to be deployed by NOAA
- (Bottom left) Forecast Mekong, deployed by the USGS, is also part of the US Dept. of State's Lower Mekong Initiative
- (Bottom right) The Sargassum Early Advisory System, deployed in TX and LA, alerts users of landings

FAA Restricted Airspace Expansion



Public Comment Period for Application and Environmental Assessment Completed
Expanded Restricted Airspace Go Live ~ Dec 2015

Innovative Contracting

- **Ten Year Joint Stennis/Michoud Assembly Facility (MAF) Synergy Achieving Consolidated Operations and Maintenance (SACOM)**
 - Facility Support Services and Test Operations
 - Procurement is currently in blackout
 - Award currently projected for July 2, 2015
 - Contract Start October 1, 2015
- **SSC/MAF Laboratory Services (LABS)**
 - Issue Final RFP December 2014
 - Award currently projected for March 2015
 - Contract Start May 1, 2015
- **Multiple Award Construction Contract (MACC)**
 - Five year fixed price IDIQ contract awarded 2012 to 10 construction companies
 - \$700M total value spanning Large, Small, HUBZone and SDVOSB
 - Overall savings to date exceed 26% from Government Estimate (Cost Avoidance over \$39.3M on 15 Projects)

Managing the Federal City: Resident Agencies

Department of Defense

- Commander, Naval Meteorology & Oceanography Command
- Naval Oceanographic Office
- Naval Research Laboratory
- Naval Small Craft Instruction and Technical Training School
- Navy Special Boat Team 22
- Navy Human Resources Service Center Southeast
- NavFac Southeast
- Army Corp of Engineers

Department of Commerce

- NOAA, NWS, National Data Buoy Center
- NOAA National Marine Fisheries Service
- NOAA National Coastal Data Development Center

Environmental Protection Agency

- Environmental Chemistry Laboratory
- Gulf of Mexico Program

Department of Interior

- U.S. Geological Survey, Hydrologic Instrumentation Facility

Department of Energy

- Strategic Petroleum Reserve

Government Printing Office

General Services Administration



Department of Homeland Security

- Immigration and Customs Enforcement
- Trusted Internet Connections
- Office of Professional Responsibility

Defense Contract Audit Agency State of Mississippi

- Mississippi Enterprise for Technology
- Enterprise for Innovative Geospatial Solutions

State of Louisiana

- Louisiana Technology Transfer Office, Louisiana Business & Technology Center/LSU

Center for Higher Learning

- Mississippi State University
- University of Southern Mississippi
- University of Mississippi
- University of New Orleans
- Pearl River Community College

Mississippi State University

- Northern Gulf Institute

University of Southern Mississippi

- Dept. of Marine Science

Major Contractors

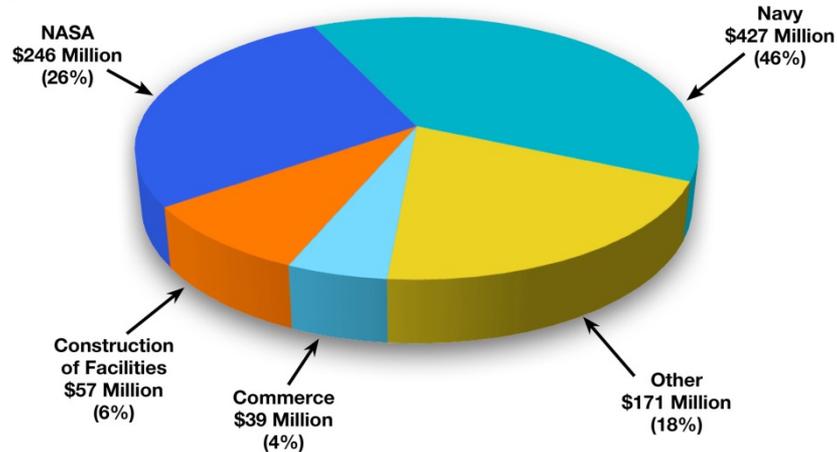
- Aerojet Rocketdyne
- Jacobs Technology Inc.
- A2 Research
- ASRC Research and Technology Solutions (ARTS)
- Lockheed Martin
- ISS Action Inc.
- Bastion Technologies
- Science Applications International Corporation
- Science Systems and Applications Inc.
- Computer Sciences Corp.
- Boe-Tel
- Power Dynamics

Commercial Companies

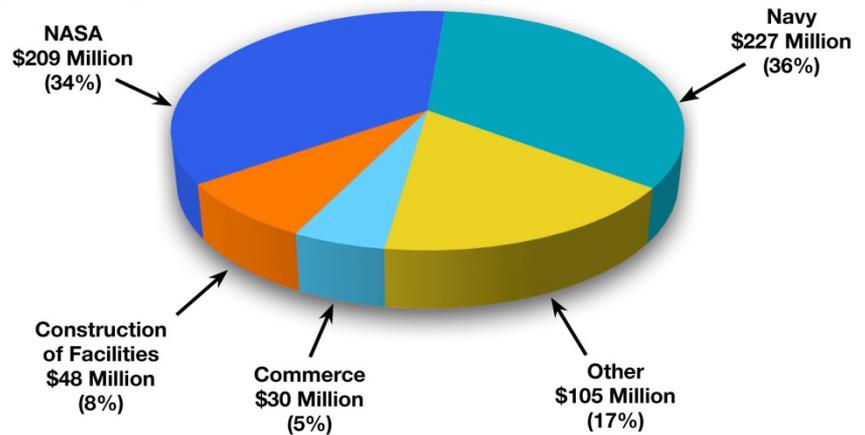
- Aerojet Rocketdyne
- Lockheed Martin IS & GS Defense Systems
- Rolls Royce North America

2013 Economic Impact

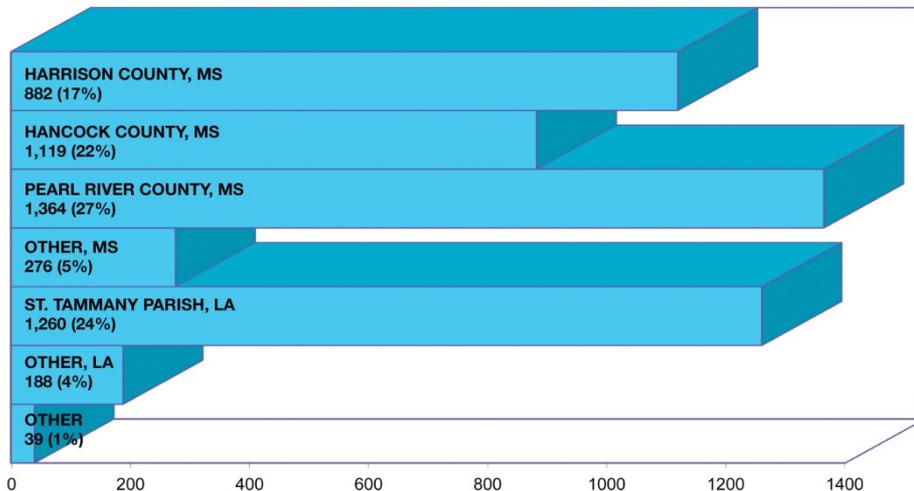
Direct Global Economic Impact \$940 Million



Direct Economic Impact 50-mile Radius \$619 Million



Residential Distribution of Stennis Personnel



Employee Skills Summary

- Scientific/Engineering – 30%
- Business/Professional – 21%
- Technical/Crafts – 21%
- Clerical – 11%
- Other – 17%

Education Levels

- Doctorate – 4%
- Masters – 14%
- Bachelors – 29%
- Associates – 13%
- Some College – 18%
- High School Diploma – 21%
- Other – 1%

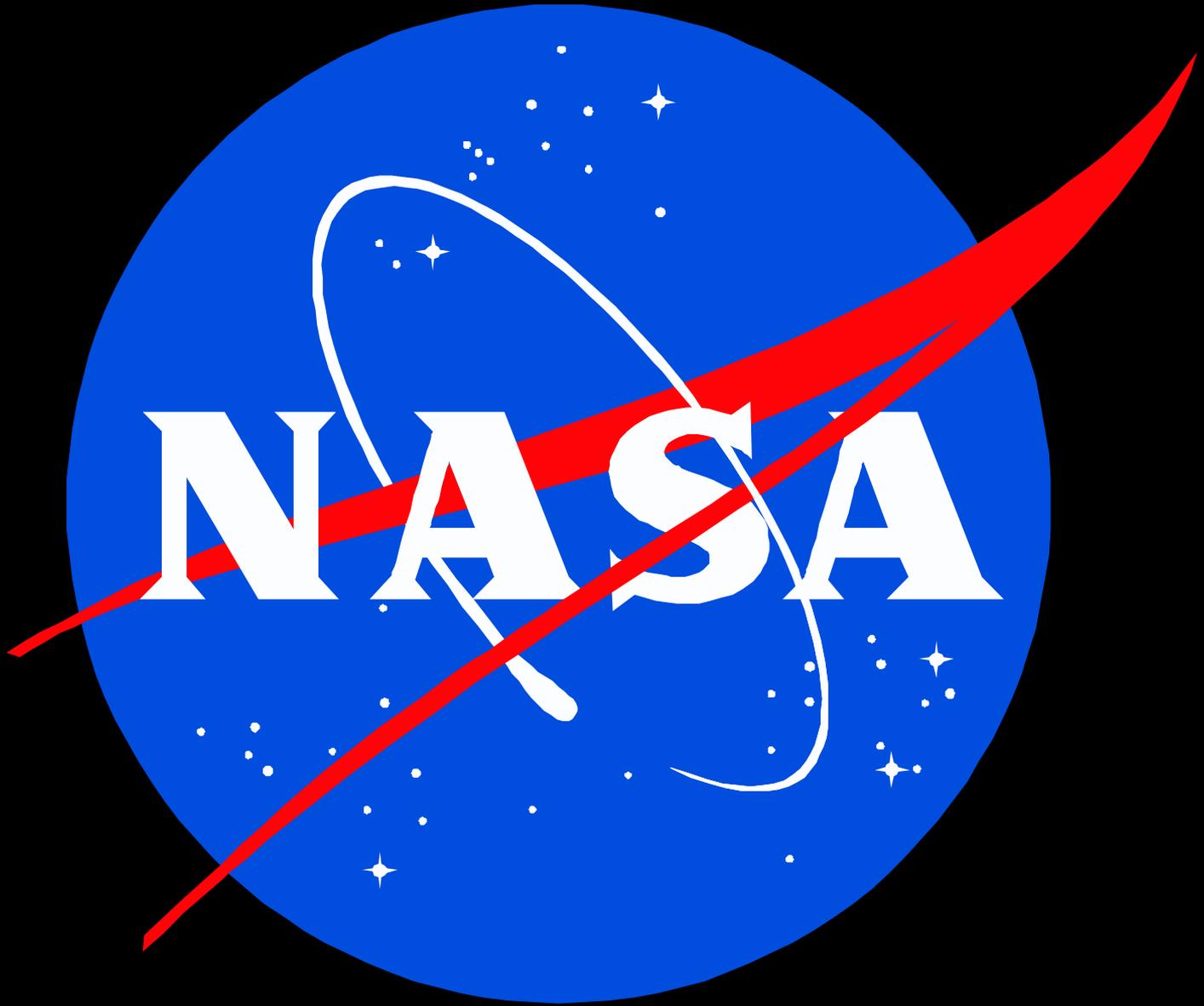
Workforce*

- NASA and contractors – 2,008
(Stennis federal civil servants, 453; contractors and other, 1,555)
- Department of Navy and contractors – 1,948
- Department of Commerce and contractors – 172
- Other Resident Agencies – 1,000

*Totals as of Sept. 30, 2013

Best Place To Work In NASA





www.nasa.gov