



UNIVERSITY OF CENTRAL FLORIDA

Office of the President

University of Central Florida
Board of Trustees Meeting
Agenda
March 30, 2018
Millican Hall, 3rd floor, President's Boardroom
8:00 a.m.
800-442-5794, passcode 463796

- | | | | |
|------|--------------------|----------|--|
| I. | Call to Order | | Marcos Marchena
Chairman, Board of Trustees |
| II. | Roll Call | | Nancy Marshall
Assistant Vice President
Assistant Chief of Staff |
| III. | Public Comment | | Nancy Marshall |
| IV. | New Business | | Chairman Marchena |
| | BOT-1 | Approval | National Science Foundation
Arecibo Agreement |
| V. | Other New Business | | Chairman Marchena |
| VI. | Adjournment | | Chairman Marchena |

ITEM: BOT-1

**University of Central Florida
BOARD OF TRUSTEES**

SUBJECT: Approval of Acceptance of National Science Foundation Cooperative Support Agreement AST-1744119 for Management and Operations of the Arecibo Observatory

DATE: March 30, 2018

PROPOSED BOARD ACTION:

Approve acceptance of the National Science Foundation Cooperative Support Agreement AST-1744119 for Management and Operations of the Arecibo Observatory.

BACKGROUND INFORMATION:

NSF Cooperative Agreement AST-1822073 was issued February 15, 2018 with an overarching set of terms applicable to the Arecibo Observatory. A certain portion of these terms were incorporated into NSF Cooperative Support Agreement AST-1823134 (the "Transition CSA"), the funding vehicle for UCF transition activities occurring February 15, 2018 to May 31, 2018.

NSF Cooperative Support Agreement AST-1744119 (the "Operations CSA") is now pending, to fund UCF operations and management of the Arecibo Observatory effective April 1, 2018. The overlap of the Transition CSA and Operations CSA terms is intentional, as a means for NSF to empower UCF to proceed with authority, and funding, as each transition step is completed. A certain portion of the Cooperative Agreement terms are to be amended in recognition of this overlap, as set forth in the amendment summary document.

Approval to accept the NSF Cooperative Support Agreement AST-1744119, and to thereby proceed with operation and management of the Arecibo Observatory, is requested.

Supporting documentation: NSF Cooperative Support Agreement AST-1744119 (Attachment A)
AST-1744119 Appendix A (Attachment B)
AST-1744119 Appendix C (Attachment C)
Amendment Summary (Attachment D)
NSF Cooperative Agreement AST-1822073 (Attachment E)
NSF Cooperative Support Agreement AST-1823134 (Attachment F)

Prepared by: Sandra M. Sovinski, Senior Associate General Counsel

Submitted by: Elizabeth A. Klonoff, Vice President for Research and Dean of Graduate Studies

Attachment A

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National Science Foundation
2415 Eisenhower Avenue
Alexandria, VA 22314
www.nsf.gov

COOPERATIVE SUPPORT AGREEMENT (CSA)

AWARD: AST-1822073		EFFECTIVE DATE: April 1, 2018
COOPERATIVE SUPPORT AGREEMENT(S): AST-1744119		EXPIRATION DATE: March 31, 2023
PROJECTED TOTAL AWARD FUNDING: (Subject to availability of funds) \$20,150,000	SOLICITATION (Incorporated by reference, as amended) NSF 17-538 Management and Operations of the Arecibo Observatory	
CUMULATIVE AMOUNT: \$XXXX	CFDA NUMBER: 47.049 47.050	
	OTHER AWARDS UNDER THIS PROGRAM: Show List of Awards	

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AWARDEE:	The University of Central Florida	
PROJECT TITLE:	Management and Operations of the Arecibo Observatory	
PROJECT ABSTRACT:	https://www.fastlane.nsf.gov/servlet/showaward?award=XXXXXXXX	
<u>Principal Investigator(s)</u>	<u>Proposal No.</u>	<u>Institution (s)</u>
Ramón Lugo	AST-1744119	University of Central Florida
Yanga R. Fernández	AST-1744119	University of Central Florida
KEY PERSONNEL:		
<p>A. The individuals specified below are considered essential to the work being performed hereunder. Any proposed substitutions to key personnel, specifically named in the proposal or replacements thereof that have been approved as part of this award must be submitted, in advance, and with all necessary documentation, to the cognizant NSF Program Officer for review and approval. No changes may be implemented without prior formal written approval by an NSF Grants and Agreements Officer.</p>		
Mr. Ramón Lugo	Program Director	
Mr. Francisco Córdova	Director	
Dr. Yanga Fernández	Program Scientist	
Dr. Christiano Brum	Principal Scientist, Space and Atmospheric Science	
Mr. Felipe Soberal	Director, Maintenance	
Dr. Hilda Colón-Plumey	Director, Education and Public Outreach	
<p>B. Except for the Principal Investigator(s), PIs or Co-PIs identified in this award, requests to make any changes to key personnel, organizations, and/or partnerships specifically named in the proposal, that have been approved as part of this award, shall be submitted in writing to the cognizant NSF Program Officer for approval prior to any changes taking effect. Requests for prior approval of changes to the PI(s) must be submitted through FastLane for review by the cognizant NSF Program Officer and approval by an NSF Grants and Agreements Officer.</p>		

Commented [MTA1]: Awardee name in NSF's Systems will be used.

Commented [MTA2]: Co-PI change request must be submitted via NSF systems after award issuance.

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NSF Contact Information:

Financial/Administrative questions: e-mail your NSF Grants and Agreements Official, Taína Muñoz-Mulero, at tmunozmu@nsf.gov or call the Division at 703-292-8242.

Programmatic questions: e-mail your NSF Program Officer, Joseph E. Pesce, at jpesce@nsf.gov or call the Program Division at 703-292-8820.

This CSA is entered into between the United States of America, represented by the National Science Foundation (NSF), and the above-named Awardee pursuant to the authority of the National Science Foundation Act of 1950, as amended (42 USC 1861-1875). This CSA is provided electronically to the Awardee. The Awardee is responsible for full compliance with all Financial/Administrative and Programmatic Terms and Conditions as initially stated or as updated over the life of this CSA. The Authorized Organizational Representative (AOR) will be electronically notified of any changes to these Terms and Conditions and is encouraged to immediately review these changes and contact the Grants and Agreements Official or Program Officer within thirty days with any questions.

NSF intends to issue funding through separate Cooperative Support Agreement(s) (CSA) for work to be done under the CA. Funding provided under the CSA may not be transferred to another CSA without prior submission of a request to the Program Officer and written approval from a Grants and Agreements Officer. The Awardee's request to draw down funds under a CSA will represent acceptance by the Awardee of all Terms and Conditions of the CA, as amended, and any Specific Terms and Conditions mentioned in the CSA.

Commented [SS3]: Reference corrected. As written, was referring to this as the CA.

Commented [MTA4R3]: Language will be automatically generated by NSF's Awards system.

Financial/Administrative Terms and Conditions (FATC):

Note: The General FATC link above is outdated. The CA-FATC and MMURFP-FATC are available at:

http://www.nsf.gov/awards/managing/co-op_conditions.jsp

Part I: Award Specific FATC:

1.1. Award Interpretation

Note: Refer to the link mentioned in the Award Specific FATC cited below.

The terms and conditions of Cooperative Agreement No. AST-1822073, as amended, are hereby incorporated by reference.

- A. At the time of award, all activities under the Cooperative Agreement (CA) are subject to NSF's Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and, NSF's

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Cooperative Agreement Modifications and Supplemental Financial & Administrative Terms and Conditions for Major Multi-User Research Facility Projects (MMURFP-FATC). The CA-FATC and MMURFP-FATC are hereby incorporated by reference, with extended compliance periods as further set forth in this Cooperative Support Agreement.

- B. Order of Precedence. This Cooperative Support Agreement consists of the following terms and conditions in descending order of precedence:
1. The terms and conditions of the Cooperative Support Agreements (CSAs), as amended.
 2. Cooperative Agreement 1822073, as amended.
 3. The Cooperative Agreement Modifications and Supplemental Financial & Administrative Terms and Conditions for Major Multi-User Research Facility Projects (MMURFP-FATC), as amended.
 4. The Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC), as amended.
 5. NSF Policy and Procedures Award Guide (PAPPG), as amended.

1.2. Funding

- A. Anticipated Total NSF Funding. Consistent with NSF budgets and research priorities, and contingent on the availability of funds and on the conduct of this award, NSF intends to provide a total of \$20,150,000 over the term of 5 (five) program years, split equally between the GEO/AGS and MPS/AST divisions.
- B. Initial Provision of Funds. Partial incremental funding for project year one in the amount of \$4,487,500 is provided at the time of award in accordance with budget dated January 23, 2018.
- C. Pending Budget Revision. Awardee agrees to improve award budget estimates and submit a revised budget no later than April 30, 2018. A temporary spending threshold has been established for the award at \$600,000 until such revised budget is submitted and accepted by NSF.
- D. Funding Schedule. Provided the conditions described in 1.2.a. are met, NSF intends to issue funds in accordance with the following funding schedule:
- Year 1 (04/01/2018 - 03/31/2019): \$7,150,000
 - Year 2 (04/01/2019 - 03/31/2020): \$5,000,000
 - Year 3 (04/01/2020 - 03/31/2021): \$3,500,000
 - Year 4 (04/01/2021 - 03/31/2022): \$2,500,000
 - Year 5 (04/01/2022 - 03/31/2023): \$2,000,000
- E. Fee: The Awardee agrees that no fee shall be applied to this award, as such, no fee has been included in this award or will be reimbursed by NSF under this cooperative support agreement.

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1.3. Property and Equipment

This article supplements the CA-FATC Article entitled "Equipment." For property acquired or fabricated subsequent to this award the CA-FATC and the Subpart D, Property Standards of the Uniform Guidance, 2 CFR 200, provisions apply.

- A. Transfer of Government-owned Equipment and Motor Vehicles from Previous Awards. All Government-owned equipment and motor vehicles under NSF CSA Number AST-1160876 is hereby transferred to this CSA. --Appendix A. Inventory records at time of award do not meet the \$70 million threshold for financial statement disclosure established in MMURFP-FATC, Article 62, titled "Financial Statement Disclosure of NSF-Owned Equipment".
- B. Reporting of Motor Vehicles. The Awardee shall continue reporting of all Government-owned motor vehicles in Federal Automotive Statistical Tool (FAST).
- C. Visitor Center. The Visitor Center will continue to be named, "Angel Ramos Foundation Visitor Center" and the existing, associated plaque, or its subsequent equivalent, will continue to be displayed at its current location at the Visitor Center's entry.
- D. Meteorite Collection. UCF will exercise due care for and maintain stewardship of such property on loan to NSF from Cornell University for display at the Angel Ramos Foundation Visitor Center (ARFVC), including at this time the meteorite collections located at the ARFVC, as listed below:
 - 1. Allende – 1 individual. 80% fusion crust, oriented w/ regmaglypts. 260 grams
 - 2. Campo del Cielo – 2 exceptional individuals. 408 grams and 940 grams
 - 3. Canyon Diablo – 870-gram mass in three pieces = 2 etched slices, and 1 main mass
 - 4. Dalgety Downs – 1 sliced and polished piece. 500 grams
 - 5. Dimmitt – 1 individual. 248 grams
 - 6. Etter – 1 polished slice. 491 grams
 - 7. Gao – 1 exceptional 90% fusion crusted individual, oriented w/ regmaglypts. 828 grams
 - 8. Gibeon – 1 etched slice. 1.616 kilo
 - 9. Nantan – 1 individual mass, matrix and core, (oxidized). 4.8 kilo
 - 10. Tektites – 8 individual Indochinites. 270 grams
 - 11. Zagami meteorite classified as originating from the planet Mars - Partial slice with fusion crust. Weight: 28 grams.

Such property on loan to NSF for display at the ARFVC may be returned to Cornell on demand. Should the property be lost or damaged, the total reimbursement value for the meteorite collection will be limited to then current fair market value. Awardee shall not be obligated for loss or damage to the property unless caused by a negligent act or omission of Awardee or an employee of Awardee while acting within the scope of employment for Awardee, and then only to the extent of the cap set forth in Florida Statute 768.28.

- E. Title of User-Supplied Instrumentation at Arecibo Observatory is not transferred or otherwise impacted pursuant to this CSA. . – see Appendix B.

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1.4. Cost Sharing

This award has voluntary committed cost share in the amount of \$544,000 over the 5 (five) year period of performance for the award, as given in Table 1.5-1 of the proposal and included in line M of the budget dated January 23, 2018. Additionally, to the extent there is subsequent state funding available and allocated to the AO, the Awardee agrees to adjust the annual budget 1030 Forms to reflect those funds as an addition to the voluntary committed cost share established at the time of award. Awardee's financial obligations under this CSA shall not exceed the committed cost share.

1.5. Program Income

Revenue from the Visit Scientists Quarters, Angel Ramos Foundation Visitor Center, cafeteria, property rental, and pay to observe fees is considered program income for the award. The Awardee shall treat program income as established in 2 CFR 200.307 and Chapter VIII of the NSF PAPPG.

1.6. Pay to Observe Fee Structure

The Awardee shall submit for approval a pay to observe fee structure for telescope and facility access to the cognizant NSF Program Officer and Grants and Agreements Officer within three months of award date. The fee structure must be based on the nature of the observations, i.e. use of the 12m or 305m telescope, passive or active (transmitter) observations, and if active observations, which transmitters are involved: planetary radar, heating facility. Also, for lidar support, the fee structure should distinguish between the Arecibo and Culebra locations.

1.7. Subaward Approval

Within 5 days of award issuance, the Awardee shall submit to the Grants and Agreements Officer a risk assessment, in accordance with 2 CFR 200.331(b), for each of the proposed subagreements. The awardee must request this approval through the subaward approval module in research.gov. Written approval to enter into subagreements will be issued by the Grants and Agreements Officer after adequate risk assessments packages are received.

1.8. Memoranda of Understanding (MOU)

An MOU shall be used to document collaborations or any another type of arrangement not covered by subagreement or contract. The proposed MOU shall be submitted for approval to the NSF Program Officer 30 days prior to its ratification.

1.9 Health and Safety

Awardee shall work in good faith to, as soon as possible but no later than May 31, 2018, confirm compliance of the government property, as received from the incumbent, with all applicable health, safety, and fire protection laws, regulations, and requirements, in order that Awardee can perform in accordance with MMURFP-FATC Article 70, entitled Health and Safety. In addition to the requirements in MMURFP-FATC, article entitled Health and Safety, the Awardee shall maintain an accurate record of all security incidents. Also, the Awardee shall promptly furnish the NSF Program Officer and the Grants and Agreements Officer with the details of any major security incidents that involve facilities or personnel.

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1.10 Business Oversight Plan

The Awardee shall provide a business oversight plan that addresses proper segregation of technical and business functions at AO, AO staff communications with UCF including emergency situations and planned federal compliance monitoring activities by UCF, to the cognizant NSF Grants and Agreements Official and the NSF Program Officer no later than three months after the start of this award.

1.11 Title Transfer (Reserved)

NSF and UCF intend to discuss mutual interest in title transfer of Arecibo Observatory and to subsequently amend this CSA should a mutual agreement be reached.

1.12 PR-80 Act –

- A. To the extent that the Awardee does not hire, or have hired on its behalf, employees who were employed under the predecessor NSF CSA Number AST-1160876, any and all PR-80 severance will be funded, subject to the availability of appropriations, by NSF through CSA Number AST-1160876 during award financial closeout.
- B. To the extent that the Awardee at the start of this CSA hires, or has hired on its behalf, employees who were employed under the predecessor NSF CSA Number AST-1160876, and in the event that any PR-80 severance obligation arises for payment, NSF shall fund, subject to the availability of appropriations and through CSA Number AST-1160876 during award financial closeout, that portion of the severance obligation that is based upon the employee(s) years of performance prior to the date of hire by Awardee, and Awardee shall be obligated to pay the portion of the severance obligation that accrues post hire by Awardee.

Programmatic Terms and Conditions (PTC)

Part 2. Award Specific Programmatic Terms and Conditions

2.1. Program Description

A. Overview:

This Cooperative Support Agreement (CSA) provides support for the management and operation of the AO. The AO is a multidisciplinary research and education facility. AO's cornerstone research instrument is a 305-meter diameter fixed spherical reflector, located on approximately 120 acres of U.S. Federal Government-owned land near Arecibo, Puerto Rico – See Appendices C & D AO conducts research in passive radio astronomy, solar system radar astronomy, and space and atmospheric sciences. AO is managed in accordance with the provisions of this CSA by the University of Central Florida (UCF, or the Awardee).

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B. Purpose and Mission:

1. Purpose: To provide the astronomical communities of the U.S. and the international participants in AO access to a world-class 305-m radio telescope facility, and to provide the tools necessary to sustain cutting-edge research in the astronomical and geospace sciences.
2. Mission: In accordance with the terms of this Cooperative Support Agreement between NSF and UCF: (1) Support, sustain, and advance research in areas of astronomy, planetary studies, and space and atmospheric sciences for the benefit of the scientific research community; (2) Acquire, analyze, archive and disseminate AO data; (3) Develop instruments and techniques as necessary to support AO-enabled research in partnership with scientists from related sectors, including academia, industry, government and the international community; (4) Develop and maintain a skilled and diverse workforce, as necessary to support the sciences served by AO; (5) Provide integrated and effective education and training programs that utilize the knowledge and discoveries made at AO and that strengthen education and public awareness of AO-related science, engineering and technology; (6) Develop and sustain appropriate partnerships with universities, industry, private organizations and the international community to enhance AO's scientific productivity and educational impact.

2.2. Observatory Governance Structure

- A. The governance structure that oversees the performance of the Awardee is described in CA AST-1822073

2.3. Statement of Work and Awardee Responsibilities

A. The Awardee will:

1. Operate and maintain AO buildings and facilities and manage AO staff and all activities according to current best practices and pursuant to good faith efforts, as soon as possible following current compliance assessment, but no later than May 31, 2018, in full compliance with all relevant laws and regulations;
2. Develop and employ effective mechanisms for engaging AO's primary stakeholders in order to ensure that AO's facilities, services and programs best reflect the evolving needs and priorities of its users;
3. Provide upgrades, enhancements and new services, as required and within available resources, to ensure community access to state-of-the art facilities, data and support;
4. Develop and maintain an outstanding scientific, engineering and administrative staff, as necessary to support the AO mission within the defined programmatic scope;
5. Manage and foster a competitive and inclusive science program of user-driven research enabled by AO that reflects the mission, core values and goals articulated in the NSF Strategic Plan and that demonstrably complements the research carried out in the broader scientific disciplines served by AO;

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6. Seek and implement strategic partnerships with U.S. universities, Federal, non-Federal and international entities that will enhance the scientific capabilities and support available to AO's stakeholder communities;
7. Actively support the NSF strategic goal of cultivating a world-class, broadly inclusive science and engineering workforce and expanding the scientific literacy of all citizens;
8. Manage complementary programs supported by sponsors other than NSF as appropriate to supporting the AO mission;
9. Develop and implement appropriate mechanisms for assessing and continuously improving the performance of AO.

B. Management

1. The Awardee will define and implement an effective governance and advisory structure to provide guidance, advice and oversight for all AO activities, consistent with the Awardee's vision, goals, and objectives.
2. The Awardee will establish processes within a structured framework for planning, review and performance management, including the development and use of appropriate mechanisms to aid both the managing organization and AO's stakeholders in assessing performance and identifying areas for improvement.

C. Operations

1. The Awardee will be responsible for staffing and managing the AO to ensure that on-site instruments are able to operate in response to high-priority scientific research conducted by qualified scientists. To this end the Awardee will articulate a strategic plan for maintaining a viable, community-driven scope of observatory operations and will employ mechanisms for reviewing and scheduling user access through an open process (at least for NSF-funded portions of research).
2. The Awardee will provide and maintain a data management plan no later than May 31, 2018 that describes the acquisition, analysis, archiving and dissemination of all the AO data, including the definition of proprietary periods and appropriate cyberinfrastructure and cybersecurity to meet the proposed scope of user community support.

D. Science

1. Commensurate with the level of funding provided by NSF, the Awardee will define a scientific program plan for AO that demonstrates responsiveness to community-based scientific objectives, an innovative vision built on existing and potential capabilities of AO, a well-defined scope of high-priority activities, and a credible plan for establishing the necessary resources to support the proposed suite of activities.
2. The Awardee will ensure that AO has sufficient internal or external expertise to (1) support outside users, (2) help guide decisions relating to current and future instrumentation and observing modes,

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(3) develop and maintain data acquisition and data processing software, and (4) develop and implement policies and strategies for data availability and data archiving.

3. The Awardee will be responsible for managing radio frequency interference (RFI) and frequency licensing and certifications pursuant to good faith efforts, as soon as possible following current licensing and certifications assessment, but no later than May 31, 2018,. The Awardee must maintain a vigilant awareness of the radio frequency environment of AO through a program of RFI monitoring, and take all appropriate steps to mitigate to the extent possible the impact of such signals on the observational mission of AO. The Awardee will cooperate with NSF's efforts to shape national and international regulations and policies for the purpose of maintaining a manageable RFI environment in which to conduct AO science operations.

E. Access

1. U.S. national telescope facilities are open to all astronomers regardless of institutional or national affiliation, at a level commensurate with funding provided by NSF. The Awardee should adhere to the Principles for Access to Large Federally Funded Astrophysics Projects and Facilities, recommended by the Astronomy and Astrophysics Advisory Committee (AAAC) in March 2014. These include the following key principles applicable to an operating observatory:

- Open Data
- Open Access
- Opportunity to Contribute
- Reciprocity

For further details, see https://www.nsf.gov/mps/ast/aaac/aaac_2014_principles_for_access-v2.pdf

2. Provision of access time for the NSF community is commensurate with NSF funding. Awardee will consult with NSF if there is planned reduction of NSF time (e.g., if a third-party funder request all available time, and this is taken in precedent of NSF).
3. Partnership agreements that dedicate blocks of user time in exchange for financial or personnel contributions to AO must be consistent with the AO mission and justified in their overall benefit to the AO user community and the broader scientific research community.

F. Education and Public Outreach

The Awardee will develop and implement an innovative, integrated program of research and education that builds on AO's scientific strengths and on its local context, incorporating the Angel Ramos Foundation Visitor Center.

G. Maintenance

1. All parts of the AO infrastructure that are necessary to meet the proposed operations activities will be competently maintained to enable the attainment of program objectives, and for the safety and security of staff and visitors.

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2. The Awardee will be responsible for budgeting, scheduling, and tracking a comprehensive safety, environmental compliance, and maintenance plan for all parts of the AO infrastructure, including plans, as appropriate, to remove or dispose of those parts of the infrastructure deemed unnecessary for the proposed level of operations.

H. Staffing

The Awardee will recruit, retain, and develop an expert scientific, engineering, technical and administrative staff, consistent with the NSF strategic goal of cultivating a world-class, broadly inclusive science and engineering workforce.

I. Diversity

The Awardee will demonstrate leadership in employing best practices for broadening participation in science and engineering at all levels within AO activities.

J. Collaborations, Partnerships or Other Arrangements

The Awardee will develop collaborations, partnerships or arrangements with (as appropriate) universities/colleges, national laboratories, research museums, private sector research laboratories and observatories, state and local government laboratories, other federal entities, and/or private-sector organizations that enable the Awardee to attain its strategic goals. The Awardee is responsible for planning, operating, and managing all AO activities, including any resources provided by other organizations.

2.4. NSF Program Oversight

- A. *Oversight and Monitoring*: The NSF is responsible for providing the Awardee general oversight and monitoring to help assure effective performance and administration. In addition to the NSF responsibilities outlined in the CA-FATC, NSF plans to:

1. Monitor progress on all AO activities.

Review the AO plans, reports, and budgets submitted by the Awardee to ensure that these fully describe activities at the observatory

2. Conduct annual site visits and other reviews as deemed necessary by the NSF.

- B. *Comprehensive Management Review*: NSF shall conduct a comprehensive review of all activities under this CA, including facility operations, research and education activities, and the management performance of the Awardee, within four years of the effective date of this CSA. Agreement on the date of the review may not be unreasonably withheld by either party.

- C. *Program Review*: The performance of AO and the managing organization shall be reviewed regularly by NSF. The NSF shall review and approve all major operational changes and development plans, as well as major education and public outreach activities. NSF shall also review the financial performance of the observatory.

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- D. *Business Review:* A Business Systems Review (BSR) and/or other similar reviews may be conducted as deemed necessary by the NSF. Other similar reviews may include but are not limited to annual budget reviews, incurred cost audits, and accounting system audits. UCF will be evaluated annually for BSR planning in conjunction with NSF's risk assessment of its large facilities portfolio. If NSF chooses to use contractors to support the review, appropriate nondisclosure agreements shall be negotiated. Agreement on the date of the review may not unreasonably be withheld by either party.
- E. *Financial/Collaboration Review:* NSF will conduct a review of external funding to AO. The first external-funding review will occur three (3) months after the start of the award and will be repeated annually over the remaining four years of the award. Subsequent continuation of the annual NSF funding increment will depend on a successful outcome of the external-funding review.
- F. *Division Management Review:* NSF will conduct a review of Division (Radio Astronomy, Planetary Radar, SAS) Management (personnel, planning, and science strategy) six months after the start of the award, and will be repeated annually over the remaining four years of the award, unless modified by NSF.

Other Reviews: The Awardee shall fully cooperate with the NSF representatives conducting any such reviews. To the extent not otherwise accomplished in the foregoing reviews, NSF and Awardee may conduct joint or separate annual reviews of overall AO operations and funding models. To the extent available and committed funding from all sources is not deemed adequate by Awardee to support further AO operations, and in the event that renegotiated terms are not able to be agreed upon between NSF and Awardee to resolve the funding inadequacy, the Awardee shall notify the NSF Program Officer and Grants and Agreements Officer of its intention to cease management and operations of AO. In such circumstance, the Awardee agrees to coordinate with NSF a reasonable transition period for AO.

2.5. Project Deliverables

A. The Awardee will develop and submit the following deliverables to NSF. Other deliverables may be requested by NSF and added to this list by Amendment to this CSA upon mutual agreement between the parties.

1. UCF shall prepare and submit via Research.gov the following management and operations plans by May 31, 2018:
 - a) Observatory Time Allocation Plan
 - b) Cybersecurity Plan
 - c) Data Management Plan
 - d) Strategic Plan, including but not limited to:
 - i. Management and Operations Plan
 - ii. Education and Public Outreach Plan Diversity Plan

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2. Performance Evaluation and Measurement Plan (PEMP): A Performance Evaluation and Measurement Plan (PEMP) shall be developed by UCF as the methodology and standards against which the overall performance of the Awardee and AO will be assessed. The PEMP shall describe the specific, recurring performance measures, their frequency of collection and reporting, procedures for analysis, targets, and, as appropriate, development of action plans including corrective interventions. Performance metrics identified in the PEMP shall be included in the annual Progress Report described below, and shall be presented to the Science and User Advisory Committee as appropriate for independent review by AO stakeholders. As part of the comprehensive management review described above (Section 2.4.B), a committee of outside experts shall provide an assessment of UCF performance against each Objective listed in the PEMP within four years of the effective date of this agreement. The PEMP shall be submitted to NSF as an interim report via Research.gov no later than June 30, 2018.

3. Risk Management Plan: A Risk Management Plan shall be developed by UCF, including a description of the processes for the routine collection and analysis of risks across the Awardee and AO, and for the development of action plans as appropriate, together with an observatory-wide risk register. An initial risk register shall be submitted along with the Risk Management Plan; risk mitigation shall subsequently be included in the annual Program Operations and Development Plan and annual Progress Report defined below, and shall be presented to and reviewed as appropriate. The Risk Management Plan shall be submitted to NSF as an interim report via Research.gov no later than June 30, 2018.

4. Long Range Strategic Plan (LRSP): UCF and its Science and Users Advisory Sub-Committee will define a Strategic Vision which the Awardee shall develop into a Long Range Strategic Plan (LRSP). This plan shall be prepared before the end of the first year of this cooperative agreement, and amended periodically as necessary to reflect the evolving goals of AO. The LRSP shall describe the Awardee's plan for management and development of AO in the mid- to long-term, and will outline how outside funding is being solicited and developed. The LRSP shall be submitted to NSF as an interim report via Research.gov no later than February 28, 2019.

2.6 Awardee Reporting Requirements

Quarterly and Annual reports shall be used to communicate efforts to maintain and improve the performance of the observatory, its telescopes and instruments, and to enhance user and stakeholder services. Reporting shall include deliverables and milestones, and shall assess the risks associated with all major development activities at the observatory and detail the steps being taken to mitigate these risks. The following reports are required:

C. Quarterly Report. Quarterly Reports shall be prepared by the Awardee and submitted to NSF within 45 days of the end of each quarter as an interim report in Research.gov. These quarterly reports shall include the following information:

1. **Quarterly Financial Information:** These reports shall include the approved budget, cumulative expenditures as of the reporting quarter, and expenditures by quarter for the project year for the Awardee and Subawardees. The information shall be reported by work breakdown structure and include an analysis of budget variances higher than 10%. In addition, the report shall include cumulative and quarterly revenue and expense information for the Angel Ramos Foundation Visitor Center, Visiting Scientists Quarters, and the Cafeteria

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2. *Operations and Development Information:* This shall include brief updates on observatory operations and progress being made in the development of new and existing instrumentation, the telescope and site, and the support infrastructure.

B. Annual Report. The annual report shall be submitted to the NSF Program Officer and Grants and Agreements Officer by e-mail no later than February 15 each year. The annual report will be reviewed by the NSF Program Officer and modified by UCF, as necessary, before final submission through Research.gov by March 15 each year. The annual report shall include the following:

1. *Progress Report:* The Awardee shall prepare an annual Progress Report that quantitatively describes the performance of the managing organization and AO. The report shall describe progress against the PODP based on milestones, objectives, targets, and deliverables. The report shall highlight scientific, technical, and other achievements; describe accomplishments in education and public outreach; describe notable decisions and outcomes; highlight changes to the organizational structure of the observatory; and present metrics of time allocation, telescope usage, data management, and publications, as well as other performance measures reasonably requested by the NSF Program Officer. Progress on infrastructure maintenance and renewal shall be discussed. Significant variances between planned and actual activities and outcomes shall be described. Together with the PODP, this report shall be considered the Annual Report, and the Program Officer's approval of this report, including performance measures, will be required prior to issuance of scheduled funding for the next fiscal year.
2. *Program Operations and Development Plan (PODP):* The Awardee shall prepare an annual Program Operations and Development Plan (PODP). The PODP shall describe the principal activities to be undertaken during the year and include milestones, objectives, targets, deliverables, financial and staffing plans, maintenance plans, key decision points, and anticipated risks and mitigation plans. The PODP shall serve as the baseline for assessing variances between planned and actual activities and for identifying and managing emerging risks and opportunities.
3. *Annual Financial Report:* This annual financial report shall include a comparison to the approved annual budget, cumulative expenditures under the cooperative agreement, funding to date, and net encumbrances. The report shall include cumulative revenue and expense information for the Angel Ramos Foundation Visitor Center, Visiting Scientists Quarters, and the Cafeteria. An explanation is to be provided for any deviation from the approved annual budget that exceeds +/-10% for any major program category.
 - a. If applicable, updated cost sharing information, as required in Article 1.4, shall also be included with the annual financial report.
 - b. Carryover of Uncommitted Funds. The Awardee shall include a forecast for uncommitted funds in the annual progress report. Uncommitted Carryover is defined as the amount of funding available at the end of each project year that has not been expensed or committed (encumbered), which is then carried over via project year-end budget processing for use in the next project year. All unexpended funding at the end of the award will return to NSF.

C. Award Budget: The Awardee shall prepare budgetary and financial reporting as follows:

1. This award will be funded based on proposal 1744119, revised budget with pending submission. More than one incremental funding action will be processed to complete funding for each project year. UCF

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shall submit budget forms with partial funding for the year as requested by the NSF Program Officer and Grants and Agreements Officer.

2. If so directed by the NSF, the Awardee shall provide alternative budgets based on payment schedules specified by the NSF Program Officer or Grants and Agreements Officer when either individual has reason to believe that adjustments in the payment schedule are likely to be required. The budget format and level of detail of the budgets shall be in accordance with instructions from the cognizant program and grant officials.
 3. The Awardee shall provide proposed budgets to the NSF for its review and comment in advance of regularly scheduled meetings or as requested by the NSF Program Officer and/or NSF Grants and Agreements Officer. Normally, it is expected that budgetary material will be made available at least two weeks prior to meetings.
- D. To allow for a better understanding of AO's management, operations, development, performance, or budget, changes to the format of quarterly or year-end reports may be requested by the NSF Program Officer, the Grants and Agreements Officer, at least two months before the end of the reporting period.
- E. *Final Report*: A Final report shall be submitted within 90 days of the expiration date of this CSA.

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Appendix A – Government Property Over \$5k
See Attachment

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Appendix B – Arecibo and User-Supplied Instrumentation at Arecibo Observatory

Radio frequency instrumentation (SAS)

GPS receivers

- Colorado State University (PI: **Jade Morton**)
- Arecibo Observatory (PI: **Nestor Aponte**)
- Digital ionosonde (onsite, Canadian Advanced Digital Ionosonde [CAD], in repair). (Boston University) (**donated by Min-Chang Lee**)
- Digital ionosonde (GIRO network, in Cayey PR, PR San Juan Magnetic Obs., UMASS Lowell)
 - 4-channel coherent HF receiver at AO-ROF (Culebra): use heater as HF radar (JHU/APL) (PI: **Ethan S. Miller**)

Riometers

- Standard riometer (30 MHz, Takushoku University, South America Riometer Network [SARINET]. Japan funded) (PI: **Kazuo Makita & Christiano GM Brum**)
- Riometer-polarimeter to be installed at AO-ROF (Takushoku University, SARINET, Japan funded) (PI: **Kazuo Makita & Christiano GM Brum**)

Optical and near-infrared instrumentation (SAS)

- All sky imager, 4-inch, multi-channel system with filter wheel (Boston University) (PI: **Jeff Baumgardner**)
- All sky imager, 4-inch, multichannel system (Penn State University) (PI: **John Mathews**)
- Narrow field imager, 4-inch, multichannel (Penn State University) (currently being refurbished by CPI/SSI) (PI: **John Mathews**)
- All sky imager (ASI) system at AO-ROF (Culebra) (JHU/APL) (PI: **Ethan S. Miller**)

Radio Astronomy

Backend systems

- ALFABurst (**user equipment, PI Dunc Lorimer, WVU**)
- SETI (**user equipment, PI Dan Wertheimer, UC Berkeley**)

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Other

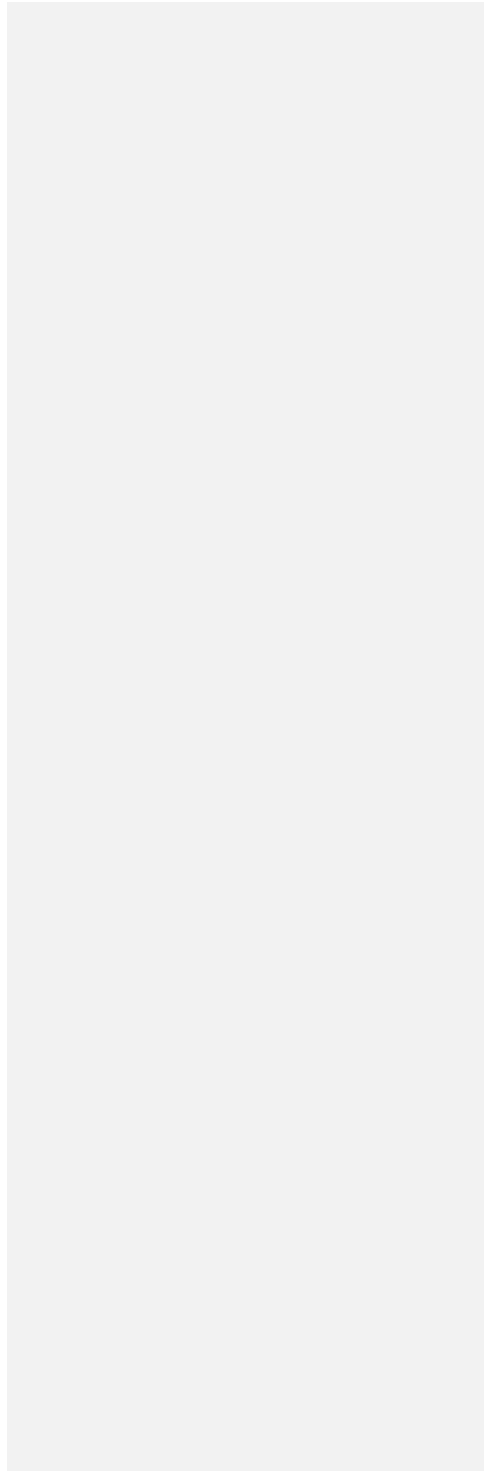
- Magnetometer (Penn State University) **(PI: John Mathews)**
- Lightning sensor (electric field sensor) (Duke University) **(PI: Steven A. Cummer)**
- A microbarograph (Penn State University)
- Portable Fast Sampler **(Jean-Luc Margot, UCLA)**
- JPL Digital Receiver **(Clement Lee, Joseph Jao, Jet Propulsion Laboratory)**

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Appendix C – Arecibo Observatory Site Map
See Attachment

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Operations CSA 03.02.2018

Appendix D– List of Buildings at Arecibo Observatory

(Numbers refer to the Site Map in Appendix C)

- | | |
|---|--|
| 01. Operations Building | 54. Visitor Center |
| 02. Administration Building | 55. Lidar Laboratory |
| 03. Visiting Scientist Quarters/Cafeteria | 57. North VSQ Building |
| 04. Entrance Guard House | 59. Visitor Center Trailer - modular building |
| 05. Cable Car House | 60. Antenna Receiving Testing Building |
| 06. Pump House | 61. Learning Center |
| 10. Swimming Pool/Recreation Area | 62. HFF Storage Trailer - modular building |
| 11. Lewis Building | 63. Ionosonde Trailer - modular building |
| 12. Maintenance Building | 65. Shielded Trailer |
| 13. Bowl Shack | 66. Atmospheric Science Trailer |
| 17. Warehouse Building | 67. Cryogenics Laboratory Trailer |
| 21. Antenna Testing Building | 67. Electronic Trailer (Waveguide) |
| 25. Paint and Flammable Material Storage | 68. Scientific Office Trailer |
| 27. Photometry Shack/Optical Lab | 690 Electronic Trailer (Cryogenic) |
| 34. S-Band High Voltage Power Supply Building | 70. Computer Trailer - modular building |
| 35. Cummings Generator Control Building | 71. Electronics Cable Trailer - modular building |
| 41. West Hill Bachelor Unit 1 | 72. Electronic Trailer - modular building |
| 42. West Hill Bachelor Unit 2 | 73. HF Transmitter Building |
| 43. West Hill Family Unit 1 | 76. Inspiration for Science Office Trailer |
| 44. West Hill Family Unit 2 | 77. Phase Reference Antenna (12-meter) |
| 47. Main Gate Restroom | 78. Coffee Hut |
| 51. Grease Pit | 80. Cummings Generator Building |
| 53. 750-kilowatt Emergency Generator Building | |

Operations CSA 03.02.2018

- (no number) Gondola
- (no number) Tank Farm
- (no number) Reflector Dish and 305-meter Telescope
- (no number) Foundation and Rim Wall Infrastructure
- (no number) Northern Tower
- (no number) Southeastern Tower
- (no number) Southwestern Tower
- (no number) Catwalk Anchor

- (no number) Northern Tower Anchor
- (no number) Northern Tower Gondola Anchor
- (no number) Southeastern Tower Anchor
- (no number) Southeastern Tower Gondola Anchor
- (no number) Southwestern Tower Anchor
- (no number) Southwestern Tower Gondola Anchor

Attachment B

Board of Trustees Meeting - New Business

SRI CONFIDENTIAL

Department U22 Physical Inventory, FY 2017

Government Property - Blue tags

Agency Tag	SRI Inven. #	ASSET DESCRIPTION	BLDG	ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATUS	Agency Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIED	Original cost	
E179931	00454-17700	3403 KLYSTRON #3 FCS 59	1	131	Quintero	LITTON	1624		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179922	00454-17800	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON	30		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179926	00454-17900	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON	65		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179927	00454-18000	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON	92		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179585	00454-18100	CAPACITOR BANK (TRANSMITTER RO	1	132	Quintero	CORNELL DUBILIER ELECTRO	N/A	N/A	1	NSF	AST-1160876	IN USE - E&S	10/16/86	9/17/92	11/17/13	133,024.32
	00454-18200	Klystron			Quintero	Litton	VKS-8270A	N/A		NSF	AST-1160876				11/17/13	350,000.00
E179932	00454-18300	MAGNET COIL ASSEMBLIES FSC 59	62	trailer	Quintero	LITTON	VARIAN		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	80,000.00
E179933	00454-18400	MAGNET COIL ASSEMBLIES FSC 59	1	131	Quintero	LITTON	VARIAN		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	80,000.00
E179934	00454-18500	10 KLYSTRON TURNING MOTOR ASSE	1	131	Quintero	CONTINENTAL OBSOLETE			Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	8,000.00 retag
E165804	00454-18600	SPECTRUM ANALYZER	1	113 B1	Quintero/Whitlow	AGILENT INFINIIMAX	E2669A	MY48250061	1	NSF	AST-1160876	IN USE - E&S	9/18/08	11/13/08	11/17/13	65,322.80
E107256	00454-18700	ANALYZER MICROWAVE W/OPTION 04	50	RFI SHCK	Quintero	HEWLETT PACKARD	8593E	3523A01821	1	NSF	AST-1160876	IN USE - E&S	7/28/95	12/15/95	11/17/13	25,465.50
E179607	00454-18800	FUSION SPLICER KIT	1	1-112	Quintero/Jorge	SUMITOMO TYPE 39 FASTC	TYPE 39	13262	1	NSF	AST-1160876	IN USE - E&S	9/29/09	12/15/09	11/17/13	32,250.38
E165813	00454-18800	GPS CV RECEIVER	1	BLD 1	Quintero /Whitlow	TIMETRACE	001 0074	23334/132-5	1	NSF	AST-1160876	IN USE - E&S	9/25/08	11/13/08	11/17/13	12,450.00 retag
E165759	00454-18900	NETWORK ANALYZER & N52300-010	1	103	Quintero	AGILENT TECHNOLOGIES/VN	N523A	US43500289	1	NSF	AST-1160876	IN USE - E&S	9/17/04	3/23/05	11/17/13	62,784.80
E179582	00454-19000	TOTAL STATION SYSTEM	1	101	Quintero	SOKKIA	NET28 3D	31048	1	NSF	AST-1160876	IN USE - E&S	7/20/98	9/8/98	11/17/13	41,448.50
E147026	00454-19100	PBAX SYSTEM MERIDIAN I OPTION	6	pump house	Quintero	PRTC	11C PBX	NTAK11BC-0452LJ	1	NSF	AST-1160876	IN USE - E&S	8/13/99	9/28/99	11/17/13	46,173.00
E179619	00454-19200	RECORDING SYSTEM	1	CR-128	Arun	CONDUANT CORP.	MARK5C	MARK 5-743	1	NSF	AST-1160876	IN USE - E&S	11/4/09	12/15/09	11/17/13	41,545.60
E159495	00454-19300	UPGRADING THE NETWORK/SMART SW	1	128	Arun	GLOBAL SERVICES P.R. INC		00050961180E	1	NSF	AST-1160876	IN USE - E&S	5/1/01	7/18/01	11/17/13	40,154.89
E179591	00454-19400	VXWORKS BUND SYS (software) fo	1	Arun Office	Arun	WIND RIVER SYSTEMS		VXO-502-68-01-G	1	NSF	AST-1160876	IN USE - E&S	8/23/91	11/25/91	11/17/13	29,116.25
E153774	00454-19500	ANALYZER 136 CHANNEL COLOR LO	1	112	Quintero	AGILENT TECHNOLOGIES	1670G	US40150388	1	NSF	AST-1160876	IN USE - E&S	11/13/00	12/14/00	11/17/13	25,056.80
E165751	00454-19600	DATA SYSTEM MARK IV (RM 128 RA	1	128	Quintero	CONDUANT CORP	MARK 5	607	1	NSF	AST-1160876	IN USE - E&S	6/7/04	7/1/04	11/17/13	43,300.00
E179937	00454-19700	1 OF 2 BIRD DUMMY LOADS FSC 59	1	131	Quintero	LITTON			Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	20,000.00 retag
E179647	00454-19800	Radar System AN/FPS-118	73	HF	Brum		52151Assy126101/2-1			NSF	AST-1160876				11/17/13	2,003,000.00
E179648	00454-19900	Radar System AN/FPS-118	73	HF	Brum		52151Assy126101/2-1			NSF	AST-1160876				11/17/13	2,003,000.00
E179649	00454-20000	Radar System AN/FPS-118	73	HF	Brum		52151Assy126101/2-1			NSF	AST-1160876				11/17/13	2,003,000.00
E179650	00454-20100	Radar System AN/FPS-118	73	HF	Brum		52151Assy126101/2-1			NSF	AST-1160876				11/17/13	2,003,000.00
E179645	00454-20200	Radar System AN/FPS-118	73	HF	Brum		52151Assy126101/2-1			NSF	AST-1160876				11/17/13	2,003,000.00
E179651	00454-20300	Radar System AN/FPS-118	73	HF	Brum		52151Assy126101/2-1			NSF	AST-1160876				11/17/13	2,003,000.00
E179661	00454-20500	Dummy Load Unit	73	HF	Brum		P/N 126103-1(T115)			NSF	AST-1160876				11/17/13	30,000.00
E179660	00454-20600	Dummy Load Unit	73	HF	Brum		P/N 126103-1(S)			NSF	AST-1160876				11/17/13	30,000.00
E179646	04554-20800	Radar System AN/FPS-118 (broken)	73	HF	Brum					NSF	AST-1160876	Broken			11/17/13	2,003,000.00
E179627	00454-20900	DIGITAL SOUNDER-IONOSODE DUAL	63	trailer	Brum	CENTER FOR REMOTE SENS	DUAL CHANNEL	NA	1	NSF	AST-1160876	IN USE - E&S	4/6/10	6/28/10	11/17/13	120,000.00
E179923	00454-21100	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON	35		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179929	00454-21300	3403 KLYSTRON #3 FCS 59	1	131	Quintero	LITTON	1181RZ		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179925	00454-21400	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON	62		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179914	00454-21500	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON	23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179915	00454-21600	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON	23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179928	00454-21700	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON	103		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179930	00454-21800	3403 KLYSTRON #3 FCS 59	1	131	Quintero	LITTON	1624		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179921	00454-21900	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON	27		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179920	00454-22000	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON	23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E178811	00454-22100	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON	23		Y	NSF	AST-1160876				11/17/13	125,000.00
E179913	00454-22200	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON	23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00

Confidential

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Board of Trustees Meeting - New Business

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Department U22 Physical Inventory, FY 2017

E179910	00454-22300	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON		23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/29/05	11/17/13	125,000.00
E179911	00454-22400	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON		23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/29/05	11/17/13	125,000.00
E179941	00454-22500	14 KLYSTRON SHIPPING CONTAINER	1	131	Quintero					Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	10,000.00 retag
E179912	00454-22500	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON		23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/29/05	11/17/13	125,000.00
E179916	00454-22600	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON		23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179924	00454-22700	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON		46		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179919	00454-22800	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON		23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179918	00454-22900	L-5773 KLYSTRON FCS 59	62	trailer	Quintero	LITTON		23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E179917	00454-23000	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON		23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	125,000.00
E183707	00454-23100	Heliax 2" cable, no jacket	73	HF	Brum						NSF	AST-1160876				11/17/13	17,500.00 retag
E183701	00454-23200	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E183702	00454-23300	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E183703	00454-23400	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E183704	00454-23500	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E183705	00454-23600	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E183700	00454-23700	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E183706	00454-23800	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E183699	00454-23900	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E179666	00454-24000	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E179665	00454-24100	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E179664	00454-24200	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E179663	00454-24300	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E179662	00454-24400	Heliax 3"	73	HF	Brum						NSF	AST-1160876				11/17/13	65,000.00
E165730	00454-24500	IMAGING SYSTEM (OPTIC)	27	OPT LAB	Brum	ASTROMED	CCD3200/TE	104/238		1	NSF	AST-1160876	IN USE - E&S	7/15/91	11/25/91	11/17/13	35,700.00
E179590	00454-24600	FABRI PEROT INTERFEROMETER ASS	27	OPT LAB	Brum	BURLEIGH INSTRUMENTS	RC-170	L0086570		1	NSF	AST-1160876	IN USE - E&S	3/28/94	9/20/94	11/17/13	35,870.00
E179579	00454-24700	PULSED ALEXANDRITE LASER SYS	55	Lidar LAB	Brum	LIGHT AGE INC	PAL	4		1	NSF	AST-1160876	IN USE - E&S	12/21/95	4/18/96	11/17/13	176,472.80
E147067	00454-24800	POWERLITE ND:YAG LASER	27	OPT LAB	Brum	CONTINUUM	PRECISION 9050	3645		1	NSF	AST-1160876	IN USE - E&S	12/8/99	1/28/00	11/17/13	57,568.00
E165788	00454-24900	POWERLITE 9050 LASER, INJECTIO	55	Lidar Lab	Brum	CONTINUUM	9050, SIZ000	4881		1	NSF	AST-1160876	IN USE - E&S	7/3/07	9/5/07	11/17/13	127,252.00
E159517	00454-25000	DIOD LASER & CONTROLLER ;ING C	55	Lidar LAB	Brum	TOPTICA	DL100	52		1	NSF	AST-1160876	IN USE - E&S	9/17/01	11/5/01	11/17/13	28,585.38
E147069	00454-25100	DYE LASER	27	OPT LAB	Brum	CONTINUUM	ND6000	99/1060		1	NSF	AST-1160876	IN USE - E&S	1/19/00	2/4/00	11/17/13	31,720.00
E165681	00454-25100	DYE LASER/HIGH ENERGY NARROW L	55	Lidar Lab	Brum	EXCEL CONTINUUM	ND6000	4299		1	NSF	AST-1160876	IN USE - E&S	4/3/03	5/28/03	11/17/13	54,470.75
E165775	00454-25200	CUSTOM AIR-GAP FABRY-PEROT INT	55	Lidar LAB	Brum	SCIENTIFIC SOLUTIONS	CUSTOM FABRICATED	1050		1	NSF	AST-1160876	IN USE - E&S	12/28/04	9/27/05	11/17/13	27,550.00
E179599	00454-25300	DUAL FREQUENCY GPS RECEIVER UN	1	112	Brum	CENTER FOR REMOTE SENS	IONMGPS	060306-000112		1	NSF	AST-1160876	IN USE - E&S	7/7/08	6/25/09	11/17/13	35,000.00
E179580	00454-25400	SPECTROMETER ONE-METER W/SUPP	27	Opt. Lab	Brum	KITT PEAK OBSERVATORY	NMN	NSN		Y	NSF	AST-1160876	CONTROL PURPOSES ON	12/12/84	7/28/94	11/17/13	40,000.00
E144761	00454-25500	ANALYZER MICROWAVE SPECTRUM (1	113	Quintero	HEWLETT PACKARD	8593E	3829A03644		1	NSF	AST-1160876	IN USE - E&S	9/17/98	5/3/99	11/17/13	27,029.40
E165810	00454-25700	DUAL FREQUENCY GPS RECEIVER	1	112	Brum	CENTER FOR REMOTE SENS	IONMGPS001-04	060306-000112		1	NSF	AST-1160876	IN USE - E&S	7/7/08	10/16/08	11/17/13	35,000.00
E179935	00454-25800	1 OF 2 3000K EIMAC DRIVER KLYS	1	131	Quintero	LITTON				Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	80,000.00
E179936	00454-25900	2 OF 2 3000K EIMAC DRIVER KLYS	1	131	Quintero	LITTON				Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	80,000.00
E179938	00454-26000	2 OF 2 BIRD DUMMY LOADS FSC 59	1	131	Quintero	LITTON				Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/30/05	11/17/13	20,000.00 retag
E179583	00454-26100	AUTOSOT-2 FILM READING UNIT W/	?	?	BAKER	GEODETTIC SERVICES	N/A	91-59-01		1	NSF	AST-1160876	IN USE - E&S	5/20/00	6/27/00	11/17/13	33,880.00
E159485	00454-26300	BOOM LIFT, year 2001	79	MAINT	Soberal	UP RIGHT	AB62RT	1137		1	NSF	AST-1160876	IN USE - E&S	5/23/01	6/11/01	11/17/13	80,000.00
E179586	00454-26400	DIVIDER WAVEGUIDE HIGH POWER		PLATFORM	Quintero	DIAMOND ANTENNA & MIC	WR 2100	1		1	NSF	AST-1160876	IN USE - E&S	2/28/91	11/25/91	11/17/13	33,550.00
E179620	00454-26500	VECTOR NETWORK ANALYZER	1	E-112	Quintero/Whitlow	VECTOR	ZLV13	100798		1	NSF	AST-1160876	IN USE - E&S	10/1/09	1/5/10	11/17/13	44,360.00
E179589	00454-26600	RECEIVER SYSTEM (ASSIGN CONTRA		DOME	Quintero	CONTRACTOR FABRICATED		NSN		1	NSF	AST-1160876	IN USE - E&S	6/30/00	7/8/00	11/17/13	108,269.33
E179588	00454-26700	GREGORIAN FEED/RECEIVER SYST W		DOME	Quintero	FABRICATED IN HOUSE		NSN		1	NSF	AST-1160876	IN USE - E&S	6/24/99	7/1/99	11/17/13	53,240.20
E179587	00454-26900	X-BAND RECEIVER 8-10 GHZ (CONS		DOME	Quintero	CONTRACTOR FABRICATED		NSN		1	NSF	AST-1160876	IN USE - E&S	6/30/00	7/8/00	11/17/13	32,687.20
	00454-27300	Chiller	2	Bld 2	Soberal	TRANE	CGAM040	U10L19920			NSF	AST-1160876				11/17/13	
	00454-27400	Chiller	1	BLD 1	Soberal	NAPP	NCCS2 SAC	1375A-01			NSF	AST-1160876				11/17/13	
	00454-27500	12 Mt Antenna Patriot year 2010	77	Main Ent	Soberal	COBHAM	Patriot 12 Mt Sta Ant	0005			NSF	AST-1160876				11/17/13	
E179900	00454-27600	L-5773 KLYSTRON FCS 59	1	131	Quintero	LITTON		23		Y	NSF	AST-1160876	CONTROL PURPOSES ON	10/3/01	6/29/05	11/17/13	125,000.00
	00454-27700	SWITCH GEAR ASSY	35	BLD 35	Soberal	CUMMINS	PC1L2004R-772F	G100133700			NSF	AST-1160876				11/17/13	
	00454-31500	M700 HELIUM COMPRESSOR	1		QUINTERO	OXFORD INSTRUMENTS	M700	M700A0013		1	NSF	AST-1160876	IN USE - E&S	9/5/2012		8/29/2016	28,000.00
	00454-31600	Laser dye for ND:YAG Pump	55		Friedman	CONTINUUM					NSF	AST-1160876		1996		11/17/13	41,325.00
	00454-31700	Injection Seeder	55		Friedman	CONTINUUM					NSF	AST-1160876		2008		11/17/13	31,452.00
	00454-31800	Transient recorder	55		Friedman	Boston Electric					NSF	AST-1160876		2007		11/17/13	35,235.00

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00454-31900	Telescope 800mm F15	55		Friedman	InterMountain Optics				NSF	AST-1160876			1994		11/17/13	25,000.00	
00454-32000	Meteorite Collection	54		Irizarry	God				NSF	AST-1160876					11/17/13		
00454-32100	PBX SYSTEM	?	602	Quintero	NORTEL	CS1000E	NNMTC900D952	1	NSF	AST-1160876	IN USE -	E&S	2/2/2010	5/1/2011	11/17/13	45,978.00	
00454-32200	DIGITAL MASTER CONTROL	35	BLD 35	Soberal	CUMMINS	PC1L2004R-772F	G100133700		NSF	AST-1160876					11/17/13		
00454-32300	GENERATOR #4	80	BLD 36	Soberal	CUMMINS	DQFAD-A030R005	G100138556		NSF	AST-1160876					11/17/13		
00454-32400	GENERATOR #3	80	BLD 36	Soberal	CUMMINS	DQFAD-A030R005	G100138017		NSF	AST-1160876					11/17/13		
00454-32500	GENERATOR #2	80	BLD 36	Soberal	CUMMINS	DQFAD-A030R005	G100138018		NSF	AST-1160876					11/17/13		
00454-32600	GENERATOR #1	80	bdlg. 36	Soberal	CUMMINS	DQFAD-A030R005	G100138021		NSF	AST-1160876					11/17/13		
00459-526004	750 kW emergency generator	53	bdlg. 53	Soberal												150,000.00	
00459-524000	ALFA receiver			Gregorian	Quintero				NSF	AST-116-876	in use				5/12/2014	1,000,000.00	
Vehicles																	
E179600	00454-20400	Dodge 4WD Truck	79	Maint.	Soberal	Dodge Motor Co.			NSF	AST-1160876	in use				11/17/13		
E179610	00454-20700	DIGGER Year 2009	79	Maint.	Soberal	NEW HOLLAND	B95B 4WD	N8GH22927	1	NSF	AST-1160876	IN USE -	E&S	9/1/09	9/22/09	11/17/13	53,000.00
E179603	00454-25600	TOYOTA SIENNA CE 2009	79	Maint.	Soberal	FG-AUTO TOYOTA	SIENNA	5TDZK23C99527253Q1	1	NSF	AST-1160876	IN USE -	E&S	12/12/08	2/24/09	11/17/13	27,267.00
	00334-07200	TOYOTA RAV 4 2015	79	MAIN	W. ARIAS	RAV 4	RAV4	2T3BFREV8FW363392		NSF		IN USE		9/2/2015			23,871.00
	00459-51500	TOYOTA TACOMA 2015	79	MAIN	SOBERAL	TACOMA	TACOMA	5TFLU4FN3FX146325		NSF		IN USE		9/2/2015			27,531.00
	00495-51600	TOYOTA TACOMA 2015	79	MAIN	SOBERAL	TACOMA	TACOMA	5TFLU4FN3FX145969		NSF		IN USE		9/2/2015			27,531.00
	00454-30400	TOYOTA TACOMA 2018		MAIN	F.CORDOVA	ADMINISTRATION	TACOMA	5TFC25AN3JX129188		NSF		IN USE		1/9/2018		2/2/2018	
	00454-30600	TOYOTA TACOMA 2019		MAIN	Soberal	FACILITY	TACOMA	5TFC25AN6JX123157		NSF		IN USE		1/9/2018		2/2/2018	
Buildings																	
	00454-27800	Warehouse	17							NSF	AST-1160876					11/15/2013	
	00454-27900	Maintenance Office Bldg.	79							NSF	AST-1160876					11/15/2013	
	00454-28000	Generator control bldg.	35							NSF	AST-1160876					11/15/2013	
	00454-28100	Operations bldg.	1							NSF	AST-1160876					11/15/2013	
	00454-28200	Administration bldg.	2							NSF	AST-1160876					11/15/2013	
	00454-28300	Cafeteria/VSQ/Laundry/Cooler	3							NSF	AST-1160876					11/15/2013	
	00454-28400	Poolbaths & Utility bldg.	10							NSF	AST-1160876					11/15/2013	
	00454-28500	Pump House	6							NSF	AST-1160876					11/15/2013	
	00454-28600	Cable car House	5							NSF	AST-1160876					11/15/2013	
	00454-28700	Lewis Bldg./Rigging Loft	11							NSF	AST-1160876					11/15/2013	
	00454-28800	VSQ Bachelor duplex B1 & B2	42							NSF	AST-1160876					11/15/2013	
	00454-28900	VSQ Bachelor duplex B2 & B4	41							NSF	AST-1160876					11/15/2013	
	00454-29000	VSQ Family Unit F1	43							NSF	AST-1160876					11/15/2013	
	00454-29100	VSQ Family Unit F2	44							NSF	AST-1160876					11/15/2013	
	00454-29200	ARF Learning Center	61							NSF	AST-1160876					11/15/2013	
	00454-29300	Lidar Lab	55							NSF	AST-1160876					11/15/2013	
	00454-29400	Photometer Lab	27							NSF	AST-1160876					11/15/2013	
	00454-29500	Entrance Guard House	4							NSF	AST-1160876					11/15/2013	
	00454-29600	North VSQ	57							NSF	AST-1160876					11/15/2013	
	00454-29700	Maintenance shops	12							NSF	AST-1160876					11/15/2013	
	00454-29800	North VSQ Utility/Laundry room	58							NSF	AST-1160876					11/15/2013	
	00454-29900	Entrance public toilets	47							NSF	AST-1160876					11/15/2013	
	00454-30000	ARF Visitor Center	54							NSF	AST-1160876					11/15/2013	
	00454-30100	HF storage trailer	62							NSF	AST-1160876					11/15/2013	
	00454-30200	Ionosonde trailer	63							NSF	AST-1160876					11/15/2013	
	00454-30300	Inspiration to Science trailer	76							NSF	AST-1160876					11/15/2013	
	00454-30500	Diesel generator bldg.	80							NSF	AST-1160876					11/15/2013	
	00459-42800	Bowl shack	13							NSF	AST-1160876					11/15/2013	
	00459-42900	Antenna test range bldg.	21							NSF	AST-1160876					11/15/2013	
	00459-43000	Hazardous mat./Paint storage	25							NSF	AST-1160876					11/15/2013	
	00459-43100	High Voltage Power Supply bldg.	34							NSF	AST-1160876					11/15/2013	
	00459-43200	RFI Shack	50							NSF	AST-1160876					11/15/2013	

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00459-43300	Grease Pit	51							NSF	AST-1160876							11/15/2013		
00459-43400	TV Security Bldg.	52							NSF	AST-1160876								11/15/2013	
00459-43500	750 KW Generator Bldg.	53							NSF	AST-1160876								11/15/2013	
00459-43600	Warehouse & S-band trailer bldg.	56							NSF	AST-1160876								11/15/2013	
00459-43700	Visitor Center trailer	59							NSF	AST-1160876								11/15/2013	
00459-43800	Antenna - receiver/imager bldg.	60							NSF	AST-1160876								11/15/2013	
00459-43000	Electronic trailer	64							NSF	AST-1160876								11/15/2013	
00459-44000	Shielded trailer	65							NSF	AST-1160876								11/15/2013	
00459-44100	Atmospheric Science trailer	66							NSF	AST-1160876								11/15/2013	
00459-44200	Cryogenic Lab. Trailer	67							NSF	AST-1160876								11/15/2013	
00459-44300	Scientif Office trailer	68							NSF	AST-1160876								11/15/2013	
00459-44400	Electronic trailer (WG)	69							NSF	AST-1160876								11/15/2013	
00459-44500	Computer trailer	70							NSF	AST-1160876								11/15/2013	
00459-44600	Electronics cable trailer	71							NSF	AST-1160876								11/15/2013	
00459-44700	Electronics trailer (cryogenics)	72							NSF	AST-1160876								11/15/2013	
00459-44800	HF transmitter bldg.	73							NSF	AST-1160876								11/15/2013	
00459-44900	12-M Antenna	77							NSF	AST-1160876								11/15/2013	
00459-52300	Coffee hut/Café shop	78							NSF	AST-1160876								11/15/2013	
	Total government owned buildings:	49																	Total Original cost: 22,003,987.90
	Total government owned vehicles:	3																	
	Total other gov. owned property	105																	

SRI Property - Red tags

Agency	Tag	SRI Inven. #	# ASSET DESCRIPTION	BLDG ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATU	Agenc	Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIE	Originql cost
									S	y					D	
	E179940	00333-00900	30 ASSORTED WR2100 WAVEGUIDE F	4837 131	Quintero	GE			1			CONTROL PURPOSES ON	10/3/01	6/30/05	6/25/09	120,000.00
	I10599	00333-84100	TELESCOPE800MM F/15 DALL KIRK	4837 OPT LAB	Brum	INTERMOUNTAIN OPTICS	CUSTOM MADE	NSN	1			IN USE - E&S	12/9/94	12/14/94	6/25/09	25,000.00
	I089913	00334-06600	THEOMAT W/ACCESSORIES (MAINT)	4837 Bldg 17	Soberal	WILD HEERBRUGG INSTRUM	T2000		1			IN USE - E&S	1/1/85	3/20/91	6/25/09	60,740.00
	E102387	00333-81200	LASERDYE FOR ND:YAG PUMP LASE	4837 OPT LAB	Brum	CONTINUUM	ND6000	S96/1060-001	1			IN USE - E&S	11/25/96	12/23/96	6/25/09	41,325.00
	E165789	00333-83800	TR 20-160-AP TRANSIENT RECORDER	4837 LIDAR	Brum	BOSTON ELECTRONICS	TR-20-160-AP	490 & 491	1			IN USE - E&S	9/18/07	10/18/07	6/25/09	35,234.84
	E179602	00333-83900	INJECTION SEEDER P	4837 55-101	Brum	EXCELL CONTINUUM	SI 2000	J11-000706-383	1			IN USE - E&S	11/25/08	2/24/09	6/25/09	31,452.08
	E179628	00333-73200	TWIN-NODE SERVER	4837 DC 126	Arun	MERCURY RM104T	AH-RM104T-SX02	AH100189	1			IN USE - E&S	4/14/10	6/4/10		9,815.74
	E179612	00334-10500	DIGITAL VIDEO RECORDER SECURIT	4837 401	ARIAS	AVER MEDIA AVER DIGI-MU	LINUX OS	0108808075N001814	1			IN USE - E&S	12/24/08	6/12/09		8,994.00
	I094102	00333-73300	TAPE SUBSYSTEM 1/2	4837 128	Arun	SUN MICROSYSTEMS	X680A	NSN	1			IN USE - E&S	4/25/91	11/25/91	6/25/09	6,400.00
	I099457	00333-73500	MICROCOMPUTER DEVELOPMENT SYS	4837 CNTRL RM	Arun	MOTOROLA	MVME1147	C103549	1			IN USE - E&S	4/5/90	9/21/92	6/25/09	19,276.00
	I101049	00333-73600	SPARCSTATION IPX-16 COLOR	4837 128	Arun	SUN MICROSYSTEMS	4/50FGX-16-P43	239M0324	1			IN USE - E&S	11/17/92	1/4/93	6/25/09	7,227.50
	I105545	00333-73700	SPARCSTATION LX-16 COLOR	4837 128	Arun	SUN	PN4/30FGX16P43	33303302	1			IN USE - E&S	7/8/93	2/11/94	6/25/09	5,381.00
	E102360	00333-73800	COMPUTER ULTRA 1 SYSTEM	4837 128	Arun	SUN	140	626F1493	1			IN USE - E&S	7/15/96	8/26/96	6/25/09	6,107.25
	I105546	00333-73900	SPARCSTATION LX-16 COLOR ARUN	4837 128	Arun	SUN	PN4/30FGX16P43	33303367	1			IN USE - E&S	7/8/93	2/11/94	6/25/09	5,381.00
	I121112	00333-74000	SPARCSTATION	4837 128	Arun	SUN MICROSYSTEMS	520	503F0861	1			IN USE - E&S	2/1/95	4/7/95	6/25/09	7,537.00
	I109528	00333-74100	PRINTER COLOR ARUN	4837 119	Arun	MITSUBISHI	ACP-536000CS	M-3100982	1			IN USE - E&S	5/27/94	8/15/94	6/25/09	8,221.00
	I118069	00333-74200	COMPUTER SINGLE BOARD W/TRANSI	4837 128	Arun	MOTOROLA	167	2036310	1			IN USE - E&S	2/5/96	5/15/96	6/25/09	5,390.00
	I118070	00333-74300	COMPUTER SINGLE BOARD W/TRANSI	4837 128	Arun	MOTOROLA	167	200415	1			IN USE - E&S	2/5/96	5/15/96	6/25/09	5,390.00
	I110388	00333-74400	FILE SERVER ARUN	4837 128	Arun	SUN MICROSYSTEMS	612	346	1			IN USE - E&S	6/9/94	11/3/94	6/25/09	16,035.00
	I101326	00333-74500	SPARCSTATION 10 W/16 COLOR MO	4837 128	Arun	SUN MICROSYSTEMS	FGX41-32-P43	251F4620	1			IN USE - E&S	1/6/93	2/3/93	6/25/09	15,870.00

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Agency Tag	SRI Inven. #	ASSET DESCRIPTION	BLDG ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATUS	Agency	Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIED	Original cost
E102359	00333-74600	COMPUTER ULTRA 1 SYSTEM	4837 128	Arun	SUN	140	G26F15AF	1			IN USE - E&S	7/3/96	8/9/96	6/25/09	6,597.25
E102487	00333-74700	COMPUTER ULTRA 30 DESKTOP	4837 128	Arun	SUN MICROSYSTEMS	300	802FC47C	1			IN USE - E&S	1/17/98	3/12/98	6/25/09	15,236.00
I116132	00333-74800	SPARCS STATION SYSTEM W/MONITOR	4837 CNTRL RM	Arun	SUN MIROSYSTEMS	S205X-61-32-P46	54F0190	1			IN USE - E&S	9/28/95	12/18/95	6/25/09	10,015.85 Eliminate
I104800	00333-74900	COMPUTER SINGLE BOARD	4837 128	Arun	MOTOTOLA	MVME167-034A	1406315	1			IN USE - E&S	10/20/93	12/2/93	6/25/09	8,495.00
E139110	00333-75000	UPGRADE TO ULTRA 10 US20UEA1Z9	4837 403	Arun	SUN MICROSYSTEMS	ULTRA 10	FW91250166	1			IN USE - E&S	3/1/99	6/14/99	6/25/09	6,247.00 Eliminate
E139103	00333-75100	UPGRADE TO ULTRA 10 US20UEA1Z	4837 409	Arun	SUN MICROSYSTEMS	ULTRA 10	FW90250228	1			IN USE - E&S	11/20/98	6/14/99	6/25/09	5,395.00 Eliminate
E153730	00333-75200	COMPLETE SYST-SMARTSTACK ETHER	4837 128	Arun	GLOBAL SERVICES PUERTO RICO	ELS100-S24MGN	00173958210E	1			IN USE - E&S	7/12/00	9/28/00	6/25/09	11,562.00
E139125	00333-75300	COMPUTER ULTRA W/MONITOR	4837 CNTRL RM	Arun	SUN MICROSYSTEMS	PN-600:5112-02	947H3203	1			IN USE - E&S	11/30/99	1/11/00	6/25/09	9,307.00
E139112	00333-75400	COMPUTER 250 SERVER W/ACCESS.	4837 128	Arun	SUN MICROSYSTEMS	#1401-JDL-6941-A	926H49DE	1			IN USE - E&S	7/8/99	9/14/99	6/25/09	20,309.00
E147109	00333-75500	EXTERNAL DISK DRIVE TOWER	4837 128	Arun	WESTERN SCIENTIFIC	W5M-8X36 TWR	127555	1			IN USE - E&S	4/24/00	7/8/00	6/25/09	8,069.63
E147108	00333-75600	EXTERNAL DISK DRIVE TOWER	4837 128	Arun	WESTERN SCIENTIFIC	W5M-8X36 TWR	127595	1			IN USE - E&S	4/25/00	7/8/00	6/25/09	8,069.63 Eliminate
E153811	00333-75800	EIGHT SEAGATE 73GB CHEETAH DIS	4837 128	Arun	DATA STORAGE DPOAT	8XD73GSCOLYN	14860	1			IN USE - E&S	2/2/01	5/8/01	6/25/09	12,375.00
E159529	00333-75900	COMPUTER WORKSTATION	4837 305	Arun	DELL	530MT PRECISION W	55R3X01	1			IN USE - E&S	10/4/01	11/5/01	6/25/09	5,366.00
E159528	00333-76000	COMPUTER	4837 128	Arun	DELL	POWEREDGE 2550	HH0GX01	1			IN USE - E&S	10/4/01	11/5/01	6/25/09	7,080.55
E165627	00333-76100	COMPUTER 193-4013-001 SUBSYSTEM	4837 127	Arun	WESTERN SCIENTIFIC INC		1012000465	1			IN USE - E&S	6/5/02	10/22/02	6/25/09	10,546.43
E165683	00333-76200	COMPUTER 4U RACKMOUNT SERVER	4837 128	Arun	WESTERN SCIENTIFIC MARK	WS-1UZXG/2048	612824	1			IN USE - E&S	4/29/03	6/5/03	6/25/09	5,802.08
E165755	00333-76300	S3116 4TB SERVER W/BOOT DRIVE	4837 126	Arun	RACKABLE SYSTEMS	99-03-01267	69408	1			IN USE - E&S	7/14/04	11/5/04	6/25/09	8,344.00
E165756	00333-76400	S3116 4TB SERVER W/BOOT DRIVE	4837 126	Arun	RACKABLE SYSTEMS	99-03-01267	69409	1			IN USE - E&S	7/14/04	11/5/04	6/25/09	8,344.00
E165757	00333-76500	S3116 4TB SERVER W/BOOT DRIVE	4837 126	Arun	RACKABLE SYSTEMS	99-03-01267	69410	1			IN USE - E&S	7/14/04	11/5/04	6/25/09	8,344.00
E165753	00333-76600	WFSA-5U80/2048:FUSION 5TR USAB	4837 126	Arun	WESTERN SCIENTIFIC	WFSA-5U80/2048	1012004885	1			IN USE - E&S	8/11/04	10/8/04	6/25/09	12,859.34
E165754	00333-76700	WFSA-5U80/2048:FUSION 5TR USAB	4837 126	Arun	WESTERN SCIENTIFIC	WFSA-5U80/2048	1012004887	1			IN USE - E&S	8/11/04	10/8/04	6/25/09	12,859.34
E165712	00333-76800	XSERV RAID COMPUTER 205B	4837 128	Arun	APPLE	I771366/A	N/A	1			IN USE - E&S	5/15/04	1/23/04	6/25/09	14,067.00 Eliminate
E165809	00333-76900	POLYCOM VSX7400S PRESENTER SYS	4837 BLD1	Arun	POLYCOM-IVCI	VSX 7400	8208210A68CEAK	1			IN USE - E&S	7/1/08	9/5/08	6/25/09	6,208.62
E165764	00333-77000	SERVER XSERV RAID 14 X 400 GB	4837 126	Arun	APPLE	20AC	G85062HPQPS	1			IN USE - E&S	2/28/05	3/22/05	6/25/09	11,699.00
E165777	00333-77100	POLYCOM VSX 7400 IP (NTSC) PAR	4837 102	Arun	IVCI LLC	VSX 7400 IP	P42BHK56009 56009	1			IN USE - E&S	8/12/05	11/21/05	6/25/09	11,180.54
E165711	00333-77200	3U4TB STORAGE SERVER	4837 126	Arun	RACKABLE SYSTEMS	99-03-00615	49989	1			IN USE - E&S	11/14/03	3/23/05	6/25/09	9,233.00 Eliminate
E165710	00333-77300	3U4TB STORAGE SERVER	4837 126	Arun	RACKABLE SYSTEMS	99-03-00615	49990	1			IN USE - E&S	11/14/03	3/23/05	6/25/09	9,233.00 Eliminate
E165762	00333-77400	FUSION SA OPTERON BASED STORAGE	4837 126	Arun	WESTERN SCIENTIFIC	197-5021-001	1012006642	1			IN USE - E&S	11/3/04	3/23/05	6/25/09	11,874.90
E165783	00333-77500	TAPE BACKUP LIBRARY	4837 1-114	Arun	QUANTUM CORPORATION	PX-502	QP07038DC00097	1			IN USE - E&S	5/4/07	5/21/07	6/25/09	8,768.41
E165765	00333-77600	FUSION SERVER	4837 126	Arun	WESTERN SCIENTIFIC	WFSA-5U90/2048	12005154	1			IN USE - E&S	2/3/05	6/30/05	6/25/09	16,455.84
E165769	00333-77700	FUSION SERVER	4837 126	Arun	WESTERN SCIENTIFIC	197-5039-001	12005670	1			IN USE - E&S	4/26/05	6/30/05	6/25/09	15,825.46
E179597	00333-77800	ABERDEEN BACKUP STORAGE SERVER	4837 1-114	Arun	ABERDEEN	STERLING XS27	A81832154	1			IN USE - E&S	11/11/08	2/24/09	6/25/09	6,482.00
E179632	00333-78200	POLYCOM HDX 7000-720	4837 205LIB	Arun VENKATARAM	PLOYCOM	7000-720	88103210A6ACCN	1			IN USE - E&S	9/24/10	11/30/10	6/25/09	7,071.81
E165689	00333-79500	ZAGAMI PARTIAL SLICE WITH FUSION	4837 VC	A. Ortiz	ZAGAMI	N/A	N/A	1			IN USE - E&S	5/16/03	6/11/03	6/25/09	7,500.00
E159521	00333-79600	CURTAIN 11 1/2' X 22' VC BALCO	4837 VC	A. Ortiz	ROTULOS LEONARDO			1			IN USE - E&S	9/13/01	11/5/01	6/25/09	5,200.00
E179598	00333-79800	VIDEO CONFERENCE SYSTEM	4837 61 LC	A. Ortiz	323 TV	HDX 9004 HD	820710072ACTC1	1			IN USE - E&S	1/16/09	2/25/09	6/25/09	10,844.00
E165807	00333-79905	3 SCREEN TOTEM W/ BUILT IN PRO	4837 54	A. Ortiz	MULTI-SCREEN TECHNOLOG	TF191103	122151	1			IN USE - E&S	10/31/07	1/14/08	6/25/09	7,945.00
E179613	00333-81100	GOIN RESTAURANT ELECTRIC RANGE	4837 5-316	A. Ortiz	VULCAN	E60FL	48-1639221	1			IN USE - E&S	5/27/09	6/19/09	6/25/09	10,245.72
E159516	00333-80400	SPACE SAVE MOBILE STORAGE	4837 LIBRARY	A. Ortiz	GIRARD MANUFACTURING	Moving Cabinets	NSN	1			IN USE - E&S	5/10/01	10/16/01	6/25/09	21,690.00
E179626	00333-81400	BORESITE ALIGNMENT SYSTEM	4837 55-102	Brum	BOSTON ELECTRONICS	BORESITE	PA4994	1			IN USE - E&S	3/22/10	4/6/10	6/25/09	18,185.78
E165796	00333-96600	350 CRYODYNE REFRIGERATOR	4837 110	Quintero/ Whitlov	BROOKS AUTOMATION	350 CP REFG ASSY	108786211	1			IN USE - E&S	9/16/08	10/28/08	6/25/09	7,542.60
E179622	00334-07000	INGERSOLL RAND ELECTRIC WINCH	4837 WAREHO	Soberal	F & M MAFCO INC	1600B90-4-30-6-M4-	8458016	1			IN USE - E&S	3/1/10	3/23/10	6/25/09	22,437.36
E165780	00333-82200	POTASSIUM MAGNETO OPTICAL FILT	4837 LIDARLAB	Brum	EDDY COMPANY	MOF204	A03074	1			IN USE - E&S	10/12/06	5/16/07	6/25/09	21,336.00
E165782	00333-84500	PHOTOMULTIPLIER HOUSING	4837 102LIDAR	Brum	PRODUCTS FOR RESEARCH	TES10TSC	23116-06	1			IN USE - E&S	2/2/07	5/22/07	6/25/09	9,890.60
E106854	00334-00800	ANALYZER 200MHZ NETWORK (FOUN	4837 113	Quintero	HEWLETT PACKARD	HP 3577A	2333A 10514	1			IN USE - E&S	9/7/93	11/5/93	6/25/09	8,000.00
I108522	00334-00200	VIDEO SECURITY SYSTEM	4837 MAINT	Quintero	AUDIO SPECIALTIES INC	N/A	NSN	1			IN USE - E&S	8/4/82	7/28/94	6/25/09	13,130.90
E107278	00333-97400	OSCILLATOR RUBIDIUM	4837 STRG VAN	Quintero	EFRATOM CORP	FRK-HLN	NSN	1			IN USE - E&S	2/13/84	7/28/94	6/25/09	6,370.00
E107142	00333-88500	GENERATOR SYNCHRONIZED TIME C	4837 127	Quintero	TRAK SYSTEMS	8700-7M	NSN	1			IN USE - E&S	4/14/93	9/1/93	6/25/09	8,900.00
I108881	00334-00100	AMPLIFIER PARAMETRIC	4837 WAREHS	Quintero	BUNKER RAMO	430M7X	1	1			IN USE - E&S	2/23/72	7/29/94	6/25/09	12,472.85
I109454	00334-00000	MASER-FABRICATED BY NAIC	4837 MAINT	Quintero	VARIOUS	NNN	NSN	1			IN USE - E&S	6/3/81	8/8/94	6/25/09	21,959.12
E107139	00333-94400	ANALYZER LOGIC PORTABLE 16 C	4837 124	Quintero	HEWLETT PACKARD	1660A	3229A00243	1			IN USE - E&S	9/9/92	11/4/92	6/25/09	10,800.00

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Department U22 Physical Inventory, FY 2017

Agency Tag	SRI Inven. #	ASSET DESCRIPTION	BLDG ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATUS	Agency Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIED	Original cost
E106847	00333-91600	MODE MINI-OTDR SINGLE	4837 113	Quintero	EXFO	FTB-02B-R(M)-58	FTB22310-1B	1		IN USE - E&S	8/31/95	12/15/95	6/25/09	7,847.50
E106864	00334-06100	TEST SET S-PARAMETER	4837 112	Quintero	HEWLETT PACKARD	85047A	3033A02778	1		IN USE - E&S	11/12/92	3/29/93	6/25/09	9,720.00
I109166	00333-96700	FEED ANTENNA	4837 MAINT AR	Quintero	ELECTROSPACE SYST	43A-5A		1		IN USE - E&S	12/2/74	8/1/94	6/25/09	5,895.72
I102596	00333-92300	OSCILLOSCOPE	4837 CONTROL	Quintero	TEKTRONIX	TDS420	8020348	1		IN USE - E&S	5/11/93	5/21/93	6/25/09	5,584.00
E107140	00334-05300	OSCILLOSCOPE DIGITIZING AR	4837 124	Quintero	HEWLETT PACKARD	54542A	3327A00449	1		IN USE - E&S	12/24/93	5/12/94	6/25/09	16,256.00
E106894	00333-96800	RECORDER SYSTEM C. BONILLA	4837 128	Quintero	WESTERN GRAPTEC	DMS-1000	1693010	1		IN USE - E&S	12/21/93	2/11/94	6/25/09	11,936.50
E107602	00333-97500	ANALOG OPTICAL LINK (FOUND/INV)	4837 DOME	Quintero	LASER DIODE INC.	AST1300138/ASR130013		1		IN USE - E&S	2/21/89	3/20/91	6/25/09	8,900.00
E106862	00334-06000	ANALYZER RF NETWORK	4837 128	Quintero	HEWLETT PACKARD	8753C	2901A00488	1		IN USE - E&S	7/26/89	9/21/92	6/25/09	24,021.00
E106913	00333-84700	TDR CABLE TEST/YTI CHART REC R	4837 113	Quintero	TEKTRONIX	1503C	B011495	1		IN USE - E&S	2/14/91	11/22/91	6/25/09	5,723.00
E107196	00333-92200	SYNTHESIZER TWO CHANNEL E. C	4837 113	Quintero	HEWLETT PACKARD	3326A	2942A02956	1		IN USE - E&S	7/29/93	11/4/93	6/25/09	10,530.00
E107166	00333-91300	MILLING MACHINE VERTICAL W/AC	4837 120	Quintero	BRIDGEPORT	12BR2J-48		1		IN USE - E&S	3/30/84	7/28/94	6/25/09	10,832.23
E107467	00333-89200	RECEIVER DUAL CHANNEL (FOUND/	4837 CH-1	Quintero	CORNELL FABRICATED	NMN	NSN	1		IN USE - E&S	2/24/87	7/28/94	6/25/09	23,196.50
E106895	00333-92500	ANALYZER SPECTRUM R.F.	4837 ROTARY F	Quintero	HEWLETT PACKARD	8591E	3230A00660	1		IN USE - E&S	10/24/92	3/29/93	6/25/09	11,614.50
E107395	00333-97300	COOLING UNIT ASSEMBLY	4837 131	Quintero	YOUNG RADIATOR CO	HC 1205	NSN	1		IN USE - E&S	3/2/71	7/29/94	6/25/09	5,950.00
E107587	00333-92100	OSCILLOSCOPE EDGAR CASTRO	4837 128	Quintero	TEKTRONIX	TDS420	8020346	1		IN USE - E&S	5/11/93	5/21/93	6/25/09	5,584.00
E107227	00334-00500	TEST DEWAR SYST - REFRIGERATOR	4837 DOME NSB	Quintero	CTI-CRYOGENICS	3500P	3695576	1		IN USE - E&S	9/20/93	7/12/95	6/25/09	6,457.16
I109455	00333-99900	MASER-FABRICATED BY NAIC	4837 MAINT	Quintero	VARIOUS	NMN	NSN	1		IN USE - E&S	6/3/81	8/8/94	6/25/09	21,959.12
E107290	00333-91500	PROGRAMMER UNIV DEVICE W/SOCK	4837 108	Quintero	BP MICROSYSTEMS	FP 1200/84	10990	1		IN USE - E&S	8/12/94	8/16/94	6/25/09	5,790.50
E107121	00333-99800	GENERATOR SYNTHESIZED CW	4837 DOME	Quintero	HEWLETT PACKARD	83712A	3429A00363	1		IN USE - E&S	12/27/94	4/5/95	6/25/09	24,877.80
E106846	00333-91700	MULTIMODE MINI-OTDR	4837 113	Quintero	EXFO	FTB-01C(D)M1-74	22487-1B	1		IN USE - E&S	8/31/95	12/15/95	6/25/09	7,847.50
E104271	00334-01000	CADI DIGITAL IONOSONDE SYSTEM	4837 63	Quintero	SCIENTIFIC INSTRUMENTAT	1993-01	SIL04593	1		IN USE - E&S	6/14/96	9/30/96	6/25/09	18,775.00
E102411	00334-05100	CONVERTER 16-BIT HIGH THROUGH	4837 124	Quintero	VME MICROSYSTEMS	VMVIME-3123-101	11096 REV C 1455	1		IN USE - E&S	2/4/97	3/20/97	6/25/09	5,501.90
E107263	00333-89300	TRANSMITTER 50 MHZ	4837 CH1	Quintero	TYCHO TECHNOLOGY	MST-50-1TX		1		IN USE - E&S	7/9/84	7/28/94	6/25/09	10,992.27
E107213	00333-97200	GENERATOR SYNTHESIZED CW VIVE	4837 DOME	Quintero	HEWLETT PACKARD	83712-A	3339A00205	1		IN USE - E&S	7/31/94	8/15/94	6/25/09	24,358.50
E107154	00334-05200	ANALYZER PORTABLE LOGIC CA	4837 124	Quintero	HEWLETT-PACKARD	1660A	3338A00654	1		IN USE - E&S	12/6/93	5/12/94	6/25/09	11,700.50
E107146	00333-99200	TIME/FREQUENCY TRANSFER RECEIV	4837 127	Quintero	US DEPT OF COMMERCE(N	NMN	NSN	1		IN USE - E&S	9/19/85	7/28/94	6/25/09	11,960.00
E102489	00333-98600	AMPLIFIER CRYOGENIC	4837 DOME	Quintero	BERKSHIRE TECHNOLOGIES	S-2.38-35HT	102	1		IN USE - E&S	3/4/98	5/1/98	6/25/09	6,450.00
E102488	00333-98500	CRYOGENIC AMPLIFIER	4837 DOME	Quintero	BERKSHIRE TECHNOLOGIES	S-2.38-35HT	101	1		IN USE - E&S	3/4/98	3/18/98	6/25/09	6,480.00
E102495	00333-98400	AMPLIFIER CRYOGENIC	4837 109	Quintero	BERKSHIRE TECHNOLOGIES	S-2.38-35HT	103	1		IN USE - E&S	3/31/98	5/29/98	6/25/09	6,475.00
E102494	00333-96900	GENERATOR TIME CODE	4837 127	Quintero	TRUE TIME INC	914-9710	97497773	1		IN USE - E&S	12/12/97	4/29/98	6/25/09	7,998.95
E144766	00333-93500	COMPRESSOR	4837 CH1	Quintero	AUSTIN SCIENTIFIC	10266	4088	1		IN USE - E&S	4/15/99	5/4/99	6/25/09	6,450.00
E102499	00333-93600	COMPRESSOR	4837 DOME	Quintero	AUSTIN SCIENTIFIC	450A	4174	1		IN USE - E&S	7/2/98	9/1/98	6/25/09	7,050.00
E144757	00334-05900	ANALYZER SPECTRUM	4837 113	Quintero	EOA TELECOM GROUP INC	2398	81200201	1		IN USE - E&S	3/5/99	3/25/99	6/25/09	8,350.00
E139085	00333-93700	CRYOPUMP COMPRESSOR	4837 DOME	Quintero	AUSTIN SCIENTIFIC	450A	4180	1		IN USE - E&S	9/15/98	9/30/98	6/25/09	6,450.00
E139087	00333-89700	COMPRESSOR	4837 DOME	Quintero	AUSTIN SCIENTIFIC	450A	4182	1		IN USE - E&S	9/18/98	10/8/98	6/25/09	6,450.00
E144755	00333-92500	SYNTHESIZER	4837 R3 Cont Rod	Quintero	HEWLETT PACKARD	HP8648C	3847A04420	1		IN USE - E&S	2/17/99	3/25/99	6/25/09	7,053.40
E144758	00333-90900	PUMP PACKAGE ISO-63 INTEL & A	4837 DOME	Quintero	HOVAC INC	BH2-60HD	147	1		IN USE - E&S	3/8/99	3/25/99	6/25/09	6,606.75
E106902	00333-92300	OSCILLOSCOPE	4837 128	Quintero	TEKTRONIX	TDS-420A	8071159	1		IN USE - E&S	11/15/98	2/15/99	6/25/09	5,655.10
E147105	00333-98100	REFRIGERATOR	4837 110	Quintero	AUSTIN SCIENTIFIC	10295	3277	1		IN USE - E&S	5/17/00	6/1/00	6/25/09	5,561.70
E147119	00333-89600	WAVEGUIDE Horn use in 430MHZ D	4837 PLATFORM	Quintero	CONTRACTOR FABRICATED		NSN	1		IN USE - E&S	6/30/00	7/8/00	6/25/09	9,011.72
E153751	00333-87600	ANALYZER SPECTRUM ESA-L 9KHZ-	4837 113	Quintero	AGILENT TECHNOLOGIES		US40240800	1		IN USE - E&S	9/27/00	10/18/00	6/25/09	9,240.00
E153747	00333-93900	PUMP PACKAGE HEAVY DUTY	2084 RECEI	Quintero	DRIVAC	ISO-63		1		IN USE - E&S	9/18/00	10/18/00	6/25/09	6,355.75
E153729	00333-05500	GENERATOR SYNTHESIZED CW	4837 113	Quintero	AGILENT TECHNOLOGIES	83712B	US37101132	1		IN USE - E&S	4/5/00	7/18/00	6/25/09	21,347.20
E147093	00333-93100	OIL DIELECTRIC TEST SET & TEST	4837 MAINT	Quintero	HYPOTRONICS	8120-SPL-A	8526-2220	1		IN USE - E&S	3/15/00	5/25/00	6/25/09	7,964.83
E147088	00333-98000	PUMP	4837 MAINT	Quintero	DRIVAC	115V ISO-63	184	1		IN USE - E&S	3/31/00	4/26/00	6/25/09	6,607.15
E147084	00334-05600	COMPACT FUSION SET W/HEAT SHRI	4837 113	Quintero	SIECOR	25875 CFS2-OSM-T-H	90-3205	1		IN USE - E&S	3/21/00	4/26/00	6/25/09	12,075.00
E147086	00333-87700	GENERATOR	4837 113	Quintero	AGILENT TECHNOLOGIES	8648C	3847A04867	1		IN USE - E&S	3/23/00	4/26/00	6/25/09	7,299.20
E147111	00333-99600	ANALYZER SPECTRUM	4837 128	Quintero	CENTRONICS	E4403B ESA-L	US39440571	1		IN USE - E&S	3/15/00	7/8/00	6/25/09	9,560.00
E147118	00333-99500	OSCILLOSCOPE 500MHZ GS/S 4-C	4837 113	Quintero	TEKTRONIX	TDS3054	B015330	1		IN USE - E&S	4/17/00	7/8/00	6/25/09	9,311.75
E153796	00333-05700	ANALYZER 10MHZ TO 3GHZ NOISE F	4837 113	Quintero	AGILENT TECHNOLOGIES	63405	GB39490690	1		IN USE - E&S	10/20/00	2/20/01	6/25/09	19,800.00
E153735	00333-87800	SIGNAL GENERATOR SYNTH 9KHZ	4837 124	Quintero	AGILENT TECHNOLOGIES	8648C	3847A05047	1		IN USE - E&S	5/25/00	9/19/00	6/25/09	7,299.20

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Department U22 Physical Inventory, FY 2017

Agency Tag	SRI Inven. #	ASSET DESCRIPTION	BLDG ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATUS	Agency	Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIED	Original cost
E107988	00333-97000	MASS SPECTROMETER LEAK DETECTO	4837 108	Quintero	VARIAN VACUUM PRODUCT	MODEL 959	LLL0119	1			IN USE - E&S	10/10/00	5/8/01	6/25/09	20,061.00
E153758	00333-92000	COUNTER 26.5 GHZ CW MICROWAVE	4837 113	Quintero	AGILENT TECHNOLOGIES		US39260494	1			IN USE - E&S	10/4/00	11/10/00	6/25/09	6,434.12
E159533	00333-97100	GENERATOR ESG SERIES RF SIGNAL	4837 113	Quintero	AGILENT TECHNOLOGIES IN	250K-3	MY41000259	1			IN USE - E&S	9/17/01	11/29/01	6/25/09	8,680.00
E107586	00333-88400	RECEIVER ET6000-RB 1 DATUM MOD	4837 127	Quintero	DATUM TT&M		5872	1			IN USE - E&S	9/23/02	10/23/02	6/25/09	7,242.00
E165658	00333-98200	CRYO TEL (COOLING SYSTEM) CRYO	4837 108	Quintero	SUNPOWER INC		CTC1-RW-13	1			IN USE - E&S	1/8/03	3/27/03	6/25/09	10,000.00
E165679	00334-05800	UNIVERSAL TEST SYSTEM PLATFORM	4837 113	Quintero	EXFO ELECTRO OPTICAL EN	FTB-400	FTB-400-512=238457	1			IN USE - E&S	3/24/03	5/19/03	6/25/09	5,433.00
E165675	00333-93000	FIBER OPTIC SUBRACK W/FIBER OP	4837 ALFA PRO	Quintero	FIBER-SPAN LLC	AC1231-R-4	A1479-2-1A1479-1-1	1			IN USE - E&S	2/11/03	5/19/03	6/25/09	14,510.00
E165673	00333-92900	FIBER OPTIC SUBRACK W/FIBER OP	4837 ALFA PRO	Quintero	FIBER-SPAN LLC	AC1231R-4	A1479-2-2A1479-1-5	1			IN USE - E&S	2/11/03	5/19/03	6/25/09	14,510.00
E165674	00333-92800	FIBER OPTIC SUBRACK W/FIBER OP	4837 ALFA PRO	Quintero	FIBER-SPAN LLC	AC1231R-4	A1479-2-3A1479-1-9	1			IN USE - E&S	2/11/03	5/19/03	6/25/09	14,510.00
E165676	00333-92700	FIBER OPTIC SUBRACK W/FIBER OP	4837 ALFA PRO	Quintero	FIBER-SPAN LLC	AC1231R-2	A1479-3-1A1479-1-1	1			IN USE - E&S	2/11/03	5/19/03	6/25/09	7,730.00
E165665	00333-92600	FIBER GIGABIT ETHERNET 8X00 4	4837 128	Quintero	GLOBAL SERVICES PUERTO	SSR-GSX31-04	24601863208	1			IN USE - E&S	2/28/03	4/11/03	6/25/09	7,189.00
E165671	00333-89400	OIL FREE PUMP PACKAGE NW-401	4837 DOME	Quintero	DRIVAC INC	BH2-200	25214702	1			IN USE - E&S	3/24/03	5/2/03	6/25/09	7,615.95
E165628	00333-97700	8032549G002 8200 HEL COMPRE AC	4837 DOME	Quintero	HELIX TECH CORP/CTI CRYOG		102113549	1			IN USE - E&S	8/29/02	1/3/03	6/25/09	5,749.21
E165643	00333-97800	72 FIBER COMPOSITE 24/48	4837 PLATFORM	Quintero	FIBER OPTIC TRUNK CABLE	360-RLNCFM12BK82	NSN	1			IN USE - E&S	11/4/02	1/3/03	6/25/09	8,859.50
E165682	00333-93400	SCOPE 500MHZ 4 CH TEK DIGITAL	4837 113	Quintero	CONTRACT EAST/TEKTRON	TDS3054B	8015390	1			IN USE - E&S	3/13/03	5/23/03	6/25/09	9,921.68
E165744	00333-97600	COMPRESSOR HELIUM 91-00004-OH	4837 PLATFORM	Quintero	AUSTIN SCIENTIFIC	450A	450A0119	1			IN USE - E&S	3/12/04	6/4/04	6/25/09	7,435.18
E165758	00333-94500	E44198 DUAL CHANNEL EPM SERIES	4837 SCREEN R	Quintero	AGILENT TECHNOLOGIES	E44198	GB43312033	1			IN USE - E&S	8/3/04	11/1/04	6/25/09	7,404.80
E165752	00333-88300	8648C SYNTHESIZED RF SIGNAL GE	4837 127	Quintero	AGILENT TECHNOLOGIES	8648C	3847M00944	1			IN USE - E&S	7/21/04	10/8/04	6/25/09	8,299.34
E165748	00333-88200	SYNTHESIZED RF SIGNAL GENERATO	4837 127	Quintero	AGILENT TECHNOLOGIES	8648C	3847M00911	1			IN USE - E&S	5/12/04	1/26/05	6/25/09	8,243.20
E165749	00333-88100	SYNTHESIZED RF SIGNAL GENERATO	4837 127	Quintero	AGILENT TECHNOLOGIES	8648C	3847M00910	1			IN USE - E&S	5/12/04	1/26/05	6/25/09	8,243.20
E165750	00333-88000	SYNTHESIZED RF SIGNAL GENERATO	4837 127	Quintero	AGILENT TECHNOLOGIES	8648C	3847M906	1			IN USE - E&S	5/12/04	1/26/05	6/25/09	8,243.20
E165709	00333-87900	GENERATOR SYNTHESIZED RF SIGNA	4837 124	Quintero	AGILENT TECHNOLOGIES	8648C	3847M00740	1			IN USE - E&S	9/10/03	1/13/04	6/25/09	8,304.22
E161138	00334-31000	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	109	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165790	00334-01200	PDEV SIGNAL PROCESSING SYSTEM	4837 1-101	Quintero/Luis	JEFF MOCK	PDEV	124	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.24
E165820	00334-02700	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	103	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161133	00333-88700	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	113	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161134	00334-01700	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	120	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161135	00334-02200	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	106	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161136	00334-02300	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	E161136	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161137	00333-02600	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	108	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161139	00334-02800	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	119	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161140	00334-02900	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	110	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161141	00334-02400	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	E161141	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161142	00333-89100	SIGNAL PROCESSING SYSTEM	4837 124DI	Quintero/Luis	JEFF MOCK	PDEV	105	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E161143	00334-02500	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	E161143	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165791	00334-01300	PDEV SIGNAL PROCESSING SYSTEM	4837 101-1	Quintero/Luis	JEFF MOCK	PDEV	125	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.24
E165815	00334-01400	PDEV SIGNAL PROCESSING SYSTEM	4837 1-101	Quintero/Luis	JEFF MOCK	PDEV	127	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165816	00334-01500	PDEV SIGNAL PROCESSING SYSTEM	4837 1-124	Quintero/Luis	JEFF MOCK	PDEV	111	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165817	00333-88900	PDEV SIGNAL PROCESSING SYSTEM	4837 1-101	Quintero/Luis	JEFF MOCK	PDEV	126	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165818	00334-01600	PDEV SIGNAL PROCESSING SYSTEM	4837 1-101	Quintero/Luis	JEFF MOCK	PDEV	121	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165819	00333-88800	PDEV SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	114	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165821	00334-02000	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	115	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165822	00334-02100	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	116	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165823	00334-01800	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	117	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E179593	00333-88600	SIGNAL PROCESSING SYSTEM	4837 1-127	Quintero/Luis	JEFF MOCK	PDEV	104	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E179594	00334-03000	SIGNAL PROCESSING SYSTEM	4837 1-101	Quintero/Luis	JEFF MOCK	PDEV	101	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E179595	00334-01900	SIGNAL PROCESSING SYSTEM	4837 1-124	Quintero/Luis	JEFF MOCK	PDEV	112	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E179596	00333-89000	SIGNAL PROCESSING SYSTEM	4837 PENN	Quintero/Luis	JEFF MOCK	PDEV	123	1			IN USE - E&S	11/1/08	1/7/09	6/25/09	23,127.23
E165707	00333-89800	COMPRESSOR-10266/91-00004-OHA	4837 PLATFORM	Quintero	AUSTIN SCIENTIFIC COMPAN	450A	450A0115	1			IN USE - E&S	9/22/03	3/23/05	6/25/09	7,625.00
E165708	00333-98300	COMPRESSOR-10266-91-00004-OHA	4837 PLATFORM	Quintero	AUSTIN SCIENTIFIC COMPAN	450A	450A0116	1			IN USE - E&S	9/22/03	3/23/05	6/25/09	7,625.00
E165715	00333-99300	RT-BANK-PASS FILTERBM150-85-9	4837 124	Quintero	SPECTRUM FSY MICROWAV	BOM04455		1			IN USE - E&S	10/15/03	3/23/05	6/25/09	5,570.60

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Department U22 Physical Inventory, FY 2017

Agency Tag	SRI Inven. #	ASSET DESCRIPTION	BLDG ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATUS	Agency	Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIED	Original cost
E165760	00333-91800	SPECTRUM ANALYZER W/TRACKING G	4837 103	Quintero	ENEST INC.	FSH-626	100228	1			IN USE - E&S	8/6/04	3/23/05	6/25/09	15,451.00
E165714	00333-93300	EPDM RUBBER INSULATION CPE JAC	4837 ELECTRIC	Quintero	HOUSTON WIRE & CABLE CO	12-30500W CABLE	PH HW25001230	1			IN USE - E&S	8/15/03	3/23/05	6/25/09	7,000.00
E165714	00333-91000	BOARD/BASED COMPUTER ADD-IN CA	4837 124	Quintero	ALPHA DATA PARALLEL SYSTE		ADMXP1-0136	1			IN USE - E&S	12/8/03	3/23/05	6/25/09	5,850.00
E165743	00333-99400	SCROLL PUMP	4837 131	Quintero	VARIANINC.	PTS0300IUVP1	LPD410319	1			IN USE - E&S	4/19/04	3/23/05	6/25/09	5,361.95
E165778	00333-97900	PROGRAMMABLE LOGIC CONTROL(PLC	4837 PLATF	Quintero	SIEMENS	6ES5928-3UB21	C79040-A7532-C328	1			IN USE - E&S	10/26/05	12/21/05	6/25/09	9,024.00
E179939	00334-01100	14 VARIION POWER SUPPLIES FSC 5	4837 131	Quintero	LITTON			Y			CONTROL PURPOSES ON	10/3/01	6/30/05	6/25/09	23,800.00
E165773	00333-94700	CIRCUIT CARD W/MEMORY MODULE 2	4837 PLATF	Quintero	VERTEX ANTENNENTECHNI	CPU 9288		1			IN USE - E&S	2/7/05	7/21/05	6/25/09	8,436.40
E165774	00333-94600	REFURBISHED SPDT SWITCH LOCATE	4837 PLATF	Quintero	4-STAR ELECTRONICS	RC6A5126F14B		1			IN USE - E&S	3/18/05	7/21/05	6/25/09	7,500.00
E165806	00333-87500	MXG ANALOG RF SIGNAL GENERATOR	4837 113	Quintero/Luis	AGILENT TECHNOLOGIES	N5181A	MY47070730	1			IN USE - E&S	10/10/07	11/9/07	6/25/09	5,245.60
E107589	00334-09400	L LATHE	4837 Bldg 12	Soberal	CINCINNATI	LR	550125T0038	1			IN USE - E&S	12/12/84	8/15/91	6/25/09	7,380.00
I109381	00334-09200	REGULATOR LINE (VOLTAGE)	4837 BLDG #1	Soberal	SUARE D	L3	11528	1			IN USE - E&S	6/3/85	8/5/94	6/25/09	9,700.00
I108974	00334-09000	RECLOSER STATIC	4837 substation	Soberal	WESTINGHOUSE ELECT	ES 400	75G115E5	1			IN USE - E&S	8/25/75	7/30/94	6/25/09	5,383.24
I088924	00334-08800	BUTLER BUILDING #12 TYPE MRF	4837 MAINT	Soberal	CAROLINA PRODUCTS COMPANY			1			IN USE - E&S	5/2/67	3/20/91	6/25/09	16,110.00
E179615	00334-08100	PORTABLE DIESEL COMPRESSOR MB-	4837 MAINT	Soberal	MASH INDUSTRIAL INC	IMS2	1074	1			IN USE - E&S	5/30/01	7/2/01	6/25/09	13,700.00
E165805	00334-08000	ELECTRIC AIR COMPRESSOR	4837 MAINT	Soberal	CHAMPION	CABRSA	D061364	1			IN USE - E&S	9/9/08	11/13/08	6/25/09	6,999.00
E165772	00334-07900	ELECTRIC AIR COMPRESSOR	4837 MAINT	Soberal	CHAMPION	CABRSA	D013685	1			IN USE - E&S	5/2/05	7/21/05	6/25/09	5,695.00
E179624	00333-90800	MXG ANALOG SIGNAL GENERATOR	4837 1	Quintero/LOUS Q.	AGILENT	N5181A	MY4906844	1			IN USE - E&S	11/5/09	2/24/10		13,724.80
E179625	00333-90600	MIXED SIGNAL OSCILLOSCOPE	4837 DIGLAB	Quintero/LOUS Q.	TEKTRONIC	MSO4104	MSO4104C002668	1			IN USE - E&S	12/1/09	3/2/10		15,177.41
E179621	00333-85200	MONOCHROMATIC IMAGING SYSTEM	4837 IMAGER	PEDRINA TERRA	SCIENTIFIC SOLUTIONS INC	AS100-FW	1151	1			IN USE - E&S	1/14/10	2/23/10		23,000.00
E165746	00334-10300	DUAL FREQUENCY GPS RECEIVER &	4837 M0560	Brum	THALES NAVIGATION	REC-800960&ANT70	UC2200404015	1			IN USE - E&S	5/17/04	3/23/05	6/25/09	13,147.77
E179618	00333-78000	BACKUP STORAGE SERVER	4837 126	Arun / Brum	ABERDEEN	STIRLING X527	AB1835564	1			IN USE - E&S	11/25/09	1/5/10		9,844.00
E179617	00333-78100	NEHALEM DUAL NODE SERVER	4837 126	Arun / Brum	ABERDEEN	STIRLING 142T	AB1835562	1			IN USE - E&S	11/25/09	1/5/10		8,455.00
I10607	00334-06200	WINCH ELECTRIC POWER	4837 PLATFORM	Soberal	THERN INC	4HW3M15-51	40940843	1			IN USE - E&S	11/30/94	12/14/94	6/25/09	6,492.30
E108725	00334-06500	ALIGNMENT SURVEYING TOTAL STAT	4837 Bldg 17	Soberal	INSTANT PRINT CORP	TC800 PACKAGE	NSN	1			IN USE - E&S	4/22/97	7/11/97	6/25/09	9,500.00
E195963	00334-06700	PLANETARY GEAR REDUCER MODEL	4837 Bldg 17	Soberal	SEISA (ENGINEERED GEAR S	TPP-022-M-U1-935	95-0463	1			IN USE - E&S	6/28/01	3/4/02	6/25/09	9,700.00
E165803	00334-06400	AIR COMPRESSOR 15HP	4837 FEEDARM	Soberal	CHAMPION	CASRSA R 2 SERIES	D061390	1			IN USE - E&S	9/9/08	11/13/08	6/25/09	5,360.00
E165768	00333-80000	SCAFFOLD BASKET	4837 Bldg 17	Soberal	SPIDER-SAFE WORKSLLC	TU-1718		1			IN USE - E&S	3/23/05	6/30/05	6/25/09	8,807.81
E165776	00334-06800	REPLACEMENT PARTS FOR A PLATFO	4837 Bldg 17	Soberal	NOOK INDUSTRIES			1			IN USE - E&S	5/27/05	7/24/06	6/25/09	9,951.77
I099453	00333-84700	AVERAGER MULTICHANNEL SCALING	4837 OPT LAB	Brum	DSP TECHNOLOGY	2190	128-4101	1			IN USE - E&S	12/14/89	9/21/92	6/25/09	5,196.00
I099471	00333-81500	SPERRY TRANSMITTER/RECEIVER SY	4837 OPT LAB	Brum	RADIO-RESEARCH INSTRUM	4C35	N/A	1			IN USE - E&S	9/13/90	9/21/92	6/25/09	8,266.50
I119570	00333-81600	CHILLER AIR COOLED	4837 Lidar LAB	Brum	AFFINITY	FAA032D-CE10CA	6394	1			IN USE - E&S	4/8/96	7/5/96	6/25/09	7,564.80
E104263	00333-82300	TELESCOPE CASSEGRAIN 800MM	4837 OPT LAB	Brum	INTERMOUNTAIN OPTICS	NMN	663401	1			IN USE - E&S	12/11/95	9/30/96	6/25/09	16,666.66
E102362	00333-82400	TELESCOPE CASSEGRAIN 800MM	4837 OPT LAB	Brum	INTERMOUNTAIN OPTICS	NMN	663402	1			IN USE - E&S	12/11/95	9/30/96	6/25/09	16,666.66
I113525	00333-81700	WAVEMETER PULSED W/FIBER OPTI	4837 OPT LAB	Brum	BURLEIGH	WA-4500	P7191118	1			IN USE - E&S	4/26/95	6/23/95	6/25/09	22,950.00
I099456	00333-81800	RECIRCULATOR DIGITAL REFRIGER	4837 OPT LAB	Brum	NESLAB	150	90AAM19150-1	1			IN USE - E&S	1/11/90	9/21/92	6/25/09	5,201.00
I094135	00333-81900	INTENSIFIER	4837 OPT LAB	Brum	PCO OPTICS SYSTEMS	IRO	41510140	1			IN USE - E&S	9/9/91	11/25/91	6/25/09	22,000.00
I098808	00333-84800	SCALER/AVERAGER MULTICHANNEL	4837 OPT LAB	Brum	DSP TECHNOLOGY	2190	350/178	1			IN USE - E&S	5/8/92	8/26/92	6/25/09	6,100.00
I100969	00333-85000	PLATES FABRY-PEROT ETALON 1	4837 OPT LAB	Brum	IC OPTICAL SYSTEMS	NONE	NONE	1			IN USE - E&S	12/13/89	12/21/92	6/25/09	12,862.36
I101320	00333-82000	OSCILLOSCOPE	4837 Lidar lab	Brum	TEKTRONIC	7104	80929580	1			IN USE - E&S	1/11/93	2/3/93	6/25/09	13,766.38
E104258	00333-84400	THERMOELECTRIC LQD HEAT EXCHG	4837 OPT LAB	Brum	PRODUCTS FOR RESEARCH	TE410RF	20751-97-1	1			IN USE - E&S	4/24/96	9/24/96	6/25/09	5,998.00
E104277	00333-82100	TURNABLE LASER DIODE SYSTEM	4837 Lidar LAB	Brum	EOSI	ECU200101A	67	1			IN USE - E&S	3/11/96	9/30/96	6/25/09	16,042.00
E102415	00333-82600	TELESCOPE 800MM W/ALT AXIMUTH	4837 OPT LAB	Brum	INTERMOUNTAIN OPTICS	NMN	NSN	1			IN USE - E&S	2/18/97	3/19/97	6/25/09	15,333.34
E104264	00333-82500	TELESCOPE CASSEGRAIN OPTC 800MM	4837 OPT LAB	Brum	INTERMOUNTAIN OPTICS	NMN	663301	1			IN USE - E&S	12/11/95	9/30/96	6/25/09	16,666.68
I115685	00333-83400	TURBO MCS HARDWARE WITH OPTION	4837 OPT LAB	Brum	EG & G INSTRUMENTS	T914	249	1			IN USE - E&S	8/4/95	10/31/95	6/25/09	5,228.50
I109172	00333-84900	CRATE POWERED CAMAC	4837 OPT LAB	Brum	KINETIC SYST	1500-P1K	1659/10	1			IN USE - E&S	2/1/84	8/1/94	6/25/09	8,439.00
E102434	00333-84200	LIQUID HEAT EXCHANGED PMT HOUS	4837 OPT LAB	Brum	PRODUCTS FOR RESEARCH	TES10RF	20751-97	1			IN USE - E&S	5/16/97	6/6/97	6/25/09	6,127.00
E102416	00333-82700	TELESCOPE 800MM W/ALT AXIMUTH	4837 OPT LAB	Brum	INTERMOUNTAIN OPTICS	NMN	NSN	1			IN USE - E&S	2/18/97	3/19/97	6/25/09	15,333.33
I108706	00333-85100	AIRGLOW MIRROR SYSTEM	4837 OPT LAB	Brum	CORNELL FABRICATED	NSN	NSN	1			IN USE - E&S	2/24/87	7/28/94	6/25/09	5,089.90
I115684	00333-83300	TURBO MCS HARDWARE WITH OPTION	4837 OPT LAB	Brum	EG & G INSTRUMENTS	T914	248	1			IN USE - E&S	8/4/95	10/31/95	6/25/09	5,228.50
E102417	00333-82800	TELESCOPE 800MM W/ALT M/AXIMUTH	4837 OPT LAB	Brum	INTERMOUNTAIN OPTICS	NMN	NSN	1			IN USE - E&S	2/18/97	3/19/97	6/25/09	15,333.33
E104259	00333-84300	THERMOELECTRIC LQD HEAT EXCHG	4837 OPT LAB	Brum	PRODUCTS FOR RESEARCH	TE410RF	20751-97-2	1			IN USE - E&S	4/24/96	9/24/96	6/25/09	5,998.00

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Department U22 Physical Inventory, FY 2017

Agency Tag	SRI Inven. #	ASSET DESCRIPTION	BLDG ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATUS	Agenc y	Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIE D	Original cost
E153803	00333-79700	TRUCK 2001 S10 EXTENDED CAB PI	4837 VC	A. Ortiz	CHEVROLET (C.R. RONDINE	S10	1GCCS19W71816731	1			IN USE - E&S	2/1/01	3/27/01	6/25/09	15,990.00 MB-
E165761	00333-80100	2005 RAV4 VEHICLERA-30	4837 SECURIT	ARIAS	TOYOTA	RAV-4 2005	JTEHD20V750044933	1			IN USE - E&S	5/6/04	3/23/05	6/25/09	17,910.00
E165723	00333-80300	VEHICLE SIENNA CE 2004	4837 VSQ	A. Ortiz	TOYOTA	SIENNA	5TDZA23C345119301	1			IN USE - E&S	1/21/04	4/20/04	6/25/09	22,815.15
E165644	00333-80500	VEHICLE 2003 TOYOTA ECHO	4837 MAIDS	A. Ortiz	TOYOTA (E.A. ROMAN)		JTDA123230261207	1			IN USE - E&S	10/23/02	1/3/03	6/25/09	12,397.93
E139074	00333-80600	1998 VAN WHITE 4DR LICENS MB14	4837 WSHH	N. Piñero	CHEVROLET (C.R. RONDINE	ASTRO VAN	1GNDM19W7WB108	1			IN USE - E&S	2/23/98	5/26/98	6/25/09	26,715.26
E102424	00333-80700	VEH TRUCK PICK-UP GMC	4837 PURCH	N. Piñero	GENERAL MOTORS CORP	SONOMA 1997	1GTCS14X5VK508402	1			IN USE - E&S	4/21/97	5/19/97	6/25/09	14,596.00
E165600	00333-80800	VEH 2002 CHEVROLET ASTRO PASSE	4837 WSHH	N. Piñero	CHEVROLET (LOSADA AUTO	CM11006	1GNDM19X42B1286	1			IN USE - E&S	12/6/01	4/10/02	6/25/09	21,989.00
E165763	00333-80900	2005 TOYOTA COROLLA (WHITE)	4837 VSQ	Tony	EA ROMAN	2T1BR32E05C428107	270810	1			IN USE - E&S	2/4/05	7/14/05	6/25/09	14,354.00
I094105	00333-81000	LIFT TRUCK	4837 WSHH	N. Piñero	TOYOTA	40FG20	SR1452801	1			IN USE - E&S	4/23/91	11/25/91	6/25/09	10,400.00
E144772	00333-83500	VEH CHEVROLET PICK UP (MB-145)	4837 OPT LAB	C. Brum	GENERAL MOTORS	S10	1GCC14W1XK19244	1			IN USE - E&S	1/13/99	6/2/99	6/25/09	13,696.00
E147097	00333-87200	VEHICLE TRUCK S-10 PICK-UP MB 146	4837 Electronic	Quintero	CHEVROLET	CT10606	1GCDT14W8YK23668	1			IN USE - E&S	11/16/99	5/15/00	6/25/09	14,905.00
E102370	00333-87300	VEHICLE CHEVROLET ASTRO PASSE	4837 PARKI	Quintero	GENERAL MOTORS CORP	CM1106	1GDM19W4TB19136	1			IN USE - E&S	10/4/96	11/5/96	6/25/09	20,995.00
E165737	00333-94300	TRUCK PICKUP 4X4 1993 POOL	4837 MAINT	Quintero	MINISUBISHI MOTORS	4 CYL	JA7L721G2PP001161	1			IN USE - E&S	9/1/92	12/21/92	6/25/09	10,875.00
E156493	00334-06300	JEEP 1985 MB-136	4937 PLATFORM	Soberal	JEEP	CJ7	1JEYM87E9FT159913	1			IN USE - E&S	10/27/95	10/16/02	6/25/09	7,913.00
I099139	00334-06900	I JEEP, '72 FULL METAL CAB # MB 65	4837 Platform	Soberal	WILLYS American Motors	CJ5	J2F83FTE43519	Y			CONTROL PURPOSES ON	8/14/72	9/11/92	11/12/09	2,902.34
E165734	00334-07100	TRUCK 4 X 4 LICENSE NS347	4837 PLATFORM	Soberal	MINISUBISHI		JA7FM2AE2HP11614	1			IN USE - E&S	1/19/88	3/20/91	6/25/09	9,299.95
	00334-07700	12-M vehicle, Dune Buggy	2 lot	Quintero/Whitlow	Kawasaki	KRT750B	JKARTDB19DBS0205	1			IN USE -	2/15/14	3/15/14	5/12/14	16,493.00
I099138	00334-07800	I JEEP, '72 FULL METAL CAB # MB 66	4837 MAINT	Soberal	WILLYS American Motors	CJ5	J2F83FTE43518	Z			UNDER CAPITAL THRESH	4/14/72	9/11/92	11/12/09	2,902.02
E159488	00334-08200	PICKUP 2001 MB 152	4837 MAINT	Soberal	CHEVROLET (LOSADA AUTO	CT10653R / S10	1GCDT19W21822337	1			IN USE - E&S	3/8/01	6/27/01	6/25/09	14,412.00
E159490	00334-08300	PICKUP 2001 MB 153	4837 MAINT	Soberal	CHEVROLET (LOSADA AUTO	CT10653R / S10	1GCDT19W21822668	1			IN USE - E&S	3/8/01	6/27/01	6/25/09	14,412.00
E165733	00334-08400	PICKUP 2001 MB 150	4837 MAINT	Soberal	CHEVROLET (LOSADA AUTO	CT10653R / S10	1GCDT19W1822461	1			IN USE - E&S	3/8/01	6/27/01	6/25/09	14,412.00
E147094	00334-08500	VEHICLE GRAN VITARA 200 MB148	4837 MAINT	Soberal	SUZUKI	GRAN VITARA	JS3TD62VXY4123890	1			IN USE - E&S	4/26/00	5/12/00	6/25/09	18,579.00
E147096	00334-08600	VEHICLE TRUCK S-10 PICK-UP MB 147	4837 MAINT	Soberal	CHEVROLET	CT10603	1GCDT14W8YK23668	1			IN USE - E&S	11/16/99	5/15/00	6/25/09	14,905.00
E144771	00334-08700	VEH CHEVROLET PICK UP (MB-144	4837 MAINT	Soberal	GENERAL MOTORS	S10	1GCC14W7XK18928	1			IN USE - E&S	1/13/99	6/2/99	6/25/09	13,696.00
E165731	00334-08900	TRUCK PICKUP 4X4 1993 MB 124	4837 MAINT	Soberal	MINISUBISHI MOTORS	4 CYL	JA7L721G0PPP001546	1			IN USE - E&S	9/1/92	12/21/92	6/25/09	10,875.00
I090246	00334-09100	I VEH 1991 CAR MB 119	4837 MAINT	Soberal	MINISUBISHI	MIRAGE SEDAN	JA3CU26AOMU0305	1			IN USE - E&S	3/15/91	4/16/91	6/25/09	8,754.00
E165742	00334-09300	TRUCK PICKUP 4X4 1993 MB-125	4837 MAINT	Soberal	MINISUBISHI MOTORS	4 CYL	JA7L721GXP001571	1			IN USE - E&S	9/1/92	12/21/92	6/25/09	10,875.00
E165738	00334-09800	VEH PICKUP TRUCK 1993 MB 130	4837 Cont Room	Vazquez Angel	SUZUKI	VITARA JXW	JS3TD02V4P4112461	1			IN USE - E&S	9/3/93	11/5/93	6/25/09	12,900.00
E102380	00334-09900	VEHICLE CHEVROLET VAN 1996 MB 135	4837 Control R	Vazquez Angel	GENERAL MOTORS	CM11005	1GLDM19W5TB1578	1			IN USE - E&S	10/21/96	12/24/96	6/25/09	17,500.00
E165741	00334-10600	VEH PICKUP TRUCK 1993/SECURIT	4837 MAINT	ARIAS	SUZUKI	VITARA JXW	JS3TD02V6P4111263	1			IN USE - E&S	9/3/93	11/5/93	6/25/09	12,900.00
E165662	00334-10700	I JEEP RED 1985 MB-135	4837 MAINT	ARIAS	AMERICAN MOTORS	CJ7	1JCCM87E3FT110435	1			IN USE - E&S	5/21/85	9/11/92	6/25/09	9,900.00
Transferred to CU or Other															
Agency Tag	SRI Inven. #	ASSET DESCRIPTION	BLDG ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATUS	Agenc y	Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIE D	Original cost
E161094		BASE,PV,MD1200,RKMNT,SAS 12 BA	2051 757	ADAM BRAZIER	DELL	MD1200	2T5P3P1	1			IN USE - E&S	11/3/10	12/1/10		10,281.74
E161095		BASE,PV,MD1200,RKMNT,SAS 12 BA	2051 757	ADAM BRAZIER	DELL	MD1200	3T5P3P1	1			IN USE - E&S	11/3/10	12/1/10		10,281.74
I092441		REFLECTOMETER TEST SET	30106 124 MAPL	BAKER	HEWLETT PACKARD	8755B	1703A02027	1			IN USE - E&S	5/23/77	8/16/91	6/25/09	6,775.15
I092460		NETWORK ANALYZER	30106 124 MAPL	BAKER	HEWLETT PACKARD	8755C	3029A01496	1			IN USE - E&S	5/14/91	8/16/91	6/25/09	43,772.75
I092446		NETWORK ANALYZER	30106 124 MAPL	BAKER	HEWLETT PACKARD	8410B	1741A01416	1			IN USE - E&S	3/28/79	8/16/91	6/25/09	8,438.65
E179584		CAMERA W/240MM LENS & ACCESS.	4837 101	BAKER	GEODETTIC SERVICES	CRC-1	164	1			IN USE - E&S	5/20/00	6/22/00	6/25/09	18,980.00

Confidential

3/29/2018

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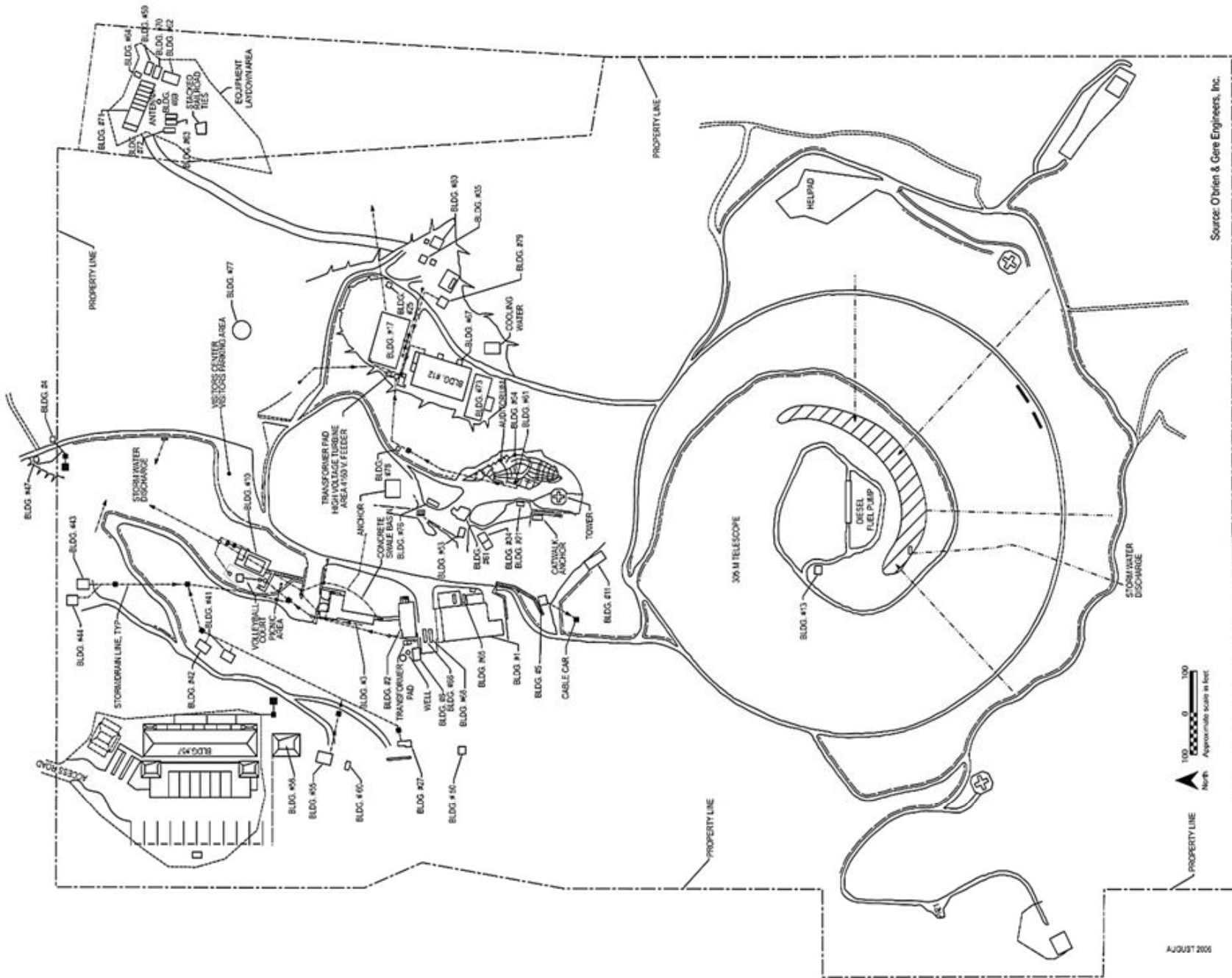
Board of Trustees Meeting - New Business

SRI CONFIDENTIAL

Department U22 Physical Inventory, FY 2017

Agency Tag	SRI Inven. #	ASSET DESCRIPTION	BLDG ROOM	USER REFERENCE	MANUFACTURER	MODEL	SERIAL	STATUS	Agency	Contract	STATUS DESCRIPTION	ACQUIRED	SYSADD	LAST INVENTORIED	Original cost
E139139		PARAMETER TEST SYSTEM	3010 124	BAKER	HEWLETT PACKARD	8514B	2918A00691	Y			CONTROL PURPOSES ON	4/5/99	12/19/00	6/25/09	27,000.00
E139140		NETWORK ANALYZER	3010 124	BAKER	HEWLETT PACKARD	8510B	2844A05040/2844A0	1			IN USE - E&S	4/5/99	12/19/00	6/25/09	35,000.00
E161126		POLYCOM VSX 7400 IP (NTSC) PAR	2084 501	BAKER	IVCI LLC	VSX 7400 IP	P42BHK560114 5601	1			IN USE - E&S	8/12/05	11/21/05	6/25/09	10,675.54
E147114		V-STARS-WINDOWS BASED DATAPROC	2084 507	BAKER Office	GEODETTIC SERVICES	N/A	N/A	1			IN USE - E&S	5/20/00	6/27/00	6/25/09	49,980.00
E161129		POWERSHIELD MD3000 MD1000. MD1	2051 757	BRAZIER	DELL	MD3000 2 MD1000	DP8FFG1CP8FFG1GU	1			IN USE - E&S	6/5/08	7/11/08	6/25/09	26,351.50
I091641		ANALYZER MICROWAVE NETWORK	3010 124 MAPL	Cordes	HEWLETT PACKARD	8720A	2749A00136	1			IN USE - E&S	9/7/89	7/2/91	6/25/09	31,250.00
E139141		SYNTHESIZED SWEEPER	2084 606	CORDES ASTRO LAB	HEWLETT PACKARD	83620A	3213A01299	Y			CONTROL PURPOSES ON	4/5/99	12/19/00	6/25/09	5,000.00
E139144		COMPUTER WORKSTATION: ULTRA 8W	2084 526	CORTES	SUN MIRCOSYSTEMS	ULTRA 80	050C05B3	1			IN USE - E&S	1/5/01	3/16/01	6/25/09	17,591.00
E161093		DELL PRECISION WORKSTATION 650	2084 526	CORTES	DELL	WORKSTATION 650	533FSB	1			IN USE - E&S	6/24/04	7/19/04	6/25/09	9,468.31
E161127		DELL PRECISION WORKSTATION T74	2084 526	CORTES	DELL	T7400	FJKRF1	1			IN USE - E&S	3/10/08	3/21/08	6/25/09	13,160.30
I108868	Disposed	CONDENSING UNIT	4837 BLDG #1	Soberal	TRANE WESTERN	RA2504	NSN	1			IN USE - E&S	3/18/71	7/29/94	6/25/09	5,300.00
E165740	SURVEYED	TRUCK PICKUP 4x4 1993 (FOUN	4837 MAINT	Soberal	MITSUBISHI MOTORS	4 CYL	JA7LT21G2PP001094	1			IN USE - E&S	9/1/92	12/21/92	6/25/09	10,875.00
E179616	Donated	DIGITAL ROUTER (at WTPM-LD) out AO	4837 WGS-84	Vazquez/TV STATIO	ADTEC 5110	10-ASI PORT DIGITAL	EDJE-5110-RM	1			IN USE - E&S	9/25/09	12/15/09		5,195.00

Attachment C



Source: O'Brien & Gere Engineers, Inc.

AUGUST 2006

- | BUILDING NO. | DESCRIPTION |
|--------------|--|
| 1 | OPERATIONS BUILDING |
| 2 | ADMINISTRATION BUILDING |
| 3 | VISITING SCIENTIST QUARTERS AND CATERING |
| 4 | ENTRANCE GUARD-HOUSE |
| 5 | CABLE CAR HOUSE |
| 6 | SWIMMING POOL RESTROOMS |
| 11 | LEWIS BUILDING-BIGDOWLING LOFT |
| 12 | MAINTENANCE SHOPS |
| 13 | BOWL SHACK |
| 21 | ANTENNA TESTING RANGE |
| 22 | WAREHOUSE |
| 27 | OPTICAL LABS |
| 34 | HIGH VOLTAGE POWER SUPPLY BLDG. |
| 35 | CUMMINGS GENERATOR CONTROL BLDG. |
| 41 | WEST HILL V.S.O. BACHELOR UNIT NO. 1 |
| 42 | WEST HILL V.S.O. BACHELOR UNIT NO. 2 |
| 43 | WEST HILL V.S.O. FAMILY UNIT NO. 1 |
| 44 | WEST HILL V.S.O. FAMILY UNIT NO. 2 |
| 47 | MAIN GATE RESTROOM |
| 50 | INTERFERENCE MONITORING SHACK |
| 51 | GREASE PIT |
| 53 | EMERGENCY GENERATOR BLDG. |
| 54 | VISITOR CENTER BLDG. |
| 55 | LABORATORY BLDG. |
| 56 | WEST V.S.O. BLDG. |
| 58 | NORTH V.S.O. UTILITY BLDG. |
| 59 | VISITOR CENTER TRAILER |
| 63 | ANT. REZE. TESTING BLDG. |
| 61 | LEARNING CENTER |
| 62 | HFF STORAGE TRAILER |
| 63 | IONOSPHERE TRAILER |
| 64 | ELECTRONIC TRAILER |
| 65 | SHED TRAILER |
| 66 | SCIENTIFIC LAB TRAILER |
| 67 | SCIENTIFIC LAB TRAILER |
| 68 | SCIENTIFIC OFFICES TRAILER |
| 69 | ELECTRONIC TRAILER (WAVEGUIDE) |
| 70 | COMPUTER TRAILER |
| 71 | ELECTRONICS CABLE TRAILER |
| 72 | ELECTRONICS TRAILER (CROGNICS) |
| 73 | HP TRANSFORMER BUILDING |
| 76 | INCUBATOR FOR SCIENCE TRAILER |
| 77 | PHASE REFERENCE ANTENNA (CRM) |
| 78 | COFFEE HUT |
| 79 | ENGINEERING OFFICE BUILDING |
| 83 | CUMMINGS DIESEL GENERATOR BUILDING |

Attachment D

Amendment to Cooperative Agreement AST-1822073

Articles 1.1(B), 1.4, 1.5, 2.2(B)(6), 2.3(A) to be amended as follows:

1.1(B) Order of Precedence. This Cooperative Agreement consists of the following terms and conditions in descending order of precedence:

1. This Cooperative Agreement, as amended. Articles 1.4 and 1.5 of this Agreement, as amended, shall become effective with the issuance of the AO operations and management cooperative support agreement.
2. The Cooperative Agreement Modifications and Supplemental Financial & Administrative Terms and Conditions for Major Multi-User Research Facility Projects (MMURFP-FATC), as amended.
3. The Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC), as amended.
4. NSF Policy and Procedures Award Guide (PAPPG), as amended.

1.4 Awardee Policies and Procedures, Records and Document Management

Awardee shall work in good faith to, as soon as possible, ensure the following:

- A. The Awardee's policies and procedures shall comply with the terms of this agreement.
- B. The Awardee shall develop and maintain all important records and documents, including but not limited to management and operations policies and procedures manuals necessary for the operation of AO. The records and documents shall be provided to the NSF Program Office and NSF Grants and Agreements Officer upon request.

1.5 Public Availability of Data Produced Solely for Scientific Activities

Data produced solely for scientific purposes, whether by staff or visiting scientists, shall become publicly available within a reasonable time limit. The Awardee shall work in good faith to, as soon as possible, determine and impose appropriate conditions on users of the facility to assure public availability of all such data.

2.2(B) Subject to funding and available resources, UCF is accountable for performance under the CA, including determining the specific methods for accomplishing the work and performing quality assurance. More specifically, UCF is responsible for:

(6) Awardee shall work in good faith to Establishingensure the necessary organization, including articles of incorporation, and obtaining and maintaining all necessary licenses and permits, are established, as soon as possible after issuance of the award but no later than May 31, 2018, that allow the Awardee to operate within Puerto Rico.

2.3(A) UCF will team with Yang Enterprises (YEI), and Universidad Metropolitana (UMET) to form the Arecibo Observatory Management Team (AOMT) to manage and operate AO. The AOMT will operate on-site at AO as a unified organization reporting to a single Director. UCF will serve as the Awardee organization and the responsible entity to NSF; through subawards from UCF, UMET and YEI will participate as partners in the AOMT and as employers of AO staff. AOMT will be governed and advised by a Management Advisory Committee and by a Science and User Advisory Committee, and Awardee shall work in good faith to ensure implementation of the oversight committees as soon as possible after award issuance but no later than May 31, 2018.

Attachment E



National Science Foundation
 4201 Wilson Boulevard
 Arlington, VA 22230
 www.nsf.gov

COOPERATIVE AGREEMENT(CA)

AWARD: AST-1822073	EFFECTIVE DATE:	February 15, 2018
	EXPIRATION DATE:	March 31, 2023

<p>PROJECTED TOTAL AWARD FUNDING:</p> <p>(Subject to availability of funds) \$01</p> <p>CUMULATIVE AMOUNT:</p> <p>\$01</p>	<p>SOLICITATION:</p> <p>(Incorporated by reference, as amended)</p> <p>Exception caught while trying to retrieve pgm_annnc_id doing DB query: exec awddb.csd.pr_awd_dad_sel_lv1_flg ?, ? with awdOrLogID = 1822073, amdID = 000, changeDate = null): java.lang.Exception: Mandatory field pgm_annnc_id is nulljava.lang.Exception: Mandatory field pgm_annnc_id is null at gov.nsf.components.dynAwdDoc.dao.BaseDAO.fieldFromCursor(BaseD at at gov.nsf.components.dynAwdDoc.dao.BaseDAO.createRow(BaseDAO.ja at at gov.nsf.components.dynAwdDoc.dao.BaseDAO.getMapListFromDBQue at at gov.nsf.components.dynAwdDoc.dao.BaseDAO.getMapListFromDBQue at at gov.nsf.components.dynAwdDoc.dao.BaseDAO.getSingleRowFromDBQ at at gov.nsf.components.dynAwdDoc.dao.BaseDAO.getSingleRowFromDBQ at at gov.nsf.components.dynAwdDoc.dao.DADActiveDocumentDAO.getTop at at gov.nsf.components.dynAwdDoc.DOM.DADDocumentBuilder.<init>(D at at gov.nsf.components.dynAwdDoc.DADAwardVersion.createDocumentDC at at gov.nsf.components.dynAwdDoc.DADAwardVersion.obtainDocumentD at at gov.nsf.components.dynAwdDoc.DADAwardVersion.getDocumentPDF(at at gov.nsf.ejacket.jacket.documents.awardInfo.managers.DADAwardManag at at gov.nsf.ejacket.jacket.documents.awardInfo.actions.ShowDADAwardPdf at at gov.nsf.ejacket.jacket.common.ShowJacketPdfAction.executePDF(Show at at gov.nsf.ejacket.jacket.common.ShowJacketPdfAction.execute(ShowJacket at at gov.nsf.ejacket.jacket.common.BaseJacketAction.execute(BaseJacketActi</p>
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at
org.apache.struts.action.RequestProcessor.processActionPerform(Request
at
gov.nsf.ejacket.EJRequestProcessor.processActionPerform(EJRequestPro
at
org.apache.struts.action.RequestProcessor.process(RequestProcessor.java
at
org.apache.struts.action.ActionServlet.process(ActionServlet.java:1482)
at
org.apache.struts.action.ActionServlet.doGet(ActionServlet.java:507)
at javax.servlet.http.HttpServlet.service(HttpServlet.java:707)
at javax.servlet.http.HttpServlet.service(HttpServlet.java:820)
at
weblogic.servlet.internal.StubSecurityHelper$ServletServiceAction.run(S
at
weblogic.servlet.internal.StubSecurityHelper.invokeServlet(StubSecurity)
at
weblogic.servlet.internal.ServletStubImpl.execute(ServletStubImpl.java:3
at
weblogic.servlet.internal.TailFilter.doFilter(TailFilter.java:26)
at
weblogic.servlet.internal.FilterChainImpl.doFilter(FilterChainImpl.java:6
at
com.sun.identity.agents.filter.AmAgentBaseFilter.allowRequestToContin
at
com.sun.identity.agents.filter.AmAgentBaseFilter.doFilter(AmAgentBase
at
weblogic.servlet.internal.FilterChainImpl.doFilter(FilterChainImpl.java:6
at
weblogic.servlet.internal.WebAppServletContext$ServletInvocationActio
at
weblogic.servlet.internal.WebAppServletContext$ServletInvocationActio
at
weblogic.security.acl.internal.AuthenticatedSubject.doAs(AuthenticatedS
at
weblogic.security.service.SecurityManager.runAs(SecurityManager.java:
at
weblogic.servlet.internal.WebAppServletContext.securedExecute(WebApp
at
weblogic.servlet.internal.WebAppServletContext.execute(WebAppServle
at
weblogic.servlet.internal.ServletRequestImpl.run(ServletRequestImpl.jav
at
weblogic.work.ExecuteThread.execute(ExecuteThread.java:263)
at
weblogic.work.ExecuteThread.run(ExecuteThread.java:221)
```

CFDA NUMBER:
47.049

OTHER AWARDS UNDER THIS PROGRAM:

Show List of Awards

AWARDEE:

PROJECT TITLE: Operations and Maintenance of the Arecibo Observatory

PROJECT ABSTRACT: <https://www.fastlane.nsf.gov/servlet/showaward?award=1822073>

<u>Principal Investigator(s)</u>	<u>Proposal No.</u>	<u>Institution (s)</u>
Ramon Lugo	AST-1822073	
Yanga R. Fernandez		

OTHER KEY PERSONNEL:

A. The individuals specified below are considered essential to the work being performed hereunder. Any proposed substitutions to key personnel, specifically named in the proposal or replacements thereof that have been approved as part of this award must be submitted, in advance, and with all necessary documentation, to the cognizant NSF Program Officer for review and approval. No changes may be implemented without prior formal written approval by an NSF Grants and Agreements Officer.

- Mr. Ramón Lugo - Principal Investigator & Program Director
- Dr. Yanga Fernández - Co - Principal Investigator & Program Scientist

B. Except for the Principal Investigator(s), PIs or Co-PIs identified in this award, requests to make any changes to key personnel, organizations, and/or partnerships specifically named in the proposal, that have been approved as part of this award, shall be submitted in writing to the cognizant NSF Program Officer for approval prior to any changes taking effect. Requests for prior approval of changes to the PI(s) must be submitted through FastLane for review by the cognizant NSF Program Officer and approval by an NSF Grants and Agreements Officer.

NSF Contact Information:

Financial/Administrative questions: e-mail your NSF Grants and Agreements Official, Taina A. Munoz-Mulero, at tmunozmu@nsf.gov or call the Division at 703-292-0000.

Programmatic questions: e-mail your NSF Program Officer, Joseph E. Pesce, at jpesce@nsf.gov or call the Program Division at 703-292-7373.

This CA is entered into between the United States of America, represented by the National Science Foundation (NSF), and the above named Awardee pursuant to the authority of the National Science Foundation Act of 1950, as amended (42 USC 1861-1875). This CA is provided electronically to the Awardee. The Awardee is responsible for full compliance with all Programmatic and Financial/Administrative Terms and Conditions as initially stated or as updated over the life of this CA. The Awardee's request to draw down funds under this CA will represent acceptance by the Awardee of all Terms and Conditions of the CA. The Authorized

Organizational Representative (AOR) will be electronically notified of any changes to these Terms and Conditions and is encouraged to immediately review these changes and contact the Grants and Agreements Official or Program Officer within thirty days with any questions.

Financial/Administrative Terms and Conditions (FATC):

General FATC:

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=NSF99999FATC004

Award Specific FATC:

Note: The General FATC link above is outdated. Disregard this link and refer to the link mentioned in the Award Specific FATC cited below.

Part 1: Award Specific FATC:

1.1 Award Interpretation

A. Terms and Conditions Incorporated by Reference. At the time of award, all activities under this Cooperative Agreement (CA) are subject to NSF's Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and, NSF's Cooperative Agreement Modifications and Supplemental Financial & Administrative Terms and Conditions for Major Multi-User Facility Projects (MMURFP-FATC). The CA-FATC and MMURFP -FATC are hereby incorporated by reference.

The CA-FATC and MMURFP-FATC are available at:

http://www.nsf.gov/awards/managing/co-op_conditions.jsp

B. Order of Precedence. This Cooperative Agreement consists of the following terms and conditions in descending order of precedence:

1. This Cooperative Agreement, as amended. Articles 1.4 and 1.5 of this Agreement shall become effective with the issuance of the AO operations and management cooperative support agreement.
2. The Cooperative Agreement Modifications and Supplemental Financial & Administrative Terms and Conditions for Major Multi-User Research Facility Projects (MMURFP-FATC), as amended.
3. The Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC), as amended.
4. NSF Policy and Procedures Award Guide (PAPPG), as amended.

1.2 Award Value and Funding

A. The funding of activities under this CA shall be provided through Cooperative Support Agreements (CSAs) and is contingent on the availability of funds and on the performance of the Awardee on the management and operation of the Arecibo Observatory (AO). NSF will provide funding for the management, operation, and development of AO through one CSA for Management and Operation of AO. Additional CSAs may be created for other Observatory-related activities.

B. The total value of this Cooperative Agreement is the cumulative value of the issued CSAs.

C. Funding for Other Cooperative Support Agreements. Additional support may be awarded under separate CSAs upon appropriate review and approval.

1.3 Equipment.

CA-FATC Article 6 is applicable to this agreement, for purposes of 6.B. to the extent that any subawardee small business purchases property title will be held by the awardee or subawardee subject to use and disposition requirements.

1.4 Awardee Policies and Procedures, Records and Document Management

A. The Awardee's policies and procedures shall comply with the terms of this agreement.

B. The Awardee shall develop and maintain all important records and documents, including but not limited to management and operations policies and procedures manuals necessary for the operation of AO. The records and documents shall be provided to the NSF Program Officer and NSF Grants and Agreements Officer upon request.

1.5 Public Availability of Data Produced Solely for Scientific Activities

Data produced solely for scientific purposes, whether by staff or visiting scientists, shall become publicly available within a reasonable time limit. The Awardee shall determine and impose appropriate conditions on users of the facility to assure public availability of all such data.

1.6 Environmental Compliance

This Article replaces MMURFP-FATC 73: The Awardee acknowledges that NSF, as a federal agency, must satisfy its compliance obligations under federal environmental laws, including the National Environmental Policy Act, 42 U.S.C. §§ 4321, et seq., the National Historic Preservation Act, 54 U.S.C. §§ 300101, et seq., and the Endangered Species Act, 16 U.S.C. §§ 1531, et seq. The Awardee shall cooperate to the fullest extent possible with NSF's efforts to meet those obligations for any proposed activities warranting such compliance. The Awardee must not undertake any activity that may be subject to federal environmental laws until NSF has satisfied its environmental compliance obligations, as evidenced in writing by the cognizant NSF Grants and Agreements Officer.

1.7 Applicability of Puerto Rican Laws

No provision of this CA is intended to negate the duty of the Awardee to comply with Puerto Rico laws applicable to personnel working on AO programs in Puerto Rico.

Programmatic Terms and Conditions (PTC):

Award Specific PTC:

Note: Please disregard the link provided above.

Part 2. Award Specific Programmatic Terms and Conditions

2.1. Program Description

This Cooperative Agreement (CA) is for the management and operation of AO. The AO is a multidisciplinary research and education facility. AO's cornerstone research instrument is a 305-meter diameter fixed spherical reflector, located on approximately 120 acres of U.S. Federal Government-owned land near Arecibo, Puerto Rico. AO conducts research in passive radio astronomy, solar system

radar astronomy, and space and atmospheric sciences. AO is managed in accordance with the provisions of this CA by the University of Central Florida (UCF, or the Awardee).

2.2. Awardee Responsibilities

A. Subject to funding and available resources, UCF, as the manager of AO, shall be responsible for the management, operation, and maintenance of AO in accordance with the proposal AST-1744119 and according to Annual Program Operating Plans submitted to NSF. UCF shall be responsible for the overall welfare of AO and for maximizing the benefits to the astronomical communities. The Awardee must work closely with NSF and the scientific research community to ensure that, within available resources, a culture of excellence is fostered throughout the observatory and its user base.

B. Subject to funding and available resources, UCF is accountable for performance under the CA, including determining the specific methods for accomplishing the work and performing quality assurance. More specifically UCF is responsible for:

1. The planning, initiation, and execution of programs and activities designed to optimally serve the interests of the scientific communities.
2. A comprehensive and integrated planning process to fulfill AO's purpose and to accomplish its mission.
3. Operating and maintaining AO buildings and facilities, developing these facilities as needed, planning for future new initiatives, supporting a skilled and diverse work force, and facilitating an innovative and vigorous program of basic and applied research through access to AO telescopes and instrumentation.
4. Serving, or directing one of its approved direct support organizations to serve, as the legal entity in all contractual and partnership matters with respect to AO.
5. Employing, or engaging with third parties to employ, AO operations staff.
6. Establishing the necessary organization, including articles of incorporation, and obtaining and maintaining all necessary licenses and permits that allow the Awardee to operate within Puerto Rico.
7. Appropriate oversight of AO.
8. Maintaining a vigilant awareness of the radio frequency environment of AO through a program of Radio Frequency Interference (RFI) monitoring, and taking all appropriate steps to mitigate to the extent possible the impact of such signals on the observational mission of AO.
9. Participating in development of National Historic Preservation Act-guided preservation principles and management strategies with consultation from NSF, the Puerto Rico State Historic Preservation Officer (PR SHPO) and the Advisory Council on Historic Preservation (ACHP) representative.
10. Providing site access and reasonable staff for NSF-funded onsite surveys of historical properties and biological surveys, as needed.

2.3. Awardee Governance and Oversight

A. UCF will team with Yang Enterprises (YEI), and Universidad Metropolitana (UMET) to form the Arecibo Observatory Management Team (AOMT) to manage and operate AO. The AOMT will operate on-site at AO as a unified organization reporting to a single Director. UCF will serve as the Awardee organization and the responsible entity to NSF; through subawards from UCF, UMET and YEI will participate as partners in the AOMT and as employers of AO staff. AOMT will be governed and advised by a Management Advisory Committee and by a Science and User Advisory Committee.

B. The principal responsibility for the management and operation of AO rests with UCF. UCF will ensure an efficient and effective project governance structure, in accordance with, but not limited to, the following:

1. Staff, manage, operate, maintain, and develop AO in a manner consistent with the capabilities, roles and objectives described in this CA.
2. Assure productive use by the US astronomical community of AO facilities.

3. Provide through the staff and facilities of the Center the support necessary for research in AO's disciplines, assuring that the criteria for the utilization of facilities be the scientific merit and broader impacts of the proposed research, as judged through appropriate merit review mechanisms.

4. Implement appropriate partnerships with US universities and observatories which could enhance observational capabilities available to the entire community.

5. Utilize the knowledge and discoveries made at AO to promote education at all levels.

C. UCF exercises its fiduciary oversight and management responsibilities for AO through the following individuals and entities:

1. UCF may modify their governance and oversight structure (noted in proposal AST-1744119) while this CA is in effect. UCF shall report any changes in their annual Progress Report; NSF's approval of changes will be through an amendment to this CA.

2.4. Awardee Performance Expectations

A. The CA is designed to enable UCF to achieve highly effective and efficient management of AO resulting in:

1. A safe and secure operating environment,
2. Outstanding service to the astronomical and geophysical communities,
3. Cost effective and efficient operations that facilitate highest quality scientific productivity, and
4. Enhanced management performance accountability.

B. Quality Management Principles: In performing UCF's specific duties to fulfill the purpose of AO and in support of AO mission, UCF shall be required to demonstrate continuing progress in the following areas:

1. Implementation of effective programmatic and budgetary planning processes.
2. Implementation of a comprehensive risk management plan as a management tool from the corporate level.
3. Implementation of an effective workforce management plan, with emphasis on broadening participation, which includes continuing improvement in the representation of women and underrepresented groups.
4. Implementation of an effective cyber-security plan.
5. Implementation of an effective education and public outreach program.
6. Implementation of effective performance measures for AO and for the managing organization.

2.5. Awardee Support of Ongoing Management and Oversight

The Awardee shall ensure full commitment and cooperation among the relevant organizations, and all project staff during all ongoing NSF project management and oversight activities. The Awardee shall ensure, to the extent practicable, the availability of all key institutional partners during any desk or on-site review as well as timely access to all project documentation.

2.6. NSF Program Oversight

Program Oversight activities are described in the CSAs under this CA.

2.7. NSF Responsibilities

A. To facilitate the work under this CA, NSF shall:

1. Provide programmatic guidance to the Awardee, especially with regard to collaboration and/or coordination with other programs funded by the NSF.
2. Provide input to the resolution of governance, programmatic, technical, or managerial concerns.
3. Be notified of, and consulted on, assessing the needs of the international partners, stakeholders, and the astronomy community, and assure that the long-term strategic goals of AO are aligned with these needs.
4. Provide an interface between the Awardee and the NSF and other Federal agencies, as appropriate.
5. Assure that Federal funds (subject to availability) under this award are made available to the Awardee in a timely manner.
6. Complete consultation with U.S. Fish and Wildlife Services regarding the potential effects of transferring the property out of federal ownership on threatened and endangered plant and wildlife species and any necessary conservation measures.
7. Complete a survey of the National Astronomy and Ionosphere Center Historic District and work with the PR SHPO to update the existing National Register of Historic Places nomination form as needed.
8. Complete Historic American Building Survey/Historic American Engineering Record (HAB/HAER) documentation of historic properties.
9. Consult with the ACHP, the PR SHPO, and the Awardee to discuss the development and implementation of historic preservation principles and management strategies that permit continued science-focused operations at Arecibo Observatory while preserving its historic integrity.
10. Provide one-time funding to support training session for facility leadership and supervisory staff developed around preservation principles and management strategies as agreed to by the Awardee.
11. Provide funding for development of activities onsite for people with visual and hearing impairment to help convey the cultural and scientific significance of AO to a broader audience.

Change History

Prior Awarded Funding Amount:

Per Original Award on

02/22/2018: \$01

Attachment F



National Science Foundation
 4201 Wilson Boulevard
 Arlington, VA 22230
 www.nsf.gov

COOPERATIVE SUPPORT AGREEMENT(CSA)

<p>AWARD: AST-1823134</p>	<p>EFFECTIVE DATE: February 15, 2018</p>	
	<p>EXPIRATION DATE: May 31, 2018</p>	
<p>GOVERNING COOPERATIVE AGREEMENT: 1822073</p>		
<p>PROJECTED TOTAL AWARD FUNDING:</p> <p>(Subject to availability of funds) \$913,935</p> <p>CUMULATIVE AMOUNT:</p> <p>\$913,935</p>	<p>SOLICITATION:</p> <p>(Incorporated by reference, as amended)</p> <p>NSF 17-1</p> <p>Proposal & Award Policies & Procedures Guide - PAPPG</p> <p>CFDA NUMBER: 47.049</p> <p>OTHER AWARDS UNDER THIS PROGRAM:</p> <p>Show List of Awards</p>	
<p>AWARDEE:</p> <p>PROJECT TITLE: Management and Operations of the Arecibo Observatory Transition Plan Related to NSF Proposal Number 1744119</p> <p>PROJECT ABSTRACT: https://www.fastlane.nsf.gov/servlet/showaward?award=1823134</p>		
<p><u>Principal Investigator(s)</u></p> <p>Ramon Lugo</p>	<p><u>Proposal No.</u></p> <p>AST-1823134</p>	<p><u>Institution (s)</u></p>

Yanga R. Fernandez

OTHER KEY PERSONNEL:

A. The individuals specified below are considered essential to the work being performed hereunder. Any proposed substitutions to key personnel, specifically named in the proposal or replacements thereof that have been approved as part of this award must be submitted, in advance, and with all necessary documentation, to the cognizant NSF Program Officer for review and approval. No changes may be implemented without prior formal written approval by an NSF Grants and Agreements Officer.

- Mr. Ramón Lugo - Principal Investigator & Program Director
- Dr. Yanga Fernández - Co -Principal Investigator & Program Scientist

NSF Contact Information:

Financial/Administrative questions: e-mail your NSF Grants and Agreements Official, Taina A. Munoz-Mulero, at tmunozmu@nsf.gov or call the Division at 703-292-0000.

Programmatic questions: e-mail your NSF Program Officer, Joseph E. Pesce, at jpesce@nsf.gov or call the Program Division at 703-292-7373.

This CSA is entered into between the United States of America, represented by the National Science Foundation (NSF), and the above named Awardee pursuant to the authority of the National Science Foundation Act of 1950, as amended (42 USC 1861-1875). This CSA is provided electronically to the Awardee. The Awardee is responsible for full compliance with all Financial/Administrative and Programmatic Terms and Conditions as initially stated or as updated over the life of the governing Cooperative Agreement (CA) and this CSA. The Awardee's request to draw down funds under this CSA will represent acceptance by the Awardee of all Terms and Conditions of the CA and CSA. The Authorized Organizational Representative (AOR) will be electronically notified of any changes to these Terms and Conditions and is encouraged to immediately review these changes and contact the Grants and Agreements Official or Program Officer within thirty days with any questions. In the event of a perceived contradiction or inconsistency between the CSA and the CA, the AOR shall notify the NSF Program Officer or the Grants and Agreements Officer in writing and ask for clarification.

Financial/Administrative Terms and Conditions (FATC):

General FATC:
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=NSF99999FATC004

Award Specific FATC:

Note: The General FATC link above is outdated. The CA-FATC and MMURFP-FATC are available at:

http://www.nsf.gov/awards/managing/co-op_conditions.jsp

Part 1: Award Specific FATC:

1.1. Award Interpretation

The terms and conditions of Cooperative Agreement No. AST-1822073 are hereby incorporated by reference.

A. At the time of award, all activities under this Cooperative Agreement (CA) are subject to NSF's Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and, NSF's Cooperative Agreement Supplemental Financial & Administrative Terms and Conditions for Major Multi-User Research Facility Projects (MMURFP-FATC). The CA-FATC and MMURFP-FATC are hereby incorporated by reference.

B. Order of Precedence. This Cooperative Agreement consists of the following terms and conditions in descending order of precedence:

1. The terms and conditions of this Cooperative Support Agreement (CSA), as amended.
2. Cooperative Agreement AST-1822073, Articles 1.3, 1.6, 1.7, 2.1, 2.3A, 2.5, 2.6, and 2.7, as amended.
3. The Cooperative Agreement Modifications and Supplemental Financial & Administrative Terms and Conditions for Major Multi-User Research Facility Projects (MMURFP-FATC), except for supplemental terms and conditions 61, 62, 63, 64, 66, 67, 72, and 73, as amended.
4. The Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC), as amended.
5. NSF Policy and Procedures Award Guide (PAPPG), as amended.

1.2. Funding

Funding in the amount of \$913,935 is hereby provided to support this Cooperative Support Agreement (CSA) for a period of 3.5 months starting February 15, 2018 through May 31, 2018, in accordance with revised proposal dated January 30, 2018.

1.3. Indirect Cost Rate

The Awardee shall use its off-site indirect cost rate for the period of performance of this agreement.

1.4. Subaward Approval

Within 5 days of award issuance, the Awardee shall submit to the Grants and Agreements Officer a risk assessment, in accordance with 2 CFR 200.331(b), for each of the proposed subagreements. The awardee must request this approval through the subaward approval module in Research.gov. Written approval to enter into subagreements will be issued by the Grants and Agreements Officer after adequate risk assessment packages are received.

Programmatic Terms and Conditions (PTC):

General PTC:

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=NSF171TPTC000

Award Specific PTC:

Part 2. Award Specific Programmatic Terms and Conditions

2.1. Program Description

A. Overview:

This Cooperative Support Agreement (CSA) supports the transition of management of Arecibo Observatory (AO), from SRI International to the new awardee institution, the University of Central Florida (UCF). While UCF is the institution that will be responsible for the management and operation of AO, the managing organization as described in its proposal AST-1744119 comprises three institutions: UCF, Universidad Metropolitana (UMET), and Yang Enterprises (YEI). The managing organization is collectively referred to as the Arecibo Observatory Management Team (AOMT).

2.2. Statement of Work and Awardee Responsibilities

A. UCF administered staffing during the transition will include the following:

- On-site Transition Manager responsible for transition plan execution
- On-site employment consultants from UCF partner institutions to manage the transition of the incumbent's workforce
- Off-site Deputy Transition Managers from UCF partner institutions to manage the start-up of requisite business systems
- Visiting Facilities Specialists to conduct site visits to oversee implementation of best facility management practices
- Visiting Engineering Specialists to conduct site visits as needed to oversee implementation of best engineering practices
- On-Site Visitor Center Expert from UMET to review facilities, staffing, and programs for Education and Public Outreach

The on-site transition manager during the transition period will be responsible for transition delivery and collaborative alignment with NSF and the incumbent. The Transition Manager will:

- Establish and maintain an on-site transition office
- Manage the transition project, including accountability for project controls, deliverables tracking, risk management, and contingency planning
- Administer the document control and records management systems
- Ensure compliance with regulatory standards and contract requirements
- Create the Incumbent Transition Agreement
- Conduct weekly client interface teleconferences and meetings
- Charter the project team with the incumbent and with NSF

A key element of the transition process is the Incumbent Transition Agreement, which will document the scope of activities that require collaboration, coordination, and cooperation during transition. The Agreement will address schedule integration; personnel information for migration; personnel location and interview scheduling; planning for continuing material and equipment commitments; inventory lists, reports, and databases; access to facilities, maintenance information, procedures and work planning; Annual Program Plan status; and inputs for planning and contract negotiation.

Awardee will develop specific transition activities and a schedule during the first two weeks of the award. Transition activities are summarized below.

B. Recruitment, orientation and training

Recruitment, orientation and training of existing staff will be conducted by a newly established human resources (HR) office at AO. An HR expert from UCF will help set up the office and communicate staff while the office is being established.

C. Changes to staffing, facilities, or operational modes

UCF will establish a Project Management Office (PMO) at AO that will constitute the new Arecibo Observatory headquarters. In the short term, the PMO will begin negotiations with existing staff and recruit new staff as necessary to sustain AO operations during the transition. As possible during the transition period, UCF will put into place business systems and conduct activities to ensure the health and safety of staff and visitors.

D. Transfer of assets, inventory, commitments, plans, and documents

UCF, with NSF and incumbent assistance, will conduct a thorough review of all property on site and property records to endeavor to transfer property records to its own computerized property management system. All documents related to AO operations will be reviewed and actions and issues related to the transfer of those documents will be identified. UCF will be ready to take over responsibility on April 1, 2018 for observatory instrumentation, near-term observing schedules and observing proposals currently in

the queue, and maintenance and operations of the telescope.

E. Transition of EPO responsibilities

Negotiations will be initiated with the incumbent for transition of the Angel Ramos Foundation Visitor Center (ARFVC) to UCF management. UCF will inventory exhibits and other education materials in the ARFVC and review the visitor center business operations. On-going EPO programs will continue during the transition period.

F. Other Transition Activities

Advisory committees will be initiated as described in the UCF proposal: the Science and User Advisory Committee (SUAC), the Management Advisory Committee (MAC), and the Arecibo Scheduling Advisory Committee.

2.3 Weekly - Project Meetings

NSF will conduct weekly project meetings with the awardee during the transition period to discuss transition status, milestones, issues affecting the transition plan, and other concerns. Elements discussed below in Section 2.5 (in particular schedules and deliverables) will be part of the weekly-project meetings.

A. Site Visit(s) and Transition Review

NSF will conduct an on-site review(s) of progress in transition activities including achievement of milestones and completion of deliverables as specified in the Transition Schedule.

B. Final Report

A final report detailing activities and accomplishments of this award will be due within 90 days of the expiration date of this CSA.

2.4 Awardee Support of Ongoing Management and Oversight

The Awardee will ensure full commitment and cooperation among the governing structure components, and all project staff during all ongoing NSF project management and oversight activities. The Awardee will ensure availability of all key institutional partners during any desk or on-site review as well as timely access to all project documentation.

2.5 Project-specific terms and conditions

A. UCF will prepare a Schedule for Transition Activities for approval by a mutually agreed upon date, detailing transition activities, milestones, and deliverables.

B. UCF will assume responsibilities for functions transferred from the incumbent as scheduled activities are completed, and work collaboratively with NSF and the incumbent to ensure the health and safety of staff and visitors, continuous observatory operations throughout the transition period, minimal impact on staff and staff morale, effective control of transition costs, clear and open communication among all stakeholders, seamless entry into routine operations.

C. UCF will work collaboratively with the NSF Transition Team in undertaking all transition activities. Timely reporting of issues during transition is essential. The Transition Team will provide input and feedback during transition as specified in the Schedule for Transition Activities.

D. The following deliverables will be completed by a mutually agreed upon date:

1. Schedule for Transition Activities detailing transition activities, milestones, and deliverables
2. Incumbent Transition Agreement

E. Other deliverables

1. The following deliverables will be completed in accordance with the Schedule for Transition Activities with due dates identified in the Schedule. Other deliverables may be requested by NSF and added to this list by Amendment to this CSA upon mutual agreement between the parties.

a) Staffing Plan detailing overall strategy for transition of AO staff, including employers of each job class, management plan and

communications strategy

b) List of transferred agreements, leases, and contracts

c) Memoranda of Agreements with UCF partner Institutions

d) List of Property and Equipment

e) Master Site Plan

f) Environment, Health and Safety Plan

Change History

Prior Awarded Funding Amount:

Per Original Award on
02/22/2018: \$913,935