



**ARRA Infrastructure Improvements
at the
National Optical Astronomy Observatory**

Quarterly Scientific Report (4)

for

May 1, 2011 – July 31, 2011

Prepared for:
National Science Foundation
Scientific Program Order No. 16 (AST-0947035) is Awarded
Pursuant to Cooperative Agreement No. AST-0132798, Article VII

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ACTIVITIES AND FINDINGS

Activity related to infrastructure improvements in the fourth quarter (May through July) of Year 2 of the three-year award is described for each project below.

TUCSON INFRASTRUCTURE

Renovate computer room electrical, cooling, and fire detection/suppression systems:

During the past quarter, a new, remote fire alarm display unit was installed and all ceiling and under-floor detectors were cleaned and checked. Bid documents were prepared to obtain engineering design services for the planned installation of a critical backup power generation source. After a review of the engineering proposals, a contract was then issued to a local firm for the system design, generator and automated transfer switch selection, and the potential integration of a centralized uninterruptible power supply (UPS). After the design documents are completed during the coming quarter, the project will be put out to bid. This final portion of the renovation efforts will ensure operation of the key computer systems and their environmental cooling systems when the main power supply to the facility is disrupted during monsoon storms or power company distribution problems.

Replace and renovate electrical supply/distribution equipment:

With the first phase of the electrical renovation project complete, the second phase is in progress to replace key secondary distribution equipment for specific systems. Bid documentation was finalized during this quarter and the pre-bid meeting with potential contractors has been scheduled for the first month of the coming quarter. This effort will correct serious electrical arc flash safety issues, update compliance with the electrical codes, and help increase power availability to areas with insufficient capacity.

Replace 15-year-old building energy management and control system:

The project was put out to bid during the past quarter and staff reviewed sample sites and similar installations that the contractors have completed. A contractor was selected, negotiations were finalized, and a contract was awarded. During the coming quarter, the successful contractor will begin work to install the new system and its various components.

KPNO MOUNTAIN INFRASTRUCTURE

KPNO water system renovation:

The original project design was revised to clarify and separate the project into two distinct phases. During the rebid, four contractors submitted bids and the associated bid selection criteria for the project. The selection committee reviewed all bids, and the final selection process was submitted to the NSF for review and approval to proceed. NSF approval was received at the end of this quarter and a meeting was scheduled with the winning bidder for early in the following month to review the planned project and begin activities.

Kitt Peak instrument handling facility:

Staff continued to wait for the NSF to provide formal approval to proceed with the project, which then will allow for bid and/or construction efforts to proceed.

CTIO MOUNTAIN INFRASTRUCTURE**Pachón water system renovation:**

The 14,000 feet of 3" Ø epoxy-lined interior steel pipe needed for the project were ordered to replace the old and leaking pipes. Procurement documents are being prepared to start the qualifications and bidding process for the installation of the pipes.

Dormitories repair & renovations:

Roof repairs for the Cerro Tololo dormitories and five houses were carried out and completed during this period. Plans are being finalized to continue with the interior upgrade of dormitories and the installation of a new central heating and hot water system and to design and carry out interior refurbishing work.

Pachón kitchen & dining facility:

A contract for construction of phase three is underway and progressing. The completion of this phase should occur by the end of December 2011. Rough weather conditions during this winter necessitated a stop in the construction activity until August 30; construction will restart in September.

Blanco 4-m mirror coating chamber:

The vacuum pump and other components were installed and used during this period. A very good aluminum coating was applied to the Blanco primary mirror in advance of the DECam installation, which is scheduled for later in calendar year 2011.

Blanco 4-m cooling system upgrade:

A 40-ton chiller unit was purchased and arrived at CTIO in early June 2011. The installation and commissioning has been scheduled for August of this year.

Cerro Tololo UPS upgrade:

The new UPS was installed and placed in operation. However, some spares and a service contract still need to be obtained.

Mountain meeting rooms renovation:

Some of the furnishings needed for this project have been ordered and are pending receipt.

Mountain road guardrail installation:

With NSF's authorization, funds for this project were designated to repair a damaged CTIO Frequency Converter and to replace the worn out and extensively used standby generator for CTIO. Repairs to the Frequency Converter were completed during award year 1. The generator arrived at CTIO the last week of March 2011 and will be installed and put in operation by the end of September 2011.

LA SERENA INFRASTRUCTURE

Machine shop modification & refurbishment:

No progress was made during this reporting period.

La Serena compound water system renovation:

No progress was made during this reporting period.

La Serena meeting rooms renovation:

Plans are being readied to proceed with contractor selection and the bidding process for the construction and furnishing of the meeting rooms.

Repair and renewal of security fencing for La Serena compound:

Plans are being finalized for the construction of a fence and portal for the entrance relocation of the Compound.

SUMMARY OF FOURTH QUARTER EXPENDITURES

The following table provides a summary of the account, showing cumulative expenditures to date (July 31, 2011) and the total funds remaining.

SPO-16 ARRA Report					
FY 2011 Quarter 4 Ending 7/31/2011					
	Award	Prior	Expenses	Total	Funds
	Amount	Expenses	This Quarter	Expenses	Available
CTIO El Totoral Facilities	2,098,000	1,015,805	255,007	1,270,812	827,188
CTIO La Serena Headquarters	616,500	386,883	22,484	409,367	207,133
Tucson Headquarters	826,243	427,681	26,977	454,657	371,586
Kitt Peak Facilities	2,004,963	162,845	9,275	172,121	1,832,842
AURA F&A	54,294	43,818	7,781	51,599	2,695
Totals	5,600,000	2,037,031	321,524	2,358,555	3,241,445