ARRA Infrastructure Improvements at the National Optical Astronomy Observatory

Quarterly Scientific Report (1)

for

August 1, 2011 – October 31, 2011

Prepared for:
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NOAO is operated by the Association of Universities for Research in Astronomy
under cooperative agreement with the National Science Foundation
ACTIVITIES AND FINDINGS

Activity related to infrastructure improvements in the first quarter (August through October) of Year 3 of the three-year award is described for each project below.

TUCSON INFRASTRUCTURE

Renovate computer room electrical, cooling, and fire detection/suppression systems:
The local engineering firm, Advantech Facility Design, completed the design of the stand-by power generation source and the associated electrical modifications. The bid documents were reviewed by staff and provided to the contracts office for the competitive bid process. The equipment and projected modification efforts are now out for bid with vendor quotations scheduled to be received during the coming quarter. Support staff also continued in their efforts to optimize the operation of the new cooling systems and electrical connections for equipment within the computer room.

Replace and renovate electrical supply/distribution equipment:
During this quarter, two pre-bid meetings were held with numerous potential contractors, and a contract was awarded to a local vendor, Gilbert Electrical. The successful contractor ordered new equipment, which is scheduled for delivery in the coming quarter. Staff worked with the vendor to identify an installation schedule that would minimize the impact on NOAO operations. The contracted installation, and the associated power outage, is scheduled for completion in the coming quarter.

Replace 15-year-old building energy management and control system:
The contractor, Climatec, ordered equipment for the project and worked on the final control system design over the past quarter. Documentation was submitted for review and a schedule is being developed. Staff worked closely with the contractor to insure that the current building operation is not compromised while the new system is being implemented. During the coming quarter, the contractor will provide a final work implementation schedule and begin installing the new system components to transition the current operational control of the central plant equipment and its various components to the new building management system.

KPNO MOUNTAIN INFRASTRUCTURE

KPNO water system renovation:
During this quarter, a fully executed contract was signed with Hunter Contracting Co. for the first phase of the project efforts. The contractor began their initial construction planning and initiated a safety and preliminary construction review of the project with staff. They also submitted equipment information for staff and engineering design approval prior to ordering. Staff worked with the contractor to develop alternative water system operations to minimize impact on mountain operations during the coming renovation. During the coming quarter, the contractor will implement the identified water bypass systems and begin the necessary demolition and renovation efforts.
Kitt Peak instrument handling facility:
During this quarter, staff became aware of mountaintop space that might become available for consideration. Staff began to review and identify the feasibility of this potential alternative space for the facility should it become available. Thus far, there have been no indications as to when, or if, the NSF will provide formal approval to proceed with the projected new construction project. During the coming quarter, staff anticipates completing the evaluation of the alternative space and determining if it will be available for consideration. Once a formal decision is made and/or approvals received, staff will move forward with the appropriate design, bid, and/or construction efforts.

CTIO MOUNTAIN INFRASTRUCTURE

Pachón water system renovation:
The pipes were received on CTIO and are ready for installation. The pipe installation project was put out for bidding during the previous quarter, but the proposals received exceeded the amount of funding for the execution of this project, so the bid was decreed abandoned and closed. With the appropriate authorization of management, alternatives are being considered to complete this important project to supply drinking water for both Cerro Tololo and Cerro Pachón observatory sites. An option to contract temporary manpower is currently under consideration in order to carry on with this project within the existing funding constraints.

Dormitories repair & renovations:
The carpet and some other materials were purchased and await installation. Plans are underway for starting in January on interior heating, painting, and other minor construction and upgrade work.

Pachón kitchen & dining facility:
After a temporary halting of the construction activities due to the extreme weather conditions on Cerro Pachón, the contractor resumed the construction process on 29 August 2011 with an estimated completion date at the end of December 2011.

Blanco 4-m mirror coating chamber:
No progress was made during this reporting period.

Blanco 4-m cooling system upgrade:
The new 40-ton chiller was installed in September. After a few startup problems related to specific technical requirements, the unit was successfully placed in service, and it has performed flawlessly ever since. The purchase and installation of the 40-ton chiller was the exclusive target of the project. Thus, this project is completed.

Cerro Tololo UPS upgrade:
No progress was made during this reporting period.

Mountain meeting rooms renovation:
No progress was made during this reporting period.
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 standby generator was installed this quarter. This project is completed.

LA SERENA INFRASTRUCTURE

Machine shop modification & refurbishment:
A descoping of the project, to meet the funding limits, is underway.

La Serena compound water system renovation:
No progress was made during this reporting period.

La Serena meeting rooms renovation:
The project planning and design phase is underway.

Repair and renewal of security fencing for La Serena compound:
No progress was made during this reporting period.

SUMMARY OF FIRST QUARTER EXPENDITURES

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

<table>
<thead>
<tr>
<th>Award Category</th>
<th>Award Amount</th>
<th>Prior Expenses</th>
<th>Expenses This Quarter</th>
<th>Total Expenses</th>
<th>Funds Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTIO El Totoral Facilities</td>
<td>2,098,000</td>
<td>1,270,812</td>
<td>91,053</td>
<td>1,361,864</td>
<td>736,136</td>
</tr>
<tr>
<td>CTIO La Serena Headquarters</td>
<td>616,500</td>
<td>409,367</td>
<td>4,220</td>
<td>413,587</td>
<td>202,913</td>
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<tr>
<td>Tucson Headquarters</td>
<td>826,243</td>
<td>454,657</td>
<td>18,288</td>
<td>472,945</td>
<td>353,298</td>
</tr>
<tr>
<td>Kitt Peak Facilities</td>
<td>2,004,963</td>
<td>172,121</td>
<td>10,336</td>
<td>182,456</td>
<td>1,822,507</td>
</tr>
<tr>
<td>AURA F&amp;A</td>
<td>54,294</td>
<td>51,599</td>
<td>3,112</td>
<td>54,710</td>
<td>(416)</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>5,600,000</strong></td>
<td><strong>990,376</strong></td>
<td><strong>127,008</strong></td>
<td><strong>2,485,563</strong></td>
<td><strong>3,114,437</strong></td>
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</tbody>
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