Facilities Quarterly

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY♦FACILITIES DEPARTMENT NEWSLETTER

APRIL 2002

FACILITIES PERFORMANCE OUTSTANDING, AS USUAL

Performance ratings for the first quarter are in and Facilities is on course to have another "Outstanding" year. Performance Objectives, Criteria and Measures (POCMs) provide a yardstick by which DOE and the University of California measure Berkeley Lab's performance in key mission areas. Since 1997 Facilities has logged an impressive record, scoring consistently in the "Outstanding" range (see table).

Facilities Five-Year POCM Record

Performance Criteria	Grade*				
	1997	1998	1999	2000	2001
1.1—Real Property Management	O	O	O	O	O
2.1—Comprehensive Integrated Planning Process	O	O	O	O	O
3.1—Construction Project Performance	O	O	O	O	O
3.2—Construction Project Cost	O	O	G	G	O
4.1—Facility Management	E	E	O	O	O
4.2—Maintenance Program	O	O	O	O	O
5.1—Reliable Utility Service	O	O	O	G	E
5.2—Energy Consumption	O	O	O	O	O
5.3—Energy Management	O	O	O	O	O

*Key: O = Outstanding, E = Excellent, G = Good, M = Marginal, U = Unsatisfactory

Facilities is graded in five areas, called Performance Objectives, each of which has one or more graded criteria, as follows (criteria are in parentheses):

- Real property management (1.1)
- Physical assets planning (2.1)
- Project management (3.1, 3.2)
- Maintenance (4.1, 4.2)
- Utilities/energy conservation (5.1, 5.2, 5.3)

Real property management is the responsibility of the Planning group, led by Laura Chen. The Real Property Management performance objective evaluates, among other things, Planning's maintenance of the Facilities Information Management System (FIMS). FIMS is DOE's corporate database for real property and related personal property holdings. It tracks a variety of data associated with each property, including its size, capacity, condition, use, funding source, hazards, handicapped accessibility, and acquisition and capital adjustment costs. Chen was recently cited by Steven Rossi of the DOE Office of Science Infrastructure

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PROJECT PERFORMANCE: WHAT'S OPTIMAL?

Traditionally, many large industrial companies have maintained a full inhouse capability to carry out their major plant construction projects. However, in response to competitive pressures, the prevailing trend over the last two decades has been toward reduction of inhouse staffs—architects, engineers, project managers, and construction personnel—in favor of outsourcing. This trend has taken companies in various directions as they have searched for the best combination of inhouse expertise and contracting to accomplish their business objectives.

A white paper by the Business Roundtable (BRT), a broad-based association of CEOs representing a cross section of American businesses, looks at how over 60 large companies have restructured their "project systems" and evaluates the performance of these systems, from project conception to operational status, for over 2000 plant construction projects.

The BRT study, "The Business Stake in Effective Project Systems," groups project systems into four categories: "All Owner," "Integrated," "Contractor Lead," and "All Contractor." These categories describe different styles of "front-end loading," the execution of the initial project definition.

"All Owner" projects rely on inhouse project design and management front-end capabilities, with no help from a contractor. "All Contractor" projects are defined by the contractor with little or no owner participation. "Contractor Lead" indicates contractor front-end responsibility in consultation with an involved owner. An "Integrated" system is a team

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Facilities Quarterly is available online at http://www.lbl.gov/Workplace/Facilities.

PERFORMANCE OUTSTANDING *continued from page 1*

Management Division for her "spectacular work" in helping to produce the FIMS FY2001 Final Status Report.

The Physical Assets Planning performance objective looks at work on the Laboratory's Long Range Development Plan, the Laboratory's implementation of Geographic Information System (GIS) based site mapping, vegetation management, fire risk management, and planning for many other site-related concerns, such as parking, bus routes, signage, and more.

Project Management is the heavyweight among Facilities performance measures, counting for 33 percent of the total score. Reported by Projects acting group leader Charles Allen, it measures actual against planned progress for 18 construction projects valued over $500,000, and actual cost versus estimated cost for projects over $5 million. Through the second quarter of FY 2002, Projects achieved 8 of 15 progress milestones planned for the year, while tracking perfectly on its cost milestone: $16.3M/$16.3M.

For Operations and Maintenance manager Don Weber, "The reason for performance milestones is to improve our process." This year his 22 maintenance milestones include two pilot projects that are using Maximo, a computerized maintenance management system, to make planned maintenance safer and more efficient.

The Maximo Safety Project automates the process of attaching safety requirements and procedures to maintenance work orders. The pilot project focuses on Building 70A. The project uses Maximo to automatically associate hazardous locations and equipment—tracked in the EH&S Hazard, Equipment, Authorization and Review (HEAR) database—with specific maintenance work orders. As a result, work orders taken into the field by Facilities personnel will include a detailed list of hazards along with associated requirements

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FROM THE FACILITIES MANAGER...

This is my last letter for the *Facilities Quarterly*. I started adding a personal letter to the newsletter when I arrived ten years ago and have managed to find enough to fill the 320 odd words Jim Miller allows me every quarter.

I have no doubts that this Facilities Department is the best in DOE. It became such through the hard work and dedication of every employee in the department. We have received an Outstanding in each of the last five years from DOE. Our Peer Review two years ago praised the department. The Office of Science and many of the other DOE Labs have used us as a model; and where there was not a model, we created one. As other activities were merged into the department, both the existing groups and the new groups found a way to work together and improve the work that we do.

There is not enough space to list all the successes we have had or the people that were responsible for them. I do, however, want to pay tribute to all of the men and women that worked to make WOW such a viable program and subsequently to lower our accident rate. This program succeeded by innovation, initiative and hard work, and without guidance (or interference) from management.

I also want to remember all of you that, when given an opportunity, took hold and not only earned recognition for your efforts, but improved the Laboratory. Some by finding a better way to work, others by going further than the job called for in order to do it right.

Adding together all the highs and lows, the successes and problems, it has been a wonderful ten years. Thank you.

Bob Camper

Work **SMART**
Work **SAFELY**
If it is not safe, **STOP** the work.

WHAT'S OPTIMAL?

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approach consisting of "…owner functions such as engineering, business operations and maintenance, and outside engineering and construction contractors."

BRT employs four metrics to gauge the comparative performances of these four project systems: cost growth, engineering and construction time (i.e., schedule), startup time, and attainment of business objectives in the second six months of operation ("operability"). The study finds that the most successful projects are those that do the best job of front-end loading: "…the effective commitment of time and resources at this point dictates the future success of the project." As illustrated in the table on page 6, the worst-performing project system in every metric is "All Contractor." "Integrated" is best in cost and schedule and a close second to "All Owner" in operability (percent attainment of design output).

Integrated teams typically consist of "…owner functions such as engineering, business operations and mainte-

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FACILITIES DEPARTMENT

Facilities provides Berkeley Lab with a full range of architectural and engineering, construction, and maintenance services for new facilities and for modification and support of existing facilities.

Architectural and engineering services include facility planning, programming, design, engineering, project management, and construction management. Maintenance and construction functions include custodial, gardening, and lighting services; operation, service, and repair or replacement of equipment and utility systems; and construction of modifications, alterations, and additions to buildings, equipment, facilities, and utilities. Additional services include bus and fleet management, mail distribution, stores distribution, property management, property disposal, cafeteria operations, and electronics repair.

Ongoing Facilities activities include renewal and upgrade of site utility systems and building equipment; preparation of environmental planning studies; in-house energy management; space planning; and assurance of Laboratory compliance with appropriate facilities-related regulations and with University and DOE policies and procedures.

The Work Request Center expedites facility-related work requests, answers questions, and provides support for facility-related needs.

FOCUS ON SERVICE: SITEWIDE WATER PROJECT BEGINS

Construction of long-awaited upgrades to Berkeley Lab's domestic water distribution system is scheduled to begin in mid-April, when the subcontractor, Ghilotti Brothers, Inc, begins work on the $8.3 million Sitewide Water Distribution Upgrade project. The project, which is expected to take about 22 months, will correct serious deficiencies in the Lab's 10 km (6 miles) of aging water mains and provide improvements that will ensure the system's integrity and longevity.

As work progresses, different sections of the piping system will be unearthed around the lab, sometimes in roads, parking lots, building entrance areas, or other areas where the work may impose some inconvenience. Facilities will coordinate with building managers to minimize impacts on research and other ongoing activities, and will provide timely information on the project's anticipated impacts.

The Sitewide Water upgrade will replace cast-iron piping with ductile iron pipe. Existing ductile iron pipe and cement-lined, coated-steel pipe will be equipped with an impressed-current cathodic protection system to arrest corrosion.

In addition to pipes, the existing water system includes valves, meters, fire hydrants, pressure-reducing stations, vaults, and two emergency fire water storage tanks. The Sitewide Water project will replace leaky isolation valves and pressure reducing stations, provide seismic upgrades to the Lab's existing water storage tanks, and construct an additional emergency storage tank to be located uphill of Building 85.

Work slated for FY2002 includes pipe replacement, installation of cathodic protection, installa-

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COMPLIMENTS

Crystal LLewellyn of the Genomics Division received excellent service from Property Management manager Gavin Robillard, who ironed out the property control issues surrounding the arrival, just days before the event, of 50 laptop computers for the JGI/PGF Jamboree. "The units had to be tagged, documentation prepared and software installed, " Llewellyn notes, "Time was crucial." Robillard lent them the services of Patti Atases, and all went smoothly. In Llewellyn's words, "A tough job well done!"

Sau Pham, Tien Huynh, and Nick Thomsic of Grounds earned an endorsement from Jeff Philliber (Planning) for making noise with a large wood chipper. The crew fed the chipper to approximate the expected construction noise from the proposed Molecular Foundry project. Meanwhile, consultants made measurements in the Panoramic Hills area. In writing to O&M's Don Weber, Philliber says, "...the tests show very minimal noise impacts to the surrounding neighborhoods.... Without the extra efforts and innovation from your folks, we could not have made this finding so conclusively."

WORK REQUEST CENTER

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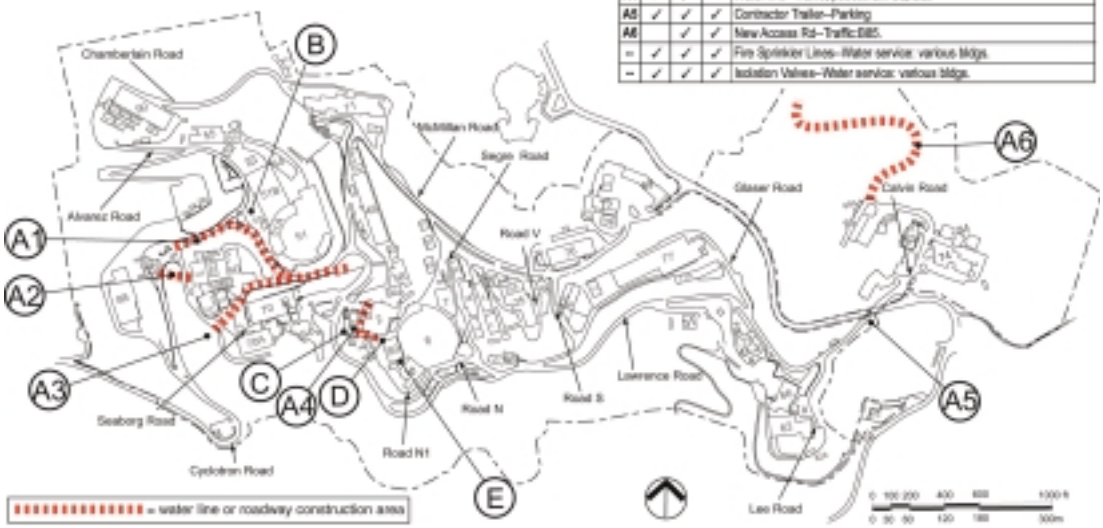
WRC welcomes questions or comments about Facilities Quarterly.

CONSTRUCTION AND YOU

Current construction projects affecting parking, or vehicular or pedestrian circulation

	APR	MAY	JUN	SITEWIDE WATER DISTRIBUTION PROJECT – IMPACTS
A1			✓	Water line–Traffic, parking: Cyclotron, Lawrence, McMillan Rds, Lot J
A2	✓	✓		Water line–Traffic, parking: B62, B60E.
A3			✓	Water line–Traffic, parking: Seaborg Rd, B70/70A, Lot H2.
A4	✓	✓		Water line–Traffic, pedestrian: B2, B29
A5	✓	✓	✓	Contractor Trailer–Parking
A6		✓	✓	New Access Rd–Traffic:B85.
–	✓	✓	✓	Fire Sprinkler Lines–Water service: various bldgs.
–	✓	✓	✓	Isolation Valves–Water service: various bldgs.



Project Contacts. The name in parentheses after each project is the Project Manager (PM) or other person who is responsible for project oversight: coordinating all phases from design through construction; controlling cost, scope and schedule; and ensuring client satisfaction. This person will be happy to answer any questions about the project.

(A) Sitewide Water Distribution Upgrade

APR	MAY	JUN

This major water supply system upgrade will intermittently affect traffic and pedestrian circulation, parking, and building water service over the next 22 months (see table on this page and article on page 3).
(Dan Galvez, 6213)

(B) Building 51 Excess Facilities Projects

APR	MAY	JUN

Demolition and removal of excess materials is in progress inside Bldg 51 and the EPB Hall. Demolition and hard hat work areas are fenced off for safety. Fire equipment access lanes, indicated with red striping, must remain clear: no parking or standing is allowed. Parking in the lower Bldg 51 lot is restricted since the area will be used for the staging out of materials. Pedestrian traffic is not allowed through Bldg 51 or the EPB Hall as a safety measure. Large-truck traffic is expected beginning in May. (Joel Pathman, x6357)

Building 29 Disassembly (C)

APR	MAY	JUN

Parking between Building 29 and Building 2 will be used for construction activities. Pedestrian traffic will be rerouted in the area around Building 29.
(John Patterson, x5796)

Bldg 2: Ventilation Upgrade Project, Phase 2 (D)

APR	MAY	JUN

Parking spaces along the south side of Bldg 2 will be reserved for contractor use. (John Patterson, x5796)

Bldg 6: Sector 4 Support Building (E)

APR	MAY	JUN

Construction of an expansion to Bldg 6 will eliminate parking between Bldg 80 and Bldg 10. Parking spaces on the west side of Bldg 10 will be reserved as the contractor's laydown area. (Dan Galvez, 6213)

"CAUTION—CONSTRUCTION AREA"

Construction barricades and warnings are there for your protection. Under no circumstances should you cross a construction barricade, or disobey posted warnings or directions. Contact the Project Manager for escorted access to construction areas.

ON THE DRAWING BOARD

projects in study or conceptual design

Building 77, Rehabilitation of Building Structure and Systems, Phase 2

This project will correct mechanical, electrical and architectural deficiencies in Buildings 77 and 77A. The conceptual design phase is in progress. Funding will be requested for FY 2003. (Dan Galvez, x6213)

Energy Efficiency and Electricity Reliability Laboratory

Conceptual planning is under way for a new 3,000-sq-meter (32,000 sq ft) building to be located in front of Building 90. The new building will incorporate sustainable design and leading-edge, energy-efficiency technologies. (Richard Stanton, x6221)

Research Support Building

Planning is going forward on a new 2,900-sq-meter (26,000 sq ft) building that will house key Berkeley Lab administrative functions now scattered across the site. This "Civic Center" will be located on the site of Building 29, which will be demolished. Its central location will allow efficient administration and easy access for all staff and guest researchers. (Richard Stanton, x6221)

IN PROGRESS

funded projects

Bldg 2: Ventilation Upgrade Project, Phase 2

This project will upgrade the heating, ventilation and air conditioning system in Building 2 to provide improved temperature control, improved pressure control and increased exhaust air capacity.
(John Patterson, x5796)

Bldg 6: Sector 4 Support Building

Project design is in progress for an equipment staging area for Beamline 4. This 100-sq-m (1,100-sq-ft) single-story addition will be located between buildings 10 and 80, on the west side of Building 6. (Dan Galvez, x6213)

Bldg 29: Disassembly of Building 29

This project will disassemble Building 29, which has been condemned and vacated. The project will include retrieval of building elements that can be reused by LBNL organizations or offsite vendors.
(John Patterson, x5796)

Bldg 90: Ventilation Upgrade Project

This project will upgrade the ventilation and air conditioning system in Bldg 90 to provide improved temperature control. (John Patterson, x5796)

Sitewide Water Distribution Upgrade, Phase 1

Much of Berkeley Lab's fresh-water supply system has been in place for over 30 years. This project will replace about 0.9 mile (1.5 km) of cast iron pipe and upgrade the remaining 5 miles (8 km) of pipe with corrosion protection, new valves, pressure reducing stations, improvements to existing water storage tanks, and a new water storage tank in the East Canyon area. Construction is in progress (see article on p 3). (Dan Galvez, x6213)

PERFORMANCE OUTSTANDING *continued from pg. 2*

and procedures. Frank Yee is the PM for the Building 70A project.

The other milestone project uses Maximo's Condition Monitoring application to schedule large filter replacements, rather than using a fixed schedule. Total yearly savings for the 1076 filters in the project will be $33,000.

The Mechanical/IHEM group reports on the Utilities/Energy Conversion performance objective, which includes two performance measures: Electric Service and Building Energy. Electric Service measures electrical system reliability in terms of hours of unplanned outages. In the first quarter of this year, the average for the previous 12 months was zero hours of unplanned outages—an "Outstanding." Lockhart credits the Electrical Shop, under supervisor Dennis Nielson, for the day-to-day reliability of the electrical system and Chief Electrical Engineer Mahesh Gupta and recently retired Bert Schleifer for their leadership in completing the decade-long rehabilitation of the Lab's "top-notch, super-reliable" 12KV system.

Building Energy measures the reduction in energy usage from FY90 levels. Since 1985, Mechanical/IHEM has spent about $5 M on energy retrofits that have helped Berkeley Lab use energy more efficiently.

The entire laboratory benefits from the effort that Facilities puts into the POCM process, and though the same commitment would be there without POCMs, as Charles Allen observes; "You don't know how you're doing if you don't keep score."

WATER PROJECT

continued from page 3

tion of isolation valves and pressure-reducing valves, and construction of an access road for the new East Canyon water tank. The project will be completed in late 2003 with installation of the new tank and upgrading of the existing tanks.

According to Project Manager Dan Galvez, "Every effort will be made to minimize disruption and ensure safe conditions in work areas. Facilities will post information—72 hours in advance—in each affected building on scheduling and effects of the construction. In addition, regular updates will appear in Headlines, Currents, and Facilities Quarterly and on the Facilities website."

WHAT'S OPTIMAL? *continued from page 2*

nance, and outside engineering and construction contractors," with the owner's core project expertise providing cohesiveness: "The best project systems all maintain the in-house resources necessary to develop and shape projects on the front-end and to bind the owner functions together to choose the right project and prepare for efficient execution."

Berkeley Lab's inhouse project resources are primarily provided by Facilities' Projects group, consisting of the Architectural, Civil/Structural, Electrical, Mechanical/IHEM, and Project Management sections.

The Projects group provides core expertise for design and construction of new facilities. This expertise is leveraged through alliances with four architectural/engineering (A/E) firms. In addition to the value brought to individual pro-jects, building an alliance with a select group of A/E's has cumulative benefits, as the A/E's become more familiar with Berkeley Lab. Alliances also help in managing workloads—when the project workload goes down, fewer jobs are tasked to the A/E's. Standing alliances also significantly reduce procurement lead time.

Berkeley Lab's future depends on its ability to construct major scientific facilities that are both economical and productive. By bringing together programmatic and management partners, Projects team core expertise, and alliance A/E firms who know our needs, Facilities' integrated approach helps ensure a successful outcome.

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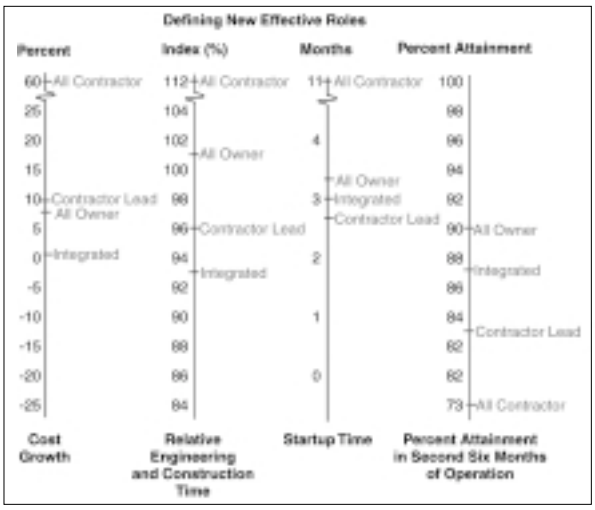

Integrated systems have lowest cost growth and shortest construction time, and are second in startup time and operability.

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