FMXcellence
from Building Operating Management

Apply for FMXcellence Recognition

Form must be completed in its entirety.
Submitted information may be used in print, online or at conferences or other live events. You must download/save PDF prior to — this form will not save your input without being saved to your computer first.
Email your completed form as an attachment to edward.sullivan@tradepress.com

1. Name David Hader
2. Title Facility Manager
3. Company Max Planck Florida Institute
4. Street Address 1 Max Planck Way
   City / State / Zip Jupiter / Fl / 33458
5. Phone number 1 (561) 972-9060
6. Email address david.hader@mpfi.org

7. Square feet of space that the facility department is responsible for:
   Data centers only: 5,000 or more of raised floor space
   ☒ 100,000 to 250,000
   ❑ more than 250,000 to 500,000
   ❑ more than 500,000 to 1,000,000
   ❑ more than 1,000,000 to 5,000,000
   ❑ more than 5,000,000

8. Please provide an overview of one completed FM project/initiative or ongoing FM practice/program that supports the goals of the larger organization. Projects must be completed to be considered. (Limit responses to no more than 2,000 words.) Briefly indicate:
   - Major elements of the project or practice.
   - Steps involved in developing the project or practice, including the start and completion dates, and if applicable, completion date.
   - Scope of the project or practice. Did it involve one building? A business unit or region? The entire organization?
   - Hard and soft costs of the project or practice. Please indicate when estimates are being used.
   - Challenges involved in implementing or maintaining the project or practice.
   - Ways those challenges were overcome.
   - Lessons learned.

In today's economic environment, cost reduction is a driving force for success in any organization. A research organization such as Max Planck Florida Institute (MPFI) should be conscientious of the impact lab equipment repair and preventive maintenance (PM) cost contributes to the bottom line economics and financial health of the Institute.

In addition to savings, preventive maintenance programs provide greater productivity and operational efficiencies, reduce downtime caused by equipment failure, safeguard the lab's Good Laboratory Practices (GLP) and maximize the life of an instrument.

While evaluating the risk vs. reward of a PM program, it is necessary to identify the available options for maintaining equipment: In-house facility maintenance people, asset management companies, third-party service agencies, and original equipment manufacturer (OEM). Each option comes with its values and benefits but also with its obstacles and costs.

With several independent research groups on site, it is suggested that this enterprise will be most productive to provide these services collaboratively as an Institute, under the management of the Facilities Department as a single Point of Contact.

Benchmark of Scientific Facilities Maintenance Programs

The program as proposed herein is unique for a laboratory research environment that is not required per FDA oversight regulations to uphold cGLP maintenance standards. In addition there have been no research institutes identified that have a world class scientific facilities maintenance program in place that alleviates responsibility for preventative maintenance from the end users/laboratory staff

On a local level, The Scripps Research Institute (Jupiter), Torrey Pines Research Institute (Port St. Lucie) and Sanford Burnham Research Institute (Orlando) utilize their facility staff as first responders to scientific equipment operation concerns as requested by end users. While these other Facilities groups do perform some limited maintenance of scientific equipment, responsibility for maintenance is not tasked to their respective facility department(s).

In addition to Facilities management staff, each referenced Institute maintains a minimum of 1 technical staff member per trade (HVAC, elect, plumb, and carpenter) to perform typical operating, maintenance and repair functions. These Institutes has technical staff that averages 1 team member per/25-30K square feet of coverage requirements.

Justification for a Preventative/Planned Maintenance (PM) program for Scientific Equipment

Decision making to gain a consensus regarding the approach best suited to this environment should include interpretation of the requirements, the benefits and the quality control requirements of these efforts.

It is apparent that many end users are unaware of the requirements and impact of preventative maintenance, are reluctant to dedicate resources to these efforts, or are seemingly inclined to run equipment to failure and purchase replacement. Whatever the sentiment of maintenance may be, equipment downtime is an unwanted reality when no endeavors are underway. When no action is taken temporary downtime is the best case scenario. The potential loss of productivity, "priceless" samples and extensive hours of research would represent the worst case scenario.

Proposal for implementation

Utilizing Facilities Department in a "Scientific Facilities" fashion

Collectively, the facilities department staff has a wide range of expertise to help accomplish these needs but not necessarily the available time with the present work load. The facilities team currently tracks, maintains, operates and repairs over 800 assets. Current monthly work order ticket count is projected at just over 200 work items per month including preventative maintenance, corrective actions, requests and event support.

The implementation of this program will add approximately 250 assets to the facility department maintenance lists and increase monthly Facilities Department work ticket responsibilities to over 450 action items per month.

The increase in work load output can be supported with an additional staff designated plumber. The added member to the facilities team should be one with multiple skills as is the current staff. Primarily a technician with experience in refrigeration and plumbing would complement the skills of the team and bring added value to the institute. This additional team member will not only be integral with the maintenance of scientific equipment, but it will allow for a redistribution of current responsibilities within the facility department and enable the group to successfully assume these additional maintenance tasks.

In addition, the current model requires the Facilities department to use outside contractors to address plumbing additions, renovations or repairs. This cost will also effectively be reduced, as was the case with electrical services when we brought in our own electrician.

Despite the sharp increase in quantity of action items, the utilization of available technology and identifying operational efficiencies, this will be an achievable number of work request with a minimal amount of deferred maintenance needs (<15%) for scientific equipment on a monthly basis

This staffing model will include the Facility Management team to review, streamline and increase operational efficiencies of these activities 15% - 20% over the first 6 months in operation which in turn will allow for an increase of 40 additional future scientific assets to be regularly maintained without requiring additional staffing increase. This projection allows for projected MPFI growth of another Director level lab in 2014.

Identification of maintenance needs

Below is a list of the typical major items consistent within all research groups. Each group has the authority to purchase equipment make and model of their choosing. As such, the manufacturer name and maintenance requirements vary from group to group, however the differences in maintenance needs are generally negligible. A comprehensive summary by Research group is at the end of this section.

- +4C, -20C, -80C refrigeration units.
- Centrifuges.
- Tissue culture incubators.
- Shaker incubators.
- Vibration isolation tables.
- Compressors for vibration isolation tables.
- Imaging system chillers.
- *Vaccu-lan* pumps.
- Millipore water purification systems.
- Uninterruptible power supply(UPS)

Cost/ Value

Projected cost

Yearly wages ($23/hour): 48,000

Fringes (35%) includes payroll taxes, health insurance, 403(b) life insurance, other: 16,800

Annual training and professional certifications (7% of wages): 3,360

Projected maintenance material costs: 1,500

1st year, one-time expenses for mobilization, phone, computer, tools, etc.: 7,500

Total recurring cost: 69,660

Value add

In house plumbing: (29,000)

In 2013, the plumbing contractor cost to MPFI was well in excess of $45,000. These expenditures included annual testing, minor repairs, fixture modifications as well as research group requested modification/additions. The industry standard the routine scope of work is approximately $2 labor cost for each $1 of material cost. As such the outsourced labor savings can be up to 2/3 of the expense.

(575+ annual hours) Scientific staff time: (21,500)

Conservative value based on estimated monthly and annual maintenance activities currently the responsibility of designated lab staff. This proposal assumes responsibility of maintenance and allows science staff opportunity to increase production time on core responsibilities and assignments

Outsourced refrigerator and freezer maintenance: (41,850)

In 2011 a proposal was solicited to perform Monthly Maintenance on the Institute freezers and refrigerators. The proposed cost was $1,395/month for 27 owned units. At present, MPFI possesses over 2.5x's the quantity of units. Extrapolation of this data indicates relevant saving

Utility savings; (30,000)

This number is difficult to quantify. However it has been noted in multiple industry white paper studies that a properly maintained piece of equipment when compared to an improperly maintained or neglected piece of equipment will consume 25% - 125% more utility energy than designed to operate

Ensuring warranty (Value added TBD)

New equipment purchases can be tracked with startup, warranty and manufacturers' data to ensure that any/all warranty service is properly funneled back to representative for repair

Reduce unscheduled down time for equipment (Value added TBD)

This benefit cannot be adequately measured due to the unknown nature of existing equipment downtime. It can be stated that properly operating equipment enhances productivity of the end user of said equipment. This remains a benefit but there would need to be a benchmarking effort for equipment downtime in place to achieve a quantifiable value

Projected annual savings via implementation of Scientific PM program $ 122,350+

As indicated above, implementation of this suggested this staffing model will allow for an increase of (40) future additional scientific assets to be regularly maintained. Each added asset under this quantity increase the cost savings impact to this activity

Timeline for implementation

- Advertise for staff: (6wks) 4/1/14 – 5/15
- Interview and hire (4wks) 5/1 – 6/1
- Training, Mobilization and implementation (4wks) 6/15 – 7/15
- Service Level Agreements with Research Group Leaders as applicable 6/15 – 7/15
- Begin formalized program: 7/1
- Fully functional PM program: 9/1/14

Primary Challenges

Qualified Staff: As with any endeavor, it is critical to identify the correct personnel to implement and maintain the plan. In addition, this location requires a dynamic individual who can identify discrepancies with equipment operations in both a predictive and preventative manner to avoid unscheduled shut downs.

Since MPFI is located in an area with an Immature scientific community, MPFI determined the best & most expedient course of action is to identify an experienced plumber who shows the skill sets and tendencies to allow the current facilities management team provide onsite training to accomplish designated scientific PM task. While this ultimately proved to be the course of action taken, it took longer than anticipated to identify the correct candidate, the new full time hire began 8 weeks later than desired. The existing facilities staff began a smaller, modified version of the PM program until proper staffing was in place.

Acceptance of program by research teams: As indicated above, while this program as identified as a quality value add service, it is atypical of this type of research environment. The ability to interact with both the Primary investigator and their respective lab managers became a critical interaction to identify the types and durations of offered services related to this program

Each group was and remains ultimately responsible for "their" "owned" equipment. There are several pieces of equipment eligible to be incorporated into the program but remain outside of the scope in in the control and responsibility of the respective research group

Access to research labs: Once there was a level of approval to implement a program the reality of equipment access was undertaken. Frequently equipment is stacked of positioned in a way that access is extremely difficult without impacting other scientific equipment within a given space. In order to identify these needs a detailed review of designated equipment location was conducted with the I PI/lab manager

All serviceable equipment was relocated if possible to allow proper access. For area that relocation was not a viable option, agreements were put in place so that the facilities tech would pre-schedule access to the designated space under the supervision of the designated lab personnel. This typically results in either facilities relocating equipment as needed for access under the supervision of lab personnel or the lab personnel, expecting the scheduled service, relocates equipment in advance for access

9. Describe the larger organizational goals or challenges addressed by the project or practice. Include any impacts that the project or practice had on building occupants. Limit responses to 1,000 words.

All of the established goals and benefits of the Scientific Equipment Preventative Maintenance program, have been realized over the course of this calendar year;

- Supported research efforts, thereby providing additional production time to current lab personnel
- Reduced or avoided unscheduled downtime of equipment.
- Added protection to irreplaceable scientific samples.
- Maximizing the life of equipment.
- Reducing expenditures for premature replacement of assets
- Cost saving through minimizing utility use.
- Cost saving by limiting emergency repair.

Since this Preventative Maintenance effort is considered optional, these services were declined or deferred by various groups for select equipment at the discretion of the Research Group Leader or Lab Manager. This is particularly prevalent in lab and/or imaging rooms where research equipment is deemed by the end user as sensitive. In this application, PM may be individually scheduled, supervised by and remains the responsibility of the end user respective lab group.

10. Describe results achieved. Include quantitative and qualitative results. For quantitative results, describe the way that results were measured or evaluated. It is helpful to put savings results in some context – as a percentage of the overall facility or energy budget, for example. Energy and water savings results should be based on hard data, e.g. metered data or utility bills. If the project or practice involved the creation of metrics/measurements, use this space to provide more detail about the metrics program. Limit responses to 1,000 words.

In addition to the equipment listed, Facilities has taken additional service, maintenance and repair efforts on all equipment whether or not currently covered under the Scientific Facilities Maintenance program.

Despite the increase in quantity of monthly action items, internal efforts have allowed achievement of 2 primary staffing/management goals;

- **utilization of available technology to incorporate an increased number of work request with a minimal amount of deferred maintenance needs (<15%) for scientific equipment on a monthly basis**
- **review, streamline and increase operational efficiencies of these activities 15% - 20% over the first 6 months in operation**

This is a summary of the FM efforts over the past 12 months:

HOURS PER TYPE OF WORK ORDER

2014	CORRECTIVE	PM	REQUEST		PM count
August	5	4.5	1.75		13
September	0	0.25	2.5		6
October	3	22.65	1.25		81
November	3	15.25	0.5		45
December	0.25	15.42	2.75		42
2015	CORRECTIVE	PM	REQUEST		PM count
January	10.5	17	5.75		64
February	5.5	12.75	3		46
March	3.25	16.5	3		51
April	1.5	22	1		66
May	4	17.25	0		54
June	2.75	20	10		57
July	1.5	20.5	7.25		67

The implementation of this program added more than 150 assets to the facility department maintenance lists, increasing the total monthly Facilities Department work ticket responsibilities to over 300 action items per month.

In summary, this program has been successfully implemented and realized the following benefit goals;

- **Reduce Scientific staff time expenditure on PM efforts**
- **Reduce outsource PM for covered equipment**
- **Improved utility consumption by virtue of properly maintained equipment**
- **Minimize unscheduled down time**

11. Describe methods used to communicate the results of the project or practice to the greater organization. (If the project or practice was a communications effort, use this space to provide more detail about the communications program.) Limit responses to no more than 500 words.

The results of this program implementation has been communicated in multiple ways;
- A first year reconciliation report was generated by the Facilities Management team. This report took the original program proposal, the field generated data and the work ticket data and provided comparison, and both positive and negative deviations to the program. This report was distributed to both senior leadership and the Principal Investigators responsible for each lab group
- In addition to the written report, the Institute conducts an annual meeting for all employees. The Facility Management presentation included the summary of the program roll out,practice and results of implementation.

12. In order to verify the effectiveness of the project or practice being submitted for consideration, attach a letter from a key manager outside the facility/real estate department describing the impact of the project or practice. If a letter is not possible, please provide the name, phone number and email address for a key manager outside the facility/real estate department who we can contact (examples of key managers: CEO, CFO, COO, business unit manager, vice president, etc.).

Key Manager Name: Dr. Matthias Haury

Title: Chief Operating Officer

Phone: 1 (561) 972-9000

Email: matthias.haury@mpfi.org

13. Attach a list of key in-house participants in the project or practice, both those who work in the facility department and those from other departments. (Do not include outside service providers, contractors, etc.)

14. Attach any other material to support the application. Attachments can be related to any of the questions on this form or can provide relevant information on areas outside those questions. Limit additional material (not counting the letter and list of participants) to no more than 20 pages. Using sample pages, tables of contents, etc., can reduce the number of additional pages submitted.

☒ I have read the guidelines and to the best of my knowledge, I am eligible to submit and all the information supplied is correct. I understand the information submitted here could be used by Building Operating Management magazine and NFMT for their own purposes if my submission is selected (other than material marked con dential). The box must be checked to submit entry.

Please save this document on your PC and send as an attachment, along with supporting documents, to edward.sullivan@tradepress.com. If you have any questions, please contact edward.sullivan@tradepress.com.

13. List of key in-house participants

Facilities Management Team:

- Corey Pine, Assist. Facility Manager
- John Schirmer, Electrician
- Michael Mitchell, Plumber
- Fausto dos Santos, HVAC