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The Plant Exchange is produced by members of the Plant Operations Division at the University of Michigan. Its purpose is to inform Plant Operations staff and the university community of activities, accomplishments, and information about our organization and the work we perform.

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Let me open this issue with well wishes to everyone in Plant for a happy and healthy new year. In olden days, explorers and travelers navigated to their destinations by following stars. In 2015 Plant will continue to travel toward our star to reach our Goals. As in earlier days there are often multiple ways to reach a destination. We have spoken about Operational Excellence in our Strategic Business Plan as our Goal. Here’s a simple diagram to illustrate a few points about our journey.

This sketch is an attempt to show the process we are following to reach our goals. While there are many paths that we can follow, it is an absolute requirement that we remain within the boundaries defined by the arrow.

So what are the boundaries? First and foremost are the cost implications of performing our services. We are charged with reducing the cost of our services. This boundary has been in place for more than 12 years and for each of those years, we have been required to reduce our budget by 2%. Second, we cannot reduce the level of service we provide. While these two boundaries are very significant, there is a yet a third externally-imposed boundary. I am referring to our stakeholders’ expectations that Plant will not only hold service levels steady in the face of budget reductions, but that we will, in fact, improve service.

The paths we take can’t violate the boundaries. Early on in this process we (by we, I mean process improvement teams made up of management, customer and bargained-for team members) decided that proactivity and efficiency were going to be the paths we take. Planned was better than reactive. Scheduled was better than unscheduled. Focus on the asset condition was better than focus on the individual work order. Lastly using the right resource for the job was better than past practice.

The vertical dotted lines marked time 1 and 2 signify that we are on the path still moving toward the star. The dotted lines signify major milestones. For example, one such milestone is the completion of the OS1 rollout. Finally, the goal or star we are striving to reach is Operational Excellence. But what does that mean? A good answer is that our journey will take us to Operational Excellence, or the point at which “Each and every employee can see the flow of value to the customer, and fix that flow before it breaks down.” While this definition may seem simple, it is in this simplicity that the magic lies.

By defining Operational Excellence in this way, it applies to every level and every person in the organization, from executives all the way down to the employees producing the product. Process Redesign, OS1, FMR, RCM etc. are paths to the goal but not the goal. This year I will be speaking about the star we have targeted and how we all fit in to reaching our goal.

I want to keep the lines of communication open as move through this process. Please send me your questions or concerns about the changes in Plant Operations. I will answer these questions in future issues of the Plant Exchange and discuss our goals further.

Rich
rrobben@umich.edu
BAS: DATA ANALYTICS

By David Anderson

The University of Michigan’s building automation system (BAS) is at the forefront of monitoring, control and analytics, as one would expect from an institution heralded as “Leaders and Best.”

Data Analytics is a term used to describe the use of large collections of data (aka Big Data) to see a broader picture of how building systems perform. At the same time, bringing together information from many sources allows us to see deeper into the root causes of problems. This provides us with the means to identify energy waste and hard to find maintenance issues.

We have conducted in-house analytics on systems all the way down to room-level controls for the last two years; however it was a time-consuming annual process.

Within the last year we have been piloting an automated data collection and analysis software package known as Panoptix. Difficulties with collection of the large data sets and limitations of the analytics engine were evident as we progressed.

Panoptix capabilities have recently been expanded (in no small part due to our reiterated expectations) to include using our existing voluminous daily trend data, and to allow us to customize the analytics engine in-house…thus resolving the data collection problems and providing the means to perform highly complex analysis.

SLA PROGRAM

By Samantha Brandt

What can an Auxiliary building manager on campus do to keep up with the ever increasing complexity of their buildings regarding maintenance and code requirements?

With the implementation of a Facilities Maintenance (FM) Service Level Agreement (SLA), their non-general fund departments and buildings can receive regularly scheduled preventive maintenance (PM) on their unique building & systems similarly to the General Fund – from elevators and life-safety systems, to chillers, variable frequency drives, walkie-talkie radio consoles, even complete roof and anchor point inspections.

Facilities Maintenance SLAs have been growing in use with Auxiliaries due to building complexities and the need to constantly keep track of code required work and records. FM is supported by Work Management and Plant IT staff who work together to maintain one of the most robust work calendaring and activity archiving software databases on campus. This data is all a product of our FMS computer maintenance management system (CMMS) or as we generally call it, our work order system. Since 2012, the approximate value of preventive maintenance and corrective repairs to our U of M Auxiliaries has increased over 137%, from $1.7 to $4.0 million annually.

The process of an SLA starts with identifying a potential customer’s needs and often touring the work location. Work Management staff follow closely as a next step tagging the assets and equipment to create an accurate work activity profile, from which labor classification and material need forecasts can be completed. These become a section of the overall SLA document with cost estimates and frequency of service schedules identified. SLAs include the task lists we work through within our PM programs. We also identify any customer-specific scheduling issues and work processes that may help Work Management to schedule and the Region(s) staff to perform the work.
Along with creating the SLA document, quarterly and annual reports are produced for the customer so they and Facilities Maintenance can see how we are doing mutually in regards to actual versus estimated service costs. Often, many of our Plant services overlap between our internal departments; the SLA Program Manager, Samantha Brandt, often serves as the liaison between the SLA customer and various Plant departments involved in multi-department SLAs.

In the past year, renovations to East Quad, Law Club and South Quad have continued to keep Housing as one of our largest “customers” by work volume. While Housing has their own maintenance staff to handle routine maintenance, FM supports their operations on life-safety systems, elevators, building chillers and refrigeration equipment (which supports their seven dining halls, nine cafes and a number of shops). With the residence halls and dining services expanding their days and hours of operation, there are smaller windows of time that we are allowed access to provide service. It takes communication and cooperation between the customer and the regions to perform the work.

Athletics is another area where we have seen growth in our maintenance support. Where we used to provide only a minor amount of services pertaining to maintenance, we now provide a very focused program of life safety, elevator, and chiller systems maintenance to over 28 Athletics buildings. Athletics has their own maintenance staff as well, but they provide their focused level of support to 900+ student-athletes. Our tradespeople are able to provide their deep expertise for life safety systems, chillers and elevators to ensure the continued development of the champion-caliber teams Michigan Athletics produces. Athletics is another area where we have seen growth in our maintenance support and is another example of how Plant Operations collaborates with work units across the organization to make Blue “Go Blue.”

Our third largest customer is Parking & Transportation Services as we provide service on more than 15 parking structures (with almost 13,000 parking spots!!) and lots with serviceable equipment across campus. We service 26 elevators in these parking decks, as well as fire safety systems like dry pipe systems, etc.

One of the unique aspects of our SLA offerings is the completely customizable HVAC monitoring and control options through our FM’s Building Automation System (BAS). Our BAS group is able to offer anything from simple equipment alarm monitoring such as a sump pump alarm, to elaborate remote access control including custom user account access, remote alarm notification and full in-house technical support. This unique offering allows our SLA customers the ability to take full advantage of an advanced automation system without the headache of negotiating and maintaining complicated third party automation vendor contracts.
MHealthy will come to your worksite and provide you with the C3 program. C3 supports stepping away from your work area and performing a body scan to access areas of tightness or tension in the core. MHealthy will provide you with six core standing exercises that can be done at any time and take as little as 20-30 seconds per exercise.

Each participant will receive:
• A MHealthy back care booklet
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To schedule a site visit:
Email: mhealthy-wellness-coordinators@umich.edu
Or call: 734-764-0285

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2. Answer three questions at mhealthy.umich.edu/tobaccofreeu
3. Submit your answers. You’ll be entered to win a $50 gift card – 10 winners will be randomly selected!


Questions? Call 734-764-0285 or email mhealthy-wellness-coordinator@umich.edu

MHEALTHY PRESENTS: C3: CORE CONDITIONING CARE

Who: Free to all UM Service and Maintenance employees.

When: Sign up now through the end of February.

What is C3: “Core Conditioning Care” demonstrations are available to all UM Service and Maintenance employees. MHealthy will come to your staff meeting anytime in the month of May to demonstrate how to strengthen and maintain a healthy core.

Each participant will receive basic core exercises, a back care booklet, bi-weekly healthy emails, and an MHealthy Healthy Posture Pen labeled with healthy core acronyms.

MHealthy will return after program completion to check-in on your C3 progress and continue to provide education and support.

Register: mhealthy-wellness-coordinator@umich.edu or 734-764-0285.

www.mhealthy.umich.edu

Learn more about MHealthy Tobacco Consultation Service
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DIRECTOR’S DIVERSITY LEADERSHIP AWARD NOMINATIONS - DEADLINE MAY 1, 2015

If you know an individual or a team who actively strives to make their workplace a more inclusive and respectful environment now is your chance to give them the recognition they deserve. The Director’s Diversity Leadership Award was developed to recognize individuals and/or teams that show a measurable commitment to diversity within Plant Operations.

Go to http://www.plantops.umich.edu/director/plant_diversity/leadership_award.php to download the form. If you have any questions, please contact any representative on Plant Operations’ Respect & Inclusion Resource Team.

Watch your email for more activities coming your way...maybe even a 5k fun run/walk & roll!

Mara Cooley, Construction Services
Mary Diskin, Executive Director’s Office (Resource/Sponsor)
Greg Fuqua, Plant Building & Grounds Services
Tracey Pringle, Plant Moving & Material Services
Rick Simmons, Work Management
Cheryl Smith, Plant Administration
Steve Snyder, Facilities Maintenance (Chair)
Zoe Stevens, Utilities & Plant Engineering
David Wentworth, Planet Blue Operations Team
PLANT EACs: STRIVING TO IMPROVE YOUR WORKPLACE

By Chris Riggs

So, you think you’re up to speed on the latest Plant acronyms? Try this one:

Here in Plant Operations, “EAC” stands for:
A) Environmental Assessment Code
B) Employee Advisory Committee
C) Engineering Architecture and Construction
D) Everyone Adores Cheese

The members of Plant’s five Employee Advisory Committees (EACs) certainly hope you chose option B. Each of these department-based EACs is unique and has different approaches to challenges. However, they all share a core mission: continuous improvement of Plant employees’ job satisfaction.

Specifically, the EACs were created to address issues identified in Business & Finance’s Employee Satisfaction Survey (ESS). The ESS is administered every two years and rates each department according to its score in 14 different categories, such as workload, advancement, communication, and compensation. The EACs are charged with identifying the top priority categories for its departments based on the most recent ESS scores from 2014. Then they must develop ideas that will increase employee satisfaction, which in turn should raise scores on the Employee Satisfaction Survey.

Let’s first look at the family of EACs and how they relate to Plant’s departments. With the support of a facilitator, each EAC is comprised of 8 to 12 volunteers typically serving a two to three year term once a rotation schedule is established. Meetings are currently held at least twice a month for 1½ or 2 hours.

While four of the EACs started earlier this year, Construction Services’ EAC, known as the Labor Management Council (LMC) has been going strong since 2005. Currently under the guidance of external facilitator Paul Parzuchowski, the LMC’s membership is a combination of Skilled Trades employees and managers. Over the years, the LMC has successfully championed several initiatives (e.g. Crucial Confrontations, new hiring process, accountability) for Construction Services and is the model on which the other EACs are based.

The EAC for Plant Building & Grounds Services is an extension of an existing employee group known as “The Kudos Crew,” which for years has focused on employee recognition (and planned some awesome Year End parties in the process). While The Kudos Crew has broadened its mandate beyond its original focus on recognition, many of the same members remain on the team. The facilitator for the Kudos Crew is external consultant Sharon Kalbfleisch and the group’s main areas of focus based on the 2014 ESS are communication, training/advancement, and recognition.

The 12 members of the Facilities Maintenance EAC represent a cross section of bargained-for and non-bargained-for staff from central Facilities Maintenance and Hospital Maintenance. Facilitated by Chris Riggs from Plant Academy, the FM EAC’s priority categories include autonomy/involvement, workload, communication, and resources/environment.

Staff from Utilities & Plant Engineering are represented on two different EACs. The UPE EAC, also facilitated by Paul Parzuchowski, represents workers in the Central Power Plant and Outlying Boilers and Tunnels. The priority ESS categories of the UPE EAC include training, accountability and communication.
For information on your departments’ 2013 Employee Satisfaction Survey results, visit the B&F website at: http://www.bf.umich.edu/ess2014/. If you would like to learn more about your department’s EAC or have questions or suggestions to pass along, contact Sharon (skalbf@umich.edu), Paul (Paul@informationss.com), or Chris (criggs@umich.edu).

Finally, Plant’s Cross Functional EAC lives up to its name through participation from four different Plant departments: Material & Moving Services, Work Management, Plant Administrative Services, and UPE’s engineers and administrative staff. These smaller departments lack the necessary critical mass to sustain their own EACs, so a collaborative group has formed with Chris Riggs as facilitator. Due to these departments’ varied challenges and needs, working together under a common set of priorities will always be a challenge for this EAC. However, thoughtful analysis and discussion has yielded a focus on communication, autonomy/involvement, climate, and advancement, with a handful of promising ideas with potential benefits across much of Plant Operations.

As these groups mature and work to define the issues impacting Plant’s day-to-day operations, they are already starting to see some small wins and the beginnings of meaningful long-term recommendations and action plans. By representing its department’s employees through channeling concerns and recommending positive solutions, Plant’s EACs aim to make our daily grind a little more rewarding.
Dear Rich,

My name is Joel Kennedy. I work in shop M2850, the DDC HVAC controls shop. I attended the presentation that you did for the South Campus Region a few weeks ago. After reading what you wrote in the September/October addition of the Plant Exchange, and that you welcome questions, I decided to write this email. I hope you see that it stems from my desire to help keep Plant a great organization and service provider.

In your article, you mentioned that you often ponder why the data shows that we are hitting on all cylinders, while the workers and the people we serve are saying something different. I have been working with the data for the Building Automation System since I hired into the University in 1987. It often happens that the data that I’m working with doesn’t match a person’s perception. Until I investigate, I don’t know whether the problem is with the data or the person, but there is one thing that I know right away. The data doesn’t care if it’s right or wrong. The person bringing it to my attention does.

You offered resistance to “Deep Change” as an explanation for the disconnect that exists between the data and the people’s perception. When I first started at the University, most of the controls for the HVAC equipment were pneumatic. As we began converting them to DDC, there was plenty of resistance to change. Once the new system proved itself to be better than the old system at identifying and fixing problems, I witnessed people who had been more comfortable in the “old ways” embracing the change. I think people actually like change when the change helps them do their job better.

The one thing that I have never found people embracing, accepting, or even tolerating, is when the data doesn’t match reality. For instance: If the data shows that an Air Handling Unit is running, but in reality it is not, I can’t convince someone with eyes and ears that the unit is running based on the data. If the data for a room temp shows 72 degrees, but in reality it is only 62 degrees, I can’t convince the room occupant that they are comfortable based on the data. In these cases the reams of data that I could produce would only frustrate the people who know better. It appears to me that this is the level of frustration that we have within the Plant Department.

One of the advantages of the DDC system is that you can analyze data from a remote location and make control decisions based on the data. That is also one of the disadvantages. When the data is faulty, wrong decisions are made. This can cause disastrous results in the field even while the data continues to look fine. DDC is a superior system over pneumatic controllers, but that is only true when the data matches reality. When the data doesn’t match reality, DDC can screw up a building, or the entire campus, way faster and more severely than the pneumatic controllers ever could. Data has that kind of power.

When the data matches reality, DDC is an extremely valuable tool. It can save money by making the system operate in the most efficient manner and it can provide early detection of problems. When the data doesn’t match reality, the system becomes wasteful. When the data doesn’t match reality, or it’s not setup to sound a critical alarm, the data still gives the impression that the system is running well when it is not. These same possibilities exist with your data.

As you stated, our mission is to clean, repair, operate and modify facilities to keep them in a state that serves the university community’s needs. Your data says that we are doing this. One explanation for why your data looks so good is that—making the data look good has replaced our real mission. Everybody knows that it is easy to intentionally-or-unintentionally create a “perception of greatness” in the data world. It’s much harder to create that perception in the real world where the people understand what our real mission is and how well we are executing it.

I have spent my career entering data and then going from the “front end” to the field and back to make certain that the data matches reality. It’s hard work, but the DDC system doesn’t function without this integrity. I often don’t like the reality that the data shows, but when it equates with what people know to be true, the people seem eager to help find a real solution to the problem.

“A reality shared by others” is that DDC is a great tool to help us accomplish our mission. “A reality that is NOT shared by others” is that your data accurately represents the level that we are accomplishing our mission. The “others” in this case are the people charged with carrying out the mission and those that we serve.

If your data matched reality, it could become a valuable tool to help us all achieve operational excellence, like the DDC data does. If your data doesn’t match reality, people will find it a frustrating obstacle to our greatness.

So here is my question: How do you know that the performance data that you are using accurately represents reality?
Rich Robben Response

Joel,

I think you make a great case for why perceptions and data don’t match using the BAS system as an example. Certainly a failed temperature sensor or thermostat can give us false information that troubleshooting can easily reveal. An error in the program controlling a system performance may be more difficult to analyze but in both cases these are identifiable faults that can be easily remedied, and understood. I have also seen the BAS system identify hidden problems such as simultaneous heating and cooling and marvelous trending information that leads to system solutions. I believe that positive aspects of the system data and control is far outweighing the negatives so as to reduce their impact to noise in the system.

I believe the same can be said for data coming out of the work order system (FMS). The basic data we are using to generate reports is coming from the time cards our workers fill out each day. The work order number, hours worked, the dates, and work codes gives us all the data we need to generate performance reports. The accuracy of the data is considered high because payroll also stems from it. Do errors occur? Absolutely. However the payroll system is the check to make sure time-cards are correctly filled out and even if some work codes may be incorrectly entered the magnitude of the errors is insignificant compared to the total sum of correct data being entered. The only exception would be if there was a wide spread effort made by many to deliberately undermine the system by falsifying completion data. Having worked with this group for over 18 years, I refuse to believe that this could be the case. In other words the data is reliable.

An additional check is that there is a relationship between PM, corrective repairs, breakdowns and backlog counts (and cleanliness for custodial). Not only do we see these factors moving as expected, we also see this movement in the ratios that maintenance practice dictates they should. This relationship would be very hard to manipulate on a large scale.

Although Plant has changed processes in the past, we have never introduced changes as dramatic as the OS1 and FMR restructures. Admittedly these changes cut to the core of the traditional ways of providing our services. This again is why I use the term “Deep Change”. Numerous examples exist in literature and in our own experiences of what the organizational symptoms of significant change are. I believe that in looking at the evidence we have, there remains in some members of our Plant team and customer base a resentment for a perceived loss of individual control and added accountability for everyone’s work. The real and compelling reasons for change continually presented (budget, service accountability, sustainability), is for some of these individuals simply not accepted as sufficient to engage them to work to improve the desired outcomes overall.

In fairness to those who may be resisting the changes, I recognize some parts of the original processes needed to be revised and that materials supply needed to be improved; and that we have been on a learning curve for planning and scheduling. Process and conditions today are improved over those that the North Campus Region started with in 2009. Material supply is also improving as is the quality of planned work packages and schedule preparation. Finally, I like to add that we are continually reviewing the data to make sure the quality of reports are good.

Joel, I appreciate the comments and will keep your views in mind while reviewing reports in the future.

Thanks again for your question.

Rich
EOE DONATES TO THE HOPE CLINIC

By Zoe Stevens

Electrical Operations and Engineering collected $438 for charity at this year’s End of Year Employee Recognition Lunch. The funds were given to Pam Irish to purchase food, gifts, and necessities for three families on the Hope Clinic’s social services list. The Clinic provides medical, dental, and social services to uninsured and low income children and adults in Ypsilanti and Wayne. During the holidays, Pam obtains a list of families from the Hope Clinic, collects funds from friends, shops for the food and supplies, and delivers the packages to the families. Thanks to Pam for facilitating this donation to Hope Clinic families.

For more information on the Hope Clinic, visit: http://www.thehopeclinic.org/