Table of Contents

I Overview  
  1. Preventive Maintenance Program Scope  
  2. Data Structure  
  3. CMMS  
  4. Equipment and Location Identification Tags  
  5. Preventive Maintenance Development and Implementation  
  6. Preventive Maintenance Program Information  

II Preventive Maintenance Development Process – Major Projects  

III Preventive Maintenance Development Process – Small Projects  

IV New Equipment and Preventive Maintenance Task Development  

V Labor Standard and Cost Estimates Determination  

VI Exhibits  
  1. Equipment Inventory Form  
  2. Equipment Data Entry Sheet  
  3. Master Equipment Abbv List  
  4. Master Task Code List  
  5. WebTMA Equipment and PM Task Entry  
  6. PM Minor Project Equipment Form  
  7. PM Basic Task Sheet Template  
  8. PM Major Task Sheet Template  
  9. WebTMA New Task Entry  
  10. WebTMA PM Forecast
UTSA Preventive Maintenance Program

I. Overview

1. Preventive Maintenance Program Scope

The scope of the UTSA Preventive Maintenance Program includes the Main, Downtown, and Institute of Texan Cultures campus locations. For each of these locations, preventive maintenance plans are developed for buildings, equipment, campus infrastructure, and grounds.

2. Data Structure

The preventive maintenance program documents items (equipment, locations, etc.) at the equipment level (boiler, cooling tower, room, etc.). A standardized format of abbreviations is followed to name individual types of equipment. The standardized format uses a combination of the equipment abbreviation, the location, and a unique number (e.g. AHUC-JPL-001).

Equipment Abbrev Legend

XXX-XXX-XXX

EQUIP TYPE
Standard Abbrev

LOCATION
Bldg Abbrev

SEQUENTIAL NUMBER
001 - 999

Example
AHU-UC-001

Individual components of equipment are then addressed in the preventive maintenance task lists. The task lists are organized into modular sections to accommodate variations in equipment configuration. The preventive maintenance task lists are also organized by frequency and shop trade so that an individual piece of equipment may have separate monthly, quarterly, annual, etc. task lists for separate trades, each with distinctive tasks. Thus the preventive maintenance frequency and task contents for a type of equipment can be changed by simply changing the task lists that apply.

Task codes are assigned to each task list, again following a standardized format that identifies the frequency and trade involved (e.g. 6E125).

Task Code Legend

In some cases, multiple minor pieces of equipment such as GFCI receptacles, exterior lights, and restroom fixtures are identified as one equipment unit for the entire building or area. Separate floor plan diagrams or general descriptions are used in these situations to identify the locations or communicate the type of items to be maintained within the building or area.
UTSA Preventive Maintenance Program

A diagram of the Preventive Maintenance Data Structure

3. CMMS

The equipment inventory for each building and area is developed following the steps outlined in Section II and III that use handwritten forms and MS Excel spreadsheets. These steps are used to collect and sanitize the information from errors as much as possible before being inputted into WebTMA, which is the CMMS (Computerized Maintenance Management System) utilized by the UTSA Facilities O&M department.

The PM Master Equipment and Task Lists workbook contains the standardized equipment abbreviations and task codes used in the UTSA Preventive Maintenance Program. This MS Excel workbook along with the other PM program documentation is located in the I:\ Drive Common folder under \PM Services\. Detailed locations of the PM Program documentation can be found in Section VI, Exhibits. The need to add to the standard equipment abbreviation and task code lists occurs when the hand written equipment forms are being developed and a new type of equipment is encountered whose function doesn’t fit into one of the standardized abbreviations. Details of this process are covered in Section IV, Preventive Maintenance Equipment and Task Development.

4. Equipment and Location Identification Tags

Identification tags are used to physically identify each piece of maintained equipment. For indoor locations, these tags are bar coded and are printed on vinyl label stock within the UTSA Facilities O&M department. Since the vinyl labels are subject to weathering, temporary tags have been placed on outdoor equipment items using metal foil tags. The metal foil tags are pre-embossed with a unique sequential number, but do not have bar codes. The outdoor tag number is identified in the description field of the equipment in the WebTMA database to cross reference it to the actual equipment identification. These metal foil tags will be replaced once a material can be identified that protects the vinyl labels from weathering conditions.

When new equipment has been entered into WebTMA, a work order is generally created to have the labels created and installed on the equipment. The designated WebTMA equipment “Tag #” is provided along with the description and location of the equipment. In cases where the preventive maintenance cycle has begun, the PM work order is used to install the labels. The label tags are placed so that they are visible when approaching the equipment to enable trade personnel to readily identify the correct equipment.
5. Preventive Maintenance Development and Implementation

The sequence for the initial development of preventive maintenance data for each building and location was performed based on the functionality of the building and the equipment having the most significant impact on the reliability of the facility. The following are the priorities that were used for building functionality:

1. Buildings with reimbursable tenants
2. Campus infrastructure
3. Research buildings and major education buildings
4. Minor buildings and locations.

To prioritize the level of significances the equipment has on the reliability to the facility, APPA Impact Levels were used. The following definitions were followed:

Level 1 – Statutory: Code, Warranty or other Mandates
Level 2 – Mission Critical: Failure will result in a mission failure
Level 3 – Mission Important: Failure will result in a mission interruption
Level 4 – Significant: Failure will cause an inconvenience

6. Preventive Maintenance Program Information

In addition to data that has been uploaded into WebTMA, additional information on the Preventive Maintenance Program can be found in the main folder listed as “PM Program”. It is located in the I:\ Drive following the network address: \PPLANT\COMMON\O&M SERVICES\.

The PM Program folder is setup with subsequent folders for each integral part of the program. The following are the folders and the description of files contained in each:

1. PM Per Trade and PM Per Location folders
2. PM Master Equipment and Task Lists folder
3. PM Backlog folder
4. PM Templates and Forms folder
5. PM Training folder
6. PM Program Development folder

1. PM Per Trade and PM Per Location folders: Includes submitted scanned copies, completed electronic spreadsheets, forms and other supporting documents such as photographs or equipment reports used to enter new equipment into the PM program or used to review and modify existing equipment in the PM Program.
   a. The PM Per Trade folder has been setup for data or documents encompassing multiple buildings or locations on campus such as a project that may include updating switchgear or backflow preventers located throughout the campus.
   b. The PM Per Location folder has been setup for data or documents specific to one location or building.

2. PM Master Equipment and Task Lists folder: Includes an Excel workbook with multiple spreadsheets providing an updated list of equipment and task used in the program with legends and a
program log. The workbook is updated as new equipment or tasks are rewritten or created in the program with the latter file stored in an archive subfolder.

3. PM Backlog folder: Includes Excel reports generated through WebTMA listing PM work orders scheduled for completion. These reports are disseminated to the Operations and Maintenance supervisors and updated to reflect work orders that have been completed but had not been properly closed or to cancel and reschedule a work order requiring a PM equipment task schedule change in WebTMA.

4. PM Templates and Forms folder: Includes templates, forms and spreadsheets used to update the PM program with new development. This includes forms for equipment and task changes, adding new equipment for minor or larger projects and an archive folder to store templates files as they are revised.

5. PM Training folder: Includes an Excel workbook with individual training programs setup for specific equipment and tasks.

6. PM Program Development folder: Includes current, historical and archive files used to describe the development of the program.

II Preventive Maintenance Development Process – Major Projects

The following process is focused on the development of a preventive maintenance program for a high volume of new equipment being introduced to UTSA as part of a capital project or major institutional project.

1. Copies of construction or as-built drawings are obtained from the Facilities Archives files or during project design, construction or close-out. Drawing sheets that are typically needed for PM development are the architectural floor and roof plans, site utilities, MEP, landscape / irrigation, and special systems (fire alarm, controls, etc.).

2. Site visits are used to identify equipment and spaces that vary from the as-built drawings. These variances may be due to undocumented renovations, equipment modifications, etc. The intent is for the PM Program to document the actual equipment content of the building.

3. Each piece of equipment for a building designated for preventive maintenance is highlighted on the drawings being reviewed. It is then recorded on a hand written Equipment Inventory Form (Exhibit 1) located in the PM Templates and Forms folder that identifies the building, the equipment abbreviation, the full description of the piece of equipment including how it was labeled on the drawing, the room number or location, the drawing number, and any pertinent notes. The hand written lists are retained throughout the PM development process until the equipment inventoried is fully entered into the CMMS database at which time they can be discarded.

4. Once the Equipment Inventory Forms are completed and validated, the information is then transferred to the Equipment Data Entry Sheet (Exhibit 2). Follow-on visits to the equipment location may be required to ensure the equipment and room numbers listed on the drawings are accurate. Once transferred, the following additional information is added on the spreadsheet to each piece of equipment:
UTSA Preventive Maintenance Program

a. Tag # - This is a unique number given to each piece of equipment entered into WebTMA following the format listed in the Data Structure section above.
b. Location ID – This is a combination of the building acronym and room number. All discrepancies in room and area data need to be resolved before proceeding with entering equipment data into WebTMA. If a correct location cannot be found in WebTMA, the CMMS Administrator must be notified provide that information.
c. Type – This reflects the category in which the equipment is associated with for maintenance determination and reporting.
d. Repair Center – This is the UTSA campus in which the equipment resides.
e. PM Task – This is the task codes for the preventive maintenance to be performed on the equipment. In most cases, the necessary task codes can be duplicated from what is listed for a similar piece of equipment in WebTMA.
f. Priority – This reflect the urgency in which the work needs to be performed. All PMs are prioritized as “4” Routine.
g. # x – This is how often the maintenance needs to be performed. In most cases, the maintenance frequency can be duplicated from what is listed for a similar piece of equipment in WebTMA.
h. Freq – This is the period associated with the # x. Due to enhanced reporting that has been created to forecast future preventive maintenance in WebTMA, the “Month” interval is to be used for maintenance frequencies of one month or greater.
i. Est. Time – This is the standard time estimated to perform the maintenance task. The standard time can be found under “Labor Standard” on the task code in the WebTMA Task Record.
j. Trade – This is the UTSA Zone that will be performing the preventive maintenance task for the specific piece of equipment.
k. Acct # - This is the Cost Center that will be charged for the preventive maintenance. For equipment and rooms/areas that will be charged to reimbursable customers, use the appropriate customer cost center. For non-reimbursable equipment and rooms/areas, use the Facilities O&M cost center for the UTSA campus were the maintenance is being conducted.
l. WO Type – This is to reflect the type of Work Order and “Preventive Maintenance” should be used.
m. Next PM Date – This is the date the first PM Work Order should be generated. In most cases, this will be the first day of the month in which the PM is to be done.

In the process of developing the equipment inventory lists, new types of equipment may be encountered that are not covered by one of the existing standardized equipment abbreviations. This will require identification of a new standard equipment abbreviation and development of new task code(s). Development of new task codes should be coordinated with the trades involved to gain their input on the task list and labor estimates. The new standard equipment abbreviation and task code(s) need to be added to the Master Equipment Abbv List (Exhibit 3) and Master Task Code List (Exhibit 4) spreadsheets located in the PM Master Equipment and Task Lists workbook. The new task sheet created for the new task code should follow the standard format template for tasks. Processes for add task sheets and task code to WebTMA are discussed in Section IV, Preventive Maintenance Task Development, of this document.

5. After all the fields in the Equipment Data Entry Sheet are populated, equipment data can begin to be added into the CMMS. This is followed by assigning the appropriate tasks and schedules to the equipment that initiates the PM cycle for the equipment. The WebTMA Equipment and PM Task Entry document (Exhibit 5) provides the specific steps to follow within WebTMA. A color coding system is located on the Equipment Data Entry Sheet to track the progress as information is transferred...
into the CMMS. Once all the information has been transferred, the Equipment Data Entry Sheet is archived in PM per Trade or PM per Location folder in the PM Program folder for future reference.

III Preventive Maintenance Development Process – Minor Projects

The following process is focused on the development of a preventive maintenance program for individual or small volumes of new or replacement equipment being introduced to UTSA as part of institutional or O&M projects. The same process is followed if previously undocumented equipment is identified in the field and should have preventive maintenance performed on it.

1. Information on the equipment such as shop drawings, project submittal documents or O&M manuals are requested from institutional project team personnel during the project close-out process. These documents are used to complete a PM Minor Project Equipment Form (Exhibit 6) on the piece of equipment to be entered into the CMMS. A completed PM Minor Project Equipment Form has all the necessary information to add the equipment and tasks into the CMMS without transferring the information into the Equipment Data Entry Sheet. Due to the substantial amount of forms that would be produced during major projects with high volumes of equipment being introduced, this process is only recommended for individual or small numbers of equipment entry.

2. The same process above is followed for minor O&M projects and undocumented equipment identified at UTSA with one exception. Due to the familiarization of the O&M personnel with the equipment, the systems it is serves and the CMMS, they are ask to complete the top portion of the PM Minor Project Equipment Form.

IV New Equipment and Preventive Maintenance Task Development

The process in which new equipment and preventive maintenance tasks are developed and deployed at UTSA follows these general steps:

1. New Equipment Addition: New equipment is first assessed as to its ownership, how it will be used, the functionality of the building or location it will be supporting, and its APPA Impact Level. This assessment will determine whether the equipment should be added to the preventive maintenance system equipment inventory, if preventive maintenance is warranted, and to what degree.
   a. If it is determined that the equipment should be added and matches with existing equipment in the CMMS, a standard equipment abbreviation is applied to it and a unique equipment tag number is created using the method described in the Section I Overview, Sub-Section 2. Data Structure.
   b. If it is determined that the equipment should be added and does not match with existing equipment in the CMMS, a unique equipment abbreviation will be determined and the Equipment Abbv spreadsheet will be updated in the PM Master Equipment and Task Lists workbook. The new equipment abbreviation will then be applied to it and a unique equipment tag number created as above.

2. Task Assignment: If the determination is made that the new equipment added into the CMMS warrants preventive maintenance, the below steps are taken.
   a. If it is determined that the new equipment added matches with existing equipment in the CMMS and serves in a similar capacity, matching task codes are assigned to the new equipment.
b. If it is determined that the new equipment added does not match with existing equipment in the CMMS, new tasks are developed to address the type and frequency of maintenance needed.

3. New Task Development: If the determination is made that new tasks need to be added into the CMMS, the below steps are taken.
   a. Using the equipment O&M manuals, trade experience and industry best practices, a determination is made on what preventive maintenance tasks should be done and how often. The tasks are then grouped by frequency and trade.
   b. Task sheets are then created that contains the tasks to be perform at the same frequency and by the same trade. A task sheet should be formatted to contain the following sections: Task Code, Frequency, Application, Special Instructions, Tools / Equipment / Materials Required, PM Tasks. The PM Basic Task Sheet Template (Exhibit 7) and PM Major Task Sheet Template (Exhibit 8) documents have been created to assist in the formatting of the task sheet and are located in the \PM Templates and Forms\ folder.
   c. Once the Task Sheets are created, a unique task code is created for each task sheet using the method described in the Section I Overview, Sub-Section 2. Data Structure. It is beneficial if the last three digits assigned to a new task code can match with other task codes of different frequencies for the piece of equipment (i.e. AHUCs have a 5M005 and 6M005)
   d. The new task codes are then added to the task sheets and update on the Master Task Code List spreadsheet in the PM Master Equipment and Task Lists workbook.
   e. In updating the task code spreadsheet, the task description, man-hour required to do the work, type of trade involved, and frequency are also required.
   f. Once the information above has been developed, the new tasks can be entered into WebTMA using the WebTMA New Task Entry document (Exhibit 9). The new task codes are now available to be applied to the new equipment using the WebTMA Equipment and PM Task Entry document.

V Labor Standard and Cost Estimates Determination

The Labor Standard (Est. Time) for PM task codes that have been developed for UTSA are listed in the PM Master Equipment and Task Lists workbook under the Labor Std. column in the Master Task Code List spreadsheet. The initial Labor Standard for each task code was determined using the knowledge and experience of O&M managers, trade supervisors and senior technicians. As the task is repeatedly performed over the course of time, WebTMA summarizes the time applied to that task and calculates an average time that is displayed on the Task Record as “Average Time (hrs)”. This information is periodically reviewed and adjustments made to the Labor Standard for the task code.

Annual Cost Estimates for preventive maintenance are determined by multiplying the task’s Labor Standard or Average Time (whichever is greater) by the frequency in which it is performed each year and applying the appropriate Shop Rate that would be performing the maintenance. This information is primarily used to assist reimbursable customers with budgeting known maintenance costs for future fiscal cycles. An MS Access database report WebTMA PM Forecast (Exhibit 10) has been developed for this purpose.

VI Exhibits

The following is a list of electronic documents used in the UTSA PM Program with the location where they are filed online. All the documents are on the I:\ drive in the \PPlant\Common\O&M Services\PM
UTSA Preventive Maintenance Program

Program\ sub-folder with the exception of the WebTMA PM Forecast that resides on the M:\ drive. Images of the documents are also shown to provide a visual representation.

1. Equipment Inventory Form - \PM Templates and Forms\PM Major Project Equipment Entry.xlsx

<table>
<thead>
<tr>
<th>Equipment Acronym</th>
<th>Description</th>
<th>Room #</th>
<th>Drawing #</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIB</td>
<td>Fan powered Box 1,01</td>
<td>103</td>
<td>M1.2</td>
<td>Example</td>
</tr>
</tbody>
</table>

Instructions:
1. Print this sheet.
2. Highlight equipment found on plan/construction documents/record drawings.
3. Enter data into Equipment Data Entry Sheet (See and Tab Sheet below)

2. Equipment Data Entry Sheet - \PM Templates and Forms\PM Major Project Equipment Entry.xlsx

3. Master Equipment Abbv List – \PM Master Lists\PM Master Equipment and Task Lists.xlsx

Page 9 of 13
4. Master Task Code List - \PM Master Lists\PM Master Equipment and Task Lists.xlsx

Master Task Code List

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
<th>Labor Std</th>
<th>SHOP</th>
<th>FREQ PER YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M1SS</td>
<td>1 MONTH AIR COOLED FILTER MEDIA CHANGE ICE MACHINES</td>
<td>0.25</td>
<td>M</td>
<td>2.00</td>
</tr>
<tr>
<td>3P10</td>
<td>6 MONTH MONTHLY GAS PRESSURE REGULATOR [CAPTURED IN CONTRACT FOR NATURAL GAS TES</td>
<td>1.00</td>
<td>P</td>
<td>2.00</td>
</tr>
<tr>
<td>3P16</td>
<td>6 MONTH PM EMERGENCY NAT GAS SHUT OFF</td>
<td>1.00</td>
<td>P</td>
<td>2.00</td>
</tr>
<tr>
<td>2A160</td>
<td>1 WEEK FUEL CHECK FOR AVG VEHICLE TOYOTA HYBRID AUTO-10D</td>
<td>0.50</td>
<td>A</td>
<td>52.00</td>
</tr>
<tr>
<td>2A161</td>
<td>250HYS - Weekly Task Maintenance (SLA ACCOUNTS ONLY) - FOR BIDDING PURPOSES OF GROUNDS WORK</td>
<td>1.00</td>
<td>G</td>
<td>52.00</td>
</tr>
<tr>
<td>2A162</td>
<td>250HYS - Weekly Turf Meeting (SLA ACCOUNTS ONLY) - FOR BIDDING PURPOSES OF GROUNDS WORK</td>
<td>1.00</td>
<td>G</td>
<td>52.00</td>
</tr>
<tr>
<td>2A172</td>
<td>DAILY MECHANICAL INSPECTIONS (APP 2)</td>
<td>0.25</td>
<td>O</td>
<td>52.00</td>
</tr>
<tr>
<td>2A191</td>
<td>DAILY GIWT WATER TESTING (APP 2)</td>
<td>0.50</td>
<td>D</td>
<td>52.00</td>
</tr>
<tr>
<td>2A192</td>
<td>1 WEEK PM WATER SOFTENER (APP 2) [Change labor to 1.0 hrs 1/13/14]</td>
<td>1.00</td>
<td>P</td>
<td>52.00</td>
</tr>
<tr>
<td>2A173</td>
<td>MONTHLY BATTERY CHECK ON ELECTRIC GOLF CARTS (NOT CURRENTLY SCHEDULED IN TMA)</td>
<td>0.50</td>
<td>A</td>
<td>52.00</td>
</tr>
<tr>
<td>2C193</td>
<td>MONTHLY PM CONDUCTED WEEKLY INSPECTION OF TILED SURFACE ON ELEVATED WALKWAY</td>
<td>0.25</td>
<td>C</td>
<td>32.00</td>
</tr>
<tr>
<td>2E15</td>
<td>1 MONTH PM SMOKING POS. ELECT. (APP 2)</td>
<td>2.00</td>
<td>E</td>
<td>32.00</td>
</tr>
<tr>
<td>2E18</td>
<td>1 MONTHLY OR SIMILAR TRANSFORMER RADIO INSPECTION REQUIRED BY SAFETY (APP 2)</td>
<td>1.50</td>
<td>E</td>
<td>32.00</td>
</tr>
<tr>
<td>3F10</td>
<td>1 Month Fire Pump Flow Test</td>
<td>1.00</td>
<td>F</td>
<td>32.00</td>
</tr>
<tr>
<td>3G006</td>
<td>D0800 - Monthly Pump Break Maintenance (SLA ACCOUNTS ONLY) FOR BIDDING PURPOSES OF GROUNDS WORK</td>
<td>1.00</td>
<td>G</td>
<td>32.00</td>
</tr>
<tr>
<td>3G007</td>
<td>D0800 - Monthly Filled Control</td>
<td>3.00</td>
<td>G</td>
<td>32.00</td>
</tr>
<tr>
<td>3G008</td>
<td>D0800 - Monthly Herbside Maintenance</td>
<td>1.00</td>
<td>G</td>
<td>32.00</td>
</tr>
<tr>
<td>3G009</td>
<td>D0800 - Monthly Test / Inspection Irrigation System Maintenance (APP 1)</td>
<td>1.00</td>
<td>G</td>
<td>32.00</td>
</tr>
<tr>
<td>3H02</td>
<td>D0800 - Monthly PM WATER QUALITY BASIC (APP 2)</td>
<td>1.00</td>
<td>G</td>
<td>32.00</td>
</tr>
</tbody>
</table>

5. WebTMA Equipment and PM Task Entry - \PM Program Development\

WebTMA Equipment and PM Task Entry

The following processes provided the necessary selections to enter new equipment and apply PM tasks to it.

Add Equipment

Note: You can select a like piece of equipment to the new one and select Copy. This will also allow you to copy all the associated PM Tasks for that type of equipment. Make necessary changes unique to that piece of equipment and SAVE. You must go back to the Tasks and make changes to Account, Schedule, etc...

Organization
Equipment
Add
Tag #
Description
Location ID (Building Abbv.-Room Number. If not available, contact the UTSA TMA Administrator to add a missing area.)
Type Desc.
Account #
Select Repair Center tab
Add Repair Center
Check Repair Center (Where the equipment resides)
Select Identify to double check entries.

Save

PM Task Schedule

Note: If you used the Copy selection to enter a new piece of equipment, ensure the Account and Schedule are reviewed and modified if necessary.

Organization
Task
6. PM Minor Project Equipment Form - \PM Templates and Forms\ 

PM Minor Project Equipment Form

<table>
<thead>
<tr>
<th>Requestor</th>
<th>Contact No</th>
<th>Date</th>
</tr>
</thead>
</table>

New Equipment Data

1. Equipment Replacement [ ] New (Complete 1 through 13) [ ] Replacement (Complete 1 through 15)
2. Project Name and WO #
3. Project Completion Date
4. Equipment Label / Tag
5. Equipment Description
6. Equipment System
7. Model Number
8. Serial Number
9. Manufacturer
10. Qualifier

7. PM Basic Task Sheet Template - \PM Templates and Forms\PM Task Sheet Templates\ 

PM Basic Task Sheet Template

Task Code: 3M151 (APPA4)
Frequency: 1 MONTH

Application: This PM applies to independent compressed air filter units.

Special Instructions:
1. Review manufacturer's maintenance instructions.
2. Follow established procedures for communication of equipment maintenance.
3. Follow all applicable safety procedures.
4. Follow all applicable environmental requirements in handling material disposal.

Tools / Equipment / Materials Required:

PM Tasks:
1. Inspect compressed air filter housing, hoses and connections for any signs of damage, leaking or looseness.
2. If applicable, inspect sight glasses for signs of moisture or contamination build-up.
3. If equipped with auto-blowdown feature, test feature and blow down contaminations.
4. If equipped with manual blowdown valve, ensure drain line is available and directed to a drain. Manually open filter valve to blow out moisture and contamination from the air filter until clear.
5. Close valve and ensure there is no residual leak-by from the drain line.
6. Note any discrepancies found and initiate a repair work order.
8. PM Major Task Sheet Template - PM Program\Templates and Forms\PM Task Sheet Templates\ 

PM Major Task Sheet Template

Task Code: 4M154 (APPA2)

Frequency: 3 MONTH

Application: This PM applies to stationary vacuum system units including multiple pumps operated by a lead-lag controller. The scope includes the pump(s), the vacuum storage tank, and the lead-lag controller. The annual PM for vacuum system units is covered by Task Code 6M154. Annual PM for electric motors is covered by Task Code BE09.

Special Instructions:
1. Review manufacturer’s maintenance instructions.
2. Follow established procedure for communication of equipment maintenance.
3. Follow all applicable safety procedures.
4. Follow all applicable environmental requirements in handling material disposal.

Tools / Equipment / Materials Required:
1. Hand-tools and Flashlight.
2. Pump oil and filter as required.
3. Grease gun and grease as required.
4. Infrared Heat Gun or Contact Thermometer.

PM Tasks:

Tasks 1-8 apply to vacuum system when running. Note these tasks may require the other vacuum pumps be de-energized to assure the pump being inspected continues to run. In this event, ensure that adequate vacuum is being maintained.
1. Measure and record bearing temperatures using infrared heat gun or contact thermometer. Hold heat gun within 2 inches of bearing housing to measure temperature.
2. If seal is visible, measure and record temperature at seal face using infrared heat gun or contact thermometer. Hold gun within 2 inches of seal face.
3. Observe for excessive noise and vibration of pump, motor and drive coupling.
4. Observe for water and vacuum leaks.
5. Inspect each pump for leaks in seals, valves, gaskets, etc.
6. Inspect pump exhaust system for clogged filter elements or burned oil. This is indicated by smoke and oil mist coming from the exhaust, high motor current, or if equipped with a pressure gauge, note if it is indicating high pressure. If filter elements have begun to clog, change exhaust filter elements.
7. For liquid ring vacuum pumps, observe water flow from pump to verify adequate flow rate.
8. For liquid ring vacuum pumps, flush Y strainer to remove debris.

Tasks 9-17 apply to vacuum pumps when off:
9. Note level of oil in system. If there is a significant drop in oil level, observe for leaks or broken exhaust filter.
10. Note color of oil in system. If the oil is dark colored, a thorough flushing may be required.
11. Drain oil from hot pump and containerize for appropriate disposal.
WebTMA New Task Entry

The following process provided the necessary selections to enter new PM tasks in WebTMA.

Add New Task

Note: You can select a like task to the new one and select Copy. Make the necessary changes unique to the new task and SAVE. Ensure you make changes to Account, Schedule, etc...

Organization Task Record

Add Code (Enter new unique task code)
Description (Enter task code description)
Type (Enter PM)
Labor Standard (Enter man-hours)
Select Task Sheet tab
Copy new Task Sheet text from modified template and paste in text box. (Spacing will need to be corrected)
Select Repair Center
Add Repair Center
Select correct Repair Center and SAVE Repair Center
SAVE Task

10. WebTMA PM Forecast – M:\Access DB Reports\Facilities\