

# FOLLOW-UP OF PUBLIC UTILITIES WORK ORDER RESPONSE AND RESOLUTION

March 2017

*Original audit report issued September 2014*

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**Karen E. Rushing**

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Office of the Inspector General  
Sarasota County, Florida



# CONTENTS

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Executive Summary	2
Summary and Overall Results	3
Open/Partially Completed Conditions and Pending Corrective Action	5
Closed Conditions and Follow-up Results	9
Appendix A	
Original Audit Report dated September 2014	10

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## EXECUTIVE SUMMARY

## ORIGINAL AUDIT ISSUES AND STATUS

As part of the Annual Audit Plan, the Clerk of Circuit Court and County Comptroller's Internal Audit Department and Office of the Inspector General conducted a Follow-up Audit of Public Utilities Work Order Response and Resolution.

- Follow-up audits have a scope limited to the observations reported on the original audit report and subsequent corrective actions taken by responsible management.
- Reviewed any policies and procedures updated since the original audit.
- Discussed with management the steps taken to address the original audit's Opportunities for Improvement.
- Reviewed each area relating to an Opportunity for Improvement from the original audit was reviewed in order to ensure that they have been appropriately addressed.
- This report will conclude the follow-up process as it pertains to Public Utilities Work Order Response and Resolution.

### ***Open/Partially Completed***

- Service Request Responses completed within the established time frames based on priority.
- Work Orders completed within the established time frames based on priority.

### ***Closed***

- Policies and Procedures updated to establish and track communication with citizens when work orders exceed the estimated completion time.



## SUMMARY AND OVERALL RESULTS

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### ***Background***

The purpose of the September 2014 Audit of Public Utilities Work Order Response and Resolution was to determine if the Public Utilities work order process is operating effectively. The scope of the audit included a review of work orders for the period of October 1, 2013 through March 31, 2014.

The original audit report concluded that the Public Utilities Department lacked specific policies or procedures to address the performance expectations of the citizens, the rate payers, and management. These items are detailed in the Opportunities for Improvement section of the original audit report.

### ***Objectives***

The objectives of this follow-up audit were to evaluate the observations reported on the Public Utilities Work Order Response and Resolution audit report, dated September 2014, and subsequent corrective actions taken by responsible management. This was achieved by providing independent, objective analysis as well as reasonable assurance that the previous concerns have been addressed and appropriate corrective measures implemented.

To meet the objectives of the follow-up audit, the following procedures were performed:

- Obtained the updated Policies and Procedures.
- Obtained an understanding of changes made to the Policies and Procedures since the original audit report date.
- Examined all service requests and work orders for the period of June 1, 2016 through September 30, 2016.

## Overall Results

Based on the results of our follow-up audit procedures, Public Utilities has addressed portions of the previous concerns but has not implemented appropriate corrective action on two of the conditions identified in the original audit report.

Condition	Status
1. Work Order Prioritization	Open/Partially Completed
2. Response and Resolution Times	Open/Partially Completed
3. Unresolved Work Order(s) and Customer Follow-Up	Closed

Although two *Opportunities for Improvement* remain open/partially completed, this concludes the follow-up audit process as it relates to Public Utilities Work Order Response and Resolution.





## OPEN/PARTIALLY COMPLETED CONDITIONS AND PENDING CORRECTIVE ACTION

Two conditions identified in the original report are currently open but partially completed. They continue to require management attention.

### 1. Work Order Prioritization

#### **Current Status, Follow-Up Audit dated January 2017:**

Since the original audit, Public Utilities updated the Standard Operating Procedures (SOPs) in order to establish criteria for service request prioritization. This prioritization establishes response times for service requests based on a priority rating (one through four). Response times are defined in the SOP as an action taken by Public Utilities staff, including status change, work order creation, and customer contact for clarity.

In order to ensure that response times are achieved within the timeframes of the assigned prioritization, a 100% test was performed on all service requests from June 1, 2016 through September 30, 2016 for a total of 1,619. Based on the testing, the following issues were noted:

- Of the 210 service requests labeled as a level four priority (emergency), a total of 95 (45%) exceeded the maximum established response time of two hours as specified in the SOPs. The average response time for these 95 was 13 hours.
- Of the 1,124 service requests labeled as a level three priority (urgent), a total of 358 (32%) exceeded the maximum established response time of four hours as specified in the SOPs. The average response time for these 358 was 16 hours.

Although policies and procedures were developed, it appears that proper prioritization of the service requests is not taking place. Additional steps should be taken to ensure that service requests are properly prioritized and responded to within the established time frame.

#### **Original Audit Observation, Report dated September 2014:**

The Maximo system includes a field for priority number; however, this field is currently being used for general categorization of work order types. Work orders are currently given a priority number between one (1) and four (4). The numbers represent the following categories:

- One (1) is Non-Critical to Operations (Corrective Maintenance/Routine Maintenance)
- Two (2) Preventive Maintenance, Production/Scheduled Work or Capital/Project Work
- Three (3) Urgent
- Four (4) Emergency

The categories do not correlate to any requirements for completion time. It is up to the planner or individual entering the work order to determine the priority number and there are no formal processes or guidelines for defining the category of prioritization.

**Original Recommendations, Report dated September 2014:**

To ensure consistency with the treatment of all work orders, policies or procedures are required. Standardizing and establishing criteria for the prioritization of work assignments and for completion time will assist in managing backlog, assessing service level and quantifying resource requirements.

**Management Action Plan:**

Management agrees with the data used in testing and is currently reviewing the current processes to determine what improvements are necessary to meet the established timeframes. Upon review of the data set used for testing, it was noted 168 of the service requests were initiated after normal weekday business hours (5pm). This resulted in those after-hours service requests not being acknowledged until the following business day. We are currently making improvements to the current process including the deployment of mobile devices for “On-Call” staff. This will enable the acknowledgement of the service request to occur within the established timeframes regardless of when they are received. The expected completion for these improvements is summer 2017. In addition, many of the service requests from the data set were related to storm events which made it difficult for the Planner/Schedulers to process the excessive volume of service requests during this period. During future storm events, the storm related service requests will be acknowledged by additional Planner/Schedulers to meet the established timeframes. However, due to the volume of storm related service requests, the SOP for timeframe acknowledgement may be suspended until normal operations resume.

## **2. Response and Resolution Times.**

### **Current Status, Follow-Up Audit dated January 2017:**

Since the original audit, Public Utilities updated the SOPs in order to establish criteria for Work Order prioritization. This prioritization establishes completion times for work orders based on a priority rating (one through four). In order to ensure that work orders were completed within the timeframes of the assigned prioritization, a 100% test was performed on all Public Utility work orders from June 1, 2016 through September 30, 2016 for a total of 1,011. Based on the testing, the following issues were noted:

- Of the 13 work orders labeled as a level four priority (emergency), a total of four (31%) exceeded the maximum established completion time of two hours as specified in the SOPs.
- Of the 79 work orders labeled as a level three priority (urgent), a total of 44 (56%) exceeded the maximum established completion time of four days as specified in the SOPs.
- Of the 808 work orders labeled as a level two priority (corrective maintenance), a total of 21 (3%) exceeded the maximum established completion time of 60 days as specified in the SOPs.

Based on the review, policies and procedures have been developed to prioritize work orders and include resolution timeframes. Although Public Utilities appears to be prioritizing work orders, our testing showed that completion times are not consistently within the specified time frame for the assigned prioritization.

### **Original Audit Observation, Report dated September 2014:**

Testing of the non-billing Public Utility work orders revealed that the majority of work order types do not have a pre-established target time in which a response and resolution must be achieved. The existing resolution times were established by the former Systems and Controls group in Operations and Maintenance, which was disbanded in April of 2013. This group began building the work order resolution times in Maximo; however, this task was not completed. As a result, many of the work orders do not have established response and resolution time requirements. Of the 380 work orders that were reviewed, 357 work orders lacked a time standard, eighteen (18) were not resolved in accordance with the Maximo timeline and the remaining five (5) work orders were resolved in accordance with the pre-established Maximo timeline. Work orders related to Utility Billing were not tested as no documentation regarding completion times existed.

### **Original Recommendations, Report dated September 2014:**

In order to address service level and work efficiency, Public Utilities must ensure policies or procedures for work order resolution timeframes are developed. Additionally, the previously



established tables created by the former Systems and Controls group should be reviewed to determine if the timeframes are feasible and can be incorporated into the policies and procedures.

**Management Action Plan:**

Management is reviewing the established timeframes and procedures and determining modifications that need to be implemented. With respect to the level four priority (emergency) work orders, the intent is for the initial response and the assessment of the problem to occur within 2 hours. The current report measuring the established timeframe is using the “last labor” and “closed” dates rather than measuring the initial response. Since many of the mobile devices have not been deployed to staff that typically respond to emergencies, there is a lag in the data capture once the work is completed. Mobile devices are being deployed to staff by July 2017 such that they can accurately log the response time for these priority work orders.



## CLOSED CONDITIONS AND FOLLOW-UP RESULTS

### **3. Unresolved Work Orders and Customer Follow-Up**

#### **Current Status, Follow-Up Audit dated January 2017:**

The original audit noted that there were no policies and procedures in place regarding the notification to customers when work orders were taking longer than anticipated to complete. Since the original audit, Public Utilities enabled automated email communication with customers that have an email address on file. Additionally, a flow chart was created that included a step where customers are to be notified if the completion dates needed to be modified.

#### **Original Audit Observation, Report dated September 2014:**

There are currently no policies or procedures for communication with a customer subsequent to a work order being created. Based on interviews with management, Public Utilities does not typically communicate or follow up with customers during the work order process. If a work order takes an unexpectedly long time to complete, there are no policies or procedures designed to ensure the customer receives further communication. Additionally, the Department does not utilize customer feedback or surveys to measure its successes and challenges.

#### **Original Recommendations, Report dated September 2014:**

In pursuit of excellent service, the Public Utilities Department must establish policies or procedures for the handling of customer work orders that run longer than the pre-established assigned period. These policies or procedures should include an established protocol for communicating time delays or issues with the customer. Additionally, Public Utilities should obtain and measure customer feedback subsequent to the work being completed. This information is invaluable and helps improve future customer service.





## APPENDIX A

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Following is the original *Audit of Public Utilities Work Order Response and Resolution* dated September 2014.



# KAREN E. RUSHING

Clerk of the Circuit Court and County Comptroller

## Audit of Public Utilities Work Order Response and Resolution

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Clerk of the Circuit Court and County Comptroller

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September 2014

## **TABLE OF CONTENTS**

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	<b>Page</b>
Summary and Results	3
Opportunities for Improvement and Management Responses	6

## Summary and Results

The Clerk of the Circuit Court and County Comptroller's *Internal Audit Department and Office of the Inspector General* has completed an audit of the Sarasota County Public Utilities work order response and resolution process. The audit was planned and conducted in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The purpose of the audit was to review compliance with applicable work order policies and procedures.

### Background

Sarasota County Public Utilities has approximately 80,000 water connections, 65,000 sewer connections and 3,000 reuse connections. The Public Utilities Department handles work orders related to service, maintenance and billing for potable, sewer and storm water. These work orders are managed in two (2) separate systems. The Maximo work order system is a tool for tracking service requests received by the County's call center. Additionally, the Maximo system handles routine maintenance work orders, many of which are scheduled to automatically renew. Customer work orders, resulting from billing inquiries, are administered by the Public Utilities call center and are handled in the Utility billing system, SunGard.

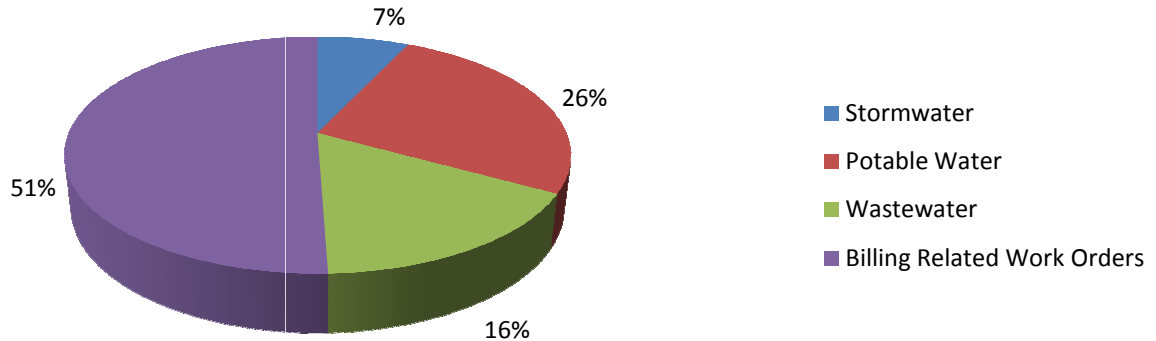
During the period from October 1, 2013 to March 31, 2014, Public Utilities recorded 21,390 Maximo related work orders and 21,871 work orders that originated from the Utility billing system, SunGard. The table below illustrates the timing of work between work order submission date, start date and finish date.

Quantity of Work Orders <sup>1</sup>	System of Record	Type	Submission Date to Start Date - Average Days	Start Date to Finish Date - Average Days	Submission Date to Finish Date- Average Days
3,025	Maximo	Stormwater	30	14	44
11,268	Maximo	Potable Water	17	4	21
7,097	Maximo	Wastewater	11	6	17
21,871	SunGard	Billing Related Work Orders	2	6	8

<sup>1</sup>The table above reflects the quantity of work orders reported from October 1, 2013 to March 31, 2014 and includes work orders reported and finished, work orders started and not finished and work orders that have been reported but not started.



## 43,261 Public Utility Work Orders by Type (October 1, 2013 to March 31, 2014)

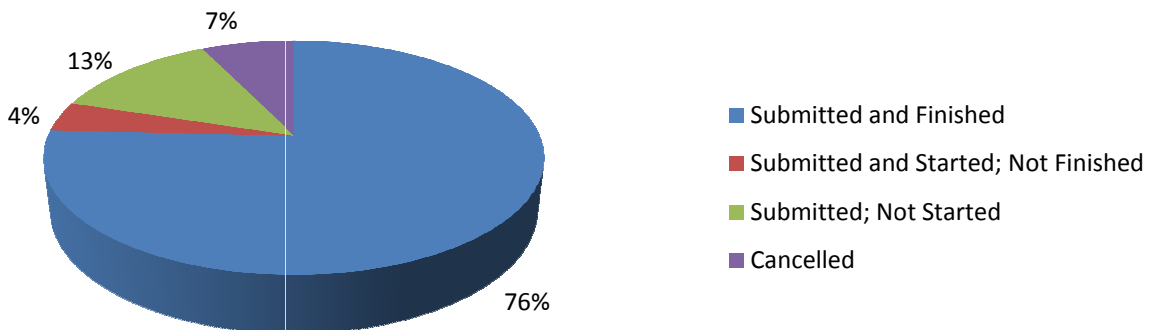


The pie chart above depicts the makeup of the work orders managed by Public Utilities during the audit period. Stormwater, Potable Water and Wastewater work orders consist of, but are not limited to, the following types: Customer Service, Routine Maintenance, Capital Project, Emergency Maintenance, and Inspection. Billing related work orders primarily consist of, but are not limited to, the following types: turn on meter- new service, final meter read, meter reread, and meter replacement. The majority of work orders in the Potable Water, Wastewater and Billing Related categories were submitted and finished within the audit period as shown below:

Type	Submitted	Finished
Potable Water	11,268	97%
Wastewater	7,097	99%
Billing Related	21,871	99%

However, Stormwater work orders<sup>1</sup> typically followed a longer life cycle, as depicted below:

## 3,025 Work Orders by Status- Stormwater (October 1, 2013 to March 31, 2014)



<sup>1</sup>Examples of Stormwater work orders include, but are not limited to: ditch excavation, canal clearing, pipe replacement, herbicide treatment, sod restoration and pump station inspections.

## ***Objectives, Scope and Methodology***

In support of the County's goal to provide excellent customer service, the objective of this audit was to determine if the Public Utilities work order process is operating effectively. The scope of the audit included a review of work orders for the period of October 1, 2013 through March 31, 2014.

To meet the objectives of the audit, the procedures performed included, but were not limited to, the following:

- Reviewed and gained an understanding of the flow of Public Utilities work orders in the Maximo and SunGard systems.
- Conducted interviews with staff responsible for carrying out the different aspects of the work order process.
- Evaluated the extent of internal control over the work order process(es).
- Reviewed the Department's work order policies and procedures.
- Conducted a detailed review of work orders occurring in both Maximo and SunGard systems. Work orders processed within the SunGard system were typically resolved within eight (8) days; as a result further testing of work order completion times was deemed necessary only for the Maximo work orders, which on average took significantly longer to resolve.
- Examined a sample of work orders occurring between October 1, 2013 and March 31, 2014. The sample was tested to determine compliance with Department policies and procedures. A total of 20,465 non-billing related work orders were completed during the audit period, and a sample of 380 were selected for testing. Statistical sampling provided a 95% confidence level and a 5% margin of error.
- Identified opportunities for improvement.

## ***Overall Results***

Based on the procedures performed, the Public Utilities Department is lacking specific policies or procedures to address the performance expectations of the citizens, the rate payers and management. Further details are provided in the Opportunities for Improvement section of this report.

The following summarizes the result of the audit:

- Work Order Prioritization- While the County has an Operations and Maintenance Quick Reference Guide, the Department does not have policies or procedures to specifically establish the prioritization of Utility work orders.
- Response and Resolution Times- Timetables for responding to and resolving work orders are incomplete.
- Unresolved Work Orders and Customer Follow-Up - The Department does not have any policies or procedures for notifying customers when work orders are incomplete or provide customers with feedback regarding timeliness.

## ***Opportunities for Improvement***

The audit disclosed certain policies, procedures, and/or practices that could be improved. The audit was neither designed nor intended to be a detailed study of every relevant system, procedure, or transaction. Accordingly, the ***Opportunities for Improvement*** presented in this report may not be all-inclusive of areas where improvement may be needed. Observations and recommendations were made in the following areas:

- 1. Work Order Prioritization**
- 2. Response and Resolution Times**
- 3. Unresolved Work Orders and Customer Follow-Up**

### **1. Work Order Prioritization**

***While the County has an Operations and Maintenance Quick Reference Guide, the Department does not have policies or procedures to specifically establish the prioritization of Utility work orders.***

#### **Observation**

The Maximo system includes a field for priority number; however, this field is currently being used for general categorization of work order types. Work orders are currently given a priority number between one (1) and four (4). The numbers represent the following categories:

- One (1) is Non-Critical to Operations (Corrective Maintenance/Routine Maintenance)
- Two (2) Preventive Maintenance, Production/Scheduled Work or Capital/Project Work
- Three (3) Urgent
- Four (4) Emergency

The categories do not correlate to any requirements for completion time. It is up to the planner or individual entering the work order to determine the priority number and there are no formal processes or guidelines for defining the category of prioritization.

#### **Recommendation**

To ensure consistency with the treatment of all work orders, policies or procedures are required. Standardizing and establishing criteria for the prioritization of work assignments and for completion time will assist in managing backlog, assessing service level and quantifying resource requirements.

#### **Management Response**

Public Utilities management agrees with this recommendation and has developed a preliminary action plan for review and implementation. The implementation plan includes specific tasks with target completion dates, assignments and outcomes. The implementation requires close coordination with

EIT/Maximo to assist in finalizing the action plan, implementing software changes and training Public Utilities staff. The preliminary action plan is summarized below. All items in the action plan will be completed by September 30, 2015:

- a. Define citizen response windows for each priority and type of required response
- b. Build Service Level Agreements (SLA) in the work management system to govern initial responses to citizens for all service requests received by reported priority
- c. Create start center portals, escalations and reports for planners, supervisors and management to monitor service requests and if the response has been provided within the established SLA. Response will take the form of an automated email, phone call, door hanger, or in person contact. Train staff on how to utilize the monitoring tools.
- d. Update work type prioritization matrix and train staff on usage to further prioritize service requests with the same priority. Train staff on how to use and update work type prioritization matrix.
- e. Establish asset and location criticality (single points of failure) within work management system in order to further prioritize work within the same work type categories.

## **2. Response and Resolution Times**

*Timetables for responding to and resolving work orders are incomplete.*

### **Observation**

Testing of the non-billing Public Utility work orders revealed that the majority of work order types do not have a pre-established target time in which a response and resolution must be achieved. The existing resolution times were established by the former Systems and Controls group in Operations and Maintenance, which was disbanded in April of 2013. This group began building the work order resolution times in Maximo; however, this task was not completed. As a result, many of the work orders do not have established response and resolution time requirements. Of the 380 work orders that were reviewed, 357 work orders lacked a time standard, eighteen (18) were not resolved in accordance with the Maximo timeline and the remaining five (5) work orders were resolved in accordance with the pre-established Maximo timeline. Work orders related to Utility Billing were not tested as no documentation regarding completion times existed.

### **Recommendation**

In order to address service level and work efficiency, Public Utilities must ensure policies or procedures for work order resolution timeframes are developed. Additionally, the previously established tables created by the former Systems and Controls group should be reviewed to determine if the timeframes are feasible and can be incorporated into the policies and procedures.

## **Management Response**

Public Utilities management agrees with this recommendation and has begun implementing an action plan that includes building formal service level agreements (SLA) within the Maximo system. All work activities have been identified and include response and completion times, but require a review and potential updates. The existing features of the Maximo application will automate the response and completion times to manage established targets. This functionality, once activated will automatically apply when work orders are saved. This will require all those responsible for managing work order priorities have start center portals established to provide them with the information and control necessary to manage the SLAs. This will include job planners, supervisors and managers. EIT/Maximo will be required to make the required changes to the software application, set up the start center portals and train staff as necessary. The following is a preliminary action plan outline to accomplish the goal summarized above. All items in the action plan will be completed by September 30, 2015:

- a. Review existing SLA spreadsheets and update as necessary
- b. Provide remedial training to staff to monitor target dates
- c. Review and update existing prioritization tables
- d. Provide remedial training to staff in proper use of prioritization tables
- e. Set up automated SLAs in system and activate
- f. Monitor and adjust SLAs as needed

### **3. Unresolved Work Order(s) and Customer Follow-Up**

***The Department does not have any policies or procedures for notifying customers when work orders are incomplete or provide customers with feedback regarding timeliness.***

## **Observation**

There are currently no policies or procedures for communication with a customer subsequent to a work order being created. Based on interviews with management, Public Utilities does not typically communicate or follow up with customers during the work order process. If a work order takes an unexpectedly long time to complete, there are no policies or procedures designed to ensure the customer receives further communication. Additionally, the Department does not utilize customer feedback or surveys to measure its successes and challenges.

## **Recommendation**

In pursuit of excellent service, the Public Utilities Department must establish policies or procedures for the handling of customer work orders that run longer than the pre-established assigned period. These policies or procedures should include an established protocol for communicating time delays or issues with the customer. Additionally, Public Utilities should obtain and measure customer feedback subsequent to the work being completed. This information is invaluable and helps improve future customer service.

## **Management Response**

Public Utilities management agrees with this recommendation and has developed a preliminary action plan to address the customer communication process related to work request status and work completion delays. As of October 14<sup>th</sup>, 2014 customers who have provided an email address receive automated messages regarding the creation of a service request. The status updates for citizens is currently being evaluated and approximately 50% complete. The following is an outline of the preliminary action plan in order to complete. All items in the action plan will be completed by September 30, 2015:

- a. Define communication points for citizens throughout the work order process for work orders with a related service request (work order response/resolution timeframe, work completed, customer survey )
- b. Enable automated email updates for each communication point for citizens with an email address on file.
- c. Enable the automated customer survey function within the work order system for Public Utilities managers and supervisors to monitor
- d. Establish a follow-up procedure for citizens with no email address on file
- e. Finish project to transition the monitoring of work order quality reports to new manager and supervisors (backlog, work order aging report, SLA reports).