



***Environmental Services –
Warranty Administration Audit
Report***

July 2019

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1.0 Management Summary

Audit Services has completed an audit of capital project warranty administration in Environmental Services.

The audit was conducted in accordance with the *Institute of Internal Auditors International Standards for the Professional Practice of Internal Auditing*.

The scope of the audit included a review of the Consultant Requirements Manual that governs the warranty administration process. Additionally, we performed detailed testing on a selected sample of projects to ensure that they were performed in compliance with the applicable processes.

Testing was conducted at a sufficient level of detail to allow us to evaluate compliance with the approved Consultant Requirements Manual and other applicable policies / procedures.

Overall, the results of our detailed testing indicate that the warranty administration process operates in a manner that is in compliance with the Consultant Requirements Manual.

Opportunities for internal control improvements were noted and discussed with appropriate management. Other improvements relate to the documentation requirements of the Consultant Requirements Manual including; tracking key warranty dates, improving final inspection, cost remediation monitoring, and improvements to document collection and maintenance.

It should also be noted that there were key processes identified during the audit where controls were strong and working as designed. This includes the overall collection, maintenance and monitoring of warranty deficiency lists from the consultant and ensuring resolution of deficiencies prior to the expiration of the warranty period.

Should the reader have any questions or require a more detailed understanding of the risk assessment and sampling decisions made during this audit, please contact the Director, Audit Services.

Audit Services would like to thank Environmental Services staff for their co-operation and assistance provided during the audit.

2.0 Introduction

As part of our Council Approved Audit Plan for 2019, the Audit Services Branch performed a Capital Project Warranty Administration Audit. The Audit Plan, approved by the Audit Committee, is developed by the Audit Services Department using a Risk Assessment Methodology that helps to define the different risks associated with the various processes at the Region. It is one tool that Audit Services uses in assessing where best to allocate audit resources.

The Environmental Services Capital Planning and Delivery (CPD) branch manages the warranty following construction of the Region's water and wastewater capital assets. This process is reflected in the Consultant Requirements Manual (CRM), which outlines the warranty administration function.

The activities performed within the CPD branch include the administration of the warranty during the warranty period; including collecting required documents from the Consultant and ensuring deficiencies are resolved prior to the expiration of the warranty period.

Audit Services reviewed the warranty administration process by assessing compliance to the CRM.

3.0 Objectives and Scope

The main objectives of this engagement were to:

- Review the warranty administration process to ensure that deficiencies under warranty are identified during the warranty period and corrected at no additional expense to the Region.

The audit objectives were accomplished through:

1. A review of the Region's processes and policies in place for warranty administration.
2. A review of contract documents regarding warranty requirements and commitments for capital projects.
3. A review of a selected sample of capital projects to ensure that administration throughout the warranty period was in compliance with policies and the Region executed their commitments.
4. A review of the project close-out process, as implemented since the Capital Project Review Audit performed in 2016.
5. Interviews with appropriate personnel.
6. Review of other related documentation.

4.0 Detailed Observations and Recommendations

4.1 Consultant is unable to receive warranty reminders via Project Server

Observation

The existing Consultant Requirements Manual (CRM) was implemented in 2015. We randomly selected three capital projects whose warranty period expired post-2015 to review the warranty close-out procedures and final inspection documents.

Section 10.3.3 of the CRM states that, “Ninety days’ prior to the end of the warranty period, the Consultant shall arrange a final warranty inspection of the works to determine if there are any outstanding deficiencies which must be rectified.”

For one of the three projects, the final warranty inspection was performed 17 days prior to the warranty expiration.

Project Server is the system used to manage capital projects. The system has a field in which the project team can input warranty dates and 90 days prior to the end of the warranty period, the system will generate an email to key personnel that the warranty is close to expiration.

We also observed that the Consultant is required to log into Project Server through Citrix, as they do not have an associated Outlook account. Therefore, the Consultant is unable to receive the email reminders set up in the system.

We understand that there is an anticipated update to the Project Server system planned for the near future.

Recommendation

Management should ensure that during the next update to Project Server, Consultant email addresses are able to be set up to receive warranty related reminders and notifications set up by the project team.

Management Response

Management is in agreement with Audit Services’ recommendation and is including this functionality in the Project Server Upgrade Project anticipated to be implemented by the end of Q3 2020.

Our Project Managers who are also notified of this requirement will also use the system-generated email reminder as a trigger to follow up with the Consultant and ensure the required work is scheduled.

4.2 Final Warranty Inspection Documentation

Observation

We noted during our review that no formal template exists to track the documentation requirements of the CRM for Final Warranty Inspection.

Section 10.3.3 of the CRM outlines the requirements for the Final Warranty Inspection:

“The Final Warranty Inspection shall include, but not be limited, to the following:

- Field Devices
- Equipment and performance
- Process performance
- Building envelope
- Landscaping items, erosion and sediment controls removals, etc.

At a minimum, the following staff shall attend the Final Warranty Inspection:

- The Consultant’s Project Manager and Site Inspector
- The Region’s Project Manager, Construction Administrator, Environmental Specialist, Operations, Maintenance and Monitoring staff, and a member of the Infrastructure Asset Management team
- The Contractor’s Site Supervisor
- The Subcontractor’s site representatives, as required.”

Recommendation

Management should develop a formal reporting template for use during the Final Warranty Inspection. This document should include a checklist of warrantable items that have been inspected that satisfies the requirements of the CRM.

Additionally, this document should identify all personnel in attendance at the Final Warranty Inspection and include sign-off.

Management Response

Management is in agreement with Audit Services’ recommendation that a formal means of documenting inspection information is required.

As part of the Project Server Upgrade Project, a new reporting template will be developed specifically for documenting inspections. This will be part of a tool that will include standard inspection forms for several device types and a workflow component that allows for sign-off by personnel (as listed in CRM at a minimum) in attendance at inspections. The tool is anticipated to be released by the end of Q3 2020. The next release of the CRM, scheduled to occur by the end of Q4 2020, will reflect use of the new tool.

4.3 Final Warranty Inspection Frequency

Observation

Of the three capital projects selected for final warranty inspection review, two did not have regular inspections performed for warrantable items throughout the warranty period. Warrantable issues would be addressed as identified; however, the Consultant or the Contractor may or may not be on site during the warranty period and therefore may not identify deficiencies in a timely manner.

We noted that one project performed regular visual inspections at a frequency of every 2 to 3 months during the warranty period. A detailed inspection was performed at the end of year one during the warranty period. However, documentation for the year one detailed inspection was not available for our review.

Recommendation

Management should consider updating the CRM to require a formal inspection of warrantable items during the warranty period at a defined frequency. Documenting inspections throughout the warranty period ensures that deficiencies are identified in a timely manner and pro-active remediation may be performed within the warranty period.

Management Response

Management is in agreement with Audit Services regarding the importance of conducting and documenting inspections during the warranty period.

CRM, Section 10.3.1 states “Operations, Maintenance and Monitoring staff will be operating the works during the Warranty period. Operating deficiencies will be recorded in Maximo and forwarded by the Region to the Consultant for resolution by the Contractor.”

Further, to address Audit Services’ recommendation, the Request for Proposal template will be updated to include the option to add interim inspections during the warranty period, prior to the final warranty inspection, based on the project need. The template will be updated by the end of Q1 2020.

4.4 Deficiency Tracking Process for Projects Procured Prior to 2015

Observation

As part of the current requirements of the CRM, the Deficiency under Warranty Reporting Forms are required to be completed for reporting deficiencies under warranty to the Consultant.

We reviewed three projects currently in their warranty period. Two of the three projects were procured prior to the release of the CRM and were subject to general requirements for communicating warranty issues with the Consultant. We noted that documentation of deficiencies was informal and limited.

One of these projects was procured after the release of the CRM and was required to use the Deficiency under Warranty Reporting Forms, but did not.

The CRM states that it is the responsibility of the Consultant to receive and review the Deficiencies under Warranty Reporting Forms and forward them to the Contractor for resolution. Completed forms are returned to the Region’s Project Manager.

The form provides the opportunity for comprehensive documentation regarding when a deficiency has been identified and a detailed description. The form also identifies the Region representative submitting the form and requires the Contractor signature acknowledging the work completion.

Recommendation

For projects that were procured prior to the implementation of CRM and currently under warranty, or entering their warranty period, Management should consider using the Deficiencies under Warranty Reporting Form.

Management Response

Management is in agreement with Audit Services’ recommendation.

Currently, the Deficiencies under Warranty Reporting Form is available on the CPD Toolkit and to optimize its use, it will be digitized as part of the new SharePoint-based tool for recording inspections. As stated in Management Response 4.2, the tool will be released by the end of Q3 2020.

4.5 Recording Warranty Expiration Date in the MAXIMO System

Observation

MAXIMO is an Enterprise Asset Management System currently being used by ENV. We confirmed that there is a field available in MAXIMO to record warranty expiration date. If a work order is generated for an asset under warranty, the system will flag it under warranty.

Through discussion with OMM staff, we determined that warranty expiration date is recorded inconsistently in MAXIMO.

Section 10.3.1 of the CRM states that “Operating deficiencies will be recorded in MAXIMO and forwarded by the Region to the Consultant for resolution by the Contractor”, however, does not address the requirement to input warranty expiration date into the MAXIMO system and whether this is to be performed by OMM or CPD staff, or the Consultant.

Recommendation

Management should ensure that the responsibility for recording warranty expiration date into MAXIMO is clearly defined in the CRM ensuring that work orders under warranty are identified.

Management Response

Management is in agreement with Audit Services' recommendation.

The current requirements for water and wastewater asset tagging and recording of asset warranty expiration are included in the Development and Maintenance of Asset Inventory and Tagging Guideline. This guideline includes an Asset Attribute Tool that identifies the asset information that is to be collected for each asset throughout a capital project. Project teams, together with Consultants, are responsible for generating the data in the Asset Attribute Tool which is input into MAXIMO by Operations staff. The CRM will be updated to more clearly outline asset tagging requirements and the recording of warranty expiration date and upload into MAXIMO in the next release by the end of Q4 2020.

4.6 Update the Definition of the Warranty Period to Consider Asset Usage

Observation

We noted in our review that the warranty period for capital assets is defined contractually to begin at substantial completion of the project.

Through discussion with Environmental Services and OMM staff, we identified multiple projects in which asset run hours were significantly lower than expected when failure occurred, however, outside of the warranty period.

Specifically, for one project we reviewed, an asset failed 6 months after the warranty period had expired. The run hours on this asset were only approximately 12% of the expected run hours before an overhaul was required.

Upon failure, the Region incurred substantial costs to repair the asset as well as backup systems, internal labour, spare parts, and hiring third party consultants for additional redesign and testing.

Recommendation

Management should consider contractually defining an extended warranty period for critical pieces of process equipment.

Management Response

Done.

Management is in agreement with Audit Services' recommendation. Our current construction contracts allow for specifying a longer warranty period for certain products or work. Considering that the failure of an asset may be based on a number of complex factors including manufacturer's defect, installation, design deficiency, process condition, and/or operations and maintenance activity within the system, the extended time period for warranty of a particular asset will need to be evaluated on a contract by contract basis. Factors to consider when determining the need for specifying an extended warranty period will include criticality, asset

value, and anticipated process conditions impacting asset use, along with anticipated usage during the warranty period.

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