



Robert Prosser & Associates

**CITY OF SASKATOON
POSSE System – Plumbing
Permits and Inspections**

The Plumbing Permits and Inspection workflow is the third of four POSSE information system audits included in the Corporate Audit Plan.

September 2007

Report Highlights

City of Saskatoon POSSE System – Plumbing Permits and Inspections

Purpose of the Audit

The overall objective of this audit was to determine the extent to which adequate systems, practices and controls are in place to:

- Ensure complete, accurate and timely billing and collection of revenue, in accordance with the applicable bylaw;
- Ensure workflow processes, practices and decision criteria are consistent with documented direction;
- Adequately safeguard the accuracy, validity and integrity of system information;
- Ensure the ongoing accessibility and reliability of electronic documents and system information; and
- Ensure workflows are organized and executed efficiently.

What Internal Audit Recommends

- Resolution of variances between the number of fixtures permitted/paid for and actually installed.
- Updates to The Plumbing Permits Bylaw.
- Pursuit of changes to legislation or implementation of a plan review and inspection program to ensure compliance.
- Flagging of permits that have failed the final inspection to ensure timely follow up.
- Issuance of inspection deficiency reports to the permit holder when required.
- Monitoring of permits for which an Advisory of Deficiencies has been issued.

What Internal Audit Found

Controls appear to be adequate to ensure accurate and timely billing and collection of revenue. However, there is a risk that not all plumbing permit fees are collected.

Controls are adequate to ensure consistency with The Plumbing Permits Bylaw. Management is in the process of implementing plumbing inspection checklists which will ensure consistency with *The Canadian Plumbing Code*.

Sections 7(1) and 7(2) of *The Plumbing and Drainage Regulations* require plumbing plan review and inspection processes. These processes are not currently in place and we are recommending that management either pursue clarification of and/or amendments to the legislation or implement the required processes.

With one exception, the existing control framework for safeguarding the accuracy, validity and integrity of system information appears to be adequate. Current reporting practices appear to be in compliance with legislation regarding confidential information.

Full implementation of a Change Methodology will ensure ongoing accessibility of electronic documents and system information. Software controls enhance the City's ability to prove in a court of law that electronic documents retained in POSSE have remained complete and unaltered since the creation of the document.

Implementation of a process to manage those plumbing permits for which an "Advisory of Deficiencies" has been issued will minimize the City's risk in the event of legal action.

For the most part, the POSSE Plumbing Permit workflow is organized and executed efficiently.

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Chapter 1 – Introduction and Background

Background

The Corporate Audit Plan included provision to conduct four information system audits/process reviews of workflows that utilize POSSE (Public One-Stop Service) software. This particular project focused on the Plumbing Permit Issuance and Inspection workflow. Previous reviews have been done pertaining to Business Licenses, Legalizing Existing Suites, Property Information Disclosure, and Enforcement Backlog (2003), and Building Permit Workflows (2004). The final project will address Zoning and Development Permits.

POSSE software was developed to help government organizations increase efficiency and reduce the amount of paper involved in the application, inspection, approval and awarding of documents related to various municipal responsibilities. POSSE keeps track of work in progress, allows for activities to be scheduled and forwards task assignments to the appropriate staff.

The plumbing permit issuance process was converted to POSSE effective January 1, 2006; permit fee handling was converted to POSSE in May 2006 and Inspectors began using POSSE tablets to record permit inspections in July 2006.

The Saskatchewan Plumbing and Drainage Regulations guide the activities of the program, and Bylaw No. 6583 “The Plumbing Permits Bylaw” sets out applicable fees for both commercial and residential buildings. Selected statistics for the program area are listed below:

Table 1: Plumbing Permit Program 2004-2006

	2004	2005	2006
Number of Permits Issued	1,308	1,406	1,623
Number of Inspections Conducted	3,760	3,985	3,973
Permit Revenue	\$231,671	\$192,556	\$221,071

Audit Scope & Objectives

The project focused on the Plumbing Permit Issuance and Inspection computerized workflow (i.e., receiving permit applications, issuing permits for commercial and residential projects, and conducting inspections during and/or at the conclusion of the project) and related policies, procedures and activities.

Acknowledgements

Robert Prosser & Associates Inc. wishes to extend special thanks to the General Manager of Community Services, Building Standards Branch Manager, Senior Plumbing Inspector, POSSE Coordinator and Accounting Coordinator for accommodating our requests for interviews, information and documents, and reviewing our audit findings.

Chapter 2 – Revenue Collection

One of the objectives of this project was to determine the extent to which adequate and effective controls are in place to ensure complete, accurate and timely billing and collection of revenue, in accordance with the applicable bylaw.

Overall, we found that while controls appear to be adequate to ensure accurate and timely billing and collection of revenue, there is a risk that not all plumbing permit fees are collected.

Adequate controls are in place to ensure accurate and timely billing of revenue.

Controls to ensure accurate and timely billing and collection of plumbing permit revenue include the following:

- The plumbing permit fee structure is programmed into the POSSE system. The total amount due is calculated automatically, which reduces the risk of human error.
- Users cannot change the plumbing permit fees used by the POSSE system to calculate amounts owing.
- The method of payment (i.e., cash or credit/on account (SAR)) must be recorded in the POSSE system when the application process first begins.
- Only approved customers (i.e., plumber's) can charge permit fees on account.
- Reconciliations are completed each day to ensure all cash/cheques received during the day have been recorded as revenue in the POSSE system and deposited into the bank account.
- Reconciliations are completed each month to ensure all credit/on account transactions have been recorded as revenue in the POSSE system and a corresponding SAR issued.
- The Treasurer's Office processes SAR invoices and associated payments in the SAR system and would note any variances between the invoice amount and payment amount.
- The Treasurer's Office monitors and follows up on all outstanding amounts. In the event an account becomes significantly overdue, the Senior Plumbing Inspector can place a "hold" on the customer's account in the POSSE system which prevents the customer from obtaining future permits.

Audit testing confirmed that the POSSE system is calculating permit fees accurately and in accordance with The Plumbing Permit Bylaw.

Audit testing also confirmed that credit customers are paying their accounts in a timely manner. Two months were selected for detailed audit testing – November and December 2006. On average during these two months, credit customers paid their invoices before the due date (i.e., in 28.3 days versus payment terms of 30 days).

There is a risk that not all plumbing permit fees are collected.

Plumbing permit fees are based on the number of fixtures to be installed. This number is entered into the POSSE system and is the basis upon which original permit fees are calculated.

When Plumbing Inspectors conduct their inspections (i.e., “rough” and “final”), they record in POSSE the number of fixtures that actually exist at the time of the inspection. That number may be different than the number of fixtures originally planned and paid for (e.g., an additional washroom is constructed, the rough inspection takes place before all of the fixtures are installed).

The POSSE system does not notify the Plumbing Inspector if the number of fixtures planned (and paid for) does not match the number of actual fixtures and will allow a permit to be closed even though these figures do not match. This could result in revenue that is understated – if more fixtures were installed than planned – or overstated – if fewer fixtures were installed than planned.

We recognize that in some cases, there could be a legitimate reason for a variance between the number of fixtures planned and actually installed. For example, a property owner may have originally planned to do the rough-in and final setting for twelve fixtures, actually completed the rough-in for all twelve fixtures but only installed nine fixtures. Such a situation would not result in a fee adjustment.

Recommendations

1. That the POSSE system be modified to alert the Senior Plumbing Inspector to situations where there is a variance between the number of fixtures originally planned/paid for and the number of fixtures noted during the final inspection.

Management Response

1. *Agree.*

Chapter 3 – Processes, Practices and Decision Criteria

One of the objectives of this project was to determine the extent to which adequate and effective controls are in place to ensure processes, practices and decision criteria are consistent with The Plumbing Permits Bylaw No. 6583, *The Canadian Plumbing Code* (the Code) and *The Saskatchewan Plumbing and Drainage Regulations* (the Regulations).

Overall, we found that controls are adequate to ensure consistency with The Plumbing Permits Bylaw. However, a plan review and inspection process is required to ensure consistency with *The Plumbing and Drainage Regulations*. We are unable to draw a conclusion regarding *The Canadian Plumbing Code* because inspection results are not documented or recorded in the POSSE system.

Controls are adequate to ensure consistency with The Plumbing Permits Bylaw.

The Plumbing Permits Bylaw No. 6583 specifies the fees that are to be charged for different types of construction. POSSE Administrators are the only staff who can change fees. Audit tests confirm that the fees programmed into the POSSE system agree to those as stated in the Bylaw.

We do note, however, that one specific Code requirement is also included in the Bylaw (i.e., section 6 requires shut-off valves). There are hundreds of equally important requirements in the Code; we are uncertain why one item has been singled out in the Bylaw.

Controls are not adequate to ensure consistency with certain provisions of *The Plumbing and Drainage Regulations*.

We examined the extent to which controls are in place to ensure consistency with *The Plumbing and Drainage Regulations* (see Appendix A). For the most part, controls are adequate. However, we do note:

- Section 7(1) requires that, in certain cases, plumbing permit applications must be accompanied by specifications/abstracts of the proposed work, and plan and section drawings. Section 7(2) requires that the permit holder carry out the work as specified in the drawings, with deviations permitted only upon written approval of the City of Saskatoon.

The City of Saskatoon does not require plans and drawings to be submitted with plumbing permit applications and is not requiring deviations to be submitted for review and approval.

It is our understanding that management does not consider a plumbing plan review and inspection process necessary or practical, and that the Province is considering eliminating clauses 7(1) and 7(2) of the *Regulations* to avoid confusion. The course of action required by management will depend upon the outcome of the Province's review.

- Although section 9(7) provides for penalties when work is performed before a plumbing permit is obtained (i.e., unpermitted work), the City Solicitor's Office indicates that this penalty provision should also be reflected in The Plumbing Permits Bylaw No. 6583.

Given that there is some discretion as to when to apply such penalties and the plumbing community is quite small, a set of business rules would help ensure consistency and avoid the perception of favouritism or unfairness on the part of the City.

- In order to ensure plumbing systems are not put into use until permission is granted by the City of Saskatoon, plumbing permit jobs that have failed the final inspection and are pending another inspection should be followed up in a more timely manner than plumbing permit jobs that are pending a regular inspection.

Controls are not adequate to ensure consistency with the Canadian Plumbing Code.

We are unable to determine whether inspections are conducted in a manner consistent with the Code because inspection results are not recorded in POSSE, nor are they documented in another form. There is a risk that the City would be unable to prove due diligence in the event of legal action.

In our October 2005 audit report on the Building and Plumbing Programs, we recommended "That management implement a formal inspection checklist for plumbing inspectors." Management continues to agree with this recommendation and expects implementation to be complete by December 31, 2007.

Processes, Practices and Decision Criteria, cont'd

Recommendations

2. That management pursue removal of section 6 from The Plumbing Permits Bylaw No. 6583.
3. That management either:
 - work with the Province to amend and/or clarify the requirements of sections 7(1) and 7(2) of *The Plumbing and Drainage Regulations*, or
 - implement a plan review and inspection process to ensure compliance with sections 7(1) and 7(2) of *The Plumbing and Drainage Regulations*.
4. That Bylaw 6583 be amended to include the penalty fee payable when plumbing work is commenced without a permit.
5. That management document the business rules regarding the imposition of penalty fees for un-permitted plumbing work.
6. That the POSSE system be modified to flag plumbing permits that are “In Inspections” as a result of a failed final inspection for follow up in a more timely manner (e.g., one month) than plumbing permits that are “In Inspections” as a result of a regular pending inspection (i.e., every six months).

Management Response

2. *Agree.*
3. *Agree.*
4. *Agree.*
5. *Agree.*
6. *Agree.*

Chapter 4 – Accuracy, Validity and Integrity of System Information

One of the objectives of this project was to determine the extent to which adequate and effective controls are in place to safeguard the accuracy, validity and integrity of system information and protect confidential information.

With one exception regarding the issuance of plumbing inspection results, the existing control framework appears to be adequate. We also found that regarding confidential information, current reporting practices appear to be in compliance with legislation.

Plumbing inspection results are not always documented.

In order to determine whether adequate and effective controls are in place to safeguard the accuracy, validity and integrity of system information, we identified:

- the legally significant information contained in the Plumbing Permit workflow, through discussion with the City Solicitor’s Office, and
- the significant risks threatening these workflows, through discussion with management.

The legally significant information contained in the Plumbing Permit workflow consists of the Plumbing Permit application, the Plumbing Permit, all letters sent to the property owner or permit holder and all inspection results (especially identification of deficiencies and follow up on correction of deficiencies).

For the most part, controls appear to be adequate (see Appendix B). However, in addition to the fact that inspection results are not recorded in the POSSE system (see chapter 3), we note that plumbing inspection results and related deficiencies, if any, are not documented unless requested by the permit holder. Such reports are critical for proving that the permit holder was informed about any deficiencies.

Accuracy, Validity and Integrity of System Information, cont'd

Confidential information is not disclosed.

The Freedom of Information and Protection of Privacy Act states that “personal information” does not include information that discloses...details of a license, permit or other similar discretionary benefit granted to an individual by a government institution.” However, it does include “any identifying number, symbol or other particular assigned to the individual.”

The only information that is released to the public from the POSSE Plumbing Permit workflow is through a Building Information Abstract (BIA) or Property Information Disclosure (PID) report. The information released in these reports includes the plumbing permit number, date of permit issuance, number of roughed-in fixtures, number of set fixtures and whether there are any outstanding deficiencies related to the permit.

The City Solicitor’s Office has confirmed that this information would not be considered confidential.

Recommendation

7. That inspection reports be provided to the permit holder when plumbing permit inspections identify deficiencies.

Management Response

7. *Agree.*

Chapter 5 – Ongoing Accessibility and Reliability of System Information

One of the objectives of this project was to determine the extent to which adequate and effective controls are in place to ensure the ongoing accessibility and reliability of electronic documents and system information, with consideration given to legal rules of evidence.

Full implementation of a Change Methodology (planned for fall 2007) will ensure the ongoing accessibility of electronic documents and system information created/entered with prior versions of the POSSE software and workflow configurations (see Appendix B). Software controls enhance the City's ability to prove in a court of law that electronic documents retained in POSSE have remained complete and unaltered since the creation of the document. Implementation of a process to manage those plumbing permits for which an "Advisory of Deficiencies" has been issued will minimize the City's risk in the event of legal action.

Software controls ensure original documents can not be altered.

The Electronic Information and Documents Act, 2000 states:

"11 (1) A requirement pursuant to any law that requires a person to provide any information or document in an original form is satisfied by the provision of the information or document in an electronic form if:

(a) there exists a reliable assurance as to the integrity of the information or document in the electronic form from the time it was first created, whether as a paper document or otherwise; and

(b) the information or document in the electronic form is accessible by the person to whom it is provided and is capable of being retained by that person so as to be usable for subsequent reference.

(2) A requirement pursuant to any law that requires a person to retain any information or document in an original form is satisfied by the retention of the information or document in an electronic form if there exists a reliable assurance as to the integrity of the information or document from the time the information or document to be retained was first created, whether as a paper document or otherwise.

(3) For the purposes of subsections (1) and (2):

(a) the criterion for assessing integrity is whether the information or document has remained complete and unaltered, apart from the introduction of any changes that arise in the normal course of communication, storage and display; and

Ongoing Accessibility and Reliability of System Information, cont'd

(b) the standard of reliability required shall be assessed in view of the purpose for which the information or document was created and any other relevant circumstances.

12 A requirement pursuant to any law to retain any information or document is satisfied by the retention of the information or document in an electronic form if:

- (a) the information or document is retained in the format in which it was created, provided or received, or in a format that does not materially change the information or document;
- (b) the information or document will be accessible so as to be usable for subsequent reference by any person who is entitled to have access to the information or document or who is authorized to require its production; and
- (c) where the information or document was provided or received, information, if any, that identifies the origin and destination of the information or document and the date and time when it was sent or received is also retained.”

Management states that once a workflow process has been completed (i.e., “outcomed”), information and any associated documents become “read only” and can not be altered. In the event a revision is necessary, a separate process is required to record the new information and a new document would be created; the original remains in tact.

There is currently no process to manage permits for which an “Advisory of Deficiencies” has been issued.

In March 2001, City Council approved the use of an “Advisory of Deficiencies” for certain plumbing deficiencies in existing residential buildings that would otherwise require costly remedial work (i.e., failure of the “Can Test” and/or undersized main sewer lines when an additional washroom is constructed).

When signed by the property owners, the “Advisory of Deficiencies” releases the City from responsibility for damages that may arise as a result of these two specific deficiencies.

There is currently no process in POSSE to manage and monitor this process (i.e., permits for which an Advisory has been issued, whether the signed Advisory has been returned, which Advisories are outstanding, whether a follow up letter has been sent, etc.). This increases the risk that the City may be held liable for damages.

Ongoing Accessibility and Reliability of System Information, cont'd

Recommendations

8. That the POSSE system be modified to include a process to account for, and monitor the status of, all plumbing permits that have had an "Advisory of Deficiencies" issued.

Management Response

8. *Agree.*

Chapter 6 – Efficient Organization of Workflows

One of the objectives of this project was to determine the extent to which adequate and effective controls are in place to ensure workflows are organized and executed efficiently. The criteria against which the workflows were evaluated were developed by Consulting and Audit Canada, Special Operating Agency of Public Works and Government Services Canada (see Appendix C).

Except as discussed below, the POSSE Plumbing Permit workflow is organized and executed efficiently.

Lapse time objectives for plumbing permit issuance and inspections should be formally adopted and monitored.

Plumbing permit inspections are to occur within 24 hours of the permit holder's request for inspection. This objective appears to be reasonable and management indicates that it is always met. However, the reporting capabilities of the POSSE system are not currently being used to monitor or report on the achievement of this objective.

There are currently no objectives regarding the timeliness of permit issuances (i.e., from time of application to issuance of the permit). If the plan review process recommended in chapter 3 is implemented, monitoring of lapse time will become an important indicator of performance.

Tablets are not being used in the field as intended.

There is duplication of tasks when recording inspection results. Inspectors each have a portable tablet which is intended to be used to directly record inspection results in the field. However, this is not being done in practice – Inspectors are recording results on a note pad and typing them into the tablets after the inspection is complete. This is being done for several reasons:

- The tablets are fairly large, similar in size to a small laptop computer. The tablets have a keyboard which requires the tablet to be set down for data entry. This is not always possible on a job site.
- Job sites are often difficult to access and can be very dirty, making the use of these tablets impractical.

Management indicates that a smaller hand-held version of the tablet is available, but was not chosen due to the limited capabilities (i.e., more difficult to provide narratives). This smaller technology may be more useful with implementation of inspection checklists as discussed in chapter 3.

Efficient Organization of Workflows, cont'd

A POSSE Plumbing Permit workflow user manual should be developed.

A user manual has not been prepared for the POSSE Plumbing Permit workflow. In the event of staff turnover, there is a risk that inaccurate or incomplete information is entered into the POSSE system. This could negatively affect the City's position in the event of legal action.

Recommendations

9. That management utilize the reporting capabilities of the POSSE system to:
 - Establish, and monitor the achievement of, objectives regarding the lapse time from plumbing permit application to permit issuance, and
 - Monitor the achievement of objectives regarding the lapse time from request to performance of inspections.
10. That management develop a user manual for the POSSE Plumbing Permit workflow.

Management Response

9. *Agree.*
10. *Agree.*

Chapter 5 – Implementation Plan

	Recommendations	Implementation Date
1.	That the POSSE system be modified to alert the Senior Plumbing Inspector to situations where there is a variance between the number of fixtures originally planned/paid for and the number of fixtures noted during the final inspection.	December 31, 2007
2.	That management pursue removal of section 6 from The Plumbing Permits Bylaw No. 6583.	March 31, 2008
3.	That management either: <ul style="list-style-type: none"> work with the Province to amend and/or clarify the requirements of sections 7(1) and 7(2) of <i>The Plumbing and Drainage Regulations</i>, or implement a plan review and inspection process to ensure compliance with sections 7(1) and 7(2) of <i>The Plumbing and Drainage Regulations</i>. 	December 31, 2008
4.	That Bylaw 6583 be amended to include the penalty fee payable when plumbing work is commenced without a permit.	March 31, 2008
5.	That management document the business rules regarding the imposition of penalty fees for un-permitted plumbing work.	March 31, 2008
6.	That the POSSE system be modified to flag plumbing permits that are “In Inspections” as a result of a failed final inspection for follow up in a more timely manner (e.g., one month) than plumbing permits that are “In Inspections” as a result of a regular pending inspection (i.e., every six months).	December 31, 2007
7.	That inspection reports be provided to the permit holder when plumbing permit inspections identify deficiencies.	December 31, 2007
8.	That the POSSE system be modified to include a process to account for, and monitor the status of, all plumbing permits that have had an “Advisory of Deficiencies” issued.	December 31, 2007
9.	That management utilize the reporting capabilities of the POSSE system to: <ul style="list-style-type: none"> Establish, and monitor the achievement of, objectives regarding the lapse time from plumbing permit application to permit issuance, and Monitor the achievement of objectives regarding the lapse time from request to performance of inspections. 	December 31, 2007
10.	That management develop a user manual for the POSSE Plumbing Permit workflow.	March 31, 2008

Appendix A – Compliance with The Plumbing and Drainage Regulations

Appendix A, cont'd

Regulatory Requirement	Current Processes, Practices and Decision Criteria	Consistent with Regulatory Requirement?
<p>5(1) No person shall establish, construct, extend, renovate, alter or repair a plumbing system or private sewage works, or connect a plumbing system to a communal sewage works or communal waterworks, except under the authority of a permit.</p>	<ul style="list-style-type: none"> • The City of Saskatoon notifies the public about the requirement for a plumbing permit on their website. • The City of Saskatoon only issues plumbing permits to licensed plumbing contractors, who are well aware of the requirement to obtain a permit. • The City of Saskatoon requires permits in all of these situations as listed. • If Inspectors identify un-permitted plumbing work, they require a permit be taken out and subjected to inspections. 	<p>Yes.</p>
<p>5(5) A permit ceases to be valid if the work for which it is issued is not commenced within six months of the date of issue.</p>	<ul style="list-style-type: none"> • Plumbing permits are considered valid for one year from the date of issue. • A reminder letter is sent if there have been no inspections in the past 6 months. • After 12 months of inactivity, a letter is sent demanding that either an inspection be scheduled or the permit will be cancelled. • The existing permit may be extended. 	<p>No.</p> <p>Although plumbing permits are considered valid for one year, inactive permits are followed up every six months.</p> <p>Residual risk is minimal.</p>
<p>7(1) An application for a permit, except a permit pertaining to a house or single dwelling unit, must be accompanied by:</p> <p>(a) a specification or abstract of the proposed work; and</p> <p>(b) where more than five fixtures are to be installed:</p> <p>(i) a plan that shows the location and size of each building drain and of each trap or inspection piece that is on the building drain; and</p> <p>(ii) a sectional drawing that shows the size and location of each soil or waste pipe trap and vent pipe, and the material of which it is made.</p>	<ul style="list-style-type: none"> • The City of Saskatoon does not require drawings to be submitted with plumbing permit applications. 	<p>No.</p>

Appendix A, cont'd

Regulatory Requirement	Current Processes, Practices and Decision Criteria	Consistent with Regulatory Requirement?
<p>7(2) Where a permit has been issued on the basis of an application accompanied by materials required pursuant to subsection 7(1), the permit holder must carry out the work in a manner consistent with the information contained in those materials, unless the local authority gives its prior written approval for a deviation.</p>	<ul style="list-style-type: none"> • Since drawings are not obtained per section 7(1), inspections do not include the objective of ensuring the work is carried out according to the drawings. 	<p>No.</p>
<p>8(2)...the local authority may refuse to issue a permit to a person who: (a) has not paid any fee required pursuant to these regulations; (b) at the time of applying for the permit, has a defective work of plumbing installation outstanding; (c) has submitted an incomplete application, or an application that contains false or misleading information; or (d) demonstrates an inability to perform the work of plumbing installation in a manner that is safe and acceptable in the opinion of the local authority.</p>	<ul style="list-style-type: none"> • Customer accounts can be placed on “hold” and future plumbing permits denied if past plumbing permit fees have not been paid or if there are outstanding deficiencies on current plumbing permits. • Plumbing permit applications include a declaration that the information provided is correct and a signature is required. • The City of Saskatoon only issues plumbing permits to licensed plumbing contractors. 	<p>Yes.</p>
<p>8(3) ...a permit may only be issued to: (a) a person who possesses a certificate of qualification as a journeyman plumber issued by the Province of Saskatchewan, a person who possesses an interprovincial certificate of journeyman qualifications, or a person or firm employing one or more of those persons, where the plumbing is to be done in a city...</p>	<ul style="list-style-type: none"> • The City of Saskatoon only issues plumbing permits to qualified plumbers. 	<p>Yes.</p>
<p>8(4) Where the plumbing is to be done in a single dwelling unit, a permit may be issued to the owner of the unit if: (a) the plumbing system is not to be connected to a communal sewage works or a communal waterworks. (b) the dwelling unit is located in an urban municipality that is not operating or constructing a communal sewage works or a communal waterworks; and (c) the dwelling unit is intended to be used exclusively for living quarters and will be occupied by the owner.</p>	<ul style="list-style-type: none"> • The City of Saskatoon has chosen not to issue plumbing permits to owners under any circumstances (i.e., the regulations say “may be issued” which allows for discretion in this regard). 	<p>Not applicable.</p>

Appendix A, cont'd

Regulatory Requirement	Current Processes, Practices and Decision Criteria	Consistent with Regulatory Requirement?
9(4) A local authority may set its own permit fees by bylaw passed pursuant to the Act.	<ul style="list-style-type: none"> • The City of Saskatoon has set its own permit fees as specified in Bylaw No. 6583 The Plumbing Permits Bylaw. 	Yes.
9(7) Where a permit to perform work is not obtained before the work is commenced, the fee for the permit to perform the work is to be doubled, unless the local authority is of the opinion that hardship or injustice would result from doubling the fee.	<ul style="list-style-type: none"> • The City of Saskatoon has been using this provision when required. • However, it is not included in The Plumbing Permits Bylaw. • Business rules regarding when to impose the penalty, and when not to, have not been documented. Given that the plumbing community is quite small, inconsistent treatment could result in the perception of unfairness or inequality. 	<p>Yes.</p> <p>However, this provision should be reflected in Bylaw No. 6583 The Plumbing Permits Bylaw.</p> <p>Business rules regarding the imposition of penalty fees should be documented.</p>
9(9) Where it is necessary to re-inspect an installation connected to a communal sewage works or a communal waterworks due to noncompliance with the standards imposed by these regulations or the code, the permit holder may be charged an additional fee, payable to the same local authority, subject to subsection (5), to which the original fee was payable, equal to the lesser of: (a) the amount of the original fee; and (b) \$100.	<ul style="list-style-type: none"> • The City imposes an additional fee of \$53 for re-inspections. • \$53 is the rate for installations in new residential buildings, new commercial buildings and prefabricated buildings. 	Yes.
10(1) A plumbing system or a private sewage works for which a permit is required pursuant to these regulations: (a) may be inspected or tested by the local authority at any time; and (b) shall not be put into use until permission has been granted by the local authority.	<ul style="list-style-type: none"> • Inspections are conducted at the rough and final stages. • Plumbing systems are not to be put into use until a final inspection has been successfully completed. • Plumbing Inspectors will not notify Water & Sewer to “release” the water meter for new construction until the final inspection is successful. <ul style="list-style-type: none"> ○ However, for renovations, a release is not possible (i.e., a functioning water meter is already in place). • Unless a Letter of Clearance is requested, notification that the system has passed inspection and can be put into use is verbal at the time of final inspection. • Per the Senior Plumbing Inspector, if the plumbing 	<p>Yes.</p> <p>However, POSSE jobs that are In Inspections as a result of a failed final inspection should be followed up in a more timely manner than POSSE jobs that are In Inspections as a result of a regular pending inspection.</p>

Appendix A, cont'd

Regulatory Requirement	Current Processes, Practices and Decision Criteria	Consistent with Regulatory Requirement?
	<p>system fails the final test (i.e., CanTest), the POSSE job remains “In Inspections.”</p> <ul style="list-style-type: none"> ○ Jobs that remain “In Inspections for six months are followed up with a letter (see 5(5)). ○ However, for failed <u>final</u> inspections, there is a risk the system has been put into use in the meantime. ○ The outcome for these failed final inspections should be different and be followed up more quickly (e.g., 1 mo). 	
<p>10(2) A permit holder who has executed work for which a permit has been issued shall notify the local authority when the work is ready for inspection and testing.</p>	<ul style="list-style-type: none"> ● Plumbing permit holders are responsible for contacting the City to arrange for inspections. 	<p>Yes.</p>
<p>10(3) The permit holder shall provide the equipment, material, power and labour that is required for the inspection and testing.</p>	<ul style="list-style-type: none"> ● The permit holder (i.e., Plumbers) provides all resources required for inspections and testing (i.e., supplies the “test can,” provides the labour to conduct the test, etc.). 	<p>Yes.</p>
<p>10(4) The permit holder, or a representative of the permit holder who possesses qualifications acceptable to the local authority, shall be present at the time of the inspection.</p>	<ul style="list-style-type: none"> ● The permit holder or a representative is always present during the inspection process. 	<p>Yes.</p>
<p>10(5) No part of the plumbing system or the private sewage works is to be covered until permission is granted by the local authority.</p>	<ul style="list-style-type: none"> ● Permit holders are notified about this requirement through the City’s website. ● The City of Saskatoon only issues plumbing permits to licensed plumbing contractors, who are well aware of this requirement. 	<p>Yes.</p>

Appendix A, cont'd

Regulatory Requirement	Current Processes, Practices and Decision Criteria	Consistent with Regulatory Requirement?
<p>10(6) If any part of the plumbing system or the private sewage works is covered before permission is granted, the permit holder shall uncover it if the local authority so directs.</p>	<ul style="list-style-type: none"> • Permit holders understand this requirement and generally do not cover un-inspected work. • If the work is covered, the permit holder may be given the option of using a camera/scope to view the covered work. However, this does not always provide sufficient information/views for the Inspector, and if this is the case, the permit holder would still be required to uncover the work. 	<p>Yes.</p>
<p>10(7) If any part of the plumbing system or the private sewage works is not approved by the local authority:</p> <p>(a) the permit holder shall make any necessary alterations, connections or replacements; and</p> <p>(b) the work is subject to any further inspection and testing that the local authority considers necessary.</p>	<ul style="list-style-type: none"> • Permit holders are notified about this requirement through the City's website. • Any deficiencies noted during the rough inspection are to be corrected prior to the final inspection. • If deficiencies are not corrected by the final inspection or additional deficiencies are noted during the final inspection, the permit holder is required to pay a call-back fee (\$53) for an additional inspection. 	<p>Yes.</p>
<p>11(2) Where a test...indicates that an existing plumbing system or private sewage works is faulty or defective, the owner shall make any repair, alteration or replacement that the local authority considers necessary.</p>	<ul style="list-style-type: none"> • If Inspectors identify un-permitted plumbing work, they require a permit be taken out, the system subjected to inspections and appropriate action taken. 	<p>Yes.</p>
<p>12(1) If requested, a certificate of approval shall be issued to the owner and the permit holder when a plumbing system or private sewage works has been found satisfactory on its final inspection, except where the plumbing system is certified by the Canadian Standards Association.</p>	<ul style="list-style-type: none"> • A letter of clearance is issued upon request. 	<p>Yes.</p>

Appendix B – Risks Threatening Accuracy, Validity and Integrity of System Information

Appendix B, cont'd

Risk	Controls per Management
Data	
Data origination errors and omissions.	<ul style="list-style-type: none"> • A standard permit application form is used to record information. • The application form includes a declaration statement and requires the applicant's signature attesting to the accuracy of the information provided. • Clerical staff double check site/address information entered into POSSE from the application form to the SITE database. • POSSE screens mirror the permit application form.
Loss of source data.	<ul style="list-style-type: none"> • The original hard copy of the permit application is kept on file. • Inspection results are entered directly into portable tablets. • Data is not offloaded from the portable tablets until the download to the POSSE system is successful.
Data entry errors.	<ul style="list-style-type: none"> • Information is "dragged and dropped" from the SITE database (i.e., there is no manual re-entry of data). • The system offers picklist options. • The system has field validations/definitions (i.e., numbers only, dates only, etc.). • There is an independent review of data entered to the original permit application form. • "Cut and paste" is used for entry of data into Cashiers for Windows. • Staff are trained on the proper use of the portable tablets. • User ID's are attached to all entries.
Incomplete data entry.	<ul style="list-style-type: none"> • Workflows are configured in such a way as to require a process to be completed before it can be outcomed and the next step performed ("lockdown"). • Data entry follows the same order as manual forms. • Although mandatory fields have been defined and flagging (i.e., a check box) is used, mandatory fields are not handled well by the portable tablets. <ul style="list-style-type: none"> ○ Mandatory fields may be left blank and the POSSE system will allow the process to continue without the information. ○ In addition, certain legally significant information is not entered into the POSSE system and is not mandatory (i.e., inspection details).

Appendix B, cont'd

Risk	Controls per Management
Entry of invalid (e.g. fraudulent) data.	<ul style="list-style-type: none"> • Information is “dragged and dropped” from the SITE database (i.e., there is no manual re-entry of data). • The system offers picklist options. • The system has field validations/definitions (i.e., numbers only, dates only, etc.). • There is an independent review of data entered to the original permit application form. • The system automatically calculates plumbing permit fees payable. • User ID’s are attached to all entries.
Inaccurate or incomplete output.	<ul style="list-style-type: none"> • Templates are used for many standardized communications (e.g., letters, forms) for which information is drawn from the POSSE job (see data entry controls). • Responsibility to review documents has been communicated to staff (i.e., their signature on it, their responsibility). • Processes can not be outcomed without the corresponding document saved, if a document is required at that stage.
Loss of data or output during transport.	<ul style="list-style-type: none"> • Inspectors monitor downloaded jobs each morning to ensure a complete and accurate download of data from the portable tablets. If the download failed, the Inspector would get an error message. • Information is never “lost” during download – the data remains on the portable tablet until successfully downloaded to POSSE. • Spot checks are performed to ensure data transferred from the portable tablets to POSSE is accurate and complete.
Modification of data or output during transport.	<ul style="list-style-type: none"> • Inspectors monitor downloaded jobs each morning to ensure complete and accurate download of data from the portable tablets. If the download failed, the Inspector would get an error message. • Information is never “lost” during download – the data remains on the portable tablet until successfully downloaded to POSSE. • Spot checks are performed to ensure data transferred from the portable tablet to POSSE is accurate and complete.

Appendix B, cont'd

Risk	Controls per Management
Unauthorized or inappropriate changes (additions, changes, deletions) to data in active storage.	<ul style="list-style-type: none"> • Processes are locked down once a process is outcomed; data cannot be altered or deleted after that point. • Open jobs are restricted to the applicable work group. • User ID's are attached to all entries. • An audit trail exists of all transactions and the POSSE job history. • A user can request that a closed/cancelled job be reopened, but this must be verified and approved by management.
Unauthorized or inappropriate access to data in active storage.	<ul style="list-style-type: none"> • See above. • Authentication procedures (user ID and password) are in place. • User groups are established based on legitimate need. <ul style="list-style-type: none"> ○ Each user is assigned to a specific user group and being a member of that group gives them certain privileges and restricts certain information as well. • Automatic log-off from the POSSE system (after 30 minutes of inactivity).
Changes in data dictionary.	<ul style="list-style-type: none"> • There is an electronic data dictionary in POSSE. • Formal change request procedures (i.e., authorization, review and approval) are currently under development.
Changes in data syntax rules.	<ul style="list-style-type: none"> • Formal change request procedures (i.e., authorization, review and approval) are currently under development.
Changes in data and/or file format.	<ul style="list-style-type: none"> • Formal change request procedures (i.e., authorization, review and approval) are currently under development.
Unauthorized or inappropriate changes to data security levels.	<ul style="list-style-type: none"> • There is a single point of contact – POSSE Administrators are the only staff who can add, remove or change security levels.
Software (operating, application, security)	
Inaccurate or incomplete processing of data due to software changes (e.g. new, upgrades) or modifications.	<ul style="list-style-type: none"> • There is extensive testing in a test environment prior to the introduction of a new version of software and/or changes to configuration into the production environment. • There is testing to ensure all previously constructed workflows, processes, procedures and reports continue to operate within the upgraded environment.

Appendix B, cont'd

Risk	Controls per Management
Unauthorized or inappropriate access to software.	<ul style="list-style-type: none"> • Software is not installed on individual computers – users can access a shared copy of software through an icon on the computer desktop. • Software is stored in the CIS vault.
Installation of software and software changes that jeopardize the security of programs stored in the system.	<ul style="list-style-type: none"> • There is extensive testing in a test environment prior to the introduction of a new version of software and/or changes to configuration into the production environment. • There is testing to ensure all previously constructed workflows, processes, procedures and reports continue to operate within the upgraded environment. • Software is not installed on individual computers – users can access a shared copy of software through an icon on the computer desktop.
Workflow Processes	
Changes in workflow that affect the completeness, integrity, and access to data.	<ul style="list-style-type: none"> • There is extensive testing in a test environment prior to the introduction of a new version of software and/or changes to configuration into the production environment. • There is testing to ensure all previously constructed workflows, processes, procedures and reports continue to operate within the upgraded environment.
Staff	
Loss of key personnel putting system continuity and integrity at risk.	<ul style="list-style-type: none"> • Staff training is available through the vendor. • Existing staff are cross-trained; knowledge is not concentrated with one person.
Access Management	
Failure to change access privileges when employee leaves or changes job duties.	<ul style="list-style-type: none"> • There is a single point of contact – POSSE Administrators are the only staff who can add, remove or change security levels. • Management staff are responsible for advising of staffing changes so that security levels can be changed or removed (i.e., the manager sends a request to the POSSE Administrator to remove an employee's access).

Appendix C – Criteria for Assessment of Efficient Workflows

Validity of the Process: The process and activities being audited must be essential; that is, each process is in line with the mission and the objectives, otherwise the products do not justify the resource utilization.

Adequate Satisfaction of Legitimate Demands: Two thoughts are expressed here. One is the notion that there should be only adequate satisfaction given; that the services or goods should meet requirements only and not exceed what is agreed to, or is reasonable in the absence of a formal agreement. The other thought pertains to the legitimacy of demands. Any attempts to satisfy customers beyond their entitlements are instances of misuse of resources.

Placement of the Rejection Point for Unacceptable Demands: There are often demands submitted which cannot be completely processed because they do not meet the processing criteria. If they are rejected at some stage prior to the final one, then the operations already performed are wasteful. The point at which the decision is made to reject demands is best located as close as possible to the point of entry. This precludes the incurring of costs for resource utilization on needless processing.

Linearity of Process Flow: The best design for the flow of information or material is such that the traffic proceeds through each value adding work station but once, and while there receives full treatment.

Plausibility of Objectives and Standards: This factor pertains primarily to production objectives and standards. It requires you to examine whether the standards are too tight and causing excessive errors/rejects/rework, or are too loose and causing resources to be left idle or under-employed. Both extremes result in poor utilization of resources.

Duplication of Operations and Tasks: Duplication results in wasted resources. Caution must be exercised when drawing conclusions regarding apparent duplicate tasks being performed; sometimes what appears to be duplication is not in the true sense because the operations are being performed for different purposes, or the entity may have a deliberate intent in doing the same thing twice.

Information, Media, and Communication Channels: The crux of this factor is the proliferation of inefficiencies that can ensue should:

- The information communicated as commands and responses be unclear, incomplete, irrelevant, or tedious;
- The media be inappropriate for the type of message; and
- The communication channels be plugged, misdirected, or subject to interference and distortion.

Extent of Control Activities: Excessive control, whether by numbers of checks or by intensity of application, always results in inefficient use of resources. Conversely the costs incurred to rectify errors resulting from inadequate control are always excessive.

Appendix C, cont'd

Work Practices: Detection of inefficient work practices is more often a function of one knowing the "state of the art" for the process than common sense. The work practices include everything from the accommodation, the machinery, and equipment, to placement of "prior to" and "following after" operations; the methods; the instructions; the communication forums; and all the other aspects of work which must be coordinated and integrated to process what must be demands at an acceptable standard of performance.

Correspondence of Resources to Requirements: Any time there are resources which are not relevant to the business or are not suited to the requirements of the tasks either in numbers or in quality there are inefficiencies. Too many or too high a quality of resources for the task is wasteful, and too few or too low a calibre of resources will incur additional expenses to achieve the desired performance.

Obvious Dysfunctional Situations: Some work situations are without any redeeming features (i.e. non value-added activities). These situations are often defended on the grounds that they serve purposes which are extraneous to the mandate but nevertheless desirable in the minds of the defenders.