ENVIRONMENTAL SERVICES

PHYSICAL INVENTORY AUDITS

METROPOLITAN WWTP
BLUE LAKE WWTP
EMPIRE WWTP
SENECA WWTP
REGIONAL MAINTENANCE FACILITY

PROGRAM EVALUATION AND AUDIT

METROPOLITAN COUNCIL

December 10, 2014

INTRODUCTION

Background

Metropolitan Council Environmental Services (MCES) operates seven waste water treatment plants (WWTP), 61 lift stations, 190 meter stations, 21 rain gauge stations and 600 miles of interceptor pipes throughout the seven county metropolitan area 24 hours a day, seven days a week, 365 days a year. Maintaining equipment is critical to ensure continual operation. To support these maintenance and operations functions, spare parts, re-built parts, materials and supplies are stocked in a central warehouse and outlying satellite storerooms.

The centralized Metro WWTP Warehouse (Warehouse) services MCES operations and maintenance as well as maintaining office supplies and printed document supplies for MCES and Metropolitan Council (Council) Robert Street offices and storage for some Metro Transit printed documents.

For those operations and maintenance personnel assigned to the Metro WWTP, parts can be obtained from and returned to the Warehouse will-call window. In addition, Warehouse employees, maintenance managers, some operations managers and the general lead employee from each trade group has approved card access into the Warehouse. However, to obtain/return an item, both the requestor and the approved card access employee filling the request must scan their badges. Each bar coded work order and part is also scanned, resulting in a posting of each inventory transaction to the Oracle Utilities Work and Asset Management (WAM) system.

There are also three satellite storerooms located at the Metro WWTP accounting for 351 items valued at $6,590. The Administration Building storeroom contains a variety of office supplies. The other two are located in the Liquids and the Solids Management business units. Operations personnel have access to these storerooms via electronic card access. Employees list inventory items taken or returned on sign-out sheets maintained in each of the storerooms. Once or twice per week a Warehouse employee goes to the storerooms, replenishes inventory, reviews the sign out sheets and enters into the WAM system those items taken from and returned to inventory.

The Warehouse is open 7:00 a.m. – 3:30 p.m. Monday through Friday. At all other times, anyone requiring access to the Warehouse must sign out a “trade access card” on a security log maintained at the facility security office at the west entrance to the Metro WWTP. The employee must also list those items taken on a sign-out log maintained at the Warehouse.

Employees can also submit an electronic inventory checkout request/pick ticket that is subsequently used by warehouse personnel to gather and issue the requested items. The items are either handed to the requestor or sent by courier if the requestor is located at another facility. A third party courier service is used to deliver items to Council offices in St. Paul, the Regional Maintenance Facility (RMF) and the Seneca Plant daily, Monday through Friday.

The Empire and Blue Lake storerooms are smaller and staffed less than full time. A Metro WWTP employee attends the Empire storeroom every Tuesday and Thursday for about 3 hours each day. The Warehouse employee assigned to the Seneca Plant attends the Blue Lake storeroom about 4 hours each Monday, Wednesday and Friday. When away from Seneca, no one fills that vacancy.

All Empire and Blue Lake trade and operator personnel have access to their storerooms. When not staffed, these plant employees list inventory items taken from or returned to inventory on sign-out sheets maintained in each of the storerooms. The storeroom technicians then replenish inventory, review the sign out sheets and enter those items taken from and returned to inventory into the WAM system.

The WAM System, implemented in 1999, consists of interactive computer software designed to provide integrated inventory control, inventory management, work order management and time reporting among other accounting and asset management systems. The Warehouse and all satellite storerooms use WAM to control and account for parts and supplies used in MCES operations. In addition, the work order system within WAM is used to identify the exact items needed to maintain a piece of equipment, and as an inventory reduction tool, to pull obsolete parts from inventory for disposition when a piece of equipment is decommissioned.

Employees at the Eagles Point, St. Croix Valley and Hastings WWTPs receive many of their maintenance supplies from the Warehouse via electronically submitted checkout requests. When the checkout request is received, a Warehouse employee fills the order and sends the parts/supplies to the Plants via the courier service. Deliveries are made as needed during the week. In addition, some items are obtained via purchase requisition/purchase order, blanket purchase orders and credit card. A small storeroom exists at the Eagles Point WWTP and the long term plan calls for erecting similar storerooms at the St. Croix Valley and Hastings WWTP locations.

To ensure timely, cost-effective maintenance of MCES facilities, spare/repair parts and supply items are stored at the Warehouse and at satellite storerooms. Keeping items on site is required and critical to operations, but presents challenges for accurate and continuing control of parts when manual systems and satellite storerooms are involved. As a result, storerooms have been viewed by MCES and Program Evaluation and Audit (Audit) as relatively high risk. In addition, MCES management personnel requested that Audit include a review of physical inventories in its 2014 Audit Plan.

The Metro WWTP, Empire Plant and Regional Maintenance Facility were last audited in March 2010. The Seneca and Blue Lake Plant storerooms began operation in October 2011 and January 2014, respectively, and have not been previously reviewed.

Purpose

- To ensure that observed storeroom inventories reconcile to those recorded in WAM.
- To verify that daily inventory cycle counts are performed as required.
- To confirm that storerooms and related inventory are managed and operated according to MCES and Council policies and procedures.
- To provide recommendations for strengthening internal controls so that deviations identified during this audit do not occur systematically in the future.

Scope

Audits were conducted at the Metro WWTP Warehouse, the Blue Lake, Empire and Seneca WWTP storerooms and the Regional Maintenance Facility storeroom. Samples were drawn from all inventory items listed in WAM as of the closing of inventory transactions on the day prior to the day the actual count was taken, adjusted for any changes in the hours prior to the audit and compared to the actual count.

Assurances

This audit was conducted in accordance with the Institute of Internal Auditors' International Standards for the Professional Practice of Internal Auditing and the U. S. Government Accountability Office's Government Auditing Standards.

Methodology

After eliminating inventory items with zero extended cost, Audit selected a statistically significant, random sample with a 95% level of confidence and a 5% error rate plus a judgmental sample of the highest extended value items. Universe and sample stratification data based on extended cost for the five locations are included at Exhibit I. Audit physically counted the selected inventory items and compared that count to the quantity stated in WAM. The following methods of inquiry were also used:

- Differences were noted and discussed with the Assistant Business Unit Manager for Assets and Materials Management (Manager) within the Maintenance and Security Business Unit.
- Findings and results were recorded and summarized.
- The implementation of prior audit recommendations was reviewed.
- MCES and Council policies/procedures/work instructions were reviewed.
- Daily cycle count results were monitored and analyzed.

OBSERVATIONS

Physical inventory counts were performed at the Blue Lake and Empire WWTP storerooms on July 9, 2014 and the Metro WWTP Warehouse, the Seneca WWTP storeroom and the RMF storeroom on July 16, 2014. Observations regarding those audits follow. Statistical data is also summarized in the exhibits listed below which are included at the end of this report.

- Exhibit I: Universe & Sample Stratification Data for the five locations.
- Exhibit II: Preliminary Statistical Data Summary for the five locations. This is the raw data gathered at the time of physical inventory count.
- Exhibit III: Adjusted Statistical Data Summary for the five locations. This is the raw data adjusted for appropriate reconciling reasons.
- Exhibit IV: WAM Cycle Count Classifications & Batch Quantities
- Exhibit V: Inventory Items and Storeroom Personnel by Location
- Exhibit VI: Historical Variance Rates by Storeroom 2010 - 2014
- Exhibit VII: Variance Summary
- Exhibit VIII: Comparative Prior Audit Variances

Variance Factors

Based upon best practices identified through research prior to similar inventory audits conducted in February 2013 at Metro Transit, and ensuing discussions between Audit and Metro Transit Material Management and Finance management personnel, the variance factors used to evaluate inventory effectiveness and efficiency are as follows:

Table 1: Variance Factor Goals

Description	Factor
Random Sample Net Variance	+/-0.50%
Random Sample Absolute Variance	1.50%
Combined Random/Judgmental Sample Net Variance	+/-0.50%
Combined Random/Judgmental Sample Absolute Variance	1.50%
Item # Variance	3.00%

Results of Storeroom Physical Inventory Counts

During the physical audit, the five variances listed in Table I, above were calculated for each of the five locations under review (Exhibit II). The Manager reviewed the items and the conditions under which the variances arose and provided documentation explaining many of them. Audit reviewed that documentation and adjusted the variances as appropriate (Exhibit III). As a result, only two out of a possible 25 variances exceeded the factors stated above; both of which being item number variances (see Table 2, below). All 20 dollar value variances (the first four variances listed in Table 1) were insignificant.:

Table 2: Storerooms Exceeding Variance Goal

Storeroom	Variance Factor	Variance Factor Ceiling	July 2014 Results	Exceeds Ceiling By
Blue Lake WWTP	Item # Variance	3.00%	8.49%	5.49%
Regional Maintenance Facility	Item # Variance	3.00%	5.49%	2.49%

The Metro WWTP Warehouse and the Empire and Seneca WWTP storerooms recorded no adjusted variances exceeding the goals, although Audit is concerned about the processes causing the following two variances:

- MWWTP Warehouse - -$13,754 of the -$14,041 combined absolute variance is due to a heating oil reserve inventory maintained by MCES in case Xcel Energy reduces supplies of heating fuel during extremely cold weather. This item was also of concern during the 2010 audit at which time the variance was calculated as an $18,954 overage. At that time, the Warehouse Manager began receiving monthly reports and was reviewing the possibility of automating the system for calculating reserve fuel oil inventory. However, the monthly reports have become less frequent and the automated system provides readings that constantly fluctuate as much as 5,000 gallons per day. After studying actual reserve heating fuel usage and the cost of maintaining tanks and associated equipment, compared to the cost of infrequent higher fuel expenses from Xcel Energy, MCES management personnel have decided to remove the reserve heating fuel and associated equipment, possibly as soon as the first quarter of 2015.
- Seneca WWTP Storeroom - One variance resulted from not having a formal written procedure for processing items that are re-built within MCES such as the Dirt Collector Assembly, for ORIVAL Model '48PSFL2' Automatic Self-Cleaning Filtration System. This $1,190 variance resulted from employees having different ways of handling this unique item; one employee stating that re-building this item was a new process and another that the process had been in place for "several years." The Manager stated, "there were a couple that had been 'lying around' and at some point were repaired and placed back on the shelf without mention."

Comparing the current audit results to those from 2010 (see Exhibit VIII), each variance has improved at the Empire storeroom, and each variance has either remained constant or improved at the MWWTP warehouse. The net variances improved, but the absolute and item number variances reported in 2010 were lower than those recorded currently at the Regional Maintenance Facility storeroom. The Seneca and Blue Lake storerooms had not yet been established at the time of the 2010 audit.

Storeroom Cycle Counting

Inventory cycle counting goals include:

- understanding the reason for errors
- correcting the processes affecting them
- eliminating the need for an annual 100% physical inventory
- efficient use of resources

Each stock item number at the warehouse and each storeroom within the MCES inventory system is assigned to an ABC Class. At the beginning of each year WAM updates the ABC Class field for each of those items. The ABC Class field for each stock code is based on the Total Issued Items Value (TIIV) as shown in Exhibit IV. This value is determined for each stock item by multiplying the number of items issued in the last full year by the average unit price of the item.

A staging table is then used to create cycle count batches for each storeroom. The cycle count interval and number of items to be selected by WAM for each count is determined by the Warehouse Manager (see Exhibit IV). The number of items to be counted is based on the number of active items in the warehouse and the interval of the cycle count batches.

A comparison between the WAM intervals with those stated by the Manager disclosed the following inconsistencies:

- Seneca is listed in WAM at twice a week, it should be listed as “daily.”
- Blue Lake is listed in WAM at twice a week, it should be listed as three times weekly.

This occurred due to storeroom coverage changes that were not adjusted in WAM. However, during the course of the review, the Manager stated that the above revisions would be made.

Each item number at each storeroom is to be selected for cycle count at least once during a two year period. Audit conducted an analysis using cycle count classifications (Exhibit IV), the interval and the number of items to be selected (Exhibit IV). Based upon this analysis and further client discussions, MCES management personnel made the following revisions to the WAM attributes listed in Exhibit IV:

- The number of items counted was changed at the Admin Bldg from 7 to 8; the Seneca WWTP from 17 to 19; and the SMBU from 7 to 9.
- Blue Lake cycle counting was increased from 2 days (Wednesday/Friday) to 3 days (Monday/Wednesday/Friday)
- Additional revisions in the number of items cycle counted may be made when Class Distribution is recalculated on January 1, 2015.

The number of items stocked in each storeroom affects the number of items WAM chooses for counting each day. The number of inventory items stocked and the staffing of the storerooms is listed in Exhibit V.

Comparing the number of items in which variances occurred to the number of items counted yields a variance rate. Since 2011, the weighted average variance rate for the five WWTPs and the RMF has been 3.85% (see Exhibit VI).

In general, improvement was made after the initial year of cycle counting; however, staffing makes a difference. A constant presence of full time staff significantly reduces the variability of cycle counting variances and increases the accuracy of storeroom inventory.

The MWWTP warehouse is staffed by six full time employees. It accounted for the least volatility of change year over year, experiencing about the same improvement from 2012 through 2014 as it did from 2011 to 2012. The Seneca and RMF storerooms are each staffed by one full time employee. Both storerooms experienced significant improvement in year two over year one and less change in subsequent years. However, Seneca first began cycle counting in October 2011. Therefore, the 2011 variance rate does not include the benefits of learning a new operation that would appear in the form of a lower rate had an entire year of storeroom operation been included.

The Empire storeroom is staffed two days a week for a total of 6 hours; Eagles Point, a single day for less than an hour. Both of these storerooms experienced a higher rate of variances in their second year of operation than in the first year. Empire also recorded a dramatic improvement in 2014. The Manager attributes this to a change in staffing. The warehouse employee that currently attends to the Empire storeroom two days each week takes the necessary time to investigate initial variances and to resolving them as soon as they arise. In addition, Empire plant personnel are more conscientious in writing down their distributions from and returns to the storeroom.

Eagles Point will require additional data to analyze its variance trend, for cycle counting was first introduced there in March 2013. Finally, the Blue Lake storeroom began operations in January 2014, and it too, will require additional data in order to analyze its variance trend.

MCES tracks and corrects cycle count variances and the paper documentation maintained by Warehouse staff is annotated with the reason for the variance; however, WAM only accepts a single notation that currently reads “Bad Inventory Count.” As stated in Work Instruction 506.01.04 – Physical Inventory Cycle Counts, dated January 2, 2013, a designated Warehouse employee will:

- Research each discrepancy;
- Correct errors, record them in the Storeroom Transaction Log and identify them with a Reason Code of ‘Bad Inventory Count.’
- Note corrections on the Physical Inventory Variance Report and attach it to the count sheets.
- Sign and date the Physical Inventory Variance Report and give the completed packet to the Warehouse Manager.”

CONCLUSIONS

MCES personnel involved with the audit assisted in:

- providing data from which to select the samples,
- conducting physical counts,
- researching variance items,
- verifying inventory management processes and
- adjusting practices and metrics identified by the auditor that did not align with published procedures.

Additional conclusions regarding the individual areas of audit are as follows:

1. Metro WWTP Warehouse, and Empire and Seneca WWTP storerooms: Internal controls are adequate to ensure safeguarding of assets.

All five variance indicators tracked by Audit are within prescribed ranges. Although there was a concern regarding the calculation of reserve heating fuel inventory (now being addressed by MCES management personnel), maintained at the Metro WWTP, every variance, except the Metro WWTP Warehouse Random Net Variance which remained constant, improved since the March 2010 audit; 6 of the 10 substantially, including all the Empire WWTP variances. Since this was the initial audit of the Seneca WWTP storeroom, no comparison could be made to prior results.

2. Blue Lake WWTP and Regional Maintenance Facility storerooms: Internal controls are adequate to ensure safeguarding of assets. However, adherence to established controls can be strengthened to assure accurate inventory counts are recorded.

Four of five variance indicators tracked by Audit are within prescribed ranges for these two stock locations. Only the item number variance exceeded the ceiling. However, the Regional Maintenance Facility variance more than doubled compared to that of March 2010. Since this was the initial audit of the Blue Lake WWTP storeroom, no comparison could be made to prior results for Blue Lake.

3. System – Wide Cycle Counting: Cycle counting is an internal control established to ensure accurate inventory reporting and safeguarding of assets. However, adjustments to this control need to be implemented in order for it to operate more effectively.

Cycle counting has shown mixed results depending upon the WWTP at which the storeroom is located. The Metro WWTP Warehouse and the Seneca and RMF storerooms are staffed full time during the day; Empire and Eagles Point WWTP storerooms, six hours and less than an hour, respectively. Those storerooms with full time staffing have shown more consistent results year over year. Although the current 2014 weighted average variance rate for all storerooms is acceptable at 2.55%, the Seneca (8.33%) and Blue Lake (8.79%) storerooms are significantly outside the acceptable range. In addition, when variances are reversed, the transaction is

identified in WAM only as a “Bad Inventory Count;” an insufficient method for identifying the root cause for the variance and managing to remove such cause.

4. Policies, Procedures and Work Instructions – Warehouse personnel updated or developed work instructions following the recommendations included in the 2010 audit; however, there remains the need to provide formal written guidance for unique situations.

Audit identified three specific instances in which formal instruction and guidance would help reduce significant variances; reserve fuel oil maintained at the Metro WWTP, rebuilding used equipment as identified by the Dirt Collector Assembly, for ORIVAL Model '48PSFL2' Automatic Self-Cleaning Filtration System variance, and part-time staff of storerooms. These three examples identify a need for adopting work instructions for unique circumstances that do into fall within the scope of standard practices as stated in MCES Work Instruction 5016.01.05, *Issuing/Returning Stock Items.*

RECOMMENDATIONS

Program Evaluation and Audit recommendations are categorized according to the level of risk they pose for the Council. The categories are:

- **Essential** – Steps must be taken to avoid the emergence of critical risks to the Council or to add great value to the Council and its programs. Essential recommendations are tracked through the Audit Database and status is reported twice annually to the Council's Audit Committee.
- **Significant** – Adds value to programs or initiatives of the Council, but is not necessary to avoid major control risks or other critical risk exposures. Significant recommendations are also tracked with status reports to the Council's Audit Committee.
- **Considerations** – Recommendation would be beneficial, but may be subject to being set aside in favor of higher priority activities for the Council, or may require collaboration with another program area or division. Considerations are not tracked or reported. Their implementation is solely at the hands of management.
- **Verbal Recommendation** – An issue was found that bears mentioning, but is not sufficient to constitute a control risk or other repercussions to warrant inclusion in the written report. Verbal recommendations are documented in the file, but are not tracked or reported regularly.

Storeroom Inventory Management

1. **(Significant) MCES should:**
   - **Ensure that employees adhere to current policies and**
   - **Provide periodic training to warehouse, storeroom and plant personnel to increase awareness and adherence to those controls.**

The Warehouse is the only facility that maintained a consistent and acceptable level of both preliminary and adjusted item number variance accuracy of the five sites audited. Although the adjusted item number variance for the Empire and Seneca storerooms came within the acceptable range, both they and the RMF storeroom were outside that range initially.

Variance rates can be reduced to acceptable levels initially by adhering to current procedures, and by providing employees periodic training on all inventory controls. Recording accurate inventory quantities initially allows Environmental Services to manage inventory in a more effective and efficient manner and reduces the time and effort required to research variances.

Management Response: *Copies of the current Warehouse policies and procedures for Issuing and Returning stock items will be posted at each remote storeroom. The Warehouse staff currently assigned to each facility will meet with the leads of the respective groups (trades and operations) and explain the policies and procedures to them, and answer any questions they*

may have. This training will be conducted periodically to ensure both current and new employees are continually reminded of their responsibilities.

Staff Responsible: *Warehouse Manager and Staff*

Timetable: *First quarter of 2015*

2. **(Significant) Warehouse personnel should develop formal written procedures for any unique stocked or rebuilt item or storeroom staffing process that does not fit within current formal written work instructions for handling stored and reordered items.**

MCES Work Instruction 5016.01.05, Issuing/Returning Stock Items, provides guidance for handling, receiving and returning most inventory items. However, some items are manufactured or re-built within MCES and may require individual work instructions in order for all warehouse and storeroom employees to understand how to process them. In other instances, part-time staffing of storerooms increases the need for maintenance personnel to also understand and abide by storeroom inventory processing procedures.

Relying on verbal and individual employee expertise increases the risk of recording incorrect inventory data. Individual rather than MCES-wide processes become the rule and variances occur, especially when the employees with the "special" knowledge are not available to process the transaction. One example of this is the Dirt Collector Assembly, for ORIVAL Model '48PSFL2' Automatic Self-Cleaning Filtration System, identified at the Seneca WWTP, which MCES rebuilds internally. Another is the part-time staffing of the Blue Lake and Empire WWPT storerooms.

Management Response: *A work Instruction will be written for how to handle manufactured or rebuilt items within the MCES storerooms. We will also look into the issue raised of part-time staffing of the Blue Lake and Empire WWPT storerooms.*

Staff Responsible: *Warehouse Manager*

Timetable: *Second quarter of 2015*

System-Wide Cycle Counting

3. **(Significant) MCES should:**
   - **Revise Work Instructions and controls to identify specific reasons for cycle count variances.**
   - **Conduct periodic training for all warehouse and storeroom employees conducting cycle counts.**

Cycle counting is an important internal control and understanding the reasons that variances occur is an important aspect of the control. Currently all variances are noted only as “Bad Inventory Count.” By identifying the specific reason, (i.e. counted incorrectly, item at a different location, someone took or returned the part without registering such action, etc.) management personnel can introduce appropriate controls to ensure more efficient and effective inventory and plant operations. In addition, periodic training of appropriate personnel will enable both existing and new employees to maintain a reduced number of item variances.

Management Response: *Warehouse staff will begin using a Cycle Count Report Review Worksheet that is similar to the one that is currently being used by Transit. All warehouse employees will be periodically trained on the use of this new document. Current Work Instructions will be revised to include the use of this document/process.*

Staff Responsible: *Warehouse Manager and Staff*

Timetable: *First quarter of 2015*

Final Comment: *MCES is planning to establish storerooms at both the St. Croix Valley and Hastings WWTPs. Incorporating the recommendations listed above will enable those storerooms and the WWTPs they support to operate more effectively and efficiently from the start.*

Metropolitan Council
Program Evaluation & Audit
MCES Physical Inventories – July 9 & 16, 2014

Exhibit I: Universe and Sample Stratification Data

Metro WWTP (July 16, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 - $499	14,761	73	$1,323,763	$6,556
$499 - $1,700	1,489	70	1,325,573	58,672
$1,701 - $5,500	474	63	1,352,850	176,383
$5,501 - $25,000	127	46	1,289,471	458,147
Sub-Total	**16,851**	**252**	**$5,291,657**	**$699,758**
100% Judgmental Sample				
$25,001 and above	9	9	744,173	744,173
Total	**16,860**	**261**	**$6,035,830**	**$1,443,931**

Blue Lake WWTP (July 9, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to $1,000	2,188	71	$89,423	$3,943
$1,001 to $5,000	44	27	96,788	63,458
Sub-Total	**4,282**	**175**	**$186,211**	**$67,401**
100% Judgmental Sample				
$5,001 and above	8	8	91,875	91,875
Total	**4,287**	**180**	**$278,086**	**$159,276**

Empire WWTP (July 9, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to $500	1,825	70	$69,053	$1,974
$501 to $2,500	72	36	71,560	37,586
$2,501 to $8,999	15	12	79,652	64,859
Sub-Total	**1,912**	**118**	**$220,265**	**$104,419**
100% Judgmental Sample				
$9,000 and above	6	6	100,008	100,008
Total	**1,918**	**124**	**$320,273**	**$204,427**

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MCES Physical Inventories – July 9 & 16, 2014

Exhibit I: Universe and Sample Stratification Data

Seneca WWTP (July 16, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to $750	2,779	71	$152,628	$4,642
$751 to $3,000	98	42	140,614	62,073
$3,001 to $9,000	30	21	148,912	98,742
Sub-Total	**2,907**	**134**	**$442,154**	**$165,457**
100% Judgmental Sample				
$9,001 and above	9	9	115,585	115,585
Total	**2,916**	**143**	**$557,739**	**$281,042**

Regional Maintenance Facility (July 16, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to $500	3,305	71	$212,923	$4,620
$501 to $2,250	192	53	207,536	54,606
$2,251 to 10,000	51	30	206,750	123,372
Sub-Total	**3,548**	**154**	**$627,209**	**$182,598**
100% Judgmental Sample				
$10,001 and above	10	10	200,255	200,255
Total	**3,558**	**164**	**$827,464**	**$382,853**

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Exhibit II: Preliminary Statistical Data Summary

Random Sample	Metro WWTP	Blue Lake WWTP	Empire WWTP	Seneca WWTP	Regional Maintenance Facility
Shortages	4	5	3	2	7
Overages	2	6	4	6	8
Value of Sample Shortages	(3,232)	(60)	(444)	(2,321)	(2,761)
Value of Sample Overages	3,247	34	5,293	6,879	2,868
Net Sample Variance Value	15	(26)	4,849	4,558	107
Sampled Inventory Shortage %	-0.46%	-0.09%	-0.43%	-1.40%	-1.51%
Sampled Inventory Overage %	0.46%	0.05%	5.07%	4.16%	1.57%
Total Random Sample Inventory					
Value of Estimated Shortages	(38,079)	(521)	(1,200)	(5,257)	(7,604)
Value of Estimated Overages	37,471	770	7,835	12,134	9,470
Net Projected Variance	(608)	249	6,635	6,877	1,866
Net Projected Variance%	-0.01%	0.13%	3.01%	1.56%	0.30%
Absolute Variance	75,550	1,291	9,035	17,391	17,074
Absolute Variance %	1.43%	0.69%	4.10%	3.93%	2.72%
Judgmental Sample					
Shortages	1	0	0	0	0
Overages	0	0	0	0	1
Value of Sample Shortages	(5,597)	0	0	0	0
Value of Sample Overages	0	0	0	0	5,240
Random & Judgmental Combined					
Value of Estimated Shortages	(43,676)	(521)	(1,200)	(5,257)	(7,604)
Value of Estimated Overages	37,471	770	7,835	12,134	14,710
Net Projected Variance	(6,205)	249	6,635	6,877	7,106
Net Projected Variance %	-0.10%	0.09%	2.07%	1.23%	0.86%
Absolute Variance	81,147	1,291	9,035	17,391	22,314
Absolute Variance %	1.43%	0.46%	2.82%	3.12%	2.70%
Total Variance Items	7	11	7	8	16
Variant Item Number Ratio	2.68%	10.38%	5.65%	5.59%	9.76%
Acceptable # of Variance Items	8	3	4	4	5
Acceptable Variant Item Ratio	3.00%	3.00%	3.00%	3.00%	3.00%

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Exhibit III: Adjusted Statistical Data Summary

Random Sample	Metro WWTP	Blue Lake WWTP	Empire WWTP	Seneca WWTP	Regional Maintenance Facility
Shortages	1	3	2	1	4
Overages	0	6	1	3	5
Value of Sample Shortages	(1)	(20)	(11)	(72)	(145)
Value of Sample Overages	0	34	3	63	97
Net Sample Variance Value	(1)	14	(8)	(9)	(48)
Sampled Inventory Shortage %	0.00%	-0.03%	-0.01%	-0.04%	-0.08%
Sampled Inventory Overage %	0.00%	0.05%	0.00%	0.04%	0.05%
Total Random Sample Inventory					
Value of Estimated Shortages	(287)	(461)	(375)	(163)	(1,864)
Value of Estimated Overages	0	770	100	394	3,516
Net Projected Variance	(287)	309	(275)	231	1,652
Net Projected Variance%	-0.01%	0.17%	-0.13%	0.05%	0.26%
Absolute Variance	287	1,231	475	557	5,380
Absolute Variance %	0.01%	0.66%	0.22%	0.13%	0.86%
Judgmental Sample					
Shortages	(13,754)	0	0	0	0
Overages	0	0	0	0	0
Value of Sample Shortages	(13,754)	0	0	0	0
Value of Sample Overages	0	0	0	0	0
Random & Judgmental Combined					
Value of Estimated Shortages	(14,041)	(461)	(375)	(163)	(1,864)
Value of Estimated Overages	0	770	100	394	3,516
Net Projected Variance	(14,041)	309	(275)	231	1,652
Net Projected Variance %	-0.23%	0.11%	-0.09%	0.04%	0.20%
Absolute Variance	14,041	1,231	475	557	5,380
Absolute Variance %	0.23%	0.44%	0.15%	0.10%	0.65%
Total Variance Items	2	9	3	4	9
Variant Item Number Ratio	0.77%	8.49%	2.42%	2.80%	5.49%
Acceptable # of Variance Items	8	3	4	4	5
Acceptable Variant Item Ratio	3.00%	3.00%	3.00%	3.00%	3.00%

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Exhibit IV: WAM Cycle Count Classifications & Batch Quantities

WAM Cycle Count Classification

Class	Min TIIV	Max TIIV	Frequency (months)
A	1,000	Infinity	6
B	500	999	6
C	100	499	12
D	0	99	12
E	0	0	24
X	0	0	---

WAM Cycle Count Batch Quantities and Intervals

Storeroom	# of Items	Interval
Metro WWTP	52	Daily
Blue Lake WWTP	19	Wednesday, Friday
Eagles Point WWTP	9	Wednesday
Empire WWTP	13	Tuesday, Thursday
Seneca WWTP	17	Tuesday, Friday
Regional Maintenance Facility	11	Daily
Admin Bldg	7	Monthly
Liquids Business Unit	7	Monthly
Solids Mgmt BU	7	Monthly

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Exhibit V: Inventory Items and Storeroom Personnel by Location

Facility	Number of Items	Value	Storeroom Technicians
Eagles Point WWTP	405	$15,353	W - <1 Hr
Blue Lake WWTP	2,929	$275,896	M/W/F – 4 Hrs ea.
Empire WWTP	2,994	$322,055	T/TH – 3 Hrs ea.
Seneca WWTP	3,558	$548,691	1 Full Time
Regional Maintenance Facility	6,576	$857,669	1 Full Time
Metro WWTP Warehouse	25,908	$6,125,693	6 Full Time
Total Value		**$8,151,947**	

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Exhibit VI: Historical Variance Rates by Storeroom 2010 - 2014

Storeroom	2010	2011	2012	2013	2014	Weighted Average	% Point Change Yr 1 to Yr 2	% Point Change Yr 2 to 2014
MWWTP	N/A	7.69%	4.65%	2.95%	1.04%	3.14%	**-3.04%**	**-3.61%**
Blue Lake	N/A	N/A	N/A	N/A	8.79%	8.79%	**N/A**	**N/A**
Empire	N/A	10.65%	13.37%	10.39%	0.43%	9.26%	**2.72%**	**-12.94%**
Seneca	N/A	16.11%	9.67%	7.77%	8.33%	9.24%	**-6.44%**	**-1.34%**
RMF	2.06%	0.42%	0.32%	0.27%	0.60%	0.74%	**-1.64%**	**0.18%**
Eagles Point	N/A	N/A	N/A	0.97%	1.61%	1.08%	**0.64%**	**N/A**
WGT Average	**2.06%**	**4.66%**	**5.26%**	**3.46%**	**2.55%**	**3.85%**	**0.60%**	**-2.71%**

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Exhibit VII: Variance Summary

Variance Type	Audit Goal	Metro WWTP	Blue Lake WWTP	Empire WWTP	Seneca WWTP	Regional Maintenance Facility
Variant Item Number Ratio	3.00%	**0.77%**	8.49%	**2.42%**	**2.80%**	5.49%
Random Sample Net Variance	+/-0.50%	**-0.01%**	**0.17%**	**-0.13%**	**0.05%**	**0.26%**
Random Sample Absolute Variance	1.50%	**0.01%**	**0.66%**	**0.22%**	**0.13%**	**0.86%**
Combined Net Variance	+/-0.50%	**-0.23%**	**0.11%**	**-0.09%**	**0.04%**	**0.20%**
Combined Absolute Variance	1.50%	**0.23%**	**0.44%**	**0.15%**	**0.10%**	**0.65%**

Note: Highlighted items indicate variances falling within the ceiling range. "Combined" variances include both random and judgmental samples.

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Exhibit VIII: Comparative Prior Audit Variances

Metro WWTP	Audit Goal (+ or -)	Audit Results March 2010	Audit Results July 2014	Absolute % Point Change	% Change
Random Net Variance	0.50%	**0.01%**	**-0.01%**	0.01%	0.00%
Random Absolute Variance	1.50%	**0.08%**	**0.01%**	0.07%	88.10%
Combined Random/Judgmental Net Variance	0.50%	**0.32%**	**-0.23%**	0.09%	28.13%
Combined Random/Judgmental Absolute Var.	1.50%	**0.39%**	**0.23%**	0.16%	41.03%
Item # Variance	3.00%	**2.27%**	**0.77%**	1.50%	66.08%
Empire WWTP					
Random Net Variance	0.50%	-0.67%	**-0.13%**	0.54%	80.60%
Random Absolute Variance	1.50%	**1.24%**	**0.22%**	1.02%	82.26%
Combined Random/Judgmental Net Variance	0.50%	**-0.50%**	**-0.09%**	0.41%	82.00%
Combined Random/Judgmental Absolute Var.	1.50%	**0.92%**	**0.15%**	0.77%	83.70%
Item # Variance	3.00%	7.69%	**2.42%**	5.27%	68.53%
Regional Maintenance Facility					
Random Net Variance	0.50%	0.76%	**0.26%**	0.50%	65.79%
Random Absolute Variance	1.50%	**0.78%**	**0.86%**	-0.08%	-10.26%
Combined Random/Judgmental Net Variance	0.50%	0.61%	**0.20%**	0.41%	67.21%
Combined Random/Judgmental Absolute Var.	1.50%	**0.62%**	**0.65%**	-0.03%	-4.84%
Item # Variance	3.00%	**2.58%**	5.49%	-2.91%	-112.79%

Notes: 1. Blue Lake and Seneca WWTPs did not have storerooms in 2010.
2. The "Item # Variance" audit goal in 2010 was 5.00%.
3. **Bolded** items are within the audit goal.

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