



**DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY**

Board of Directors

Audit Committee

Thursday, April 26, 2018

9:30 a.m.

- 1. **Call to Order**.....Nicholas A. Majett, Chairperson
- 2. **Internal Audit Update**..... Dan Whelan, RSM, Auditor General
 - A. Internal Audit Plan Status Update
 - B. Status Update on Prior Audit Findings
 - C. [Recruiting, Selection & On-Boarding](#)
 - D. [Automated Meter Reading Implementation Progress Update](#)
 - E. [Office of Emergency Management Review](#)
 - F. Hotline Update and Analysis
- 3. **Executive Session*** Nicholas A. Majett, Chairperson
- 4. **Adjournment**..... Nicholas A. Majett, Chairperson

* The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); contract negotiations under D.C. Official Code § 2-575(b)(1); legal, confidential or privileged matters under D.C. Official Code § 2-575(b)(4); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10); proprietary matters under D.C. Official Code § 2-575(b)(11); decision in an adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14), and other matters provided in the Act.

DC WATER

Audit Committee Meeting



April 26, 2018

Agenda

- FY 2018 Internal Audit Plan Status Update
- Status Update on Prior Audit Findings
 - COR/COTR Training Update
- Report on Completed Audits:
 - Recruiting, Selection & On-Boarding
 - Automated Meter Replacement Implementation Progress Update
 - Office of Emergency Management Review
- Hotline Update
- Executive Session
 - DB/OS Privileged User
 - Network Penetration Testing

FY 2018 Internal Audit Status Update

Audit	Status
FY 2018	
Recruiting, Selection and On-Boarding	Report Complete
Automated Meter Replacement Implementation Progress Update*	Progress Report Complete
Office of Emergency Management Review	Report Complete
DB/OS Privileged User	Report Complete (executive session)
Network Penetration Testing	Report Complete (executive session)
Affordability Programs	Fieldwork In Process
Contract Monitoring & Compliance	Fieldwork In Process
Crisis Management / Business Continuity	Planning In Process
Integrated Work Order Management	Fieldwork In Process
CIS Post-Implementation Review	Not Started
Payroll & Timekeeping	Not Started
IT Risk Management & Compliance	Not Started
Accounts Payable	Not Started
Remediation Follow Up Procedures*	On-going
Hotline Management	On-going

*These projects are being conducted in a phased approach and may have multiple Internal Audit Reports or Progress reports

Internal Audit Plan – FY 2018 Draft Timeline

	Mar – 18	Apr – 18	May – 18	Jun – 18	Jul – 18	Aug – 18	Sep – 18
▶ Automated Meter Reading Implementation*	[Timeline bar spanning Mar 18 to Sep 18]						
▶ Recruiting, Selection and On-Boarding	[Timeline bar spanning Mar 18 to Apr 18]						
▶ Office of Emergency Management Review	[Timeline bar spanning Mar 18 to Apr 18]						
▶ DB/OS Privileged User	[Timeline bar spanning Mar 18 to Apr 18]						
▶ Network Penetration Testing	[Timeline bar spanning Mar 18 to Apr 18]						
▶ Affordability Programs	[Timeline bar spanning Mar 18 to Jul 18]						
▶ Contract Monitoring & Compliance		[Timeline bar spanning Apr 18 to Jul 18]					
▶ Crisis Management / Business Continuity		[Timeline bar spanning Apr 18 to Jul 18]					
▶ Integrated Work Order Management		[Timeline bar spanning Apr 18 to Jul 18]					
▶ CIS Post-Implementation Review				[Timeline bar spanning Jun 18 to Sep 18]			
▶ Payroll & Timekeeping				[Timeline bar spanning Jun 18 to Sep 18]			
▶ IT Risk Management & Compliance					[Timeline bar spanning Jul 18 to Aug 18]		
▶ Accounts Payable					[Timeline bar spanning Jul 18 to Aug 18]		
▶ Follow-up Procedures *	[Timeline bar spanning Mar 18 to Sep 18]						

*These projects are being conducted in a phased approach and may have multiple Internal Audit Reports or Progress reports

FY 2018 Internal Audit Plan Modifications

Based on our review of our plan, we have proposed the following modifications:

Audit	Modification
Penetration Testing	Added project based on discussions with management; last penetration testing occurred in FY 2015
Risk Management	Delayed to FY 2019 due to uncertainty in scope
Accounts Payable	Replaced risk management with a traditional Accounts Payable project; last audit of accounts payable occurred FY 2012

Status Update on Prior Audit Findings

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing
Prior to FY 2015 Audit Findings*					
Water Services - Distribution Maintenance Branch	10/28/2013	1	1	0	0
Warehouse Operations	09/15/2014	1	0	1	0
GIS Mapping	06/23/2014	2	0	1	1
	Total	4	1	2	1
FY 2015 Audit Findings					
Intellectual Property Program Assessment	01/08/2015	4	0	4	0
IT Policy and Procedure	01/21/2015	9	0	9	0
Network Security Assessment	04/16/2015	26	0	26	0
SCADA / PCS Review	08/28/2015	20	0	19	1
IT Vendor Management	12/21/2015	6	0	5	1
	Total	65	0	63	2

Color Key

Original remediation target date has been extended

Status of open findings:

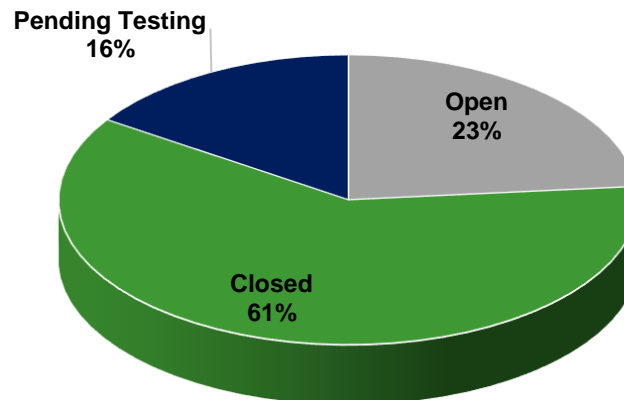
Water Services: Pending comprehensive update of SOPs, which are currently being developed in the scope of a contract owned by DETS. Anticipated completion by November 1, 2018.

*Note: The table above represents the findings that remain open, are currently pending testing or were closed since the last Audit Committee meeting. RSM originally inherited 82 prior audit findings in October 2014; there were 71 total audit findings in FY 2015.

Status Update on Prior Audit Findings (continued)

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing
FY 2016 Audit Findings					
Overtime Audit and Analysis	01/21/2016	3	3	0	0
Contract Compliance and Monitoring Part I	04/28/2016	4	0	4	0
Contract Compliance and Monitoring Part II	07/28/2016	11	1	8	2
ROCIP Savings Analysis	07/28/2016	4	0	4	0
Training, Licensing & Certification	07/28/2016	7	1	4	2
Blue Horizon 2020 Strategic Plan Monitoring	11/18/2016	3	3*	0	0
Incident Management and Response Review	11/18/2016	3	1	1	1
Engineering – Contractor Management Phase II	2/14/2017	4	0	3	1
Billing & Collection	2/14/2017	1	1	0	0
Business Development Plan	2/14/2017	10	1	7	2
Annual Budgeting and Planning	4/27/2017	1	1	0	0
	Total	51	12	31	8

Color Key	
See separate slide for details:	
	Remediation is past due for at least 1 issue
	At least 1 original remediation target date has been extended



*Review of these open items will be incorporated into the scope of our FY19 cycle audit of the Strategic Plan.

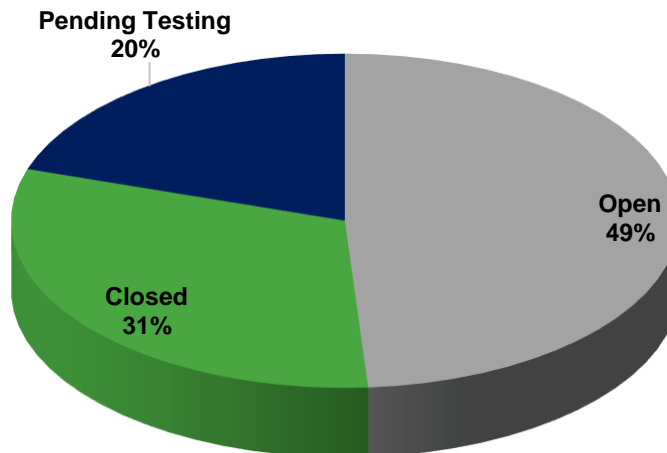


Status Update on Prior Audit Findings (continued)

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing
FY 2017 Audit Findings					
DMS Work Order Management (Blue Plains)	4/27/2017	4	4*	0	0
HR/Employee Privacy Review	4/27/2017	7	4	3	0
Purchasing Card	4/27/2017	6	0	2	4
Contract Monitoring & Compliance Part 1	7/27/2017	5	0	5	0
Contract Monitoring & Compliance Part 2	7/27/2017	3	0	1	2
Entity Level Assessment	10/26/2017	7	4	2	1
Vulnerability Management and Platform Technical Audit (Windows/UNIX)	10/26/2017	2	2	0	0
Materials Management – Operations and Inventory	10/26/2017	4	2	1	1
Fleet – Accident and Incident Reporting	1/25/2018	4	4	0	0
Construction Plan Review and Permitting	1/25/2018	3	2	0	1
	Total	45	22	14	9

Color Key	
See separate slide for details:	
	Remediation is past due for at least 1 issue
	At least 1 original remediation target date has been extended

8



*Review of these open items is incorporated into the scope of our FY18 Integrated Work Order Management audit.



Action Deferred Update

The following items are considered “action deferred” items that are contingent on other action occurring and not included in the Prior Audit Findings Update slides above:

1. Comprehensive Safety Policies and Procedures handbook
 - Posted online for a comment period and distributed to the Unions
2. Employment Laws and Regulations Policies
 - Some HR policies have already been negotiated with the Unions, while others are still in progress – Labor Relations is making the employment laws and regulation policies a priority amongst all of the HR policies
3. Drivers’ Qualification Policy
 - Has been negotiated and is awaiting signature from the new GM when announced
4. Scrap Metal Policy
 - Has not yet been negotiated
5. Personally Identifiable Information (PII) Policy
 - Has been negotiated and is awaiting signature from the new GM when announced
6. Intellectual Property Personnel Policy
 - Has not been submitted to Labor Relations for negotiation

COTR Training Update

- Internal Audit presented to the Audit Committee on July 28, 2016 the findings from the Contract Monitoring & Compliance Audit Part II.
- One of the high risk findings was a lack of COR/COTR training. The Audit Committee requested a periodic update on the status of management's action plan.

Authority-Wide Observations	Risk Rating
1. COR/COTR Training	High
<p>Management Action Plan: Department of Procurement will implement several steps to COR/COTR training and compliance monitoring:</p> <p><u>Phase I:</u> Procurement jointly with each COR/COTR for all active contracts will review and develop a contract compliance monitoring checklist for each of 160 active Goods and Services contracts. The items in the checklist will consist of key deliverables, milestones, key vendor performance, and key contractual obligations that should be actively monitored. Then COR/COTR will be responsible for monitoring the items in the checklist and submit a report to Procurement at the beginning of each quarter.</p> <p><u>Phase II:</u> Procurement along with the Office of Chief Operating Officer (OCCO), Learning and Development (L&D), and Information Technologies (IT) will implement Vendor Performance Management Training programs for COR/COTR.</p> <p><u>Phase III:</u> Procurement will source and implement a Vendor Performance Management application (an added module to the eSourcing application that Procurement will source and implement in early FY2017) to automate the contract compliance and vendor performance monitoring and reporting.</p>	

COTR Training Plan

<p>Phase I – Complete</p>	<p>COTR Update for all active contracts. Implement initial COTR Vendor Report.</p>	<ul style="list-style-type: none"> • Completed the updating COTR list and issued new COTR Designation Letters for all 160 active contracts. • 100% complete on 1st COTR Vendor Report. Vendor Reports will be automated with the new application (reference phase III).
<p>Phase II – In Process</p>	<p>Provide COTR Training.</p>	<ul style="list-style-type: none"> • COTR training was held on 07/11/17, 07/18/17, 08/08/17, 08/17/17 and 9/11/17. 52 out of 55 COTRs (95%) attended the training and an additional 37 non-COTRs. • Development of a self-paced video training is complete and will be added to the Learning and Training system (Cornerstone) in 2-3 weeks. COTRs who missed the training and new COTRs will be able to take the training and their progress will be tracked within Cornerstone.
<p>Phase III – In Process</p>	<p>Implement automated Vendor Performance Management and Reporting application.</p>	<ul style="list-style-type: none"> • Selected a vendor performance management application on 3/31/17. • Implementation is complete and the new application went live on 3/23/2018. • Training of procurement personnel is complete. Training of COTRs and establishing all new scorecards in the application have begun on 4/4/18 with a target completion by end of May.

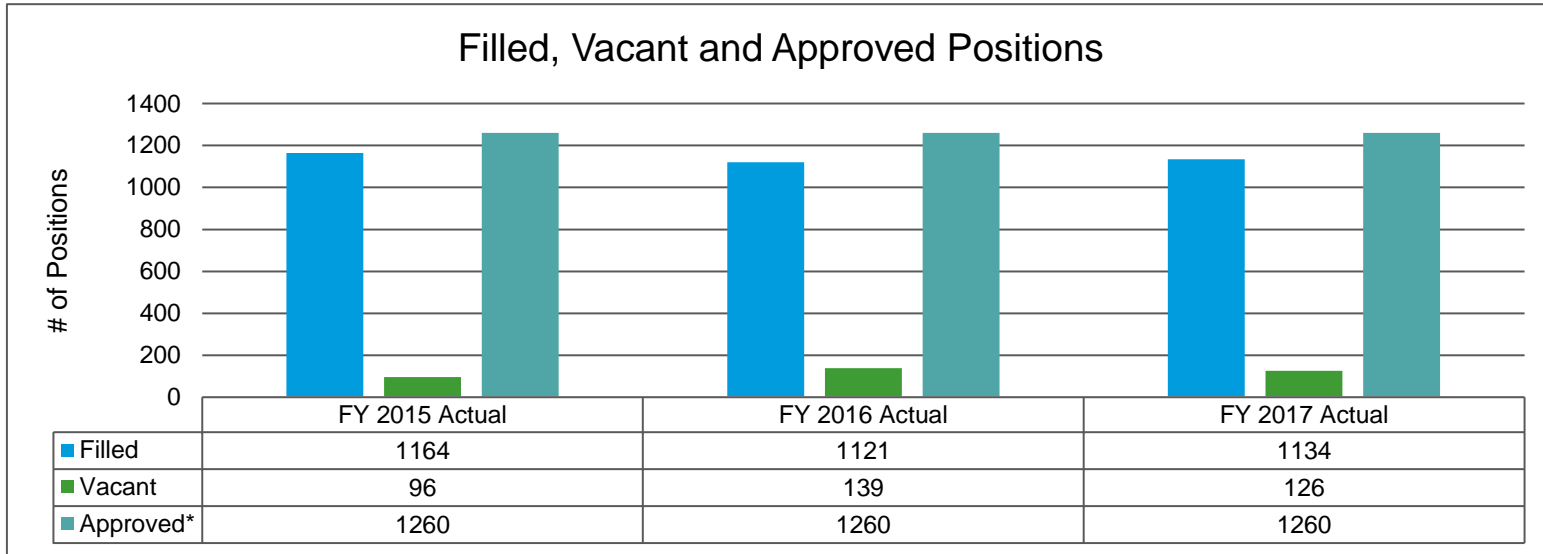
Recruiting, Selection & On-Boarding Internal Audit

The Recruiting Branch within the Human Capital Management (HCM) Department is responsible for recruitment, as well as assistance with the final selection and on-boarding of new hires at DC Water.

The scope of our review included the following:

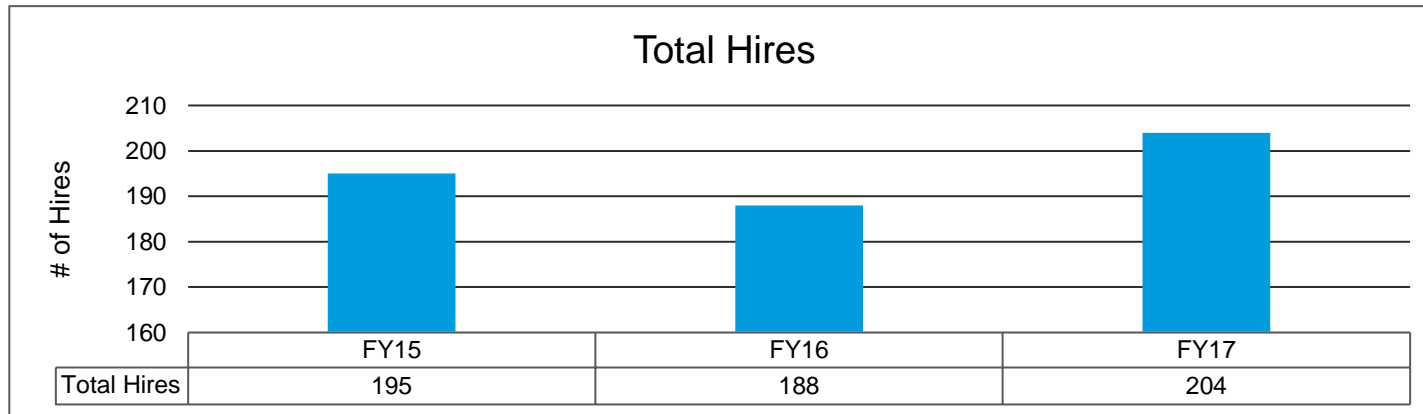
- Assess the controls around the evaluation of applicants and selection of new hires are adequately designed, operating effectively and in compliance with DC Water policies and procedures.
- Evaluate practices and procedures surrounding employee selection, recruiting and on-boarding, including, but not limited to:
 - Evaluation and approval of job descriptions and new positions;
 - Selection of qualified candidates and documentation around the selection process;
 - Record of employee/employer receipt of necessary new hire paperwork;
 - Dissemination of new hires paperwork to essential departments, and;
 - Orientation of employee to DC Water and department
- Evaluate practices and procedures surrounding repurposing / movement of existing positions into vacant approved positions
- Determine that the records, documentation and new hire folders are sufficiently maintained.

Recruiting, Selection & On-Boarding Internal Audit (continued)



*Total approved positions for FY18 is 1,260.

Source: Filled positions data obtained from 2017 CAFR. Approved positions data obtained from FY18 operating budget. Vacancies were calculated based on approved less filled.



Automated Meter Reading (AMR) Implementation Update - Objectives and Approach

The purpose of this review was to gain an understanding of the business process transformation and evaluate the AMR project implementation. The audit scope is based on the following objectives:

- Evaluate the meter program implementation plan and meter installation process, including the monitoring and reporting on the status of the implementation;
- Assess the meter disposal process and controls, including:
 - Verification that prior recommendations for control improvement were implemented;
 - Evaluate the financial treatment of disposed assets, and;
 - Developed process maps for the disposal process.
- Assess the MTU battery disposal process and controls, as contracted with Aclara Technologies LLC;
- Review billing adjustments for customers with new meters and verify proper management of accounts that have billing exceptions and/or customer disputes, and;
- Provide timely recommendations regarding overall project risk management.

AMR Implementation Update (continued)

DC Water Accomplishments

- 10 of 12 functional areas are in “green” status as of 3/21/2018, which means all goals and targets have been achieved and there are no outstanding deliverables due.
 - The remaining 2 areas (Field Oversight Team and Tripping Hazards) are under review with follow-up actions that are being implemented.
- The installation vendor has surpassed contract production requirements as of 3/31/18. However, production rates lower in March 2018 due to escalations and revisits.
- AMR readings are 96.79% for the program as of 4/06/2018, which means the overall AMR is trending up.
- Strategic outreach for setting appointments for inside installations & non-RES developed and ramp-up underway.
- Increased focus and collaboration between:
 - Field Oversight Team compiled from Meter Operations, DWS and DSS
 - Additional DC Water support to PMO and other areas
- All costs are within the approved budget.

Total Completed	Remaining Work Orders
67,112	24,687

As of 4/7/2018

AMR Implementation Update (continued) Dashboard



AMR Implementation Update (continued) MTU Disposal Process Review

- DC Water contracts Aclara Technologies LLC (Aclara) for MTU battery disposal
 - RSM visited Aclara’s SGS warehouse for a walkthrough of the disposal process
 - MTUs are sent from Aclara’s SGS warehouse in Maryland to Aclara’s Solon Processing Center in Ohio
- At Solon Processing Center, Aclara performs the following:
 - Sorts the received MTUs and inspects for any removable screws or metal
 - Removes all removable wires and metals
 - Separates lids from the housing and disposes of the removed lids in the appropriate recycling container
 - Removes printed circuit boards (PCBs) from the housing, and places empty enclosure in the appropriate recycling container
 - Separates batteries from the PCB and places on a tray for safe disposal
- The parts then go to disposal sites that are properly permitted and utilize “no landfill” policies
 - **PCBs** go to a recycling location in Ohio called E-Scrap Solutions, a certified IT Asset Recycler
 - **Batteries** go to a recycling location in Wisconsin called Globaltech, which is US EPA registered as a large quantity universal waste handler
- Aclara saves all disposal receipts
 - There are no specific receipts to DC Water’s scrap, as all MTU scrap Aclara collects from multiple sources is mixed together

AMR Implementation Update (continued)

MTU Disposal Process Review (continued)

- Aclara has a formal Hazardous Waste Program
 - For batteries, designated recycling containers are Tadiran battery trays and boxes to prevent leads from touching and any movement or shipping during transportation
 - For enclosures, PCBs, and wires, designated recycling containers are labeled Gaylords
 - Gaylords are supplied by the recycler and each one of the recyclers arranges the pickup by coordinating with Aclara's Sr Maintenance Technician



Gaylord storage with MTU plastic enclosures



Gaylord storage with fully disassembled PCBs



Battery trays from Tadiran supplier

AMR Implementation Update (continued)

Billing Adjustment Process

Billing adjustments may be required as part of the AMR implementation due to use of estimated bills:

- If DC Water obtains an actual meter reading after having estimated water usage, and that reading shows that DC Water overestimated the previous water usage, then the customer receives a credit. See DC Official Code §34-2202.03(12).
- However, if the actual meter reading shows that DC Water underestimated the water usage for 3 or more consecutive billing periods (26-34 days per billing period), and DC Water rebills the customer for the unbilled water usage, the customer may challenge the bill. When these bills have been challenged, DC Water reviews the bill and affirms the validity of the bill.

As of April 4, 2018, there have been 187 customer inquiries regarding the AMR implementation, that may or may not have resulted in a billing adjustment. Management is in process of developing a report to identify the quantity of billing adjustments that have occurred based on the AMR implementation.

Billing Inquiry by Category	
Category	Count
Generic Inquiry	74
Billing Related	68
Lead	1
Permits/DETS	1
Mis-Coded	6
Water Pressure	9
Other	11
Risk Management	8
Tripping Hazard	9
Total	187

Our review resulted in one moderate risk observation.



Office of Emergency Management Review

The purpose of this review was to obtain an understanding of and help to formalize OEM's processes in order to drive economic and resource efficiencies for the department. The project scope was based on the following objectives:

- Evaluate how general office operations are managed, including any current monitoring and documentation, and develop formalized workflows to outline office operations for OEM's continued use and employee on-boarding.
- Determine the current requirements and consistency of the Office of Emergency Management plan updates; evaluate timing and comprehensiveness of updates for reasonableness; and develop a formalized workflow to document the plan review process for the following:
 - Emergency Management Plan
 - Continuity of Operations Plan
 - Recovery Plan
 - All Hazard Incident Initial Response Plan
 - Sewer Emergency Containment Plan
 - Water Public Notification Plan
 - Sewer Public Notification Plan
- Evaluate how OEM utilizes the mobilization checklist to track the Planning Section Incident Management team activation process, and develop a formalized workflow to document the overall activation process.

The processes and workflow documented during this internal audit allowed OEM to have a documented and standard approach to their business processes and responsibilities.

Office of Emergency Management Review (continued)

The Office of Emergency Management (OEM) is responsible for planning and operational support during emergencies for DC Water. OEM is the primary steward of the Authority's comprehensive Emergency Management Program, supporting all departments to ensure that DC Water is prepared to respond to hazards, crises, and disasters.

Management's Accomplishments:

- OEM recently underwent the following initiatives:
 - Completed the first comprehensive Authority-wide J-100 vulnerability, risk, and resilience assessment performed by AECOM.
 - Achieved ISO 22301 business continuity and emergency management audit of DC Water's Emergency Management program.
 - Establishing Emergency Management Accreditation Program (EMAP) certification, which included conducting an EMAP training and self-assessment against 64 standards. Final findings are pending. DC Water is the first water utility in the country to initiate the EMAP assessment.
- Using the system Everbridge, OEM established DC Water Alerts, which is the primary internal/employee notification system and mass notification system that sends alerts regarding imminent threats, closings and delays, special events, and traffic

Hotline Update

Last Audit Committee meeting we reported that 3 cases were open; below is activity since the January 2018 Audit Committee meeting:

Hotline Calls as of 04/19/2018	
Calls Received	6
Fraud Claims – 0	
Other – 6	
Cases Closed	1
Cases Currently Open	8

Additionally, we are coordinating with External Affairs to continue to educate DC Water employees on the purpose of the hotline, procedures on how hotline calls are managed and best practices.



QUESTIONS AND ANSWERS?



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Internal Audit Report on the Recruiting, Selection and On-Boarding Process

February 2018



TABLE OF CONTENTS

Transmittal Letter	1
Executive Summary	
Background	2
Objective and Scope	2
Overall Summary / Highlights	2
Rating and Conclusions	3
Background, Objectives and Approach	
Background	4
Objectives and Approach	7
Detailed Observations	9
Appendix A – Rating Definitions	11
Appendix B – Flowcharts	12

Recruiting, Selection and On-Boarding
 Internal Audit Report
 Issued: February 2018



TRANSMITTAL LETTER

February 2018

The Audit Committee of DC Water
 5000 Overlook Avenue, SW
 Washington, DC 20032

Pursuant to the approved 2018 fiscal year internal audit plan for the District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”), we hereby present our assessment of DC Water’s Recruiting, Selection and On-Boarding process. We will be presenting this report to the Audit Committee of DC Water at the next scheduled meeting on April 26, 2018. Our report is organized in the following sections:

Executive Summary	This section provides a summary of the observations and related to our internal audit of the Recruiting, Selection and On-Boarding process.
Background	This section provides an overview of our understanding of the Recruiting, Selection and On-Boarding process.
Objectives and Approach	The internal audit objectives and focus are expanded upon in this section, as well as a review of the various phases of our approach.
Detailed Observations	This section gives a description of the observations noted during our work and recommended actions as well as management’s response, responsible party, and estimated completion date.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with this review.

Respectfully Submitted,

Internal Auditors



EXECUTIVE SUMMARY

Background

The Recruiting Branch within the Human Capital Management (HCM) Department is responsible for recruitment, as well as assistance with the final selection and initial on-boarding of new hires at DC Water. The goal of HCM is to ensure that position vacancies are filled in a consistent, fair and timely manner.

Recruitment strategies are to include as many sources and techniques as necessary to generate a substantial, diverse, and qualified pool of applicants. HCM is also responsible for oversight and review of the selection process, which relies heavily on candidate interviews as well as an assessment of work and educational history.

In support of the recruiting and selection processes, DC Water utilizes Ceridian Recruiting Solutions (CRS) which houses all approved job descriptions and applications for all job vacancies. As vacancies are identified, any required information can be uploaded to recruitment sources, such as the DC Water website, job boards, and social media.

A collaborative effort is essential to the success of the employment process, which requires constant coordination and communication to make timely and informed decisions. The number of vacancies is monitored by the Board each month, as included in the General Manager's report under Recruitment performance measures. Due to a recent restructuring and added personnel within HCM, hiring efforts have increased and the number of open positions is decreasing.

Overall Summary / Highlights

The observations identified during our assessment are summarized on the next few pages. We have assigned relative risk or value factors to each observation. Risk ratings are the evaluation of the severity of the concern and the potential impact on the operations of each item. Observations will require management action plans with estimated completion dates that will be included in the routine follow-up of internal audit observations.

Objective and Scope

Our procedures were performed in accordance with the internal audit scope and approach set forth in our audit notification letter, dated October 16, 2017, and were limited to those procedures described therein. Our scope included:

- Assess that controls around the evaluation of applicants and selection of new hires are adequately designed, operating effectively and in compliance with DC Water policies and procedures.
- Evaluate practices and procedures surrounding employee selection, recruiting and on-boarding, including, but not limited to:
 - Evaluation and approval of job descriptions and new positions;
 - Selection of qualified candidates and documentation around the selection process;
 - Record of employee/employer receipt of necessary new hire paperwork;
 - Dissemination of new hire paperwork to essential departments; and
 - Orientation of employee to DC Water and department.
- Evaluate practices and procedures surrounding repurposing / movement of existing positions into vacant approved positions.
- Determine that the records, documentation and new hire folders are sufficiently maintained to establish an audit trail for all new hires.
- Identify differing practices for new hires at individual departments and identify best practices for employee selection, recruiting and on-boarding.
 - Evaluate the procedures around job vacancies and whether the recruiting and on-boarding processes are in line to ensure those positions don't go unfilled.
 - Assess the open positions and length of time positions have been open.

Fieldwork was performed primarily during October and November 2017

Summary of Observation Ratings (See Appendix A for definitions)

	Number of Observations by Risk Rating		
	High	Moderate	Low
Recruiting, Selection and On-Boarding Internal Audit	0	1	1

We would like to thank all DC Water HCM team members who assisted us throughout this review.



EXECUTIVE SUMMARY (CONTINUED)

Ratings and Conclusions

The following is a summary of all observations noted in the areas reviewed (see “Detailed Observations” section for additional information). Definitions of the rating scales are included in the Appendices.

Summary of Observations	
Observations	Rating
<p>1. Interview Panel Selection & Independence</p> <p>The majority of the hiring process is the responsibility of the Department Hiring Manager of the vacant position. At the time of our testing, there were no specific requirements for the panel members or the HCM Recruitment employee to confirm that they have followed Authority-wide hiring practices and standards of conduct as it relates to the recruitment, selection and hiring process during the interview process. However, there were no instances of preferential treatment identified based on our testing procedures.</p>	Moderate
<p>2. New Employee Periodic Check-In</p> <p>Per our walkthroughs and discussion with Human Capital Management personnel, periodic check-ins are conducted with new employees to assist in their assimilation into the DC Water culture and their new position responsibilities. Per the DC Water On Boarding plan, these check-ins are to occur at the 30, 90 and 180-day increments and employee responses are tracked by the Engagement Analyst in an Excel spreadsheet. For much of the in scope period tested, this engagement process had not been consistently implemented due to turnover.</p>	Low

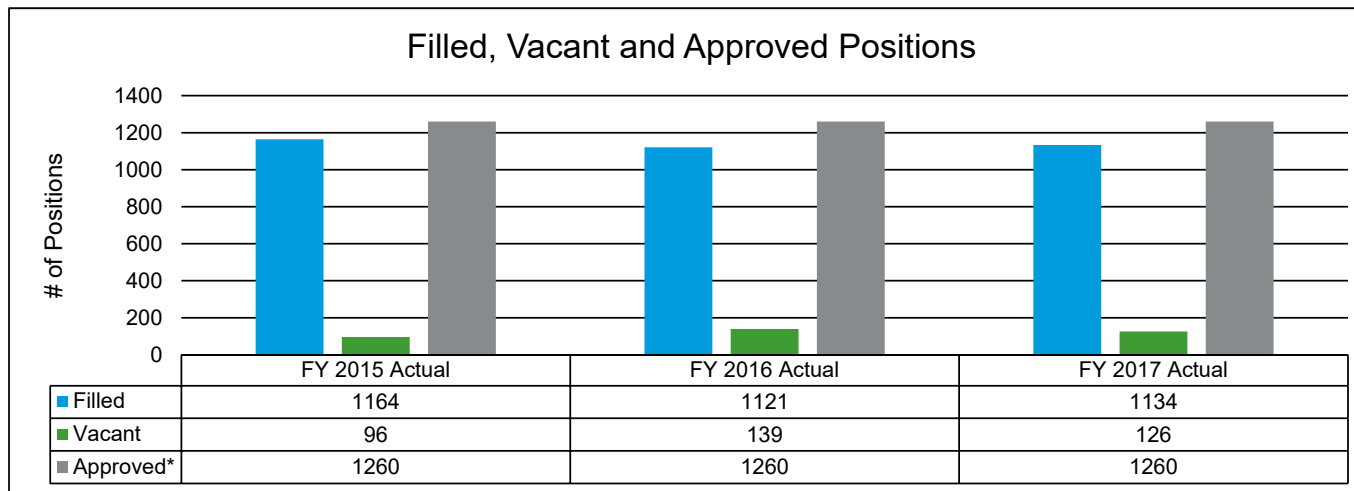


BACKGROUND, OBJECTIVES AND APPROACH

Background

Recruiting, Selection and On-Boarding Overview

The Recruiting Branch within the Human Capital Management (HCM) Department is responsible for recruitment, as well as assistance with the final selection and initial on-boarding of new hires at DC Water. Current standard operating procedures regarding recruitment, selection, and on-boarding assist HCM in filling positions in a consistent, fair and timely manner. DC Water approved 1,260 positions in FY 2017 and FY 2018, as part of the budget process.



*Total approved positions for FY18 is 1,260.

Source: Filled positions data obtained from 2017 CAFR. Approved positions data obtained from FY18 operating budget. Vacancies were calculated based on approved less filled.

Position Approval and Requisition

DC Water utilizes the Ceridian Recruiting Solutions (CRS) system for their recruiting and selection processes. CRS houses all approved job descriptions and applications for all job vacancies. Before recruitment can begin there must be a vacant position available, which requires a position request to be submitted through CRS by a Department Manager. The HCM Compensation branch, in coordination with the Office of the CFO (OCFO) is responsible for validating the position is within the budget. Once it is validated, the job is posted in CRS and a Recruiter is assigned to the position to begin the recruitment process.

BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Background, continued

Recruiting, Selection and On-Boarding

The Recruiter assigned to a vacant position is responsible for implementing a recruitment strategy and preparing vacancy announcements internally and externally. Vacancy announcements are required by HCM per the Recruitment standard operating procedures (SOPs) to be distributed to the following individuals:

- All Department Office/Executive Assistants
- Chief of Staff
- Labor Relations and Compliance Manager
- Recruitment Manager
- Eligible Priority Re-Employment List Participants
- Union Presidents

Based upon the number of internal applications received, HCM will evaluate whether an external posting is needed, or if internal interest is initially sufficient. The Hiring Manager is responsible for selecting interview candidates, and will review more resumes and select more interview candidates, if determined necessary. An interview panel made up of a minimum of 4 members is then selected by the Hiring Manager to conduct interviews. The panel typically includes at least one person who currently performs or has previously performed the role, one direct Supervisor or Manager for the position, and one internal “customer” or partner that receives the services of the role in question, as well as a non-voting HCM representative (Recruiter). Per the Recruitment standard operating procedures, Panel Member responsibilities are as follows:

- Evaluating the applicant’s ability to perform the duties and responsibilities as defined by the job description and/or functional knowledge of the position;
- Evaluating the applicant’s experience as it relates to the position, industry, etc.;
- Completing the interview notes/comments and rating sheet (each candidate is rated on a scale of 1-5) for each interviewee;
- Documenting interview rating, hiring recommendation, and rationale for recommendation;
- Assisting with ranking of candidates if requested by hiring manager;
- Upholding the policy that verbal promises and job offers are not made or implied to applicants during the recruitment process; and
- Maintaining confidentiality

A candidate is then selected by the Hiring Manager based on the recorded interview scores, experience per candidate application, and ability to adequately perform the responsibilities of the position. A selection memo is drafted by the Hiring Manager and is subsequently signed off in approval by the interview panel members. If a panel member disagrees with the selection, then they must provide a brief summary as to why they disagree. The selection memo is then reviewed and approved by the HCM Director, and forwarded to the HCM Compensation branch to generate and the Personnel Action Request (PAR). If there is disparity between the selected candidate and the panel, the process may be restarted.

Once the selection process is over, the on-boarding process begins and HCM finalizes and conveys terms of offer to the recruiter. Then, the recruiter prepares the offer letter and sends it to the potential candidate. The recruiter then is responsible for performing a background check and drug screening on the new hire. The Employee Engagement Analyst is in charge of the final step of the on-boarding process. Periodic check-ins are conducted with the new hire and supervisor at 30, 90 and 180 days. The goal of these check-ins is to verify that the new hire was a good fit for the position and to see if there is anything HCM can do to offer new trainings, etc. along the way to help improve the new hires productivity.



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Background, continued

Reporting and Metrics

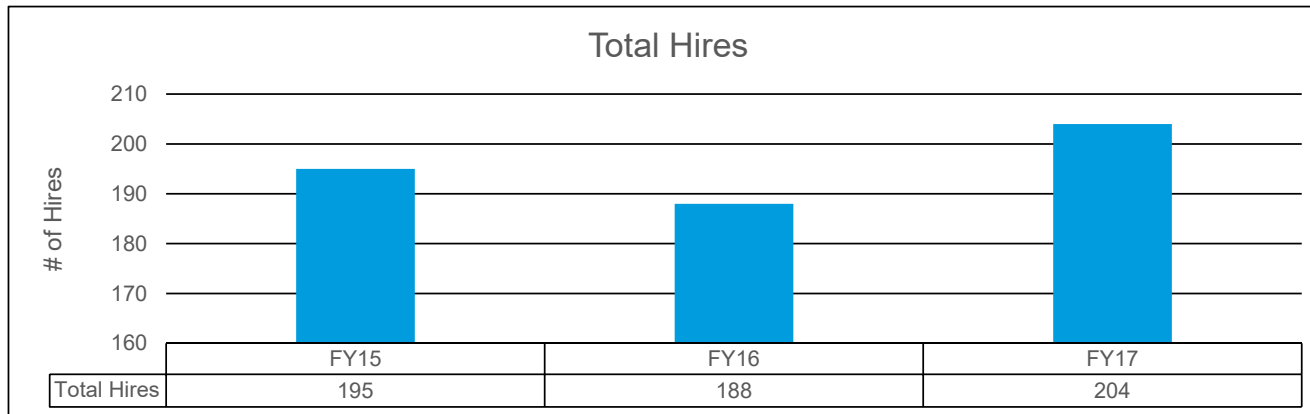
The number of vacancies is monitored by the Board of Directors each month, as included in the CEO / General Manager’s report under Recruitment performance measures. Below are the statistics provided in the March 1, 2018, Board agenda packet.

Recruitment Activity	
Open Positions as of 1/31/2018	76
New Positions	14
Filled Positions	23
Cancelled Positions	2
Open Positions	90

Source: CEO/General Manager’s Report March 1, 2018

Management Accomplishments

Within the last sixteen-eighteen months, HCM has successfully transitioned to a new Director as well as introduced a new Recruitment and Talent Acquisition Supervisor, an additional Recruiter, and an HCM Business Partner within the Department of Engineering and Technical Services. Partially as a result of this restructuring and introduction of new personnel, total hires continue to increase, while the average time to fill positions held stable at 60 days. Additionally, HCM no longer reports to the Support Services Assistant General Manager and now reports to the Chief of Staff within the Office of the General Manager. A collaborative effort is essential to the success of the employment process, which requires constant coordination and communication to make timely and informed decisions. Hiring efforts have increased and the number of open positions is decreasing.



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach

Objectives

The purpose of this review is to obtain an understanding of the process pertaining to recruiting, selection and on-boarding at DC Water. Our procedures were performed in accordance with the internal audit scope and approach set forth in our audit notification letter, dated October 16, 2017, and were limited to those procedures described therein. Our scope included the following:

- Validate that controls over employee recruiting, selection and on-boarding are documented.
- Assess that controls around the evaluation of applicants and selection of new hires are adequate, operating effectively and in compliance with DC Water policies and procedures.
- Evaluate practices and procedures surrounding employee selection, recruiting and on-boarding, including, but not limited to:
 - Evaluation and approval of job descriptions and new positions;
 - Selection of qualified candidates and documentation around the selection process;
 - Record of employee/employer receipt of necessary new hire paperwork;
 - Dissemination of new hire paperwork to essential departments;
 - Orientation of employee to DC Water and department.
- Evaluate practices and procedures surrounding repurposing / movement of existing positions into vacant approved positions.
- Determine that the records, documentation and new hire folders are sufficiently maintained to establish an audit trail for all new hires.
- Identify differing practices for new hires at individual departments and identify best practices for employee selection, recruiting and on-boarding.
 - Evaluate the procedures around job vacancies and whether the recruiting and on-boarding processes are in line to ensure those positions don't go unfilled. Assess the open positions and length of time positions have been open.

Approach

Our audit approach consisted of the following phases:

Understanding of the Process

The purpose of this phase was to gain an understanding of DC Water's recruiting, selection and on-boarding process. This phase included a process walkthrough with the HCM recruiting, selection and on-boarding process owners and inquiry of documentation.

Specific procedures performed include:

- Obtained standard operating procedures (SOP) currently utilized in the recruiting, selection and on-boarding processes.
- Inquired and documented recruiting, selection and on-boarding processes including new position creation and approval, recruitment, interview and panel scoring, selection and on-boarding of new employees.
- Developed process flowcharts based on the inquiry and documentation (walkthroughs) included above, including flowchart verification with applicable personnel.
- Identified controls and developed test procedures to determine effectiveness.

BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach (continued)

Detailed Testing

The purpose of this phase was to test internal controls and evaluate process effectiveness based on our understanding of the recruitment, selection and on-boarding processes. This included transactional testing to validate controls were operating effectively as described during walkthroughs. The time period covered by testing was Fiscal Year 2017, October 1, 2016 through September 30, 2017.

Specific procedures performed include validating that:

- A uniform set of questions is utilized for all interview candidates.
- All panel members provide appropriate feedback to the Recruitment team.
- A selection memo was drafted and signed in concurrence by interview panel members.
- A written offer letter was provided to and signed by the selected candidate(s).
- A declination letter was provided to any candidates not selected for the vacant position.
- New hires are provided a new hire packet and complete all required forms.
- Periodic check-ins with new hires are conducted timely by the Engagement Analyst.
- New positions are appropriately approved by all required parties.
- Job postings were available to view by possible candidates for an appropriate amount of time.
- Vacancy announcements were provided to all relevant external and internal parties.
- New or revised job descriptions are distributed to affiliated unions, if necessary.
- A job description is maintained for all positions.
- All job descriptions were approved by HCM Compensation.
- All job descriptions adequately list roles and responsibilities of the position.

Reporting

At the conclusion of this audit, we summarized our observations related to the recruiting, selection and on-Boarding process. We have reviewed the results of our testing with management and included their responses in the detailed observations section.



DETAILED OBSERVATIONS

Recruiting, Selection and On-Boarding Internal Audit			
1.	<u>Interview Panel Selection & Independence</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	Observation Rating: Moderate		
	<p>Per our walkthroughs and discussion with Human Capital Management personnel, it was identified that the selection of panel members for candidate interviews is primarily the responsibility of the Hiring Manager of the vacant position. Additionally, upon review of the Recruitment Standard Operating Procedures, "selecting the panel members" is identified as a responsibility of Hiring Management.</p> <p>Further guidance on how panel members are selected is somewhat limited in order to allow for flexibility by the varying nature of positions, The SOP details that a minimum of four (4) members is to be included: a direct Supervisor of the position, two members who possess knowledge of the subject area, represent other department which interface with the position, or represent other managerial interest relevant to the position, and a non-voting HCM Recruitment Branch Representative (Recruiter).</p> <p>With the selection of the interview panel primarily being the responsibility of the Department Hiring Manager of the vacant position, the Authority runs the risk of unintentionally providing preferential treatment to certain candidates. Evidence of intended or unintended advantages being afforded to any candidates was not identified during our testing; however, opportunities to improve the documentation and policy regarding conflicts of interest and the selection of the interview panel are present.</p>	<p>The Human Capital Management department should consider including a statement on the selection memo acknowledging that by signing the memo, the panel member and/or HCM employee agrees that HCM hiring practices and standards of conduct have been followed. The resulting signatures on the selection memo would indicate agreement with the added statement.</p>	<p>Response: All employees are provided training on The Authority's Ethics and Standards of Conduct Policy. The recommendation to add verbiage to the selection memo centered on "disclosure" is not an HR industry best practice, but has been added to the selection memo as an enhancement to the existing control environment around recruitment and selection. Panel selection is based on the working relationship of the role and engagement that the role will have with internal and external clients to the department that the role is housed.</p> <p>Panel members are advised of their roles prior to the panel interviews. The hiring manger and HCM Recruitment will continue to conduct pre-meeting support (when required) to ensure all parties are aware of the standards and the procedures that will govern the interview process.</p> <p>Responsible Parties: Talent Acquisition, Development, and Systems Manager; and Talent Acquisition Supervisor</p> <p>Target Date: Completed February 2018</p>



DETAILED OBSERVATIONS (CONTINUED)

Recruiting, Selection and On-Boarding Internal Audit			
2.	<u>New Employee Periodic Check-In</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	Observation Rating: Low		
	<p>Per our walkthroughs and discussion with Human Capital Management personnel, periodic check-ins are to be conducted with new employees to assist in their assimilation into the DC Water culture and their new position responsibilities. Per the DC Water On Boarding plan, these check-ins are to occur at the 30, 90 and 180-day increments and employee responses are tracked by the Engagement Analyst in an Excel spreadsheet.</p> <p>The check-ins provide new employees an opportunity to voice any issues or concerns they may have regarding their roles and responsibilities. These touch points are conducted independent of the employee's work stream, and allow for open communication to identify and address questions or concerns in a timely manner.</p> <p>Some testing was performed for new hires during 2017; however, for much of the in scope period tested, the check-in process had not been consistently implemented due to turnover. Per discussion with HCM, the process was not fully implemented until September 2017.</p>	<p>Human Capital Management should continue the check-in process with new employees.</p> <p>Additionally, periodic (semi-annually at a minimum) monitoring of the assessment and integration process should be performed by management to validate that new employees are appropriately participating in this phase of on-boarding.</p>	<p>Response: The Strategic Employee Engagement Analyst will continue conducting check-in meetings with both the new hires and their managers at 30, 90, and 180 days. Human Capital has continued to capture data for new hires effective as of September 1, 2017. The new Engagement Analyst is accessing Socialization, Culturalization, and Engagement at 30, 90, and 180 days. Findings are shared with hiring managers and HCM leadership for additional follow-up.</p> <p>Semi-annually data will be shared with the Chief Of Staff, Director of Human Capital Management, and departments. The Engagement Analyst will report out the results of each engagement based on new hire and hiring manager responses. The report will capture previously designed metrics.</p> <p>Responsible Parties: Strategic Employee Engagement Analyst; and Talent Acquisition, Development, and Systems Manager</p> <p>Target Date: October 1, 2018</p>

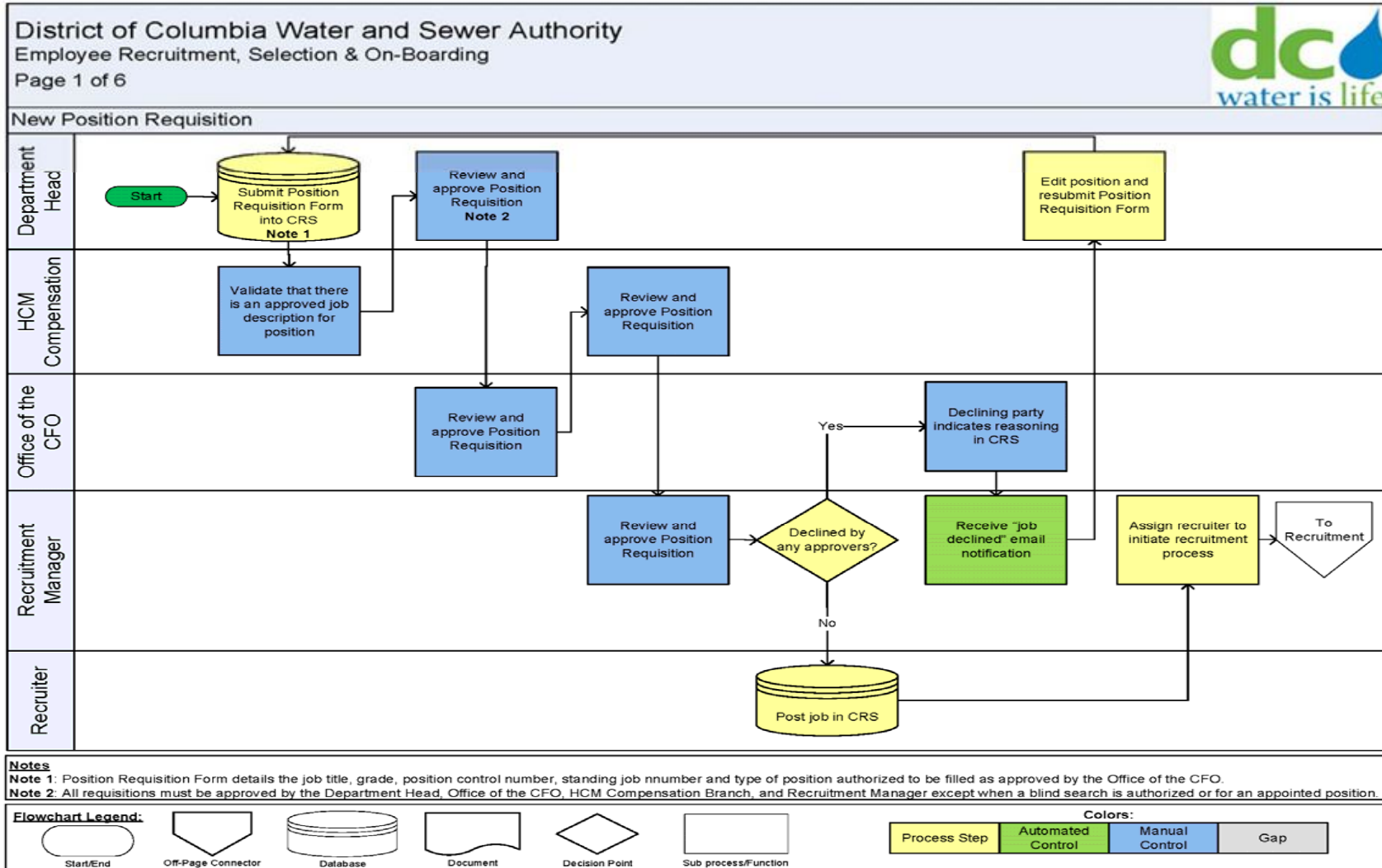


APPENDIX A – RATING DEFINITIONS

Observation Risk Rating Definitions	
Rating	Definition
Low	Observation presents a low risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of low importance to business success/achievement of goals. Action should be taken within 12 months (if related to external financial reporting, must mitigate financial risk within two months unless otherwise agreed upon).
Moderate	Observation presents a moderate risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of moderate importance to business success/achievement of goals. Action should be taken within nine months (if related to external financial reporting, must mitigate financial risk within two months).
High	Observation presents a high risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of high importance to business success/achievement of goals. Action should be taken immediately, but in no case should implementation exceed six months (if related to external financial reporting, must mitigate financial risk within two months).

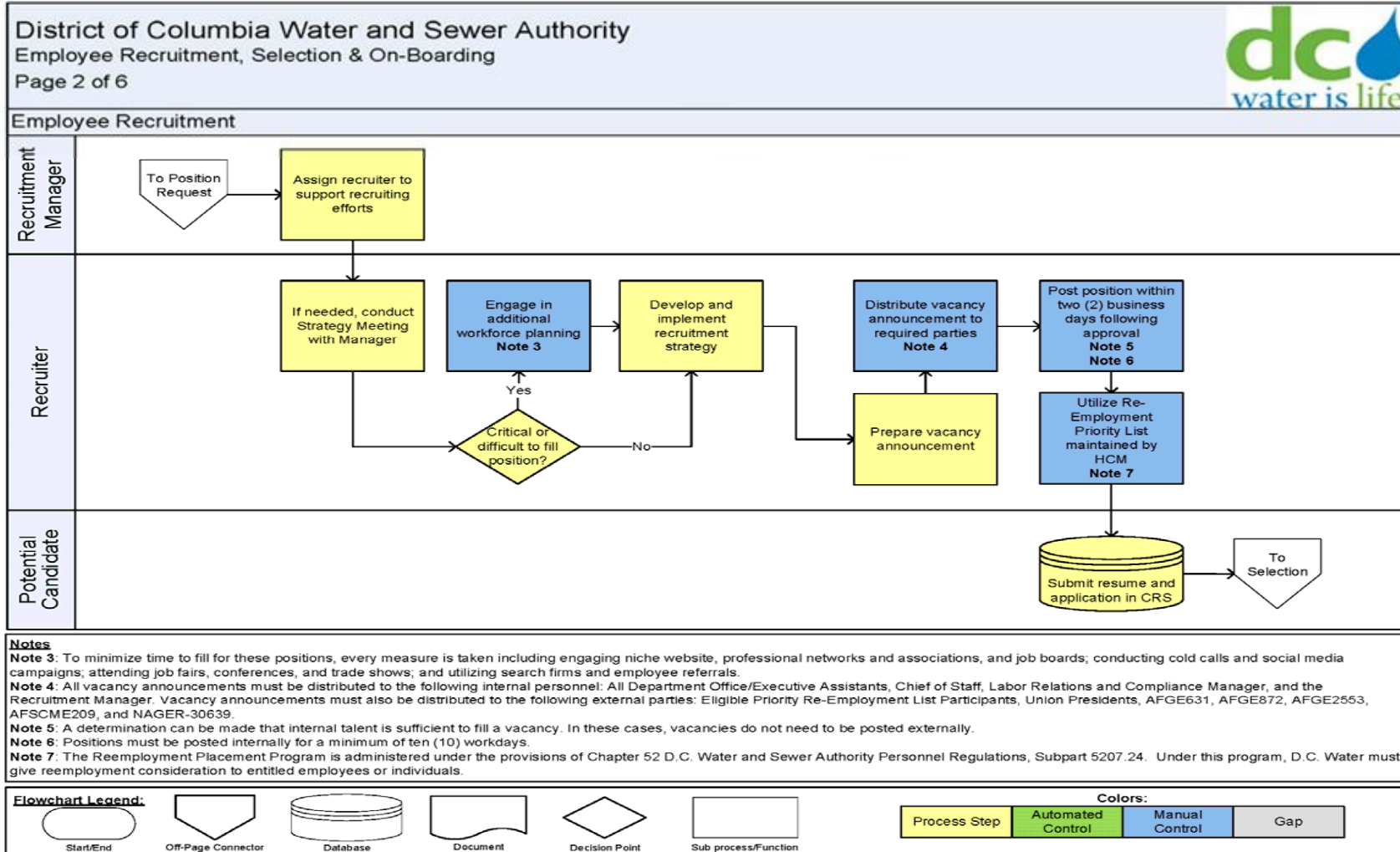


APPENDIX B – FLOWCHARTS



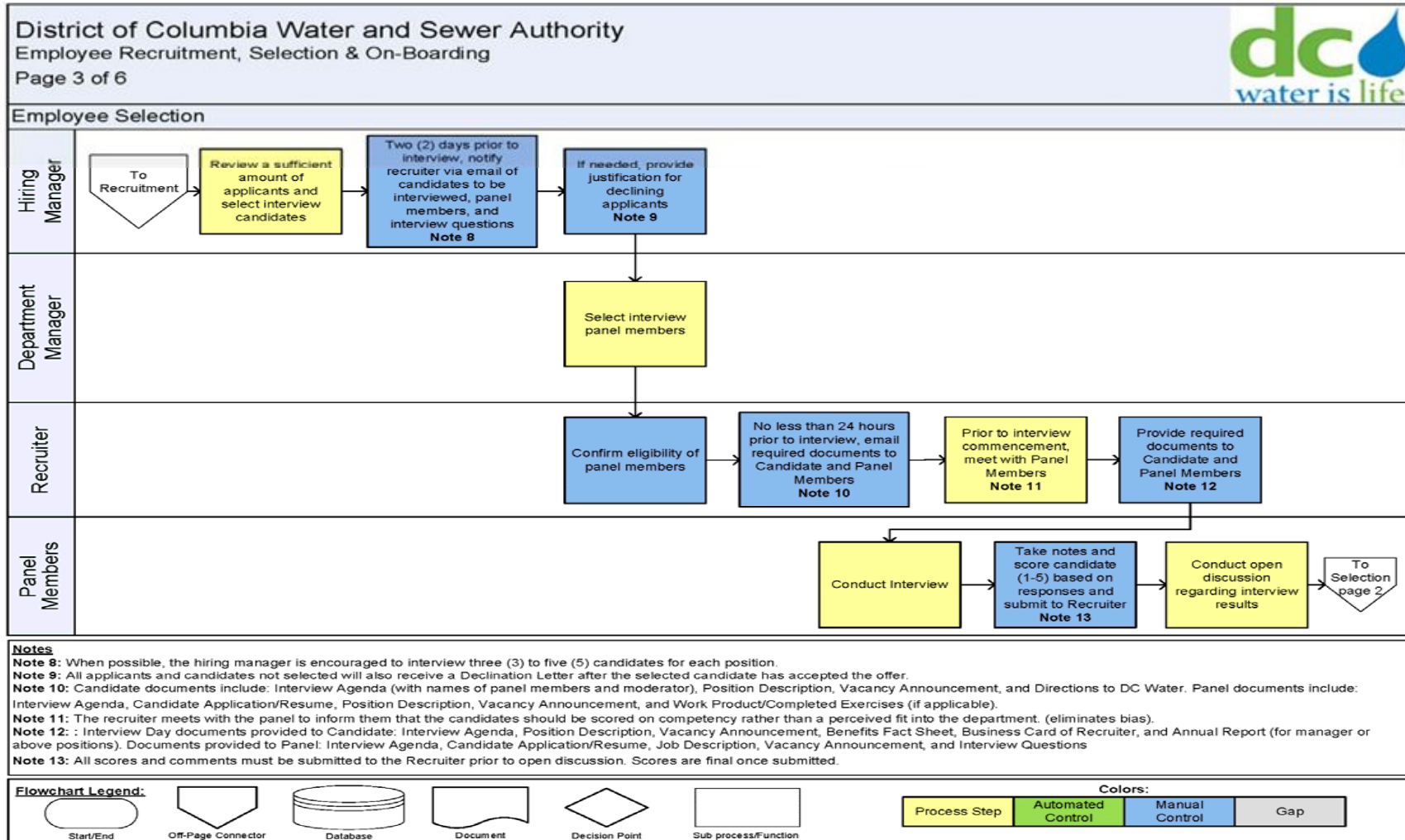


APPENDIX B – FLOWCHARTS (CONTINUED)



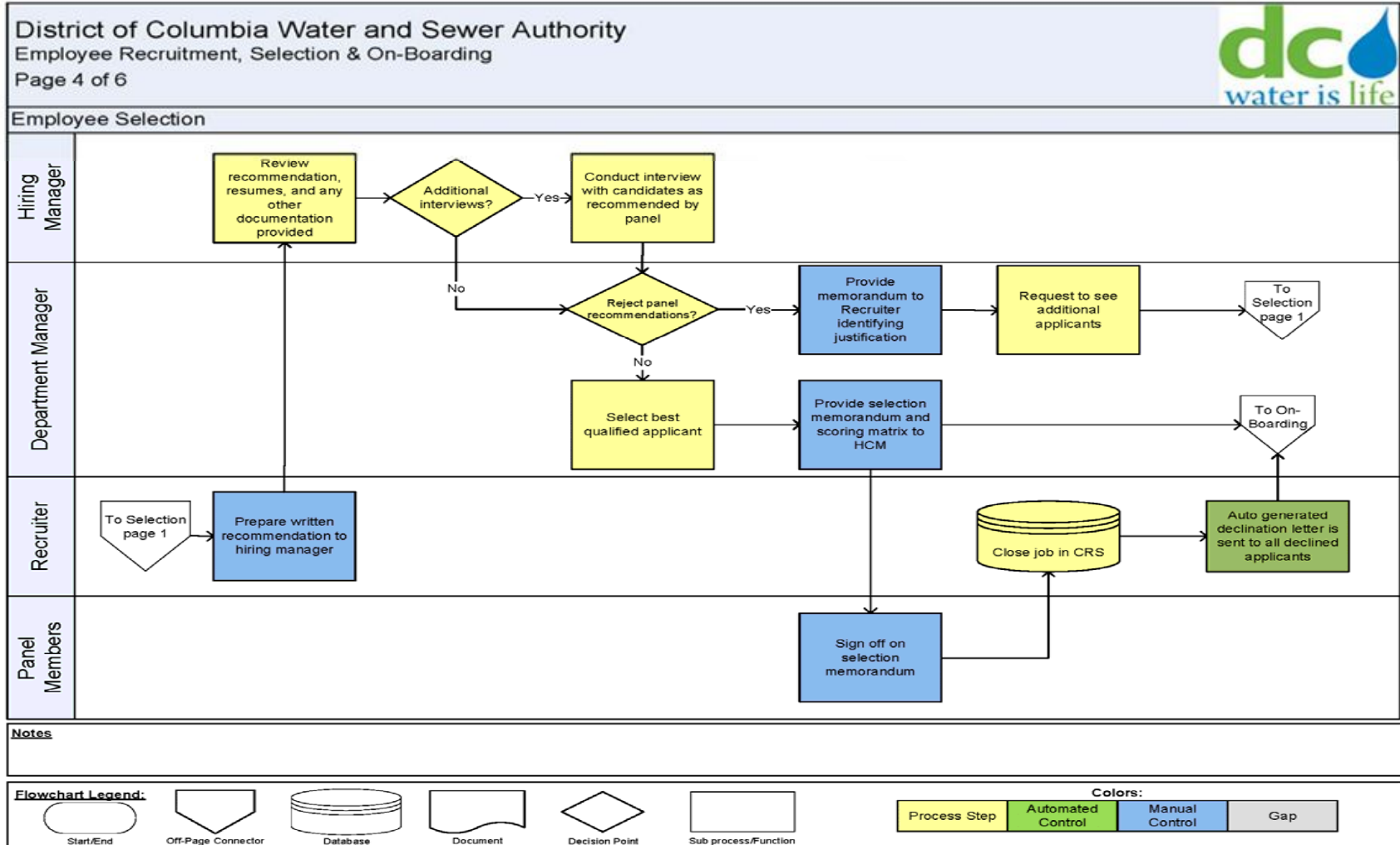


APPENDIX B – FLOWCHARTS (CONTINUED)



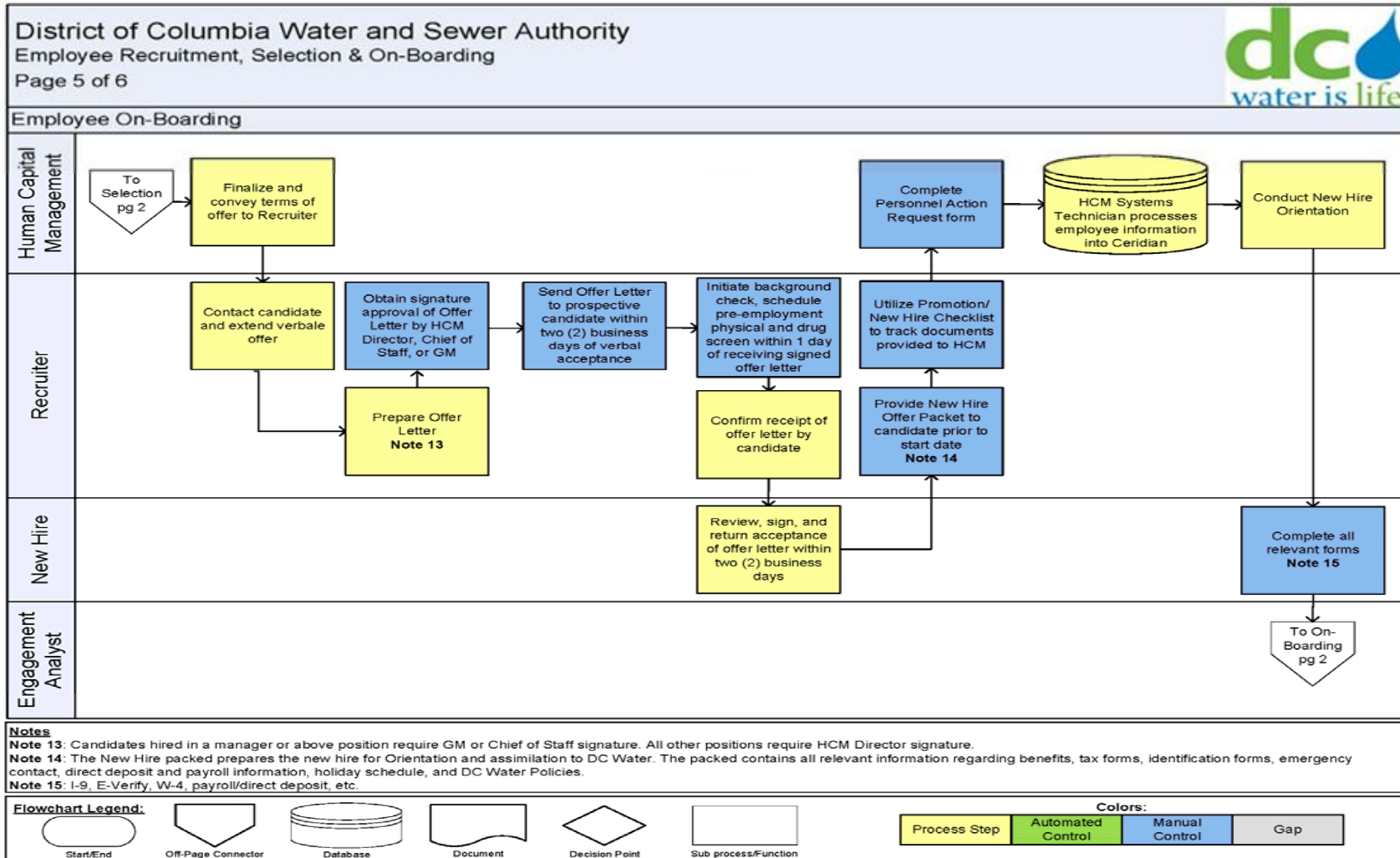


APPENDIX B – FLOWCHARTS (CONTINUED)



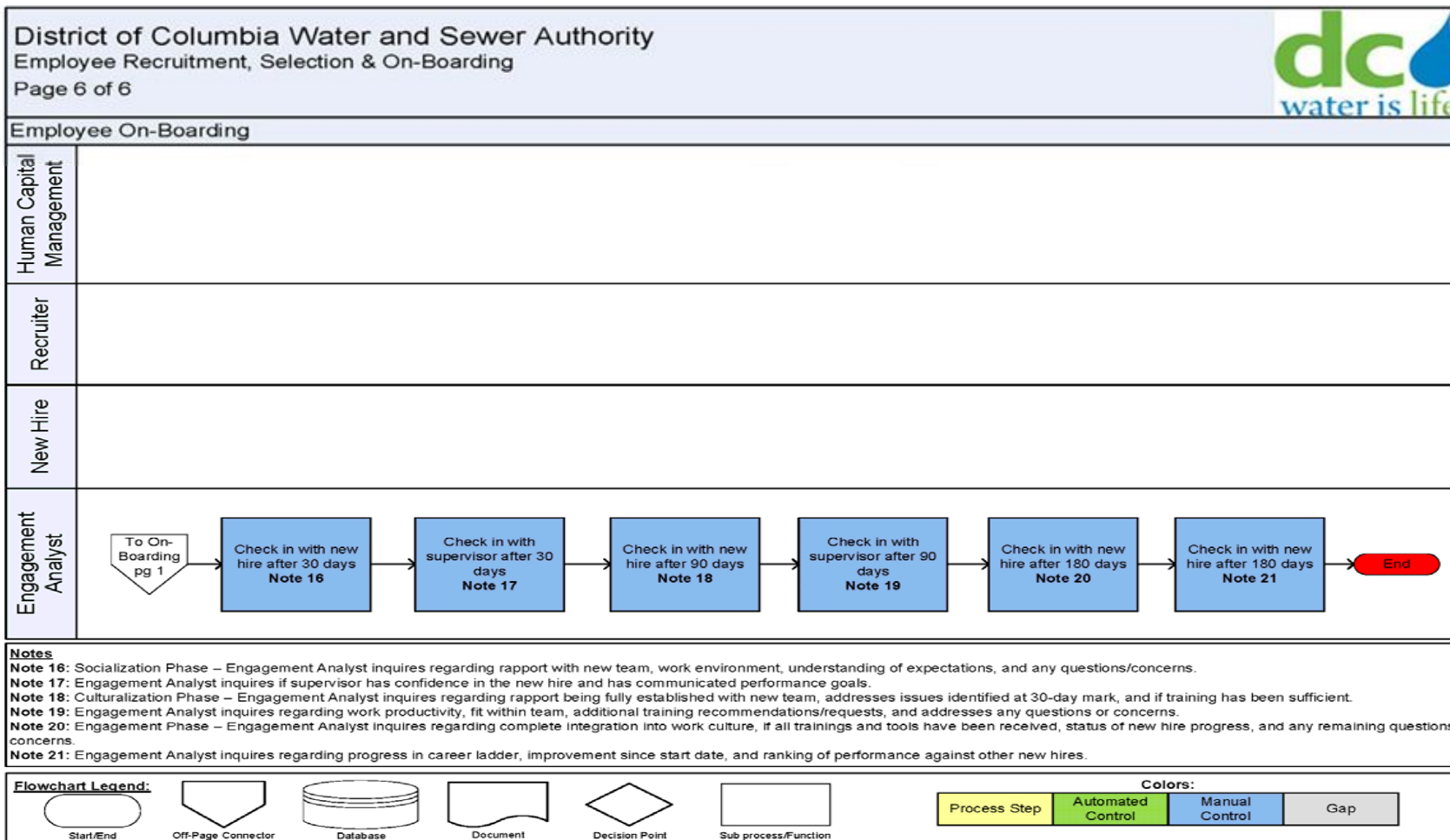



APPENDIX B – FLOWCHARTS (CONTINUED)





APPENDIX B – FLOWCHARTS (CONTINUED)





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DC WATER INTERNAL AUDIT

FY18 Automatic Meter Reading (AMR) Implementation Review Progress Report



INTERNAL AUDIT UPDATE

Audit Committee Meeting

April 26, 2018

Agenda

Transmittal Letter.....	3
DC Water’s Accomplishments.....	4
Objectives and Approach.....	5
Meter Disposal Process Review.....	6
MTU Disposal Process Review.....	7 - 8
Meter Disposal Process Review – Accounting.....	9
Billing Adjustments Process.....	10 - 11
Appendices.....	12 - 25

Transmittal Letter

April 26, 2018

The Audit Committee of DC Water
 5000 Overlook Avenue, SW
 Washington, DC 20032

Pursuant to the approved 2018 internal audit plan for the District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”), we hereby present the following progress report related to the Automatic Meter Reading (AMR) Implementation Review, including our review of the billing adjustment, disposal, and accounting processes. Our report is organized in the following sections:

Accomplishments	This section provides an overview of the DC Water accomplishments with the AMR Implementation project to date.
Objectives and Approach	The objectives of our procedures and our approach to the execution of those procedures are expanded upon in this section.
Review & Results Snapshot	This section provides an overview of the on-going review and results of certain areas subjected to our procedures.

Our work has and continues to assist management with facilitation of this project. We did not, nor does DC Water desire us to, perform management functions, make management decisions, or otherwise perform in a capacity equivalent to that of an employee or officer of DC Water.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with this review.

Respectfully Submitted,

INTERNAL AUDITORS

3



DC Water Accomplishments

- 10 of 12 functional areas are in “green” status as of 3/21/2018, which means all goals and targets have been achieved and there are no outstanding deliverables due.
 - The remaining 2 areas (Field Oversight Team and Tripping Hazards) are under review with follow-up actions that are being implemented.
- The installation vendor has surpassed contract production requirements as of 3/31/18. However, production rates lower in March 2018 due to escalations and revisits.
- AMR readings are 96.79% for the program as of 4/06/2018, which means the overall AMR is trending up.
- Strategic outreach for setting appointments for inside installations & non-RES developed and ramp-up underway.
- Increased focus and collaboration between:
 - Field Oversight Team compiled from Meter Operations, DWS and DSS
 - Additional DC Water support to PMO and other areas
- All costs are within the approved budget.

Total Completed	Remaining Work Orders
67,112	24,687

As of 4/7/2018

Objectives and Approach

The purpose of this review is to gain an understanding of the business process transformation and evaluate the AMR project implementation. The audit scope is based on the following objectives:

- Evaluate the meter program implementation plan and meter installation process, including the monitoring and reporting on the status of the implementation;
- Assess the meter disposal process and controls, including:
 - Verification that prior recommendations for control improvement were implemented, and
 - Evaluate the financial treatment of disposed assets;
- Assess the MTU battery disposal process and controls, as contracted with Aclara Technologies LLC;
- Review billing adjustments for customers with new meters and verify proper management of accounts that have billing exceptions and/or customer disputes; and
- Provide timely recommendations regarding overall project risk management.

Meter Disposal Process Review

Disposal of meters and MTUs in accordance with the approved process is key to safeguarding the Authority from misappropriation of assets removed from service due to installation of new equipment. The following are key requirements of the parties involved with meter replacement.

Key Requirements

SGS, installation vendor, is required to send an inventory report to the P&M Manager on a bi-weekly basis. The PMO Manager is required to review this report for accuracy.

DMDC, disposal vendor, is required to send a monthly activity statement with the value of scrap and overall weight re-claimed.

The P&M Manager is required to provide a report of meter installations to team leaders on a monthly basis.

The P&M Manager is required to perform a monthly reconciliation of meter disposals, utilizing outbound meter reports from SGS and inbound meter reports from DMDC.

The PMO Manager is required to provide a monthly inventory report to the CFO.

Internal Audit reviewed a sample of months to test the meter disposal process.

MTU Disposal Process Review

- DC Water contracts Aclara Technologies LLC (Aclara) for MTU battery disposal
 - RSM visited Aclara's SGS warehouse for a walkthrough of the disposal process
 - MTUs are sent from Aclara's SGS warehouse in Maryland to Aclara's Solon Processing Center in Ohio
- At Solon Processing Center, Aclara performs the following:
 - Sorts the received MTUs and inspects for any removable screws or metal
 - Removes all removable wires and metals
 - Separates lids from the housing and disposes of the removed lids in the appropriate recycling container
 - Removes printed circuit boards (PCBs) from the housing, and places empty enclosure in the appropriate recycling container
 - Separates batteries from the PCB and places on a tray for safe disposal
- The parts then go to disposal sites that are properly permitted and utilize “no landfill” policies
 - **PCBs** go to a recycling location in Ohio called E-Scrap Solutions, a certified IT Asset Recycler
 - **Batteries** go to a recycling location in Wisconsin called Globaltech, which is US EPA registered as a large quantity universal waste handler
- Aclara saves all disposal receipts
 - There are no specific receipts to DC Water's scrap, as all MTU scrap Aclara collects from multiple sources is mixed together

MTU Disposal Process Review (continued)

- Aclara has a formal Hazardous Waste Program
 - For batteries, designated recycling containers are Tadiran battery trays and boxes to prevent leads from touching and any movement or shipping during transportation
 - For enclosures, PCBs, and wires, designated recycling containers are labeled Gaylords
 - Gaylords are supplied by the recycler and each one of the recyclers arranges the pickup by coordinating with Aclara's Sr Maintenance Technician



Gaylord storage with MTU plastic enclosures



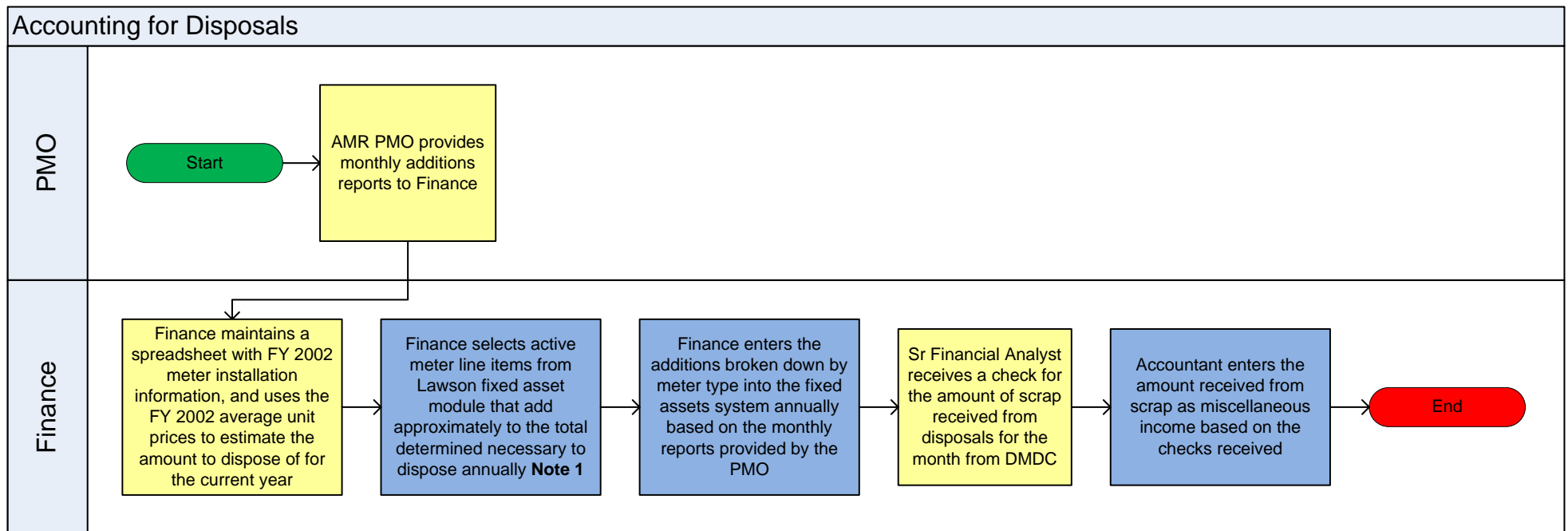
Gaylord storage with fully disassembled PCBs



Battery trays from Tadiran supplier

Meter Disposal Process – Accounting

Accounting treatment of meter disposals and additions:



Note 1: Additions and disposals are only recorded annually due to a system limitation, as the assets were added to the system with a quantity of one. Therefore, the disposal amount Finance determines appropriate for the current year is matched to the lumped line items in the asset management module of Lawson that most closely reflect the total disposal value.

Billing Adjustment Process

Billing adjustments may be required as part of the AMR implementation due to use of estimated bills:

- If DC Water obtains an actual meter reading after having estimated water usage, and that reading shows that DC Water overestimated the previous water usage, then the customer receives a credit. See DC Official Code §34-2202.03(12).
- However, if the actual meter reading shows that DC Water underestimated the water usage for 3 or more consecutive billing periods (26-34 days per billing period), and DC Water rebills the customer for the unbilled water usage, the customer may challenge the bill. When these bills have been challenged, DC Water reviews the bill and affirms the validity of the bill.

As of April 4, 2018, there have been 187 customer inquiries regarding the AMR implementation, that may or may not have resulted in a billing adjustment. Management is in process of developing a report to identify the quantity of billing adjustments that have occurred based on the AMR implementation.

Billing Inquiry by Category	
Category	Count
Generic Inquiry	74
Billing Related	68
Lead	1
Permits/DETS	1
Mis-Coded	6
Water Pressure	9
Other	11
Risk Management	8
Tripping Hazard	9
Total	187

Billing Adjustment Process (continued)

Observations	Risk Rating
1. AMR Related Billing Adjustments	Moderate
<p>As of March 2018, only billing inquiries were being tracked, but AMR-related billing adjustments were not tracked. As the Authority went through a recent CIS implementation, the capability for adjustment tracking by project had not been explored. Without tracking billing adjustments, management cannot analyze how the AMR project has affected customer billings and at what cost to the Authority.</p>	
<p>Management Action Plan: Going forward, the PMO plans to continue to track and report on billing inquiries through a report of “Interaction Records” created within Vertex One. Additionally, the Billing Department will generate a monthly report of billing adjustments and provide it to the PMO for reporting purposes, which should include the detail and total number of AMR-related billing adjustments that occurred within 45 days of the meter change-out.</p>	

APPENDICES

Appendix A: Background

Oversight of the AMR Implementation

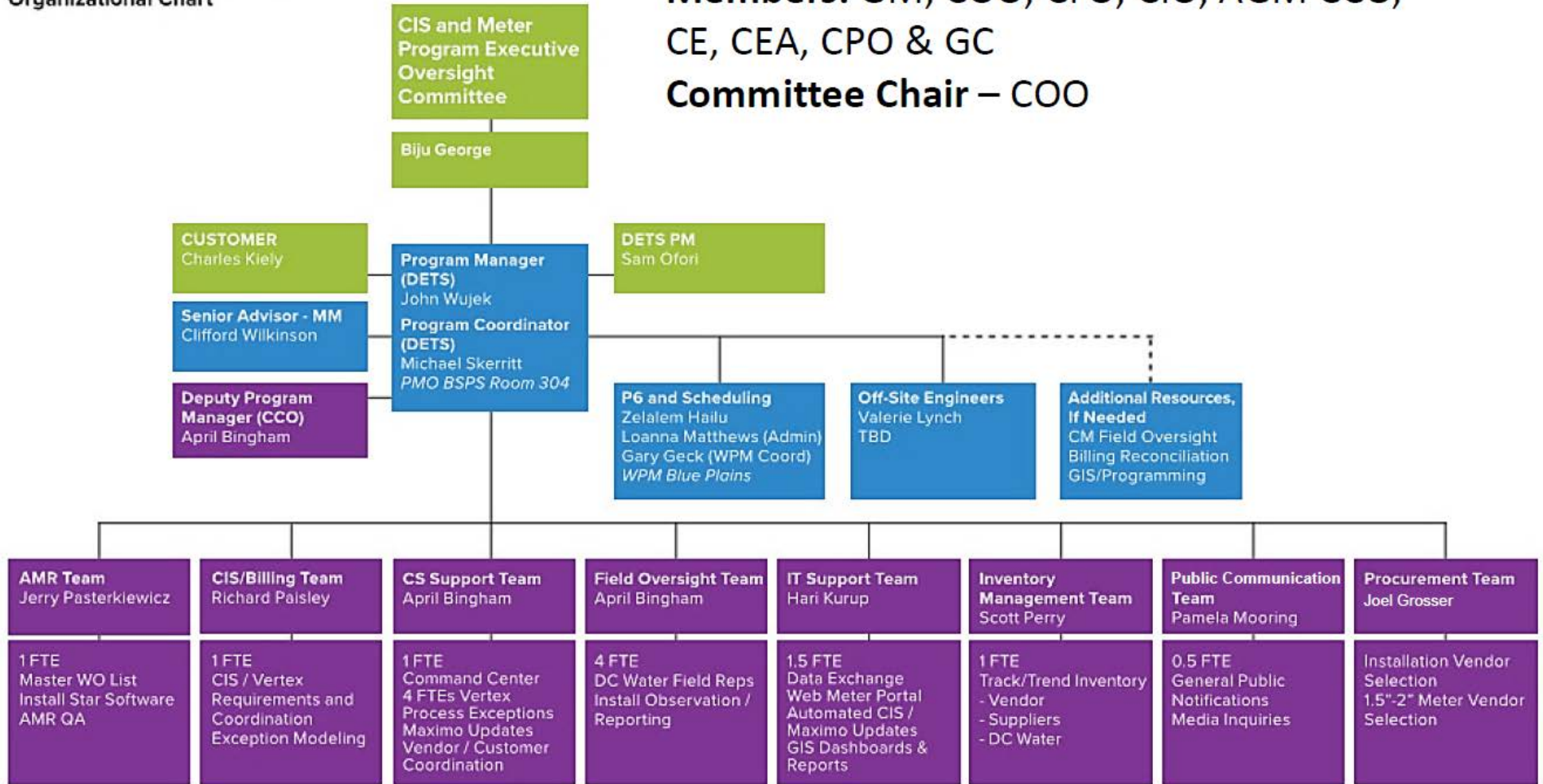
- In order to manage the replacement of over 85,000 meters and MTUs, DC Water established an Executive Oversight Committee and a Project Management Office (PMO).
- The PMO is comprised of individuals from various Departments throughout the Authority, including AMR, Customer Service Support, Field Oversight, CIS/Billing, IT, Inventory Management, Public Communications, and Procurement.

Key Activities of PMO

- Establish Team Charter to document roles and responsibilities, including a RACI chart
- Draft a project schedule, including identification of key performance indicators
- Develop a project risk register, which is reviewed monthly by the Executive Oversight Committee
- Hold weekly meetings with project team and with installation contractor to discuss the progress of the project, including tracking of planned and actual meter replacements

Appendix A: Background

DC Water Meter Replacement Program
Organizational Chart



Source: AMR Project Charter

Appendix B: Billing Adjustment Process

The following process is followed for any billing adjustment, regardless if the billing adjustment is related to the meter replacement program:

Accounts with Overestimated Meter Readings:

- Occurs when the current actual reading is less than the estimate, even if water usage has been estimated for more than three (3) billing periods. The current actual reading is used to credit the account for the overbilled amount.
- If the meter is suspected of being defective due to an unusually low reading, the customer care associate shall request that the meter be tested for accuracy.

Accounts with 3 or More Consecutive Estimated Billing Periods:

- If water usage has been estimated for 3 or more consecutive billing periods, the customer care associate shall **determine if actual reading is consistent with historical consumption.**
 - If not consistent, **confirm if this is due to computational error; or meter, data collective device, or transmitter malfunction.**
 - If computational error, then correct the error; and
 - If corrected reading is **less than the last estimate**, use the new reading to credit the account; or
 - If corrected reading is **more than the last estimate**, estimate water usage based on three comparable actual reads, bill the account, and reset the meter for the next billing period.
 - If meter, data collective, or transmitter fails to register correctly:
 - Estimate water usage based on 3 comparable actual reads, bill the account, and replace or repair the faulty device.
 - If inconclusive and reading seems to be correct:
 - No adjustment is to be made. Bill the account based on 3 comparable actual reads and reset the meter for the next billing period based on the current actual meter reading.

Appendix C: PMO's Project Timeline

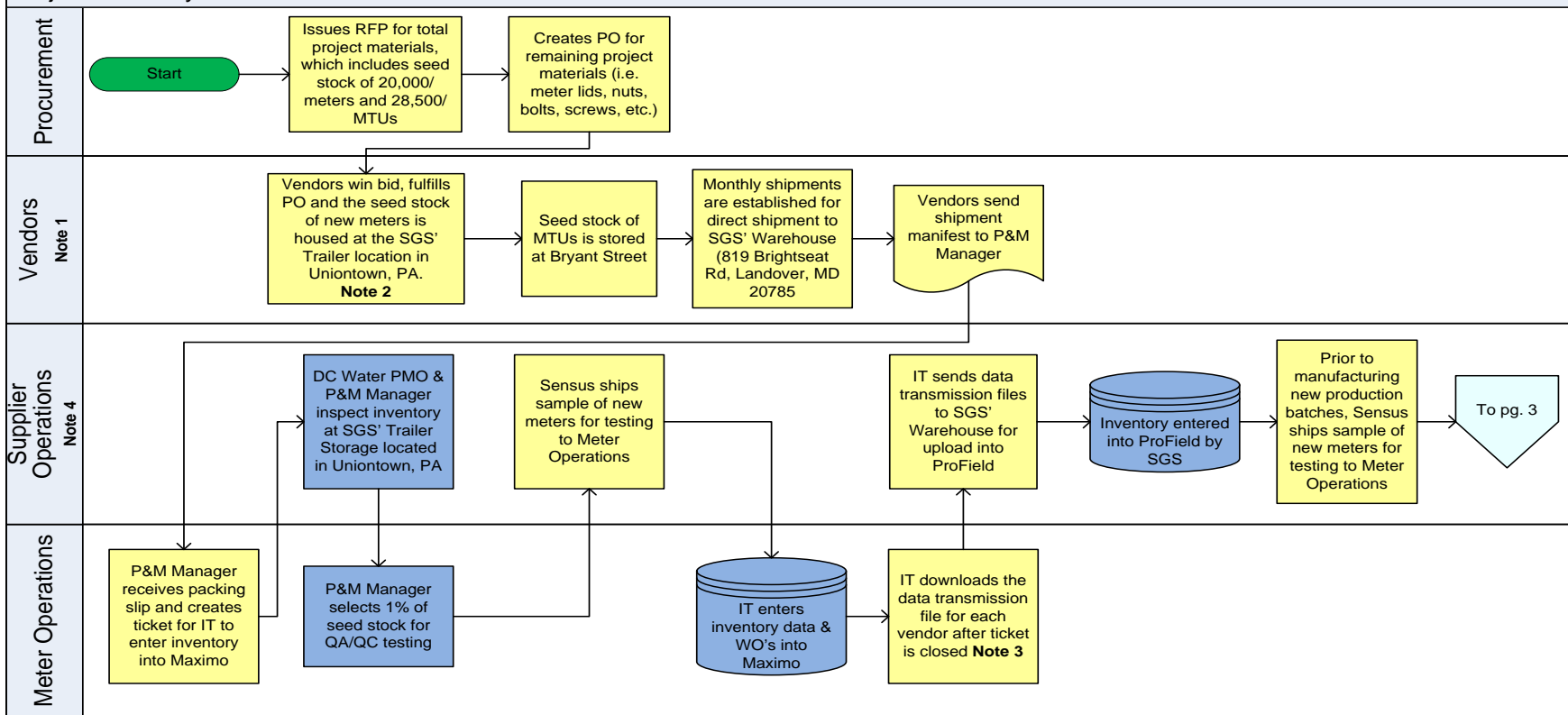


Appendix D: AMR Flowcharts



District of Columbia Water and Sewer Authority
Automated Meter Reading (AMR) Implementation
Page 1 of 9

Project Inventory Orders

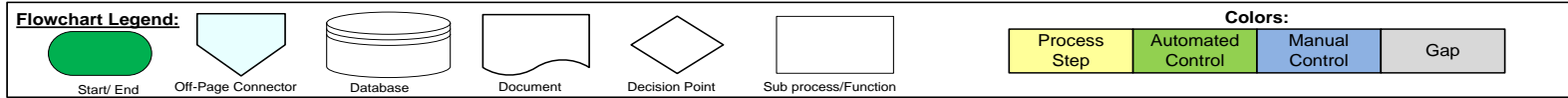


Note 1: The contract for meters was won by Fasteners RX, Inc. The contract for MTUs was won by ACLARA Technologies and the contract for meter lids was won by Business Promotion Consultants. A host of other vendors were used to secure the remaining materials (i.e. nuts, bolts, screws, washers, gel caps, gaskets, nails, burial splice kits, UR connectors, etc.)

Note 2: In July 2016 the DC Water Board of Directors approved contract No. 16-PR-CCO-59 for Fasteners, RX (i.e. Sensus meters) and contract No. WAS-12-002-AA-SH-1 for ACLARA Technologies (i.e. upgraded MTUs).

Note 3: The data transmission file contains all WO #'s, Meter #'s, and MTU #'s.

Note 4: SGS is a company owned by ACLARA Technologies, SGS maintains the inventory and performs the meter replacements in the field for the AMR Implementation project. Sensus is the manufacturer of the new meters used in the AMR Implementation project.

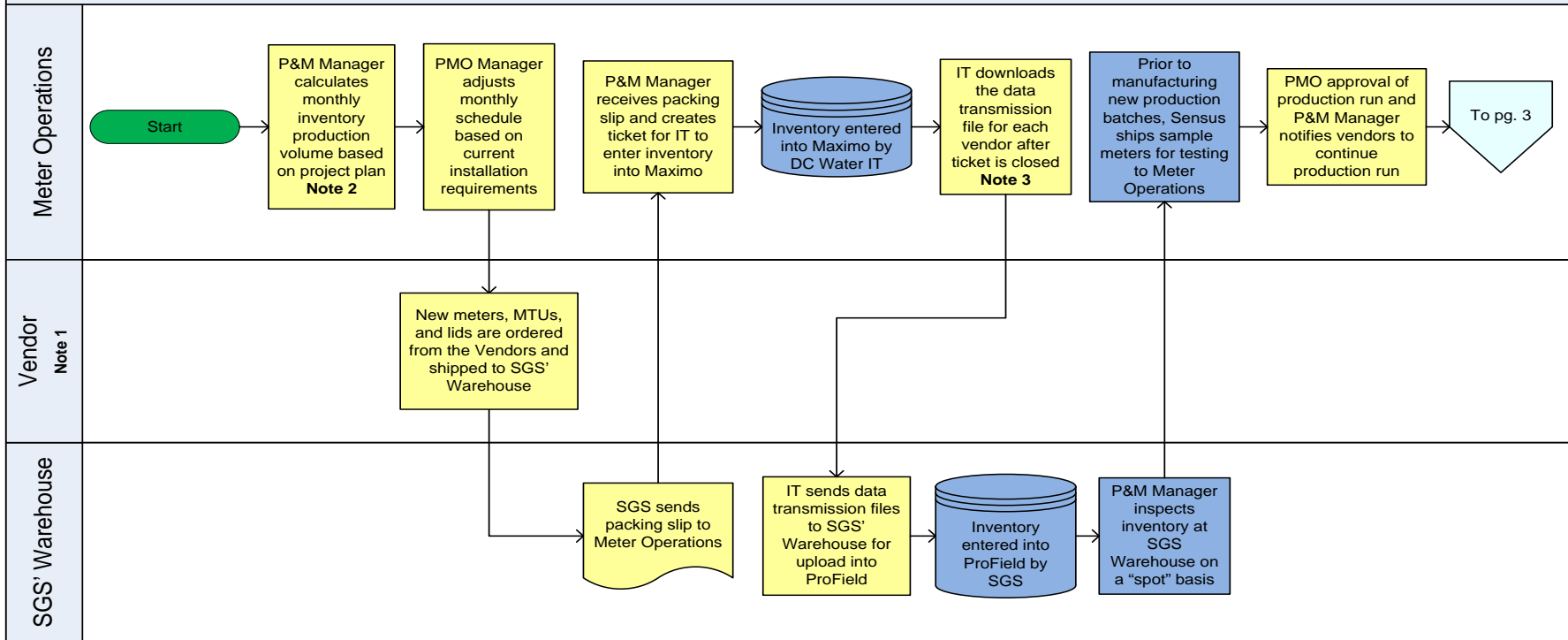


Appendix D: AMR Flowcharts (continued)

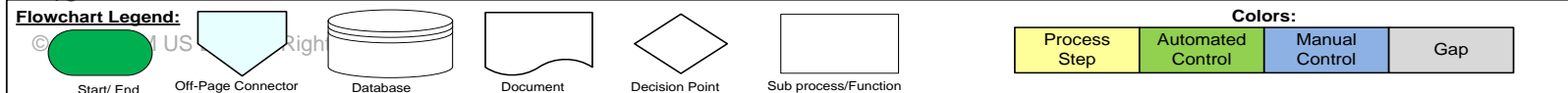
District of Columbia Water and Sewer Authority
 Automated Meter Reading (AMR) Implementation
 Page 2 of 9



Inventory Re-Production



Note 1: The contract for meters was won by Fasteners RX, Inc. The contract for MTUs was won by ACLARA Technologies and the contract for meter lids was won by Business Promotion Consultants. A host of other vendors were used to secure the remaining materials (i.e. nuts, bolts, screws, washers, gel caps, gaskets, nails, burial splice kits, UR connectors, etc.)
Note 2: The seed stock is used to cover production plan vs. actual variance in meter replacement. The P&M Manager works with the vendors and SGS to create a production schedule each month.
Note 3: The data transmission file contains all WO #'s, Meter #'s, and MTU #'s.

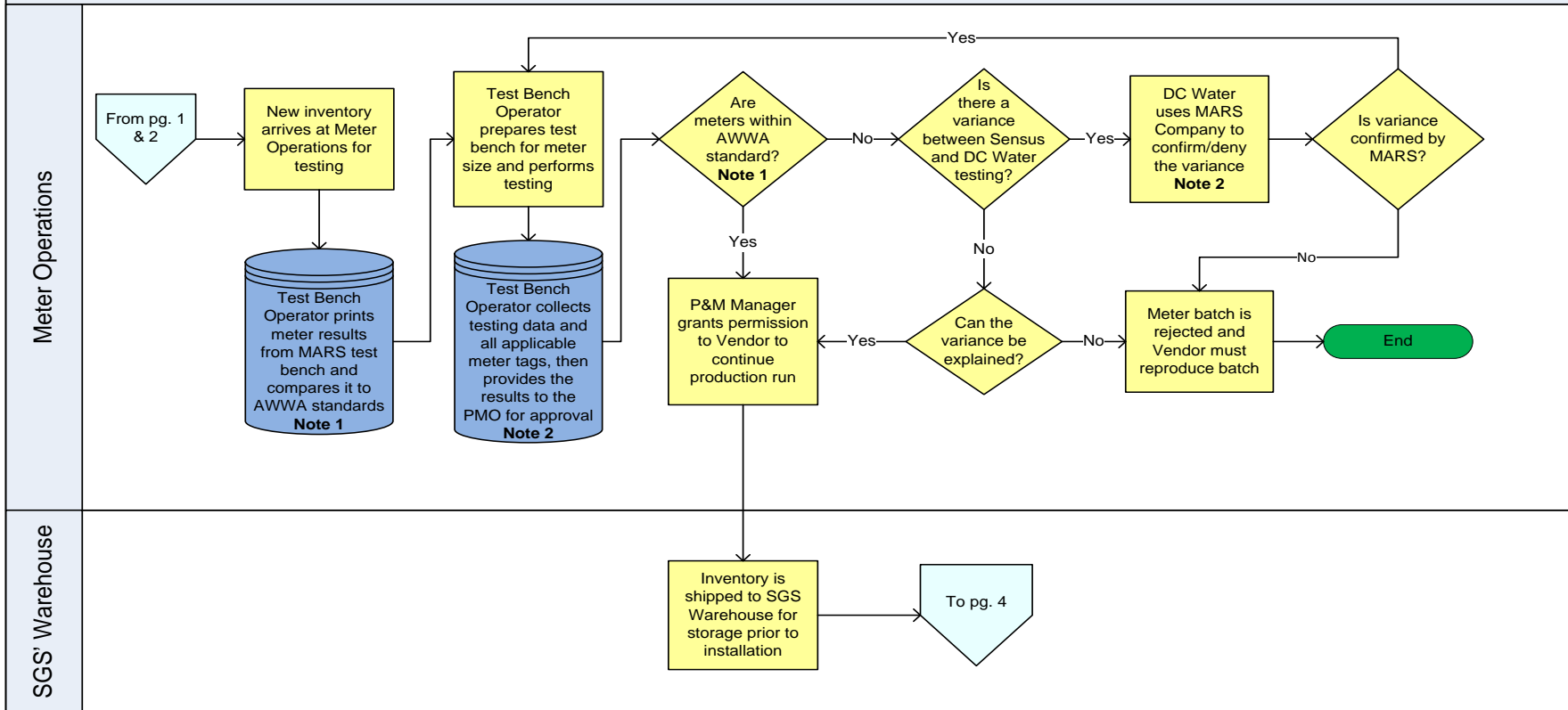


Appendix D: AMR Flowcharts (continued)



District of Columbia Water and Sewer Authority
 Automated Meter Reading (AMR) Implementation
 Page 3 of 9

Testing of New Meters



Note 1: The AWWA standard of meter reading accuracy is 98.5% - 101.5%.

Note 2: DC Water utilizes MARS Company in two separate ways. (1) The Authority owns and operates two MARS Test Benches for testing meters. (2) If there is a variance between the Sensus meter readings and DC Water Test Bench readings, Meter Operations will send the meters to a satellite MARS location to be tested at production facility.

Flowchart Legend:

- Start/ End: Green oval
- Off-Page Connector: Light blue pentagon
- Database: Blue cylinder
- Document: White rectangle with wavy bottom
- Decision Point: Yellow diamond
- Sub process/Function: White rectangle

Colors:

- Process Step: Yellow
- Automated Control: Green
- Manual Control: Blue
- Gap: Grey



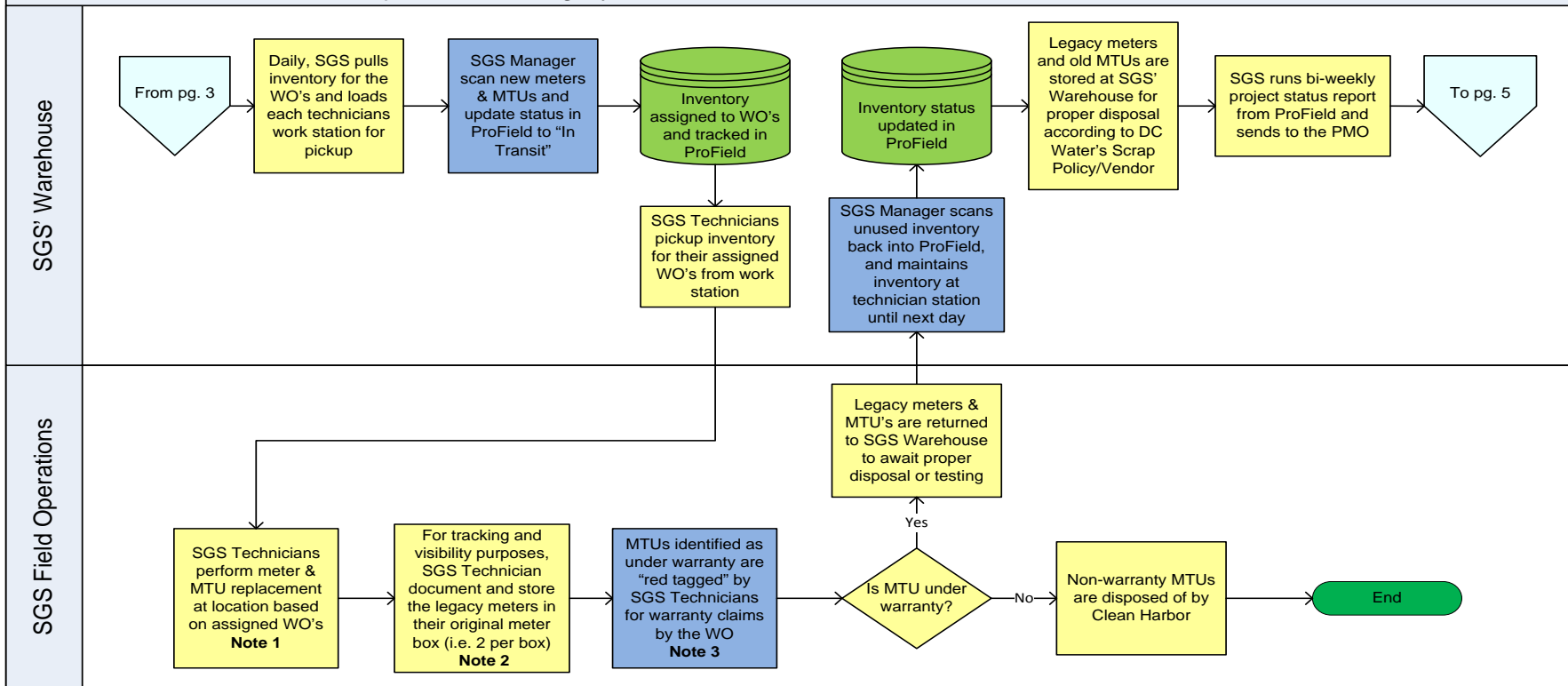
Appendix D: AMR Flowcharts (continued)

District of Columbia Water and Sewer Authority
Automated Meter Reading (AMR) Implementation

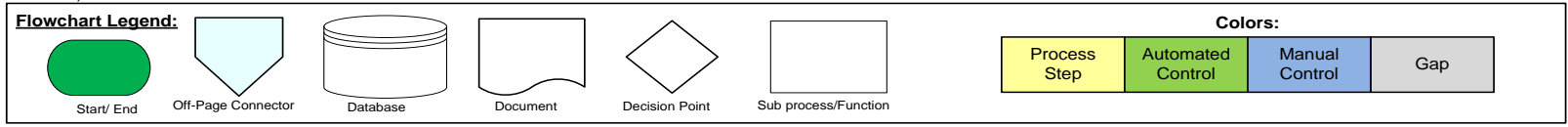
Page 4 of 9



Installation of New Meters and Replacement of Legacy Meters



Note 1: DC Water Security will perform unannounced spot checks at meter replacement sites. Additionally, they will shadow SGS Field Operators after the meter is replaced in the field back to the warehouse location to ensure oversight and security of physical assets.
Note 2: During replacement the SGS Technician tags the Sensus meters, records the tag #, location, date, and signs the technicians name on Sensus meter box. Each Legacy meter that was replaced is stored in the box of the Sensus meter it was replaced with, boxes can store 2 Legacy meters each.
Note 3: WO's can be "red tagged" by DC Water prior to a replacement to mark that the old MTU is still covered under warranty and should be shipped to Meter Operations. (See pg. 7, Disposal of Legacy Meters & MTUs)



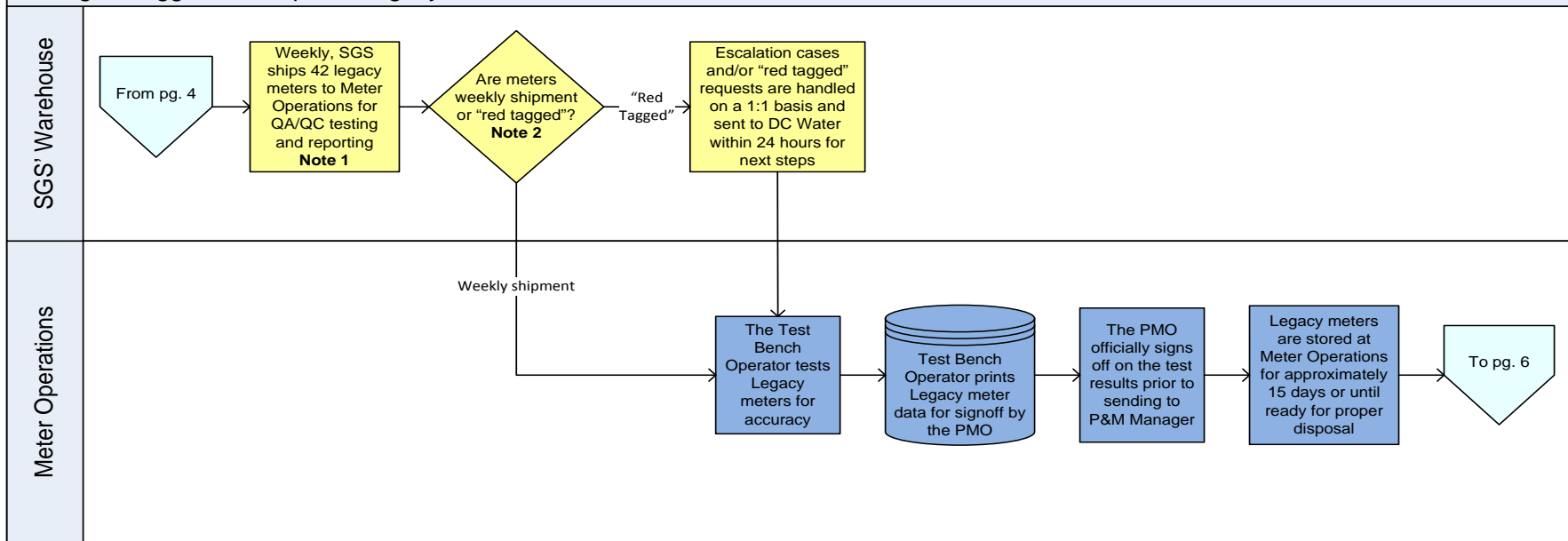
Appendix D: AMR Flowcharts (continued)

District of Columbia Water and Sewer Authority Automated Meter Reading (AMR) Implementation

Page 5 of 9



Testing of Tagged & Sample of Legacy Meters



Note 1: Legacy meters represent (12) 5/8 inch; (10) 3/4 inch; (9) 1 inch; (6) 1 1/2 inch; and (5) 2 inch.

Note 2: Legacy meters can be "red tagged" by DC Water through their associated WO. This occurs when a customer has complained about a Legacy meter reading/billing error, so the meters are sent to Meter Operations for testing.

Flowchart Legend:

- Start/ End (Green Oval)
- Off-Page Connector (Light Blue Arrowhead)
- Database (Blue Cylinder)
- Document (White Rectangle with Wavy Bottom)
- Decision Point (Yellow Diamond)
- Sub process/Function (White Rectangle)

Colors:

- Process Step (Yellow)
- Automated Control (Green)
- Manual Control (Blue)
- Gap (Grey)

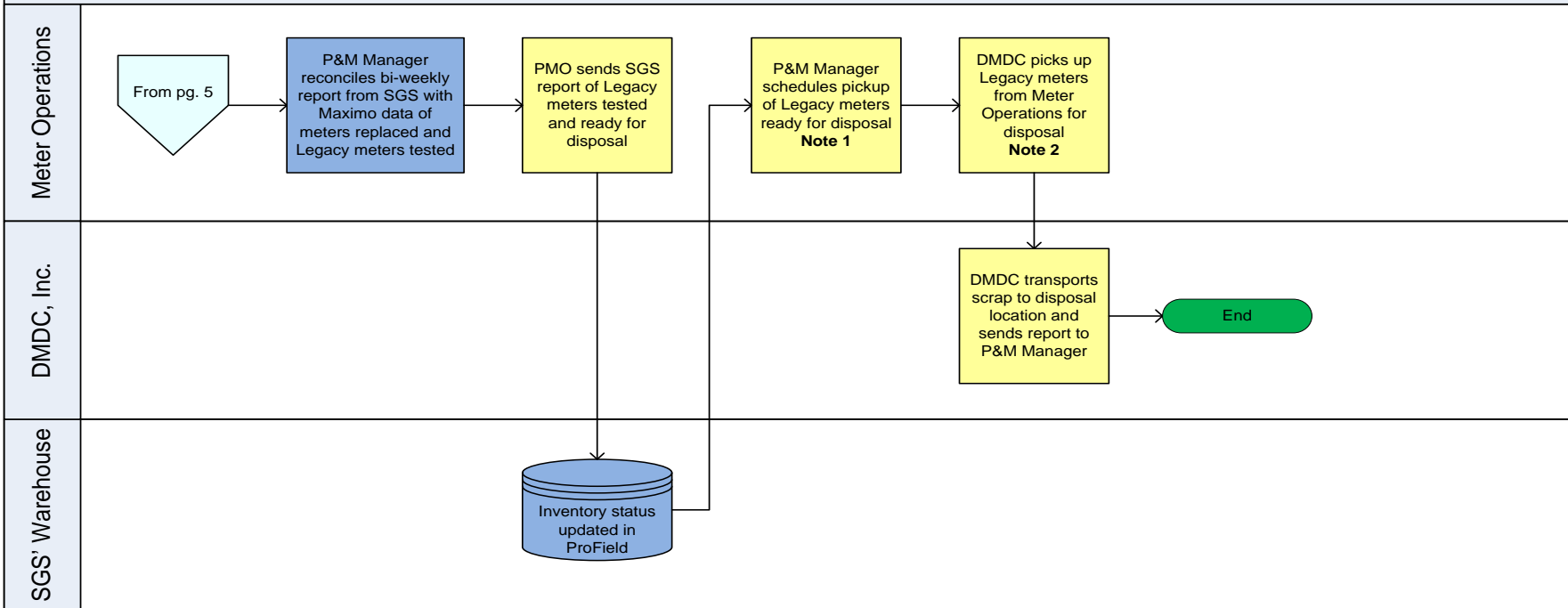


Appendix D: AMR Flowcharts (continued)

District of Columbia Water and Sewer Authority
 Automated Meter Reading (AMR) Implementation
 Page 6 of 9

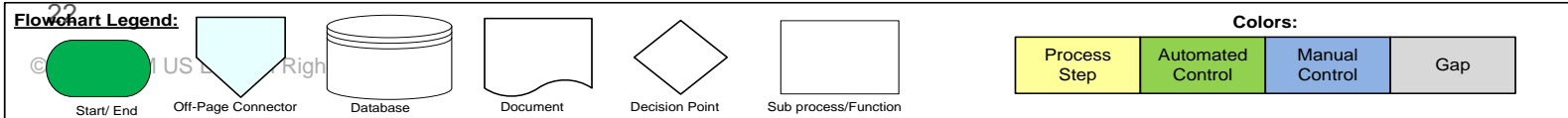


Disposal of Legacy Meters after Testing



Note 1: Legacy meters are stored at Meter Operations for approximately 15 days or until ready for proper disposal.

Note 2: DC Water Security is notified by the P&M Manager of the location and time of all scrap pickups and will facilitate the handoff of scrap, during a 2 hour timeframe at a pre-chosen location.

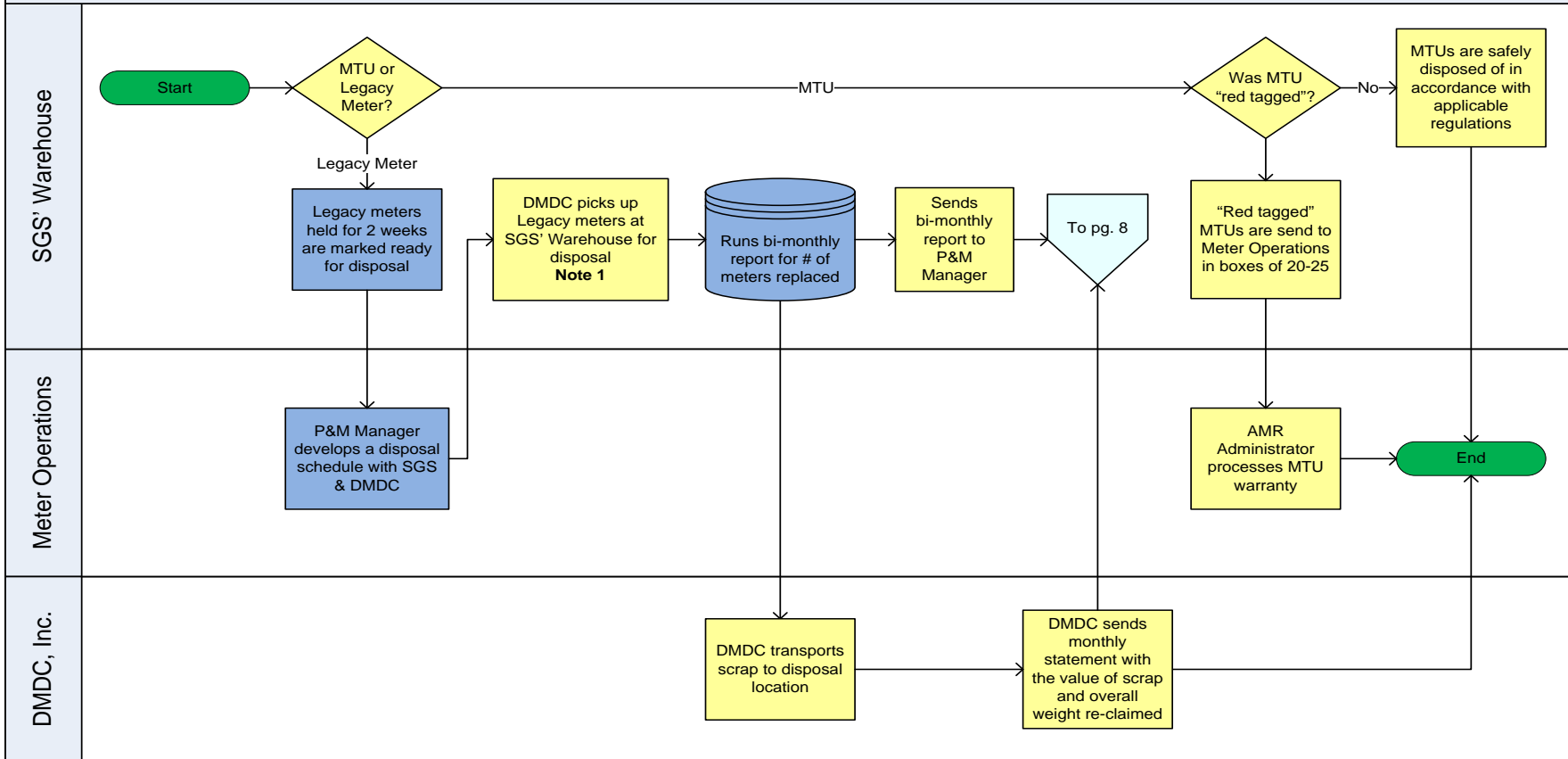


Appendix D: AMR Flowcharts (continued)

District of Columbia Water and Sewer Authority
 Automated Meter Reading (AMR) Implementation
 Page 7 of 9



Disposal of Legacy Meters & MTUs



Note 1: DC Water Security is notified by the P&M Manager of the location and time of all scrap pickups and will facilitate the handoff of scrap, during a 2 hour timeframe at a pre-chosen location.

Flowchart Legend:

- Start/End: Green rounded rectangle
- Off-Page Connector: Light blue downward arrow
- Database: Blue cylinder
- Document: White rectangle with wavy bottom
- Decision Point: Yellow diamond
- Sub process/Function: White rectangle

Colors:

- Process Step: Yellow
- Automated Control: Green
- Manual Control: Blue
- Gap: Grey

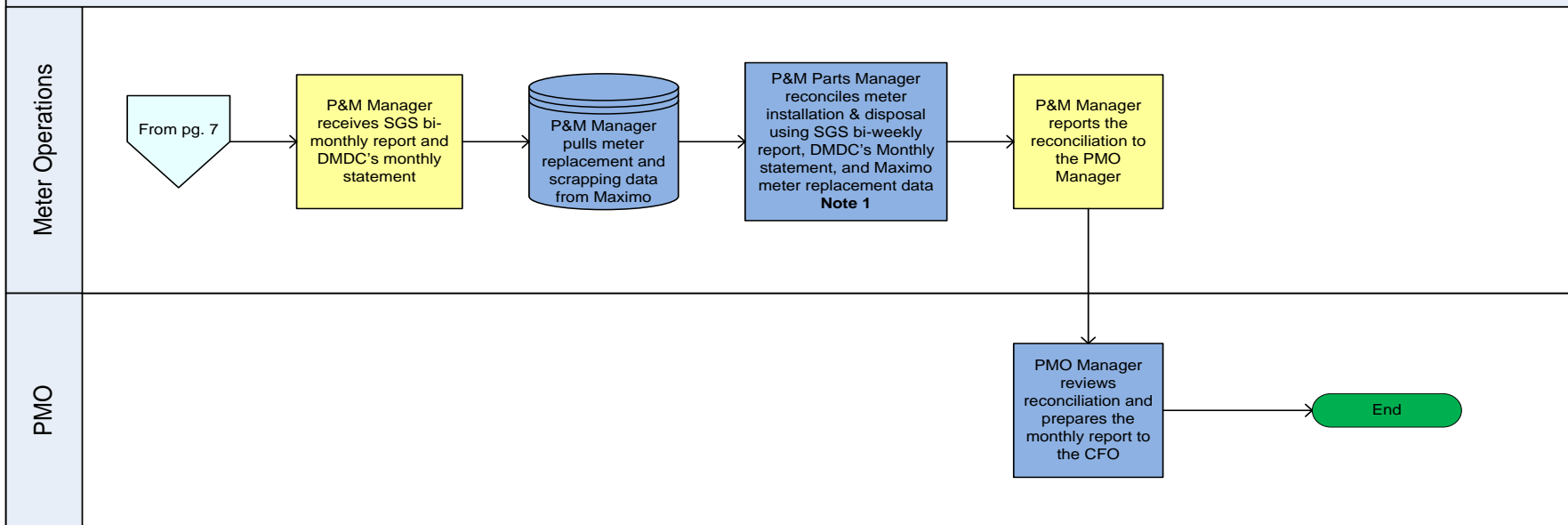


Appendix D: AMR Flowcharts (continued)

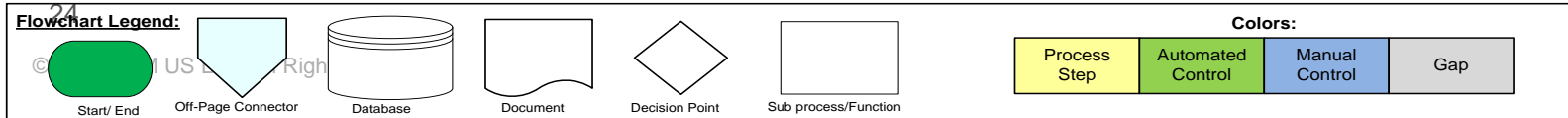
District of Columbia Water and Sewer Authority
 Automated Meter Reading (AMR) Implementation
 Page 8 of 9



Reconciliation



Note 1: To perform the reconciliation the P&M Manager will calculate the weight reported from the monthly scrapping report back to approximate weight of replaced meters, which is pulled from ProField and checked against the meter replacement data in Maximo.

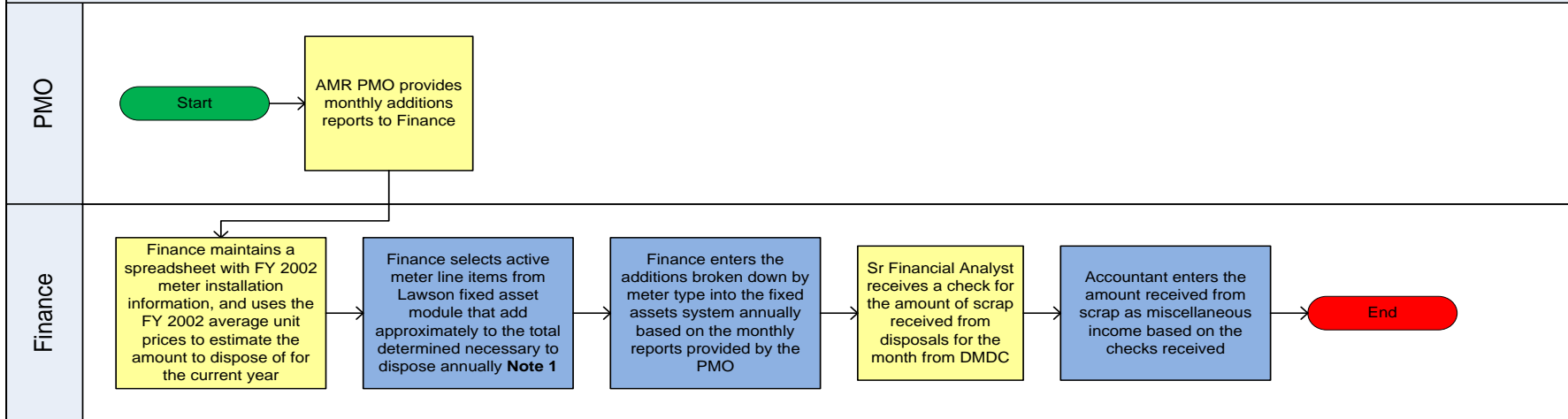


Appendix D: AMR Flowcharts (continued)

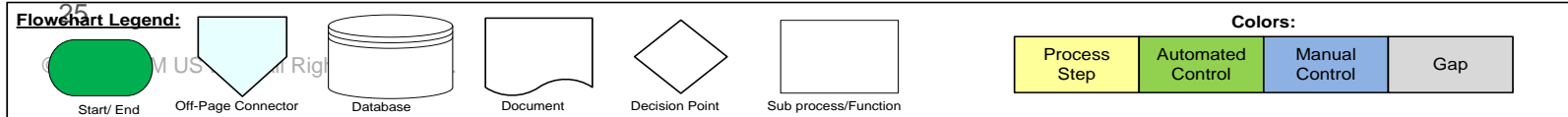
District of Columbia Water and Sewer Authority
 Automated Meter Reading (AMR) Implementation
 Page 9 of 9



Accounting for Disposals



Note 1: Additions and disposals are only recorded annually due to a system limitation, as the assets were added to the system with a quantity of one. Therefore, the disposal amount Finance determines appropriate for the current year is matched to the lumped line items in the asset management module of Lawson that most closely reflect the total disposal value.



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Office of Emergency Management Internal Audit Review

April 2018



Office of Emergency Management
Internal Audit Report
Issued: April 2018



TABLE OF CONTENTS

Transmittal Letter	2
Background	3
Objectives and Approach	4
Appendix A – Office Operations Flowcharts	6
Appendix B – Plan Review Matrix	18

Office of Emergency Management
 Internal Audit Report
 Issued: April 2018



TRANSMITTAL LETTER

April 2018

The Audit Committee of DC Water
 5000 Overlook Avenue, SW
 Washington, DC 20032

Pursuant to the approved 2018 internal audit plan for the District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”), we hereby present our review of DC Water’s Office of Emergency Management (OEM). We will be presenting this report to the Audit Committee of DC Water at the next scheduled audit committee meeting. Our report is organized in the following sections:

Background	This provides an overview of the Office of Emergency Management’s responsibilities and accomplishments.
Objectives and Approach	The internal audit objectives and focus are detailed in this section, as well as a review of the various phases of our approach.
Appendices	The appendices illustrate the flowcharts and plan review matrix we provided to the Office of Emergency Management as part of our review.

Our work has and continues to assist management with the formalization and improvement of OEM processes. We did not, nor does DC Water desire us to, perform management functions, make management decisions, or otherwise perform in a capacity equivalent to that of an employee or officer of DC Water.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with this review.

Respectfully Submitted,

Internal Auditors

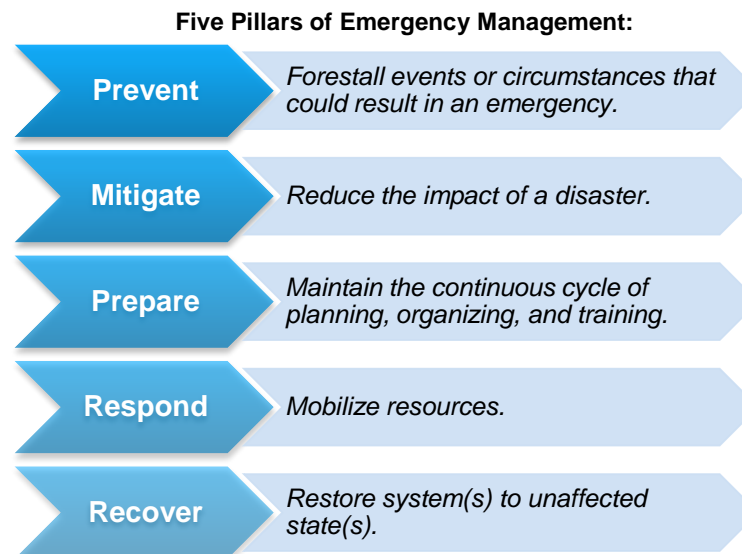


BACKGROUND, OBJECTIVES AND APPROACH

Background

The Office of Emergency Management (OEM) is responsible for planning and operational support during emergencies for DC Water. OEM is the primary steward of the Authority's comprehensive Emergency Management Program, supporting all departments to ensure that DC Water is prepared to respond to hazards, crises, and disasters. OEM's operations are divided into three program areas: emergency planning, critical infrastructure protection, and fire and life safety. OEM's operational approach is based on five pillars of emergency management (see figure to the right).

OEM coordinates emergency planning, training, and exercises continually. To do so, OEM has implemented the National Incident Management System. This includes identification and training of DC Water's Incident Management Team (IMT) members, collaborating with Human Capital Management and Department of Safety to develop an emergency response training matrix, establishing an Emergency Management Accreditation Program (EMAP) accredited program, and facilitating the command van, tactical command vehicle, command van communication unit, and response kits. Additionally, OEM coordinates emergency response when appropriate. Facilitation of lessons learned and After Action Reporting (AAR) follow any IMT activation of 48 hours or longer. OEM also collaborates with partner agencies for critical infrastructure preparedness funding, building local, regional, and federal partnerships.



Management's Accomplishments

OEM recently underwent the following initiatives:

- Completed the first comprehensive Authority-wide J-100 vulnerability, risk, and resilience assessment performed by AECOM.
- Achieved ISO 22301 business continuity and emergency management audit of DC Water's Emergency Management program.
- Establishing Emergency Management Accreditation Program (EMAP) certification, which included conducting an EMAP training and self-assessment against 64 standards. Final findings are pending. DC Water is the first water utility in the country to initiate the EMAP assessment.

During these initiatives, OEM continued to provide support to the Authority. OEM established DC Water Alerts, which is the primary internal/employee notification system and mass notification system that sends alerts regarding imminent threats, closings and delays, special events, and traffic. OEM uses the system Everbridge to manage DC Water Alerts, and DC Water has been acknowledged by the vendor as an exceptional user of the system. Members of OEM have been asked to speak to other Everbridge customers regarding the use of the system, and other DC Water departments have looked to adopt Everbridge for departmental operations.



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach

Objectives

The purpose of this review was to obtain an understanding of and help to formalize OEM's processes in order to drive economic and resource efficiencies for the department. The processes and workflows documented during this internal audit review also allow for OEM to have a documented and standard approach to their business processes and responsibilities. The project scope was based on the following objectives:

- Evaluate how general office operations are managed, including any current monitoring and documentation, and develop formalized workflows to outline office operations for OEM's continued use and employee on-boarding;
- Determine the current requirements and consistency of OEM plan updates; evaluate timing and comprehensiveness of updates for reasonableness; and develop a formalized workflow to document the plan review process for seven plans;
- Evaluate how OEM utilizes the mobilization checklist to track the Planning Section Incident Management team activation process, and develop a formalized workflow to document the overall activation process;
- Obtain the management review template and assist OEM in implementing the use of the template to facilitate ISO compliance; and
- Identify process improvement opportunities and recommend internal control enhancements to improve the overall documentation of measurable functionalities related to program operations and strategic goals of OEM.

Approach

Office Operations:

Within Office Operations, we assisted OEM in documenting the following process flows:

- Internal Training Attendance Request
- External Training Attendance Request
- Travel and/or Conference Attendance
- Supplies Ordering Process
- Information Technology Support
- New Hire On-Boarding
- IMT Activation
- DC Water Alerts
- Plan, Policy or Procedure Development
- Plan Review
- File Storage

The formalization of these processes will drive economic and resource efficiencies as new hires join OEM or turnover occurs. Authority-wide guidance regarding Training, Conferences, Purchase Cards, and IT support were referenced to confirm compliance with current policies. See Appendix A for all flowcharts.



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach (continued)

Plan Updates:

The following plans were within the scope of our review:

1. Emergency Management Plan
2. Continuity of Operations Plan
3. Recovery Plan
4. Sewer Emergency Containment Plan
5. Water Public Notification Plan
6. Sewer Public Notification Plan
7. All Hazard Incident Initial Response Plan

We noted that there are other risk mitigation plans in place at the Authority that are outside of the scope of this project as they are not managed or maintained by OEM.

OEM did not have a formalized plan review schedule. We assisted OEM in creating a plan review matrix to guide the timeline and frequency of plan reviews (see Appendix B), along with a document development guideline and plan review checklist to reference during development and review.

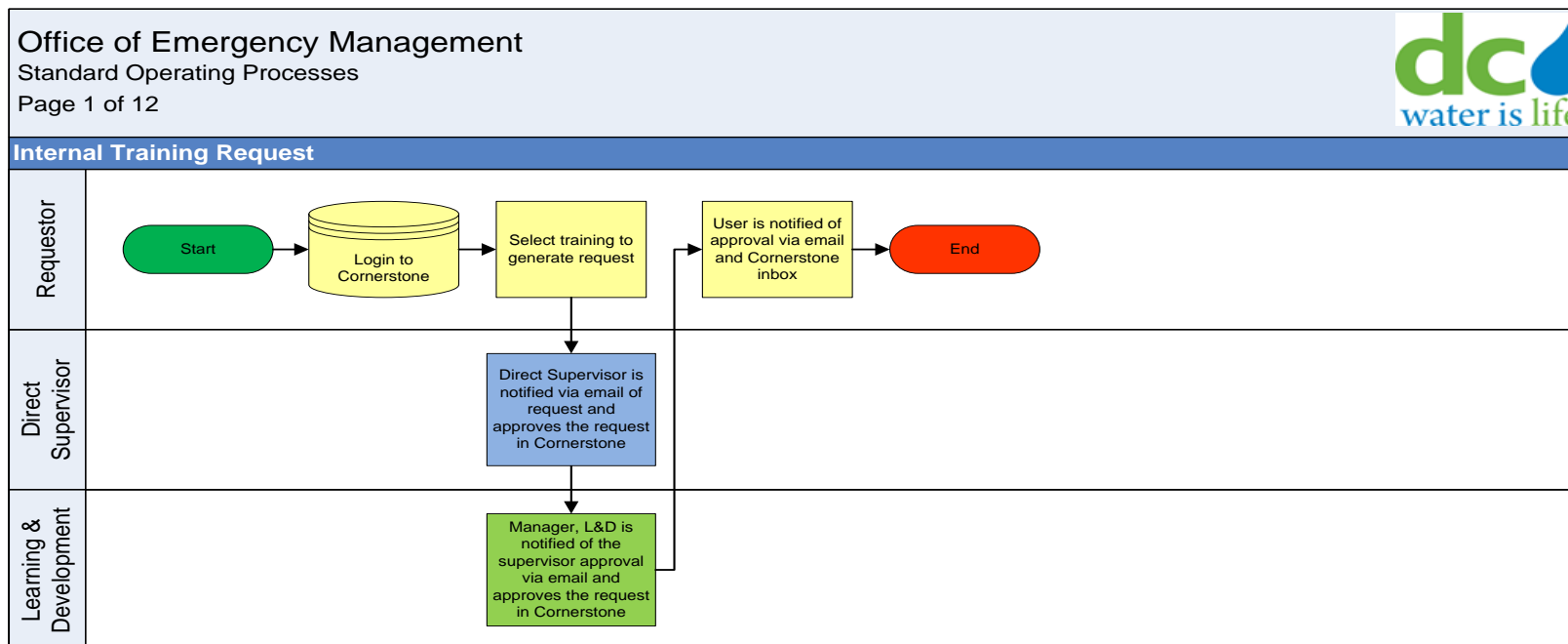
Additional Review:

RSM assisted OEM in the revision of the format of their Activation Checklist and provided feedback on the newly created Annual Managerial Review Findings form from an audit perspective. The Annual Managerial Review Findings form will be incorporated into the plan review process as a means to maintain detailed documentation of the review process, findings, and approvals.

Electronic copies of all documents mentioned in the Approach section have been provided to OEM for continued reference and revision as processes transform and mature.



APPENDIX A – FLOWCHARTS

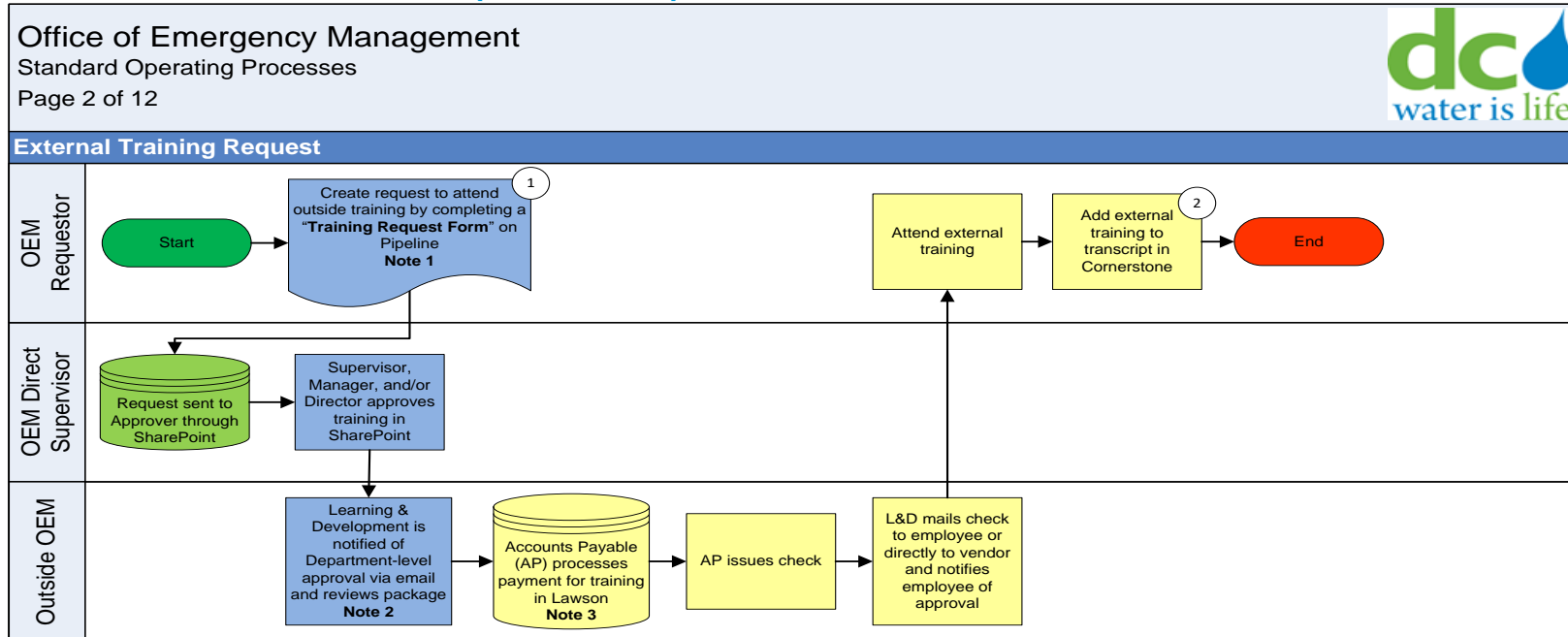


Version 1 as of 4/17/18





APPENDIX A – FLOWCHARTS (CONTINUED)



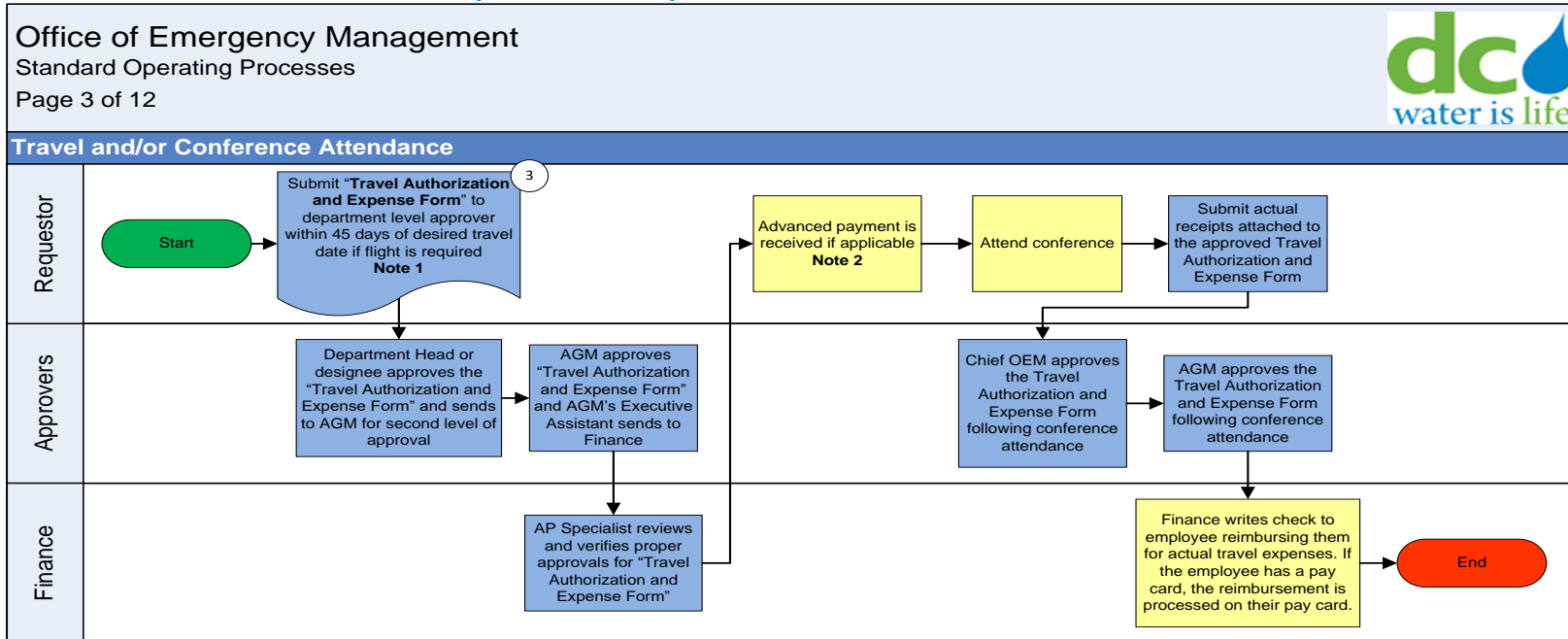
Note 1: Request should be submitted 15 days prior to the desired training course unless travel is required. If travel is required for training attendance, request should be submitted 15 days prior to the deadline for travel request submission (see next page for travel details).
Note 2: Training budgets are established during the annual budgeting process for each Department based on historical expenditures and expected future needs. Although L&D is not directly involved in creating each Department's training budget, budget codes are included on the "Training Request Form" for Accounts Payable to charge the expense to the appropriate general ledger code.
Note 3: Expense code 54190 is used for OEM training.

Version 1 as of 4/17/18





APPENDIX A – FLOWCHARTS (CONTINUED)



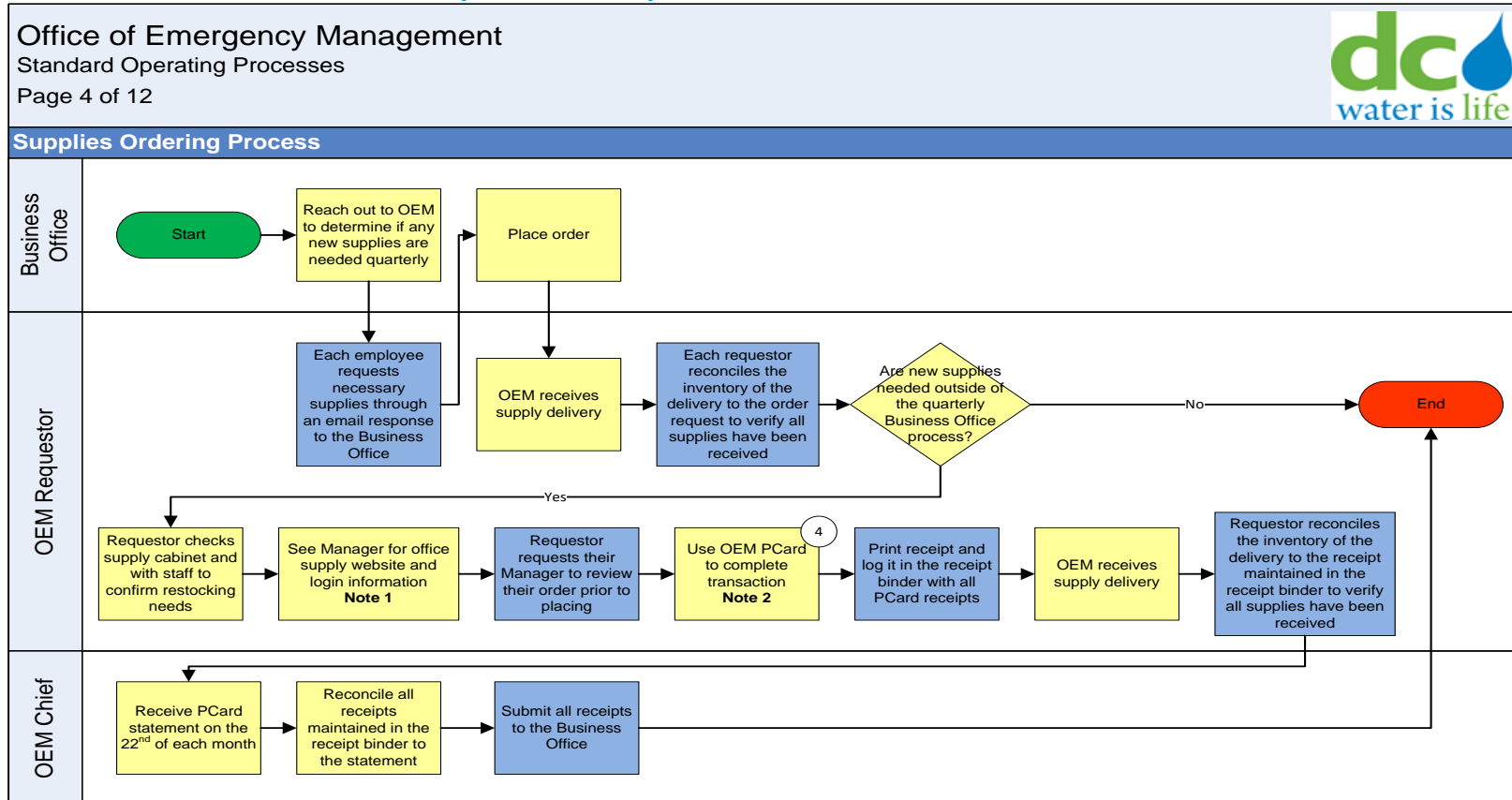
Note 1: Authority-wide policy requires submission of training and conference requests at least 15 days prior to attendance. However, OEM practices an internal deadline of submitting Travel Authorization and Expense forms at least 45 days prior to attendance if airfare will be required, in order to lock in reasonable flight prices.

Note 2: Payment can be made for travel expenses in the following ways: Finance writes advance check to employee for approved travel expenses; employees with pay card receive advances with pay card load via AP/Payroll and his/her manager receives notification when pay card has been loaded; use OEM PCard for conference registration; or use DDCS Director travel card for airfare.





APPENDIX A – FLOWCHARTS (CONTINUED)

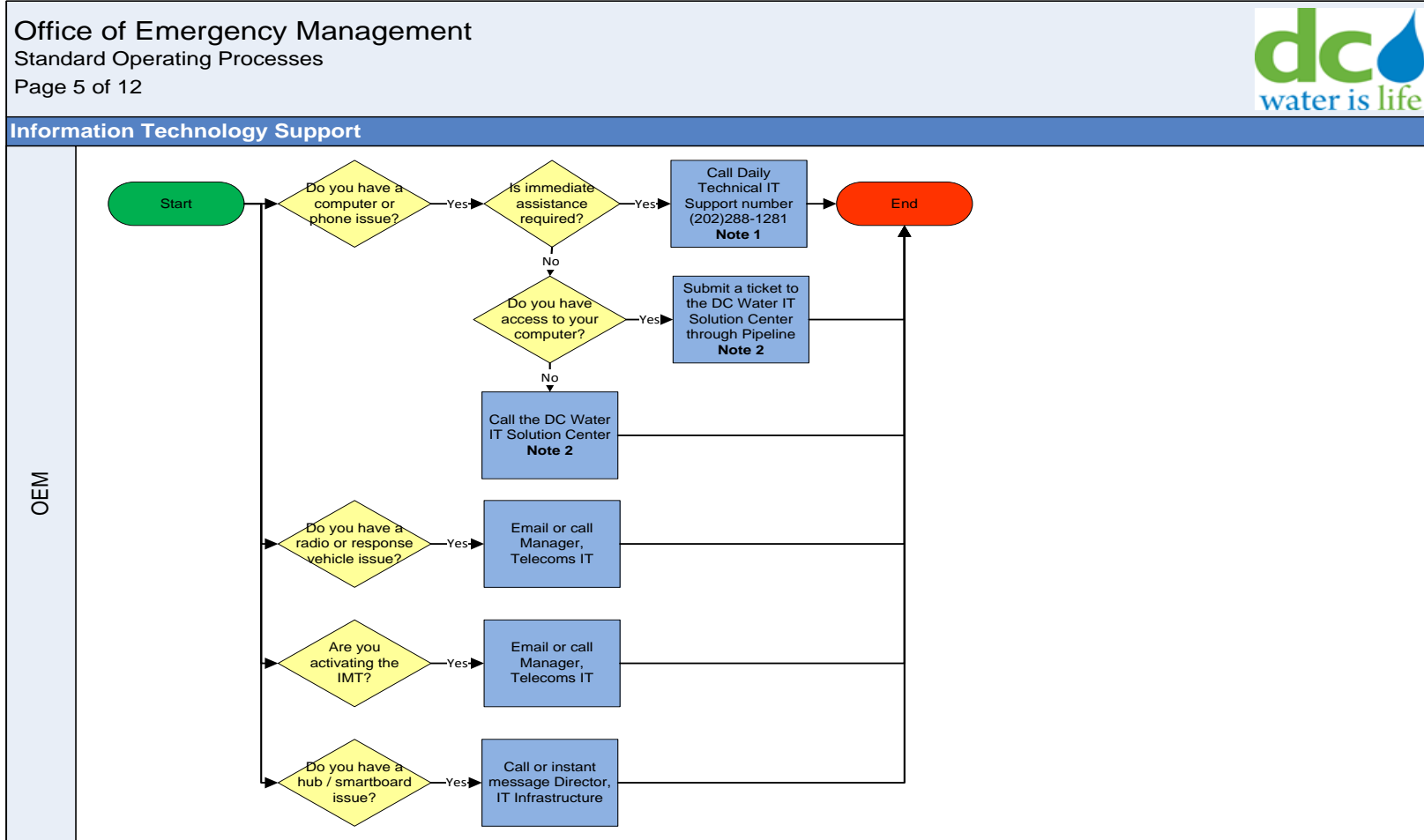


Note 1: AOP Business Supplies is the approved vendor utilized for web ordering. OEM's PCard is used for supplies purchases from AOP.
Note 2: Reference "PCard Prohibited Items" list prior to any PCard purchases.





APPENDIX A – FLOWCHARTS (CONTINUED)



Note 1: There is a representative from the IT Solution Center daily at Bryant Street in the mornings.

Note 2: Go to ITSC page on Pipeline (<http://solutioncenter.dcwasa.com/User/ContentPages/Home.aspx>), call 202-787-HELP (X – 4357), or email itweb.support@dcwater.com.

Version 1 as of 4/17/18

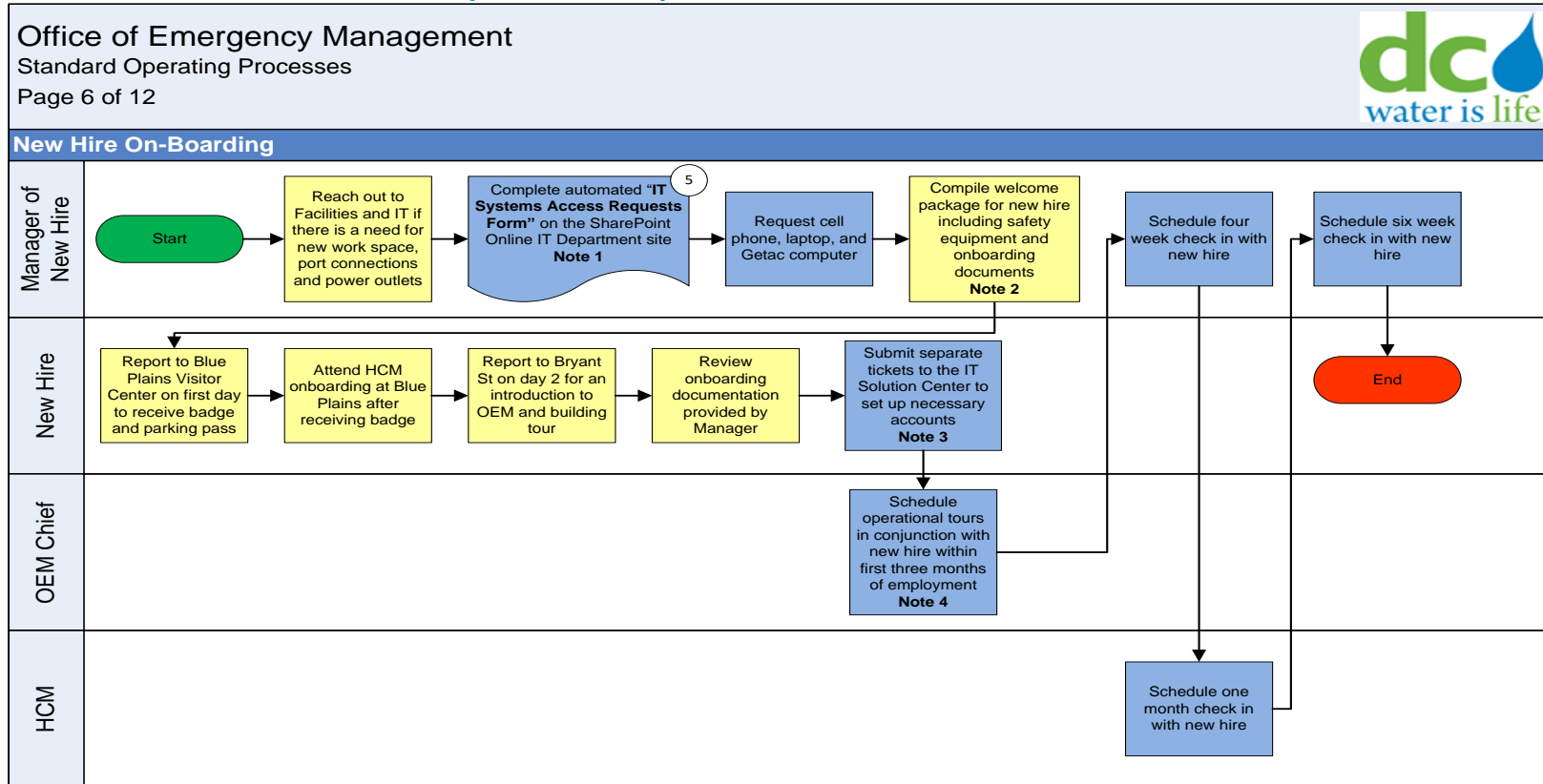
Colors:

Process Step	Automated Control	Manual Control	Gap
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APPENDIX A – FLOWCHARTS (CONTINUED)



Note 1: Items that can be requested via this form include initial set-up for new personnel, Desk Phones, Long Distance Codes, Privileged Access, Remote Access, CA PPM Application Access, STAR Application Access, Livelihood Application Access, Maximo Application Access, GIS Application Access and Financial System Access.

Note 2: At a minimum, provide new hire with the OEM Manual, Strategic Plan, and Office Operations flowcharts.

Note 3: Separate tickets should be submitted to obtain a VPN remote access token, and to gain access to DC Water voicemail, Ceridian, Dayforce, SharePoint, FleetWave, Cornerstone, Outlook username/password, DCHSEMA, and Skype.

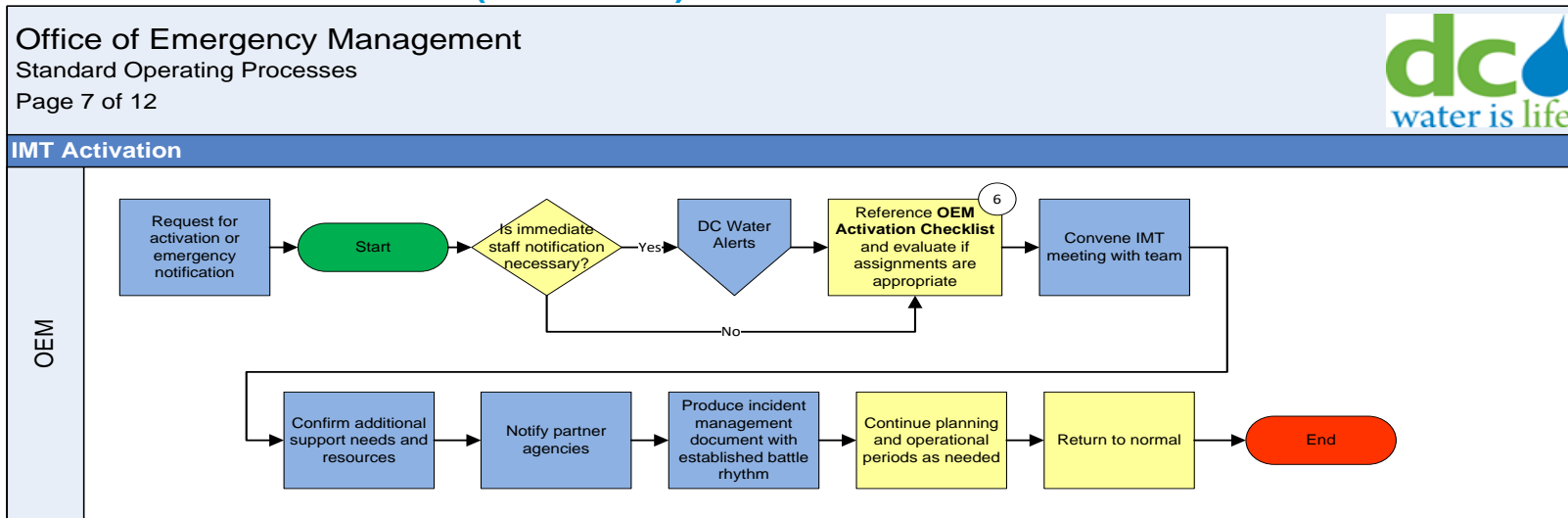
Note 4: Operational tours include the following: Water Services, Sewer Services, DDCS, Wastewater Treatment, Water Quality, Potomac Intercept, Security Command Center, Emergency Command Center, and Fleet.

Version 1 as of 4/17/18





APPENDIX A – FLOWCHARTS (CONTINUED)



Version 1 as of 4/17/18

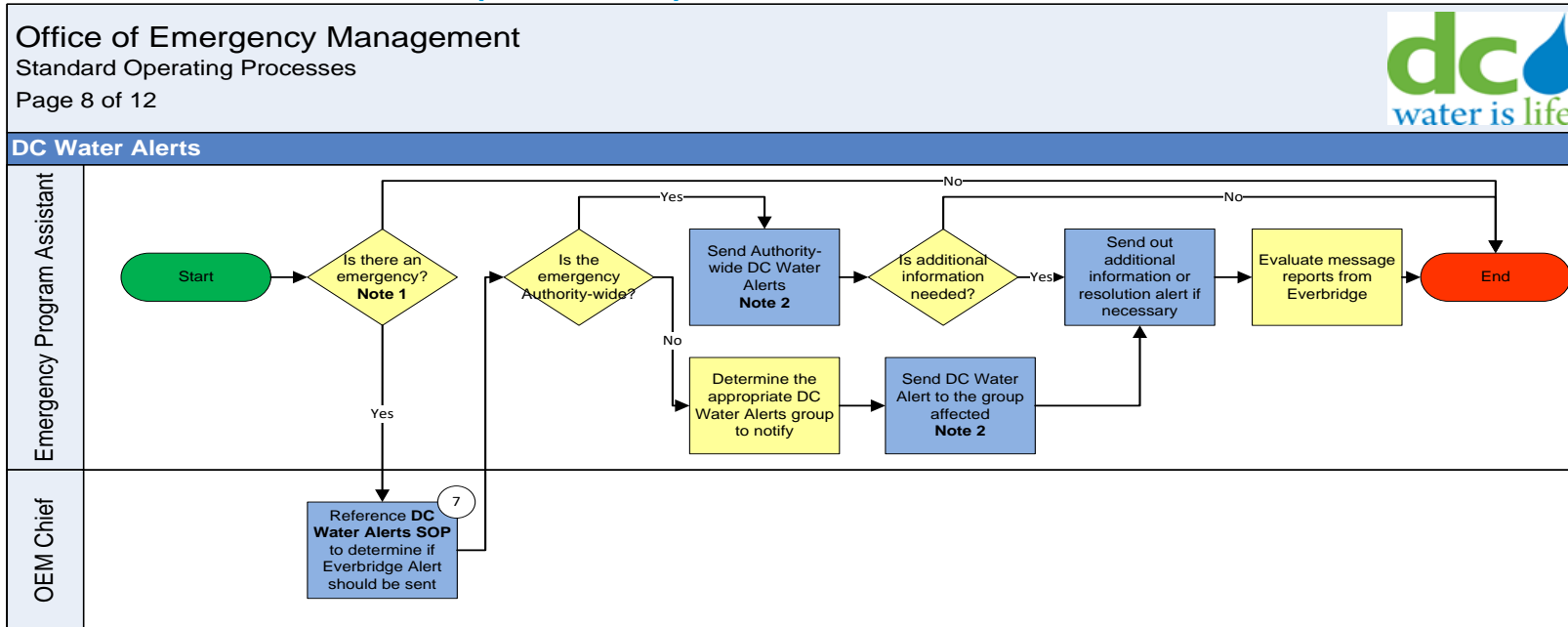
Colors:

Process Step	Automated Control	Manual Control	Gap
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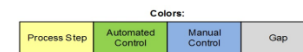


APPENDIX A – FLOWCHARTS (CONTINUED)



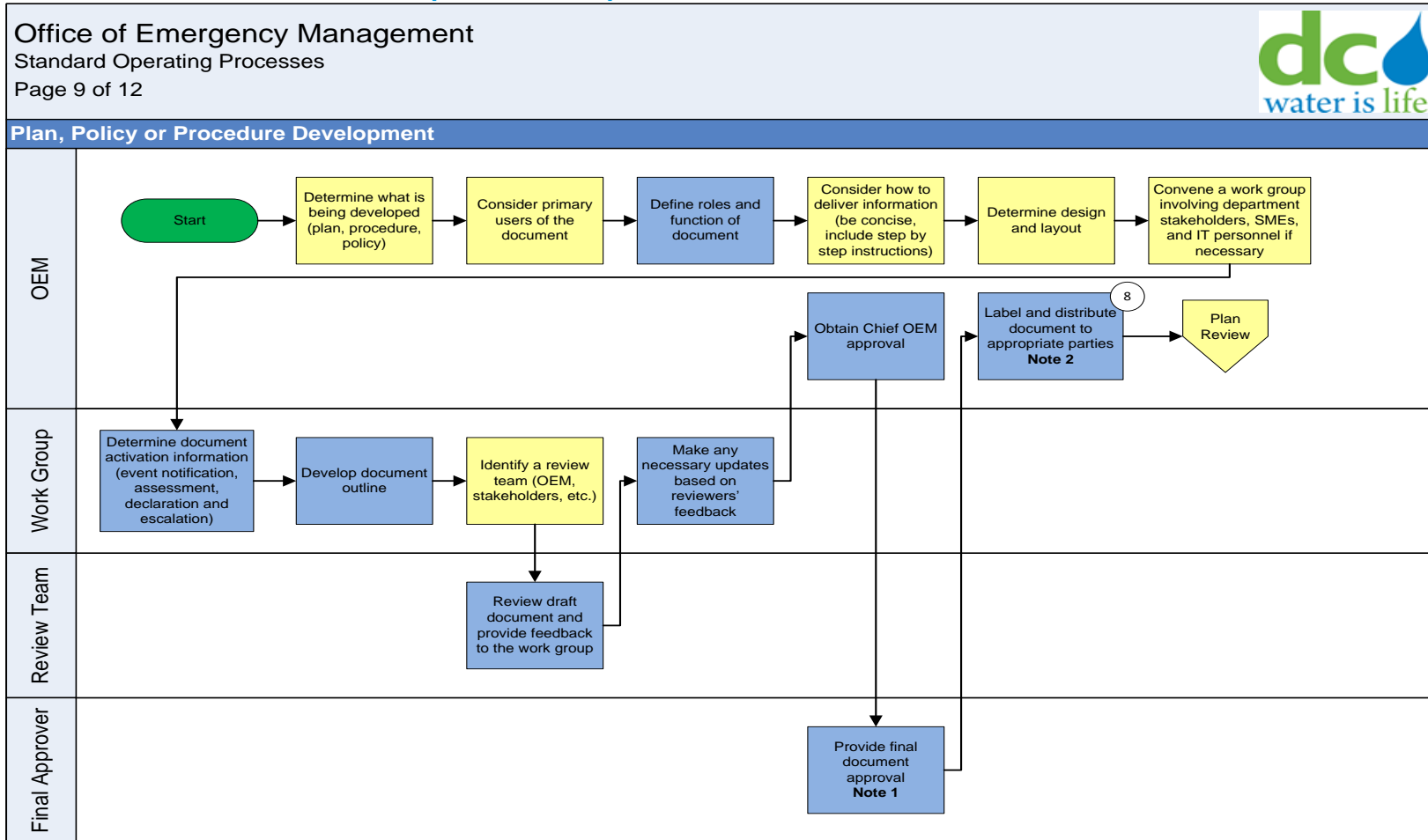
Note 1: An emergency can include imminent threats, closings and delays, special events, and traffic incidents.
Note 2: Reference DC Water Alerts SOP for information regarding how to send a notification. DC Water utilizes the software Everbridge to send out alerts.

Version 1 as of 4/17/18





APPENDIX A – FLOWCHARTS (CONTINUED)



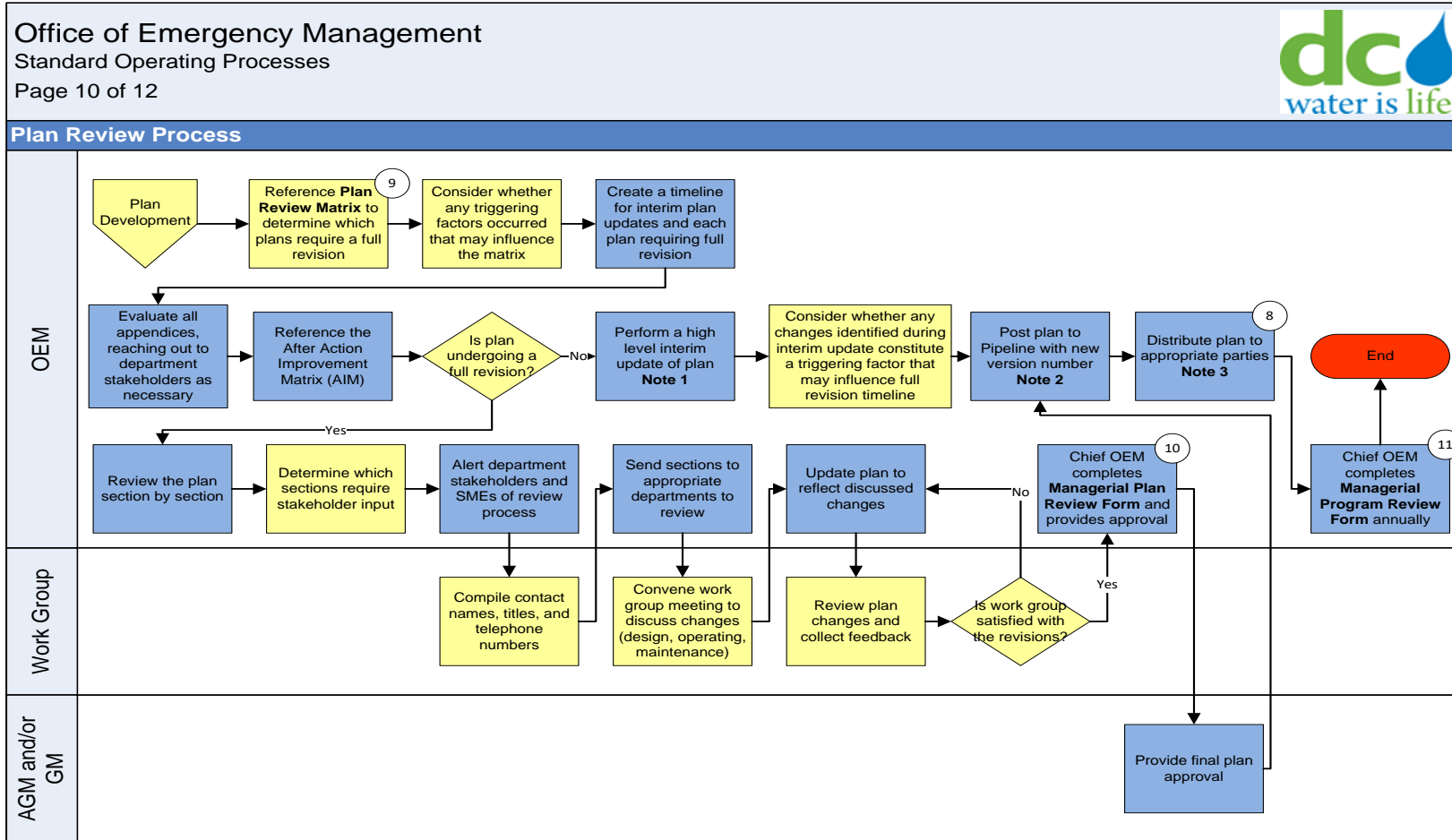
Note 1: Consider the need for legal review while finalizing any document. For formal plans, AGM and/or GM final approval is required. For other documentation, obtain Director approval.
Note 2: Reference **OEM Plan Development Process** document for preliminary guidance on plan distribution and version control. The work group will ultimately determine the appropriate distribution process for the document being developed.

Version 1 as of 4/17/18





APPENDIX A – FLOWCHARTS (CONTINUED)



Note 1: High level review includes reaching out to stakeholders to update staff/personnel and contact information included in the plan, locations referenced, and vendors/third parties referenced.
Note 2: For interim update, use version 1.1, 2.1, etc. For full revision, use version 1.0, 2.0, etc.
Note 3: Reference **OEM Plan Development Process** document for preliminary guidance on plan distribution and version control. The work group will ultimately determine the appropriate distribution process for the plan being reviewed.

Version 1 as of 4/17/18





APPENDIX A – FLOWCHARTS (CONTINUED)

Office of Emergency Management Standard Operating Processes Page 11 of 12							
File Storage Locations	I Drive	OEM SharePoint	LiveLink	OEM Pipeline	OneDrive	Hard Copies	District of Columbia External Portal
		<ul style="list-style-type: none"> Used for internal sharing There is an OEM folder that can be found within the WASA folder 	<ul style="list-style-type: none"> External facing Use for documents that need to be shared with external parties Access must be requested from the IT Solution Center, but an external viewer can be added by an administrator Administrators are Jonathan and Nicole 	<p>https://livelink.dcwasa.com/</p> <ul style="list-style-type: none"> For permanent storage / archiving final plan documents Request access through the IT Solution Center 	<ul style="list-style-type: none"> General OEM documents to be shared Authority-wide For final versions of documents only Jonathan and Dusti have access to update Pipeline 	<ul style="list-style-type: none"> Would like to transition to replace network drive usage IT will be coming to OEM to discuss the roll out of OneDrive usage 	<ul style="list-style-type: none"> All plans are required to be printed in hard copies Master plans stored in Jonathan's office Distribution list at the front of each master plan that is signed off by each Director / Executive that has received a hard copy of the plan

Version 1 as of 4/17/18

Colors:

Process Step	Automated Control	Manual Control	Gap
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APPENDIX A – FLOWCHARTS (CONTINUED)

Office of Emergency Management Standard Operating Processes Page 12 of 12													
Legend													
Flowchart Legend:													
							Colors:						
Start/ End	Off-Page Connector	Database	Document	Decision Point	Sub process/Function	Attachment				Process Step	Automated Control	Manual Control	Gap
<p>Attachments:</p> <ol style="list-style-type: none"> 1. Pipeline Training Request Form 2. Add External Training to Cornerstone Transcript Instructions 3. Travel Authorization and Expense Form 4. PCard Prohibited Items List 5. IT Systems Access Request Form User Guide 6. OEM Activation Checklist 7. DC Water Alerts SOP 8. OEM Plan Development Process 9. Plan Review Matrix 10. Managerial Plan Review Form 11. Annual Managerial Program Review Form <p><i>Note: Please reference Pipeline for updated documents and policies</i></p> <p>Version 1 as of 4/17/18</p>													



APPENDIX B – PLAN REVIEW MATRIX

OEM Plan Review Matrix DRAFT

'Plan Tier', 'Full Revision Year', and 'Triggering Factors' columns require OEM input




Plan	Plan Tier	Full Revision Year	Triggering Factors	YEAR 1	YEAR 2	YEAR 3
Emergency Management Plan	1	2	•		■	
Continuity of Operations Plan	1	1	•	■		
Recovery Plan	2	1	•	■		
Sewer Emergency Containment Plan	2	2	•		■	
All Hazard Incident Initial Response Plan	2	3	•			■
Water Public Notification Plan	3	1	•	■		
Sewer Public Notification Plan	3	1	•	■		
Evacuation Plans (Ft Reno, O St, Bryant St, 80 M St)	3	3	•			■
Strategic Plan	3	3	•			■

Note: OEM will provide interim updates to ALL plans each year if a full review is not scheduled. This timeline is subject to change in the event that any triggering factors occur which constitute an earlier full revision. If a triggering factor affects multiple plans, order of review will be determined based on criticality of plans.

Key	
	OEM input required
	Full Revision Year
Tiers*:	
1	Full revision takes ~6 months
2	Full revision takes 3-6 months
3	Full revision takes 1-3 months

*Tiers are determined by OEM based on plan criticality





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