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Risk Management in Wastewater Treatment Policy Creation and Revision

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Walden University

College of Health Sciences and Public Policy

This is to certify that the doctoral study by

Emily Nora Silver

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2022

Abstract

Risk Management in Wastewater Treatment Policy Creation and Revision

by

Emily Nora Silver

MS, Nova Southeastern University, 2017

BS, Indian River State College, 2015

Professional Administrative Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Administration

Walden University

August 2022

Abstract

The focus of this professional administrative study was risk management in the field of wastewater treatment. The emphasis was on the creation and revision of policies to help reduce overall agency risk factors. The guiding question for the study focused on what revisions to the client organization's safety policy and personnel policies and procedures would decrease the agency risk. A combination of both safety and policy change theories provided the basis for the study's conceptual framework. This blended approach allowed for a more thorough and comprehensive interpretation of the collected data. In this qualitative case study, data pertinent to risk management in wastewater treatment facilities were gathered from interviews with seven wastewater facility managers and a review of relevant archival/organizational data. The resulting data were analyzed using content analysis and coding. The findings showed that the personnel policy aligned with best practices, while the risk management and safety policies could be improved to better align with best practices. Recommendations targeted to eliminate a specific gap that was identified through review of the collected data included incorporating a bloodborne pathogens training, expanding the procurement policy, and outlining procedures for efficient dissemination of important policy updates. This study offered an opportunity for positive social change within the field of wastewater treatment through promoting decreased risk and increased efficiency in the organization's service delivery. This will benefit the client organization, the environment, and the community it services.

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Dedication

To my mother, who wiped more tears and proofread more papers than anyone should ever have to. You dropped me off to my first day of college classes 10 years ago, and now, as I am finishing my doctorate, I believe that no one deserves more credit for where I am today than you. Thank you.

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Section 1: Introduction to the Problem

Introduction

The focus of this professional administrative study (PAS) was risk management in the field of wastewater treatment. The focus of this qualitative case study was on the creation and revision of policies for the study site client agency to help reduce overall agency risk factors. This study offers an opportunity for positive social change within the field of wastewater treatment through decreased risk and increased efficiency in the organization's service delivery, which impacts not only treatment plants but the communities receiving services. In this section, I present the problem statement, purpose, nature of the study, and significance of the study.

Problem Statement

For this study, I worked with a Florida wastewater treatment special district to review two of the facilities personnel policies and provide recommendations for a risk management policy. According to the client organization's website it is an Independent Special District created by the Florida Legislature and is governed by a five-member publicly elected Governing Board. In a way, it is a hybrid organization because it has both public and nonprofit aspects to its organizational structure. The district operates a wastewater treatment facility and provides environmental education opportunities for the community through the community center and wildlife sanctuary. While the district is community oriented, the overall goal of the organization is public health and preserving the local watershed. After meeting with the executive director and signing a consultation agreement the district agreed to work with me to create a risk management policy and

identify gaps in the (a) safety policy and (b) personnel policies and procedures. Every organization has policies in place that give employees guidance on how they are to function to prevent or decrease organizational risk.

Risk management and mitigation is a broad content area and can include anything from safety, money, or personnel; however, the core component of any risk mitigation policy is that it provides direction on how to minimize, eliminate, or handle current or potential risks to the organization (Grima, et al., 2020). Risk management is the identification, prioritization, and evaluation of risks followed by coordinating resources to minimize, monitor, and control the probability or impact of negative events (Spikin, 2013, p. 92).

In the case of the client organization district, the current safety policy and personnel policies and procedures had not been reviewed in the last 5 years, and the board of directors wanted to know what kind of impacts revising the safety policy and personnel policies and procedures would have on the risk level as well as how those policies can be improved (see Gasior, 2020). In addition, there was no risk management or mitigation policy in place, and the district wanted to move forward with the creation of one (see Kaplan & Mikes, 2012). The creation of an organizational risk management policy will provide a framework for the organization to identify and mitigate risks during the decision-making process when making changes within the agency.

While the focus of this study was on risk management for one organization, it covers an issue that is applicable to the field of public administration on a much larger scale. Risk management is something that is utilized across the board in both public and

private sector organizations (Spikin, 2013). Further study on this topic offers a useful contribution to the field of public administration as a whole and specifically to the field of wastewater treatment.

Purpose

The purpose of the study was to provide an analysis of two of the district's policies that may have been affecting agency risk and offer recommendations for potential revisions to resolve any gaps in the policies. Additionally, I anticipated that this study would result in quality data that could be generalized for broader use by other wastewater treatment organizations when reviewing for potential policy gaps to decrease agency risk. Completion of this project had the potential to result in an accessible, comprehensive study on the creation of risk management policies and revision of organizational policies. The goal of this project was to improve the client organization by identifying potential policy gaps to help decrease the organization's risk. A thorough list of recommendations for the creation of a risk management policy as well as possible revisions of the organization's personnel policies and procedures and safety policy. The guiding question for this study was: What revisions to the district's safety policy and personnel policies and procedures would decrease the agency risk?

Nature of the Administrative Study

The study was qualitative in nature with a focus on policy revision and creation for the client organization. The case study design was most appropriate because I evaluated data gathered from interviews with seven managers from comparable organizations with questions pertaining to their safety practices, risk management

policies, and personnel policies in this study. Study participants were interviewed by phone or video conference. I also collected data on best practices for policy creation and, more specifically, best practices for creating risk management policies by requesting policies from comparable organizations and comparing those policies to those of the client organization. Additionally, I conducted a thorough review of the available literature on relevant safety guidelines and best practices. Once data collection was complete, I recommended adjustments to the district's policies to reflect the established best practices. In the findings from the analysis of the collected data, I identified any areas lacking in the district's risk management practices, allowing for improvements that will decrease the organization's overall risk.

Significance

The primary stakeholder in this study was the client organization, but the results have the potential to be applicable to other organizations during the evaluation or creation of risk management policies. Risk is a primary focus of every organization, regardless of the type (Spikin, 2013). Research that provides insight into how changing policies positively or negatively impacts risk will be of significance to many organizations. This study has the most significance for organizations similar to the client organization district in service delivery because in it, I provided revision options for two of the current organizational policies as well as recommendations for an organizational risk management policy. Wastewater treatment is a service that will never stop being necessary for communities to thrive and be healthy. Treatment plants provide an eco-friendly process that keeps the environment and communities clean and sanitary. A

comprehensive risk management policy will help to ensure that the client organization district and other wastewater treatment plants continue to provide quality services with reduced risk to the organization and the community (see Marzouk & Ali, 2018, p. 122). In this way, the community is also a stakeholder, so this study was of significance to customers within the district's service delivery area. Improved risk management for the district means improved service quality and delivery to the community.

Additionally, the results of this study present the opportunity for positive social change within the field of wastewater treatment because decreased risk provides improved service delivery. For the client organization district, improved service delivery means a more educated, cleaner, and more environmentally friendly community. Moreover, my client organization is a special district, of which there are very few in the entire state of Florida. The types of services provided and the way the organization operates is unique in the field of wastewater treatment, and a study on risk management in this particular type of organization could provide valuable information for statewide change.

Summary

This study focused on risk management for the client organization district by reviewing two of the policies currently in place and gathering data for the creation of a specific risk management policy for the organization. In this qualitative case study, I gathered data through in-depth interviews and the review of relevant archival/organizational data. This study is significant for the district because it offered recommendations for the revision of two current organizational policies as well as the

creation of an organizational risk management policy. In Section 2 of this PAS, I will discuss the models, concepts, theories, and relevance of the study as well as my role as the student researcher. Section 2 will also include of an in-depth analysis of extant literature pertinent to the study, a broader background on the problem this study addressed, and a review of all theories and concepts that informed the study.

Section 2: Conceptual Approach and Background

Introduction

The focus of the study was risk management, with the guiding question being: What revisions to the client organization's safety policy and personnel policies and procedures will decrease the agency risk? In addition to the recommendations that were made regarding these two policies, I made a proposal for components to be included in a risk management policy for the organization. This was necessary because the district had no risk management policy in place, and the policies that were in place had not been reviewed for revision in multiple years.

In this section of the PAS, I discuss the concepts, models, and theories; relevance to public organizations; organization background and context, and role of doctor of public administration student/researcher. Covering these topic areas more in-depth will provide a better understanding of the need for this PAS study being completed at the district.

Concepts, Models, and Theories

Because I employed a qualitative approach in this study, possible analytical strategies included content and discourse analysis. Content analysis is used to evaluate verbal or behavioral data, while discourse analysis is conducted to assess natural occurring speech and written text (Merriam, 2016). During data analysis, I used deductive coding because it provided a means of sorting and managing the collected data (see Merriam, 2016).

The framework for the current study was based on other studies of policy change and safety. Nhapi et al. (2003) evaluated the concepts of creating a framework for safe and sustainable wastewater treatment facilities. This study endeavored to formulate an integrated wastewater treatment model and weighed different strategies including source control by the users, implementation of toilets with source separation, natural methods of wastewater treatment, and invoking better behaviour through fees and information or incentives.

Similarly, Sheldon (2016) explored policy-making theory as a framework for policy analysis to assist organizations in becoming effective change agents. The combination of both safety and policy change theories provided the basis for my study's conceptual framework. I used the combination of these two theories as a foundation for this study because the study's focus was policy revision and creation, but the policies in question pertained to personnel and safety. Using this blended approach allowed for a more thorough and comprehensive interpretation of the collected data.

Sheldon (2016) reviewed multiple public policy resources to create an overview of public policy creation. I used this method to create a foundation for the recommended risk management policy for the client organization in this study. Because there was no current policy in place, part of the data I collected and reviewed was policies from comparable agencies to create an overview of what should be included in a policy for the district.

Other available literature relating to this study was Frattarola et al.'s (2019) research that focused on a risk assessment tool for wastewater treatment plants to help in

the establishment of control measures to prevent safety violations. The results of their study produced control measures that fell within the domain of ordinary and

extraordinary procedures that could be implemented in a cost-effective fashion.

Additionally, the improvements could be integrated into existing procedures carried out by workers. Frattarola et al. showed that the combination of many small measures could efficaciously contribute to risk reduction, particularly in low-income contexts. The goal was to improve current policies and procedures to help protect staff and other stakeholders that could be impacted by a serious incident. Their study connects to the current study in that my goal was to identify and recommend ways the client organization's safety policies could be improved to help decrease safety incidents and violations.

Two other areas of risk that can be considered are worker skill level and complex systems. A specialized license is required to be a wastewater treatment operator (see Lofrano et al., 2010). Aubrun et al. (1999) explored the concept of a hierarchical fault diagnostic procedure for systems within wastewater treatment plants. Wastewater treatment operators regularly work with complex systems, with each system impacting the efficiency of the next. Some of these systems are dangerous and require special protective equipment when working with them. Their study directly linked to the district as the client organization utilizes a complex risk management computer system and is also a wastewater treatment facility.

Kluge et al. (2013) explored the connection between operator skill and safety violations. They assumed that workers below a certain skill level would be more likely to

have safety violations than more skilled workers. However, Kluge et al. also suggested that while nonmalevolent in nature, deviation from safety rules and regulations is often deliberate and is impacted by the individual's perception of the likelihood of an accident, of detection, and of the consequences in relation to personal gain. For the district, there are many tasks that require the staff to wear personal protective equipment (PPE). Noncompliance, for any reason with the safety guidelines, directly impacts the likelihood of a safety incident.

Conceptual Framework

The literature reviewed earlier in this section was used in combination with the practice-focused question and the purpose of the study to inform the conceptual framework. Because the focus of the study was on risk management with an emphasis on policy change and safety, one theory was insufficient to fully frame the study. For this reason, I chose to include multiple theories that expanded on policy change and safety to create a more comprehensive understanding of the topic under study. The client organization is multifaceted, and the literature reviewed provided me with insights into what risks treatment facilities face and methods used to mitigate some of these risks. This deeper understanding was imperative as I endeavored to provide insights to the client organization on how to improve their current policies.

Definitions

Agency risk: Any gap in policy that increases the odds of an incident occurring that the agency would be liable for (Kaplan & Mikes, 2012).

Operators: Licensed wastewater treatment workers (Kluge et al, 2013).

Risk management: The process of mitigating agency risk (Herrera, 2020).

Relevance to Public Organizations

The aim of wastewater treatment is to remove the suspended solids from the water before the remaining water, called effluent, is released back to the environment (Lofrano et al., 2010). As solid material decays, it uses oxygen, which is essential to the plants and animals living in the water (U.S. Geological Survey, 2020). According to the U.S. Geological Survey (n.d.), “Primary treatment removes about 60 percent of suspended solids from wastewater. This treatment also involves aerating (stirring up) the wastewater, to put oxygen back in. Secondary treatment removes more than 90 percent of suspended solids” (para. 2). The client organization district conducts what is called secondary treatment, meaning it “uses micro-organisms to convert the carbonaceous (organic) materials in the wastewater to carbon dioxide, water and energy for re-growth” (Lofrano et al., 2010, p. 5260). This method of wastewater treatment has only been around since 1972, so overall it is relatively new and there is still room for research and learning on the topic.

Wastewater treatment is something that has impacts on every level of society and is necessary on a global, national, and local scale. In a global study on water reuse, the National Research Council (2012) addressed the fact that historically, the paradigm for risk analysis has been divided into risk assessment and risk management in which more subjective aspects, such as cost and equity, are considered. The evolution in the use of risk to regulate human exposure has resulted in substantial evolution of the wastewater treatment framework. It is critical that clean, properly treated water be going into

communities because water that is not treated to the appropriate level for the end use can pose significant human health risks (National Resource Council, 2012). Much of the water that is treated in wastewater treatment plants, including at the client organization, is recycled back into the community once treated, so managing risks is an important public health and safety task. The field of wastewater treatment is constantly looking to improve its methods and efficiency. Phillips et al. (2009) compared the modelling approaches taken, including calibration and validation approaches; sensitivity analyses; and the application of results to full-scale studies, designs, and operations, to identify limitations and offer suggestions for improvement. Some of the findings included the need for careful planning and effective, frequent communication among all team members especially for large or complicated plants.

At the time of the study, at the client organization there was no risk management policy implemented. Risk management had been approached on a case-by-case basis subjectively, and at the point of this study, no one at the organization had tried to create any type of risk management or mitigation policy. In an effort to be innovative and continue growing and improving as an organization, the district agreed to participate in this PAS.

The safety and personnel policies are reviewed by the agency every 5 years but had not recently been reviewed and compared to recent data and research on the best practices for those types of policies. This study was the first time these areas have been directly addressed. The services the client organization provides are essential for the health and wellness of local ecosystems and communities. The reduction of risk in

relation to service delivery will benefit not only the organization but the communities that it serves. The implementation of risk management policies at the district, if proven effective, may very well result in other organizations making similar changes.

Organization Background and Context

The client organization needed this PAS because the district was without a risk management policy in place to provide guidance on risk mitigation within the agency. Additionally, the current safety and personnel policies that were in place were in need of review for potential revisions.

The district's mission is to be dedicated to protecting public health and preserving the local watershed and its natural habitats through wastewater solutions, research, and environmental stewardship, while the vision is inspiring and achieving a healthy environment. The client organization represents the voice of a community dedicated to preserving the local waterways. The district operates a comprehensive environmental education program, offers internships for students, leads numerous environmental improvement projects, and is even partnered with a wildlife sanctuary that shares the grounds and offers a variety of educational programs for the community. Additionally, the district is guided by a publicly elected, five-member governing board. Elected in staggered terms of 4 years, board members bring their expertise in environmental issues, engineering, and planning to the district. In total, the client organization has 82 employees across four departments.

The district has to adhere to many federal, state, and local guidelines in terms of the wastewater treatment process. They are monitored in a variety of ways by multiple

organizations to ensure that proper protocol for waste management and safety are being followed. The district reports having a service area that stretches through two counties over 260 square miles. This area is broken into five sections that are then represented by the five individual members of the district's board.

The district's core values consist of spirit of service to the community and the environment, integrity, innovation, positive attitude, respect for others, positive work environment, lean/efficient, collaboration, and safety. In this PAS, I strove to enhance many of these core values. With the focus being on risk management and safety, the project aligned with multiple core values of the organization.

Role of Doctor of Policy Administration Student/Researcher

My role as the student/researcher in this PAS was to work with the client organization as a consultant to resolve an issue for them. I completed the data collection for the study and created a document of recommendations related to the study findings regarding the organization. The study participants consisted of seven managerial level staff from comparable organizations. I interviewed participants to learn about their organization's risk management and safety practices and utilized the data gathered to develop and offer recommendations for policy creation and revision to the client agency.

I chose to do this study with wastewater treatment because my father worked as a wastewater treatment operator for the past 30 years. This being the case, I have a cursory knowledge of the field of wastewater treatment and have always found the science of it interesting. Additionally, treatment facilities are operated 24 hours a day/7 days a week, making the data collection phase easier to conduct. My previous knowledge of the field

helped me understand the literature and jargon related to wastewater treatment as well as interpret the gathered data and its potential impacts on the client organization. I did not have any potential biases toward the field of wastewater treatment or any of the study participants that I was aware of. I intentionally picked an area of study that was not my field of expertise to avoid any unnecessary biases.

There were pros and cons to using interviews as the primary source of data for this study. Interviews offered the opportunity for getting more in-depth answers from participants but also posed the risk of individuals not being as forthcoming because they did not want to admit the shortcomings of the agency (see Merriam, 2016). Additionally, I needed to be careful as the researcher to keep from pushing my subconscious biases onto the participants when conducting the interviews. Sending questionnaires directly to the client organization was another potential option for data collection; this would have been the secondary method for data collection if needed.

Summary

In this study, I collected qualitative data to address the client organization district's risk management policy gap. A policy change and safety framework supported by the extant literature on the topics of policy change and safety was used to guide the study. The client organization has a significant impact on the local community and ecosystems; therefore, decreasing the organization's risk would benefit not only the agency but the communities it serves. I gathered data from interviews of managerial staff from comparable organizations regarding their risk management and safety policies for comparison.

My inspiration as the student/researcher to conduct this study was my father who has been in the field of wastewater treatment for most of his career and helped to lead some of the innovative water treatment ideas that are still in practice today. My role as the researcher was to achieve the agreed-upon deliverables that were decided upon between myself and the client organization. In this case, it was a comprehensive document of recommendations based on collected research for both potential improvements and revisions to the district's current safety policy and personnel policy as well as what to include in a risk management policy.

In the next section of this PAS, I will present sources of evidence, the practice-focused question, analysis and synthesis, and detailed information regarding the type of and collection method for study data. Section 3 will also include a discussion of the participants and procedures, protections, types of data and where they were collected from, and details of the data analysis and collection processes.

Section 3: Data Collection Process and Analysis

Introduction

The problem I identified for the client organization was that they did not have a risk management policy in place. Additionally, the organization's personnel policy and safety policy had not been reviewed or updated within the last 5 years. Therefore, the purpose of the study was to provide an analysis of two of the district's policies that were affecting agency risk and offer recommendations for potential revisions to resolve any gaps in the policies as well as identify foundational information for the creation of a risk management policy. In Section 3, I describe the data collection process and analysis, including a discussion of the practice-focused question, sources of evidence, archival and organizational data, generated evidence, and analysis and synthesis.

Practice-Focused Question

The guiding question for this study was: What revisions to the client organization's safety policy and personnel policies and procedures will decrease the agency risk? The current policies being analyzed were the district's already created safety policy and personnel policy. Additionally, I collected policies from outside sources to identify any information that could be utilized in the creation of a risk management policy for the district, which they do not currently have in place.

Sources of Evidence

Sources of evidence for this study consisted of interviews with managers from comparable organizations and existing policies and procedures on risk management and safety from those same organizations. I used this evidence to help determine if the client

organization's current policies were inclusive of the most up-to-date regulations and standards for wastewater treatment facilities. This was the most appropriate form of data to be utilized to address the question of this study because it allowed for a comprehensive review and comparison of the district's policies to present practices.

Archival and Operational Data

I collected operational data for this study from the same organizations that I recruited participants for the interviews from. The data consisted of existing policies and procedures that had been implemented at the selected organizations on risk management, safety, and personnel policies. Reviewing This information allowed for a comparison of the policies to the client organization's policies to make sure the district's policies contained the same best practices as the other special districts and provide a foundation for the creation of a comprehensive risk management policy for the client organization.

Limits to this data had the potential to include factors, such as outdated policies, potential errors in the requested policies, and inapplicable policy aspects due to organizational differences. All of the organizations that I requested information from were local and/or state government organizations and were bound by public record regulations. This meant that upon my request, organizational staff had to provide me with copies of the requested documents if they were not already publicly available for review.

As the researcher, I had no personal or professional connections to any of the organizations or individuals that participated in the study. This significantly eliminated the potential for conflicts of interest in the study and also limited the potential for researcher bias.

Evidence Generated for the Administrative Study

The evidence generated for the study came from interviews with managers employed by other wastewater treatment plants. The number of participants was 7 at which point data saturation was reached. Data saturation is the point at which all valuable information has been collected and additional data collection is not yielding any new information (Merriam, 2016). I determined the number of participants based on the fact that this was a qualitative study and the method of data collection often results in saturation without a large pool of participants. Additionally, there were only a limited number of comparable wastewater treatment facilities and, thus, a limited participant pool. Continuing to collect data after the point of saturation would only have provided duplicative evidence.

I offered the participants the option to complete the interviews over the phone or video chat. Managers were selected as the target participants because typically they oversee the creation and revision of policies and procedures for the organizations or departments they manage, and I thought they would have the most relevant insight for addressing the practice-focused question. Managers were selected based on title and department. The final reason this number of participants and data collection method were selected was to keep the scope of the study smaller in order to ensure completion within a reasonable timeframe.

The primary data collection took 2–3 weeks to complete all the interviews and collect the policy documentation. I created a set of uniform open-ended interview questions related to risk management and safety to guide the interviews and ensure the

most relevant information was gathered. The interview questions, included in Appendix A, were formulated based on the study's guiding question, and interview participants were determined based on position within the organization best capable of answering the interview questions and provide information relevant to the guiding question. as well to ensure efficient and effective saturation of the content areas with optimal quality data, as recommended by Morse et al. (2002). These two things coupled with using the conceptual framework as a foundation for the content of the questions assured validity and reliability of the information collected from the interviews. The interview questions were not validated by an expert panel but were agreed upon by my committee. This posed a possible limitation in this study. Interviews took between 15 and 30 minutes per person and the was audio recorded using an app on my cell phone so I could transcribe it into a Microsoft word document after. I was able to use the dictation function in word to assist with the transcription process. All of the participants were willing to be recorded.

Protections

I masked the names of participants and organizations for the purpose of this study. At the time the participant was contacted and asked to be interviewed, they were provided with a consent form to review and sign that outlined the purpose of the study and that participation was voluntary. I retained digital records on a password-protected computer and any hard copy records are kept in a lockable file cabinet to ensure the privacy of participant information.

I contacted agencies directly to try and recruit participants for the study. Reaching out personally assisted in building rapport with the potential participants, lending itself to

the interview process if they agreed to take part in the study. Additionally, I offered to share the final PAS project with them as it may have resulted in information that was of benefit to their organization as well. Participant recruitment began once I received approval to do so from the Walden University Institutional Review Board approval number 02-23-21-0977911. Additionally, the client organization had approved and agreed to work with me on this study and give me access to the organizational policies and procedures. Moreover, in accordance with the consultation agreement, I provided regular updates to the client organization on the status of the study and the executive director was available to be a part of the process and answer questions pertaining to the client organization and policies as needed.

Analysis and Synthesis

I used content analysis to analyze the qualitative data collected for the study. Content analysis consists of three major phases: preparation, organization, and reporting of results (Elo et al., 2014). Some of the advantages of content analysis are that it can be used to interpret communication in transcripts, it can be used for both quantitative and qualitative data, and it is a subtle method of analysis (Elo et al., 2014). These advantages benefitted this study because there were two types of data being analyzed, one of them being interview transcripts, and the analysis was noninvasive for participants.

For organizational purposes, I used deductive coding to assist in collecting and sorting the data into applicable categories, such as risk management, safety, or personnel. For example, content that was related risk management was coded as RSK, safety coded as SFT, and personnel coded as PSN. The archival data and generated evidence were

analyzed separately, and these signifiers were marked down next to the corresponding information within the collected policies and interview transcripts. Then I was able to quickly identify patterns in both the interviews and policies to determine what was most commonly considered or included in those policy types. From there, I was able to provide a comprehensive document of recommendations for the client organization on what revisions would be beneficial for them to incorporate in their policies.

I chose content analysis over thematic analysis because two types of data were utilized in the study. While thematic analysis is often used to interpret qualitative data, such as interview transcripts, it does not offer the coding aspect that was critical in efficiently analyzing the operational policy data that were also collected for the study (see Elo et al., 2014).

I utilized a spreadsheet to track which agencies had been contacted and what data had been collected from each (e.g., interviews or policies). I also used the spreadsheet to record if any organizations did not have the type of policies in place that I was requesting. No special software was purchased for organizing or analyzing the data. Primarily, if not solely, Microsoft office systems (e.g., Word, Excel, etc.) were used. The integrity of the evidence was ensured through checking and rechecking the data as well as the peer review process (see Merriam, 2016).

Summary

In this section, I provided an in-depth description of the processes and procedures used to collect and analyze qualitative data in this study. There was evidence being generated for the study as well as operational data being collected directly from

organizational participants. I analyzed that data using content analysis to code and identify patterns. The sources of evidence being used were interviews with managers from organizations that were comparable to the client agency and policies from those same organizations. I anticipated that the data collection process would take approximately 2–3 weeks to complete.

In Section 4, I will present the findings and implications, recommendations, and the strengths and limitations of the project. This section will offer a concise and clean conclusion to the PAS project as well as insight into the final findings and value of the study. I provided the results of this study to the client organization to assist them in resolving the issues identified within the agency at the outset of the study.

Section 4: Evaluation and Recommendations

Introduction

In this study, I focused on risk management in the field of wastewater treatment with a more specific emphasis on policy creation and revision. The client organization was seeking strategies to improve their current safety policy and personnel policy as well as the creation of a risk management policy for the organization. Based on this need, the practice-focused question of the study was: What changes to the client organization's safety policy and personnel policies and procedures will decrease agency risk?

The two types of data utilized for this study were generated evidence and archival/organizational data. The generated evidence consisted of transcripts of interviews with treatment plant managers. The interviews allowed me to gather relevant insights from individuals currently in the field of wastewater treatment. The organizational data reviewed included safety policies, personnel policies, and risk management policies from wastewater treatment facilities that were then compared with the client organization's policies. I employed content analysis for data interpretation and analysis. In Section 4 of the PAS, I discuss findings and implications, recommendations, and strengths and limitations of the project.

Presentation of the Findings

I collected data from seven different wastewater treatment facilities through interviewing the managers of the plants as well as reviewing any safety, personnel, and risk management policies the facilities had. Over 40 relevant policies were collected for analysis that yielded valuable comparisons for the client organization. The seven

participant interviews also provided insights that could be useful for the client organization in improving the policies currently in place as well as creating one for risk management.

I used the content analysis process to analyze the interview transcripts. This method was chosen because it was able to be used for both transcript analysis as well as the analysis of the archival and operational data. The process of content analysis starts with the identification of broad categories, developing a set of rules for coding, and then coding the text being analyzed into the appropriate categories (Saldaña, 2013).

The operational/archival data that was collected for the study contained risk management, personnel, and safety procedures from the seven treatment plants. I also analyzed this data for patterns to help inform best practices for the client organization.

The generated evidence for the study consisted of interviews with the managers of wastewater treatment plants from various locations in the state of Florida. The participants were all male and plant managers whose primary responsibilities were oversight of the wastewater treatment facility site(s). Participants' time in management at the facilities ranged from 5 to 18 years, and each brought their own unique experiences and knowledge regarding the various facets of the wastewater treatment field. I contacted each interview participant via phone and provided them with an explanation of the study before asking if they would be willing to be interviewed. The participant was then provided with an informed consent document via email, which they had respond to with the phrase, "I consent." Interviews were then conducted via phone and audio recorded. I transcribed the audio recording into a Word document for coding purposes. The coding of

the transcripts was completed using content analysis, resulting in the themes of risk management, safety, and personnel. As relevant information was identified in the transcripts, I highlighted and categorized it into the appropriate category. This resulted in emergent codes that corresponded to each overarching theme. The reoccurrence of these codes demonstrated clear correlation across the interviews of the chosen themes.

For the category of safety, I selected the following codes: hazard(s), chemical(s), pathogens, heavy equipment, PPE, and safety procedures. For the category of personnel, the following codes were chosen: reporting, training, personnel procedures, discipline, and records. Lastly, for the category of risk management, I chose the following codes: emergency, financial, procurement, risk, monitoring system(s), and assessment. These initial codes were chosen because there was clear evidence of these terms being utilized in the policy documents and these same words appeared in the participants' interview responses. These codes allowed for information to be pulled from the interview transcripts and placed in the proper categories for analysis, which resulted in the identification of the themes and best practices. The following two tables show a sample of the text associated with the themes and codes listed previously. Table 1 shows samples from the interview transcripts, while Table 2 displays samples from the analysis of the policy documents.

Table 1*Sample of Coded Text From Interview Transcripts*

Theme	Codes	Sample of coded text
Risk management	Financials	We can be fined if we are not following proper procedures at the plant
	Procurement	We're not a warehouse but we do unload deliveries and we have chemicals and stuff that we have to pick up Should an event happen there's several people that can make an emergency call to contact the proper people to come out and handle it
	Emergency	We have to have a risk management policy that looks at worst case scenarios
	Risk management systems	We have alarms when certain equipment shuts off or a pump station/left station loses power we get alarms to whoever the operator is that is running the plant that day carries a cell phone with them that the SCADA system automatically sends an alarm to
Safety	Hazard(s)	The environment such as sludge or something like that it can be sometimes acidic or caustic situations
	Chemical(s)	It's required by the state to have the chlorine gas that one is an EPA requirement EPA paperwork we submit our risk management program to the state who reviews As a wastewater plant and we have people around raw wastewater all the time and we have to pull samples and things like that
	Pathogens	Biggest thing that we have here is a forklift OK and then we do have some cranes that are either mounted on trucks mounted on structures those have-to-have annual recertifications
	Heavy equipment	The operators all wear PPE required of them whether it's goggles gloves mask we all wear steel toes
	Personal protective equipment	Any kind of safety incident there is always a review our safety team along with our management team and supervisors look at what happened
Personnel	Safety procedures	Unless we change how we're doing something the policies don't necessarily have to be updated every March we're going to go and look at all the policies and make sure they're okay
	Personnel procedures	We submit our paperwork for our risk management program to the state who reviews it and gives us the go ahead
	Reporting	When we get a new employee there are a number things that we have to do, first they have to get OSHA training
	Training	The auditor general's office will come in and interview people and will say "what do you know about this or how do you do this" and if we aren't doing what we are supposed to be doing we have to revisit training
	Discipline	How much chlorine you keep on site will trigger where you have to submit your policy to the EPA.
	Records	

Note. SCADA = Supervisory Control and Data Acquisition; EPA = Environmental Protection Agency.

Table 2*Sample of Coded Text From Collected Policies*

Theme	Codes	Sample of coded text
Risk management	Financials	No District employee may participate directly or indirectly in a procurement when the employee knows that the employee or the employee's spouse, child, parent, brother or sister has a financial interest pertaining to the procurement
	Procurement	"Reasonable and adequate procedures" means procedures that ensure fairness to potential offerors and competition commensurate with the circumstances of the procurement Emergency conditions are sudden unexpected turns of events, such as an act of God, riot, fire, flood, accident, or other urgent circumstances
	Emergency	Incident specific emergency action procedures were developed to identify specific steps in responding to operational emergency or malevolent acts defined in the Vulnerability Assessment
	Assessment	The County's SCADA consists of remote terminal units, Field Interface 32 Units/Front End Processors (FIUs/FEP's) and multiple redundant SCADA 33 computers operating
Safety	Risk management systems	
	Hazard(s)	Recognize hazards and communicate your suggestions for better and safer methods to your supervisor. Always be conscious of your own, and others, safety
	Chemical(s)	The most important aspect of this training is to ensure that employees are aware of the chemical dangers in the workplace; how to read the labels on the containers and what the labeling means. Practice "Body Substance Isolation". That is, assume all human blood and other body fluids of all kinds are infectious.
	Pathogens	Powered industrial Lift Trucks are found in almost all workplaces. Their changing centers of gravity and unique rear wheel steering require operators to be trained and knowledgeable in the use of this equipment.
	Heavy equipment	Personal Protective Equipment (PPE) includes all clothing and other worn accessories designed to create a barrier against workplace hazards. Safety procedures for specialized tasks performed solely by one location or one activity shall be prepared by the appropriate director and reviewed by the safety committee of the Department and by the Risk Management department.
Personnel	Personal protective equipment	
	Safety procedures	
	Personnel procedures	The Personnel Manual for the City of Tampa primarily provides policies regarding benefits and salary administration
	Reporting	As often as shall be required by the Mayor or the City Council but no less than a once a year, the Civil Service Board shall render reports of its accomplishments and actions. Supervisors are responsible for adequate safety instruction and job training of every employee under their direct supervision, including operation procedures, tools and equipment, and personal protective equipment (PPE).
	Training	As is always the case when failure to meet directives occurs, disciplinary action shall be Considered The Director of Administration shall issue guidelines regulating access to and release of information from personnel records.
	Discipline	
	Records	

The following subsections contain further discussion on the findings broken down by theme and then further separated into subcategories by the two data types: generated evidence and operational/archival data.

Theme 1: Risk Management

Generated Evidence

Most wastewater treatment facilities did not maintain specific risk management policies. One of the highest risk things described by the participants was that the facilities deal with chlorine gas, which all of the participants said is heavily regulated and monitored by the Department of Environmental Protection. Participant 1 stated that, “by law they [wastewater treatment plants] have to have risk management policies that look at the worst-case scenarios should they have a leak.” All the participants reported chlorine gas being a high-risk component for the wastewater treatment plant and that they were regulated by Department of Environmental Protection. This was also true of the client organization.

One unexpected finding from the interviews was that 86% (i.e., six) of the organizations followed government-implemented policies and not facility-specific ones. Since many wastewater treatment plants fall under the umbrella of city or county utility departments, they follow those policies for personnel, safety, and risk management, and only have a few in-house policies that are specific to treatment plants. Participant 5, when asked the question, “What would you recommend including in a risk management policy?” stated, “to be honest with you, risk management probably tells us what we need

to do.” Participants 1, 2, 4, and 6 also asserted that a risk management department handles most of the policies and that they follow the policies of the city or county.

Operational/Archival Data

Of the risk management-related policies collected, most were procurement policies and focused on potential financial risks and liabilities for the agencies. There was also a few that were related to emergency operations, but those related specifically to managing risks presented by disasters, such as hurricanes, so I excluded them from the study.

The majority of the wastewater treatment facilities were government organizations and utilized the city or county policies as opposed to creating and maintaining their own. One of the seven facilities was also a special district, like the client organization, which created and maintained all their own policies. The policy submitted by the special district relating to risk management was also a procurement policy.

The policies that were submitted by the governmental organizations covered a broad variety of topics in a generic fashion. I reviewed 23 policies in total: seven procurement policies, seven personnel policies, seven safety manuals, one job hazard analysis, and one emergency response plan. The policies contained good practices that could be used or applied to any department (e.g., the procurement policies focused on handling bids, contracts, or other financial type transactions and the personnel policies covered best practices for staff in all departments of the county/city but did not offer specifics for how treatment plants could best manage the unique risks they are presented

with). The policy provided by the other special district spoke more explicitly on topics of value for a treatment plant because it focused solely on the treatment plant and no other departments.

There was clear correlation between what was contained in the policies and the emphasis participants placed on high-risk areas. The participants made many references throughout the interviews to handling chemicals, lockout/tagout procedures, PPE, safety procedures, and solid waste, and these same terms were appeared frequently in the procedures used to manage risks at the facilities. This finding shows a clear unanimity within the field of wastewater treatment when it comes to defining and mitigating risks. The review as a whole helped to capture a thorough understanding of what is involved in creating a comprehensive risk management policy because policies ranged from 20 to 133 pages in length depending on how many topics and departments were covered in them.

Additionally, as was discussed above, the participants' interview responses made it clear that many cities and counties had entire departments dedicated to risk management. There is no one risk management policy, but rather many policies, each focused on a specific area. Finance has procurement policies, safety policies are created to mitigate the unique risks of each department, and personnel policies apply to general staff. Having targeted policies for each area of potential risk would allow for the most effective management of those risks. If risks can be mitigated in even one area, the potential for positive social change can be substantial.

Theme 2: Personnel***Generated Evidence***

The data gathered from the interviews regarding personnel policies was uniform across all participants. This was notable in the policy review because there was a clear format that all policies followed and specific content areas that were covered. All participants reported having comprehensive onboarding process for new employees and ongoing trainings for employees. This aligned closely with the client organization because discussions with the executive director made it apparent that there were clearly defined expectations and processes in place regarding personnel.

Operational/Archival Data

After reviewing the personnel policies and procedures, one site specific and six governmental, from the various facilities, I concluded the client organization's policy and procedure document was comparable both in size and content with the other organizations policies. The only notable difference was that the client organization's policy did not include an index at the end of the document. This is of no major relevance to the validity of the document and more a formatting preference per agency.

Based on the review of the data, I have no recommended changes to the personnel policy for the client organization. The implications for the client organization and staff are all positive. The policy in place is thorough and covers similar content areas when compared with the other organizations' policies. The district's policy was aligned with best practices and has accounted for all reasonable risk areas pertaining to personnel procedures. Properly prepared and trained staff can make all the difference in the risk

level an organization faces. Ultimately, positive social change is perpetuated by people. Staff that have been properly equipped to fulfill their duties will be proponents of positive social change by just doing good work every day.

Theme 3: Safety

Generated Evidence

One of the most valuable patterns that emerged as a result of the analysis of the interview transcripts was that all of the treatment plants follow Occupational Safety and Health Administration (OSHA) guidelines despite not being required to. When participants were asked questions regarding safety best practices, they all referred to OSHA as a primary source for what informed the best practices and policies of the facilities. Additionally, most plants required regular staff trainings ranging from annual to triannual depending on an individual's position and associated risk (e.g., chlorine gas, heavy machinery). For example, Participant 2 stated that trainings on chlorine gas were done, "annual while other are done on an as needed basis." While Participant 4 emphasized that, frequency of training really just "depends on what it is."

Operational/Archival Data

Review the safety policies, the majority of which were site specific, allowed for the identification of a missing best practice within the safety policy of the client organizations safety policy. All the reviewed safety manuals included a section and training requirement for bloodborne pathogens, which aligns with OSHA standards. The implications of this finding are a danger to the client organization and the staff. Should an individual end up in a circumstance where they may have been exposed to a bloodborne

pathogen and have not been properly trained not only puts the staff at risk, but the agency could be liable for not having a procedure in place. My recommendation to my client organization will be to incorporate a training either online or in person or make available a policy for handling potentially contaminated areas. This will decrease the risk to the agency.

The other areas of the safety policies all aligned very well, covering topics such as operating heavy equipment, chemical spills and hazards, lockout/tag out, and PPE, etc. Including a section that addresses bloodborne pathogens will bring the current safety policy of the client organization into alignment with current best practices. Making improvements to the policies that are currently in place only furthers the capability of my client organization to be an example of social change. A few of the district's core values are innovation, safety, and collaboration. Striving to constantly improve upon the facilities policies and service delivery shows that the organization endeavors to embody those core values and be an example of positive social change in the field of wastewater treatment. Every step forward is a step in the right direction.

Overall, both types of data provided valuable information for my client organization to compare the policies currently in place with comparable policies of other facilities to ensure compliance with best practices. It helped to reveal areas where the client organization was doing really well and some that could be improved upon to help decrease agency risk factors. Each type of data reveals different but equally important patterns regarding risk management, safety, and personnel for wastewater treatment facilities.

Implications

The implications of the generated evidence to treatment facilities were that while there is a significant level of regulations and uniformity across the field of wastewater treatment there are areas that can slip through the cracks. The needs of individual facilities are not always uniform and there are often unwritten rules or codes of conduct that organizations follow, such as, utilizing OSHA guidelines despite it not being required. When institutional knowledge such as that is notated down, it can be beneficial to not only individuals new to the field but also other organizations that might not otherwise acquire the information.

While collaboration was not the focus of the study, it quickly became clear that one of the biggest ways positive social changes can be perpetuated is through partnership and cooperation with other organization with the same mission. The generated evidence shows that there is valuable information that could be shared across organizations. For instance, Participant 2 stated, “in the case of a chlorine leak we aren’t equipped to handle that, we would call hazmat and the fire department, they even come here [wastewater treatment facility] and train.” This demonstrates that there is more to wastewater treatment than just what is happening on site. Partnerships are a big portion of what makes a wastewater treatment facility effective.

Reliability and Validity

Reliability and validity are integral components in determining the quality of research and are necessary in every study to reflect the rigor of the process used for data collection and analysis (Merriam & Tisdell, 2016). A study that cannot be shown to have

both reliability and validity is without value because there is at that point no support for the quality of the research. As this study was qualitative and used content analysis for data review to ensure the validity and reliability of this study the following elements were focused on: alignment of with the research question, sample size, member checking, and theory triangulation (Morse et al., 2002). Each of these four areas are commonly used techniques for the ensuring reliability and validity in research.

First is alignment with the research question. The purpose of the study's research question is to be the central focus and guiding force of the study. Everything should be geared towards answering the question in the most effective and appropriate way possible. It determines the type of data that should be collected, what research method should be used, and analysis method (Morse et al., 2002). All components of the study should be able to be tied back to the research question or the validity and reliability of the study is compromised. Specifically, for this study the guiding question was what revisions to the district's safety policy and personnel policies and procedures will decrease the agency risk? This led to the determination that two types of data would need to be collected, comparable policies and generated evidence of interviews with questions focused on risk management, safety, and personnel. Content analysis was chosen as it can be used to analyze both types of data for patterns that would reflect best practices (Merriam & Tisdell, 2016). Each area was chosen in an effort to maintain quality alignment with the research question so that the collected data would be the most appropriate for answering the guiding question (Morse et al., 2002).

The second area is sample size. Having an appropriate sample size for the study can greatly impact the quality of the data and the findings (Morse et al., 2002). Having too many participants in a qualitative study can result in redundant data that sheds no new information and is of no value to the study. If there are not enough participants, the study is at risk of not having enough information and being unable to provide any clear insight into the research question because there simply is not enough data to make any accurate or useful conclusions (Merriam & Tisdell, 2016). Data must be collected until the point of saturation which may require more or less participants than was originally anticipated (Merriam & Tisdell, 2016). Saturation in this study was reached at seven, meaning that no new information that was of use was being provided, and there was enough to be analyzing. Sample size helps to ensure the validity and reliability of the study by making sure that an appropriate amount of data is collected.

Third, is member checking. Member checking is the process of reviewing the results of the collected data with the participants to ensure the accuracy of the information and in turn the credibility of the study (Merriam & Tisdell, 2016). For this, study interviews were completed with participants and transcripts were then created. The participants were then contacted again and the information within the transcripts was reviewed with them to verify that it accurately reflected the points they were trying to convey. Two attempts were made to contact individuals, if they did not respond then it was assumed that they were accepting of the transcript as is.

Lastly, there is triangulation. Triangulation is a qualitative research strategy that is used to provide a comprehensive understanding and to test validity through the

integration of information from multiple sources of data (Carter et al., 2014). For this study, data sources triangulation was chosen, which is the use of multiple data sources when examining a situation (Carter et al., 2014). Being that the conceptual framework for this study was formed using various studies on policy creation and safety the two types of collected data, interviews and the various policy documents that were collected for review could be used to corroborate the themes that emerged from the analysis of both type of data. This data was then viewed through the lens of the varying theories that were used to inform the conceptual framework.

The conceptual framework was formed on a basis of five different studies, Aubrun et al. (1999) which focused on comprehensive diagnostic systems for treatment plants, Kluge et al.(2013) which concentrated on operator skill and how it influences safety, Frattarola et al.(2019) which endeavored to formulate a useful risk assessment tool for treatment plants, Sheldon (2016) which proposed policy making theory, and finally Nhapi et al. (2003) which postulated a safety framework. Each of these studies can also be used for the purpose of theory triangulation.

The data I collected for this study, both the interviews and the operational data, included content related to safety, personnel, and risk management. Concepts that were clearly aligned with the theories proposed within the above studies were apparent. Treatment plants rely on operator skill when using equipment and for interpreting written policies. Participant 2 stated that, “a challenge is to get it through to people how important it is to not cut corners and making sure they have the proper training to do things correctly.” Kluge et al. (2013) echo this sentiment in the research as the analysis

concluded that increased skill increases the likelihood of compliance with safety related procedures.

Additionally, all of the facilities that participated in this study utilized some form of high-tech systems that had a combination of visual and auditory notification.

Participant 5 described their system as the,

Supervisory control and data acquisition or SCADA, what that means is that with that software we can control basically the entire plant so I have a screen here and I can go through each screen and see every aspect of my plant.

Each of these areas is critical in keeping the level of risk at a treatment plant to a minimum. Aubrun et al. (1999) and Frattarola et al. (2019) both emphasize the importance of comprehensive systems in the mitigation of risks. When the collected data for this PAS was analyzed through each of these differing perspectives it was clear that there was validity and reliability in the statements of the participants and in the best practices identified in the collected policy documents. The suggested revisions and improvements identified for my client organization in the recommendation section will further bring them into alignment with the best practices for wastewater treatment facilities thus decreasing risk if implemented.

Recommendations

The in-depth review of the collected data yielded a number of potential revisions and suggestions that could be presented to my client organization regarding the safety, personnel, and risk management policies. Each of the following four recommendations were based on the best practices identified through the collected data.

My recommendations for my client organization will be as follows: First, outline within the safety policy that they adhere to OSHA guidelines in alignment with best practices. As was discovered through the review of the interview transcripts a best practice of wastewater treatment facilities is to follow OSHA guidelines when it comes to safety procedures at the facilities. For example, Participant 2 stated, “we are not governed by OSHA, but we follow OSHA.” The sentiments of the other six participants echo that statement. While there was a small notation within the client organizations safety policy that OSHA is used, having it clearly outlined that the organization adheres to best practices by incorporating OSHA guidelines and which sections are derived from OSHA will allow for efficient updates to be implemented and the validity of the policies to be conveyed.

This aligns with the goal of the PAS as the intention was to assist my client organization in decreasing agency risk. Being able to quickly apply changes and included the newest OSHA regulations within the safety policy will ensure employees are receiving the most current safety guidelines, decreasing risk for incidents, and thus organizational risk.

Second, it is recommended that the client organization add a section to the current safety policy to cover infection diseases/blood borne pathogens. This was a common inclusion in the other facilities policies that was not in the district’s safety manual and can be easily implemented as an online training. Being that operators work with various type of equipment the chances of cuts, scrapes, or lacerations of some kind that could result in exposure to such pathogens is high enough that it poses a risk to the

organization. Offering a training and a procedure to inform staff of how to properly clean and sanitize areas where there have been potential exposures will decrease risk of transmitting diseases.

Third, the client organization should bolster the procurement policy currently in place and combine any relevant policies into one risk management or procurement policy document. Risk management is such a broad field that most governmental entities have entire departments dedicated to managing and mitigating risks. This is not reasonable for an independent organization and condensing everything down into one policy would be ineffective. A fleshed-out procurement policy will cover potential financial risks, contracts, and bids, etc. while the safety and personnel policies will cover potential risks in that arena. If each are monitored and kept up to date by the appropriate department, this will ensure that the majority of foreseeable risks to the organization are mitigated.

Lastly, for my client organization, continuing to maintain, and improve upon the current policies in place will offer the most effective way of dealing with risk management and mitigation.

Fourth, the client organization should have a process outlined at the beginning of each policy outlining the procedure for dissemination of information. The information within the policies is useless if it is not provided and reviewed by the individuals who need it. An outline of who is responsible for sending out updates to guidelines or policies and completing or setting up trainings if needed will minimize the risk of incidents occurring because someone did not get the memo. The review of the policy documents showed that some organizations had general provision or function sections within the first

few pages of the policies that outlined update processes, such as sending concerns, questions, or discrepancies to the Human Resources department or directed employees to report them to supervisors, etc.

Lastly, for my client organization, continuing to maintain, and improve upon the current policies in place will offer the most effective way of dealing with risk management and mitigation. Regulations and expectations are constantly evolving in the field of wastewater treatment. As new developments are made policies and procedures will need to be revised to reflect the updated best practices. In order to efficiently manage risks the information must be acknowledged and properly disseminated. Regular revision intervals will allow my client organization to stay one step ahead as they strive to mitigate risks.

All of the above recommendations endeavor to assist my client organization in decreasing the overall risk to the organization by making improvements to the policies. Implementation of the suggest revisions will help to further ensure that the agency is protected from the various risks that can impact the organization.

Strengths and Limitations of the Project

This project had a number of strengths and limitations. Some of the strengths of this project were that wastewater treatment plants are 24/7 facilities and participants were accessible when it came to reaching staff for data collection purposes. When working to collect policies I was able to interact with individuals at all different times of day to facilitate the process. Additionally, when completing the interviews, I often talked with individuals very early in the morning as that was the shift they chose to work. Another

strength is that since wastewater treatment plants are primarily governmental entities Florida public records laws require the release archival type data in a timely fashion upon request from the public. This made the collection of operational or archival data much more efficient. Additionally, wastewater treatment is a necessary public health function, every city and county have one or more treatment plants so there are plenty of locations available for data collection.

One limitation I encountered with this project is that locations can charge for public records requests depending on the volume of items and time required for collection. While many locations supplied the records at no charge, I also received quotes ranging from \$ 25.00-\$ 125.00 for staff time to sort, retrieve, and send the documents. Additionally, if any documents need to be printed organizations can charge per page to print. I was able to receive everything digitally so did not run into that particular issue.

Another limitation is that places do not all use the same naming conventions for archival data which can result in receiving documents that are not useful to the study. I had a few places decline to send information or call requesting additional clarification because some of my terminology used in the requests was interpreted as to include confidential data (e.g., plant schematics).

The last possible limitation is that the interview questions were not validated by an external panel of experts. The questions were formulated based on the practice focused questions and the purpose of the study. The interview questions were also reviewed and agreed upon by my committee. The questions are shown in Appendix A.

I would encourage any individuals working to explore similar topics to have very specific descriptions of the type of data being sought after. If the study has both collection of evidence and operational/archival type data, request the operational data from the study participant if they are in a relevant position to collect it. This can help to avoid fees and since they are familiar with the study, assist in getting the correct types of data in a timely manner. The human element of studies is important and making phone or in person contact with participants can assist greatly in making the study process go smoothly. The final section of the PAS will be the dissemination plan which will cover how information will be relayed to participants, the client organization, and broader audiences if appropriate.

Section 5: Dissemination Plan

I will disseminate study information to the client organization by email, including a copy of the completed study and a consultation document of recommendations based on the study findings. At the end of each participant interview, I offered to send them a summary of the results via email upon study completion. Three of the participants took me up on this offer. The email addresses of these participants were collected and saved for dissemination purposes when the study was complete. Participant emails were protected to ensure their confidentiality.

A board meeting or something similar would be the most appropriate type of venue for dissemination of the study to a broader audience. A summary of the results would be the best delivery method for such a setting because it would allow for concise communication of the highlights of the study to be reviewed via report or PowerPoint. If desired, this same method could be used for training sessions or conference presentations. My plan is to only provide the information to the client organization as well as the other organizations who requested the results. If requested, I will present to the board of directors of the client organization or in other venues.

Summary

In conclusion, the client organization was seeking ways to bolster their organizational policies to help reduce the overall risk to the organization. By comparing best practices from similar facilities across the state, I was able to provide recommendations to enhance the client organization's best practices and improve the alignment with the best practices identified throughout the study. Should my client

organization choose to implement my recommendations. I recommended the client organization incorporate a bloodborne pathogens training, expand the procurement policy, and outline procedures for efficient dissemination of important policy updates. Each recommendation was targeted to eliminate a specific gap that was identified through the course of reviewing the data from this study.

Ultimately, wastewater treatment facilities serve an important public health and safety function, making risk management at these facilities even more critical. Any improvements that the treatment facilities can make directly impact the public that benefits from the ongoing services provided. This study has provided information that could perpetuate even better service delivery by the client organization, assisting in furthering the impact the agency's contributions have on continued positive social change in the communities they serve.

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Appendix A: Interview Questions

1. What policies does your organization have related to safety, risk management, and personnel procedures? How was it determined that those policies would be sufficient?
2. What would you recommend including in a new risk management policy?
3. What would you recommend including in safety and personnel policies for a similar organization?
4. How do you determine what information is included in your policies?
5. How frequently are your policies updated? How was frequency determined?
6. How do you monitor and control for risks within your organization? What are the challenges?
7. Are there are best practices that are not currently in your policies that you think would be valuable to include in a risk management, safety, or personnel policy?
8. What sources do you rely on to inform your best practices?

Appendix B: Consulting Report

The below consulting report is the main document that will be presented to my client organization.. The full PAS document will also be made available to the organization. Additionally, for use in the PAS I have removed the client organization's name and other identifying information that could jeopardize the anonymity of the organization. The report shown below has been modified slightly for the above outlined reasons but is otherwise identical to the one being provided to the client organization.

Consulting Report

PURPOSE

The focus of my Professional Administrative Study (PAS) was risk management in the field of wastewater treatment. The focal point of the study was on the creation and revision of policies for my client agency to help reduce overall agency risk factors.

Risk management being the identification, prioritization, and evaluation of risks followed by coordination of resources to minimize, monitor, and control the probability or impact of negative events.

METHOD AND APPROACH

Qualitative research methods were utilized for this study with a case study approach. Content analysis was utilized for data interpretation and analysis.

SOURCES OF DATA

Operational data for this study was collected from other wastewater treatment facilities. The data consisted of existing policies and procedures that have been implemented at the selected organizations on risk management, safety, and personnel policies. This allowed for a comparison of the client organizations policies with the best practices discovered from the review of the other facility's collected policies.

Additionally, generated data consisted of interviews with managers employed by other wastewater treatment plants and were collected to expound upon the operational data. The number of participants was 7 at which point data saturation¹ was reached.

DELIVERABLES:

¹ Saturation is the point at which all valuable information has been collected and additional data collection is not yielding any new information

This document will include recommendations for inclusions in a risk management policy as well as possible revisions for the District's Personnel Policies and Procedures and Safety Policy based on the best practices discovered during the data collection process.

Safety	<p>Findings:</p> <p>One of the most valuable patterns that emerged as a result of the analysis of the interview transcripts was that all of the treatment plants follow Occupational Safety and Health Administration (OSHA) guidelines</p> <p>One unexpected finding that was discovered as a result of the interviews was that six of the organizations follow government implemented policies and not facility specific ones.</p> <p>All the reviewed safety manuals included a section and training requirement for bloodborne pathogens</p> <p>The other areas of the safety policies all aligned very well, covering topics such as operating heavy equipment, chemical spills and hazards, lockout/tag out, and personal protect equipment (PPE), etc</p>
<p>Recommendations:</p> <p>Incorporate a training either online or in person or make available a policy for handling blood borne pathogens/infectious diseases.</p> <p>Outline within the safety policy that they adhere to OSHA guidelines in alignment with best practices</p> <p>Have a process outlined at the beginning of each policy outlining the procedure for dissemination of information</p>	
Risk Management	<p>Findings:</p> <p>The majority of the wastewater treatment facilities were government organizations and utilized the city or county policies as opposed to creating and maintaining their own. One of the seven facilities was also a special district like my client organization which created and maintained all of their own policies. The policies submitted by all of these organizations relating to risk management were a procurement policies.</p>

<p>Recommendations:</p> <p>Bolster the procurement policy currently in place and combine any relevant policies into one risk management or procurement policy document. Cover more in-depth potential financial risks, contracts, and bids, etc.</p> <p>Have a process outlined at the beginning of each policy outlining the procedure for dissemination of information</p>	
<p>Personnel</p>	<p>Findings:</p> <p>The only notable difference was that my client organization's policy did not include an index at the end of the document. This is of no major relevance to the validity of the document and more a formatting preference per agency.</p> <p>The implications for my client organization and staff are all positive. The policy in place is thorough and covers comparable content areas when compared with the other organizations policies. The District's policy was aligned with best practices and has accounted for all reasonable risk areas pertaining to personnel procedures.</p>
<p>Recommendations:</p> <p>No recommended changes.</p>	

Completed by Emily Silver, CPM