

Is an ISO rating process appropriate for the Roanoke County Fire and Rescue Department at this
time?

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

The Roanoke County Fire and Rescue Department (RCFRD) last went through an ISO assessment in 1992. The problem facing the RCFRD is determining if the department should enter into another ISO rating process. The purpose of this project is to determine if the Insurance Service Office (ISO) rating process is still widely used or if it has become an archaic measure of a department's effectiveness. An evaluative research method was used to answer the following questions; 1.) What is involved in an ISO rating process? 2.) How have other departments benefited or not benefited recently from obtaining an ISO rating? 3.) How do insurance companies use ISO ratings in establishing insurance rates? 4.) How would this process benefit the RCFRD and the citizens which they serve? Procedures used to research this topic included a thorough literature review using the internet, magazines, National Fire Academy Learning Resource Center, and past papers written for the Executive Fire Officer Program. A survey was utilized to evaluate other department's feelings of the ISO system and a questionnaire was used to evaluate one insurance companies' use of ISO ratings. Phone calls were made to obtain information from the ISO office and one insurance agent. Results showed that the ISO process is now widely considered outdated and not utilized as much by the insurance industry. Recommendations were made for the RCFRD to find other means of evaluating their effectiveness and operational readiness.

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Introduction

Fire departments across the United States are constantly striving to improve the services which they provide. Citizens expect a high level of service from their local departments, and they want that service provided at a reasonable cost. City councils, county governments, and town management must determine how to allocate tax revenue throughout all their departments to best serve their citizens. Fire departments struggle each fiscal year to prove to their governing bodies that they deserve the maximum amount of funding that they can receive. In these tough economic times it has become imperative for chiefs to find ways to show the benefits of their departments to their local politicians. While fire department budgets are being cut, chiefs must show extreme thoroughness in their budget reports every year. The Insurance Service Office (ISO) Public Protection Classification Program (PPC) has assisted departments with evaluating their thoroughness since 1909 (Origins of Public Protection Grading, n.d). Fire department chiefs can use the ISO PPC system for department evaluation, from location of fire stations, to the effectiveness of their municipal water supply. The Roanoke County Fire and Rescue Department (RCFRD) went through an ISO grading process in 1992. The problem facing the RCFRD is evaluating whether to enter into an official ISO rating process at this time. The purpose of this research is to determine if an ISO rating is still a valid rating of a fire department or if it has become an archaic measure of a department's effectiveness. An evaluative research method will be used to determine if the RCFRD should proceed forward with an ISO rating process, or if the ISO PPC rating program is not an effective third party evaluation for the RCFRD.

The research questions that will be evaluated are:

1. What is involved in an ISO rating process?

2. How have other departments benefited or not benefited recently from obtaining an ISO rating?
3. How do insurance companies use ISO ratings in determining insurance rates?
4. How would this process benefit the RCFRD and the citizens which they serve?

Background and Significance

Roanoke County is located in the mountains of southwest Virginia. The County of Roanoke currently has a population of approximately 91,000 residents that live throughout the 251 square miles that make up Roanoke County. The county is made up of mostly middle class, blue collar workers. A transient population is starting to have a bigger effect on the overall makeup of the county. The area is mostly suburban and rural and most of the residents live within five miles of Roanoke City. The RCFRD is a combination department that consists of 153 career and 225 volunteer personnel. The department currently operates out of twelve stations and has an annual operating budget of \$10.4 million. In 1986 the Commonwealth of Virginia chartered the County of Roanoke and thus the RCFRD was formed. After extensive hiring processes in the late 1980's the RCFRD had grown to a department of approximately 25 paid personnel and 200 volunteers. In 1992 the decision was made to enter into a formal ISO PPC grading process. The ISO PPC grading system is a tool that is utilized by department's all over the country to determine the quality of fire protection that their department provides. Insurance companies also use the ISO PPC system as a tool to help them in determining the rate structure for homeowner and commercial insurance rates. The system uses a 1 to 10 rating to assign to departments. A class 10 rating is assigned to departments that do not meet the minimum requirements set forth by ISO. A class 1 rating is given to departments that meet all of the top standards established by ISO. A split rating can be given to a department that has areas

that fit within different ratings. The grading system is made up of three areas. Fire alarm and communication systems make up the first area that is graded. This area accounts for 10% of the final grade. The second area that is graded is a review of the fire department. This entails the department's first-alarm response and ISO reviews the ladder companies, engine companies, and layout of fire stations, training, and the equipment that is carried on the apparatus. This area accounts for 50% of the total classification given. The last area that is reviewed is the water-supply system. ISO looks at the water supply that is available to support fire suppression operations. This area makes up the last 40% of the total classification. The RCFRD received a rating of 5/9 in 1992. A split rating represented the areas of the county that were located within five miles of a fire station, those areas received a 5. The more rural areas that were outside that five mile range of their nearest station received a 9 rating. Since 1992 the RCFRD has experienced significant growth. Since the last ISO grading process the RCFRD added roughly 125 paid personnel and added twenty-four hour staffing at 9 of its 12 stations. In this time extensive upgrades to the water system, radio system, and response guidelines have made the RCFRD a much more diverse and better equipped department to handle emergency situations than they were in 1992. Based on these improvements the RCFRD would like to determine if an ISO grading process is appropriate to improve the 5/9 rating that they currently have.

Determining whether to try and improve on their ISO PPC rating is directly related to the Executive Development course within the Executive Fire Officer Program because it deals with the area of service quality. "Quality is looked at understanding the customer needs and wants is critical and concentrating on giving them the best possible service is the goal" (USFA, 2006, p. 10-9). Determining how to measure the overall preparedness of a fire department is something that all fire chiefs are struggling to find out. The ISO PPC rating is just one tool that a

department can use to measure its operational readiness. This applied research paper is following the goals and objectives listed in the *United States Fire Administration; Strategic Plan, Fiscal Years 2009-2013 (2009)*. Goal 2 of the strategic plan, “Improve local planning and preparedness,” identifies objectives that can be addressed through a formal ISO PPC rating process.

Literature Review

In 1866 the National Board of Fire Underwriters (NBFU) was formed to promote public fire education and fire prevention (Origins of Public Protection Grading, n.d.). After experiencing a number of devastating fires in the early 1990’s the NBFU saw the need to expand its role and developed the Municipal Inspection and Grading System. This program allowed engineers to evaluate the potential for large fires in many cities. In response to the findings, localities could improve their fire-protection and suppression capabilities to better serve their citizens. ISO’s PPC program is an organization that was established from the earlier grading system and is now a modern organization that obtains data that is used by insurance companies to help establish rates in determining residential and commercial insurance rates. The purpose of an ISO public protection survey is to gather information to determine a PPC rating. Insurers, if they choose, can then use the ratings for underwriting purposes to assist in calculating fire insurance premiums (“Scope of the PPC Evaluation”, 1996). Gage (2004) said that “the information that is analyzed by the ISO provides insurers with engineering evaluations and sound actuarial analysis for fire loss mitigation program” (p. 130). The PPC grading program is a process that takes place every 10 years for communities with populations of 25,000 or more and every 15 years for communities with a population of 25,000 or less (ISO, 2002). The grading system is based on three main areas. The first area is how well the department receives

and handles fire alarms. The review looks at how the locality handles and receives fire alarms, as well as the facilities that this operation takes place at. Telephone systems as well as the number of telephone lines that are in place are considered in the overall grade as well. Staffing levels that are utilized by the locality and the type of dispatch program that is also used are also used in the grading system. Communication systems and fire alarm dispatching only accounts for 10% of a locality's final grade. The fire department itself makes up the second area of the evaluation. This area makes up the largest percentage of classification at 50%. ISO focuses on how a fire department's first-alarm response and initial attack are utilized to minimize potential loss ("The PPC Evaluation Process", 2006). Every aspect that supports the department's suppression operations is included in this section of the review. Equipment, staffing, training, and the location of fire stations throughout the jurisdiction are all taken into consideration. Water supply accounts for 40% of the total classification and is the last area graded. A review of the current water supply is conducted and an evaluation of the supply available is used to determine if what is in place is sufficient for fire-suppression purposes. Hydrants are looked at and the condition and maintenance of the hydrants is also considered. After all three areas are evaluated and graded the department is assigned a PPC rating. The rating is based on a class score that is assigned using the percentages listed below.

<u>Class</u>	<u>%</u>
1	90.00-100.00
2	80.00-89.99
3	70.00-79.99
4	60.00-69.99
5	50.00-59.99

- 6 40.00-49.99
- 7 30.00-39.99
- 8 20.00-29.99
- 9 10.00-19.99
- 10 0.00-9.99

A class 1 represents a jurisdiction with superior fire protection of its properties. A class 10 rating represents an area that doesn't meet the minimum ISO criteria for fire-suppression. The ISO PPC process does not require that a locality have specific personnel or equipment to respond. The grading process simply gives credit for all aspects of the protection and suppression system that the locality currently has in place (Granito, Ed.D. & Hickey, Ph.D., 1999). After the evaluation is complete and a grade is assigned, the locality will receive a notification letter identifying the new rating. ISO will also provide a classification details, improvement statements, as well as a hydrant-flow summary sheet ("The PPC Evaluation Process", 2006). The details of the classification summarize each category of the evaluation and show the total points that the locality earned. Improvement statements that are received will show what improvements are needed to receive the maximum credit for the specific item in the grading process ("The PPC Evaluation Process", 1996). After a review is complete and the locality has received their final score it is up to each individual department to determine whether or not they are going to take the appropriate steps to try and better there score when they proceed with another ISO rating process.

Fire departments across the United States are constantly striving to improve their services to the public for which they serve. A series of measurements that the organization's various publics or customers can accept as realistic and standard. May (2003) said that "this standard

must convince the public and its officials that tax dollars and funding that a department requests reflect superior service and value” (p. 28). There are many actions that can be taken by departments to measure and evaluate their effectiveness in their overall operations. The ISO PPC program is one tool that departments and localities can utilize to assess their individual progress and how they rate according to one outside agency. The PPC evaluation exists for more than 46,000 fire protection areas and recognizes the efforts of communities to provide their citizens and property owners with fire protection services (Waters, 2008). Departments seeking an improvement in classification may be looking for a thorough review and evaluation through ISO. Departments across the country are constantly looking to the ISO for an evaluation process to improve their ratings based on advancements they have strived to achieve through the criteria of the ISO PPC rating process.

Certain departments across the country have had great success improving their ISO ratings. In Springdale, Arkansas the locality added a secondary means of dispatching firefighters to their communications center and upgraded the primary dispatch circuit to fully meet the intent of NFPA 1221 for Monitoring for Integrity (Waters, 2008). The department added another elevating platform ladder company to their in-service apparatus and increased their on duty staffing. They also joined with neighboring departments to share the overall cost and resources for a new burn building and drill tower. These changes resulted in an improved ISO rating from a class 3 to a class 2. In Hagan Township, Indiana, the community which previously had no municipal piped water system, installed water mains and hydrants (Waters, 2008). The department there added equipment to the engine company and also enhanced its training program. These changes resulted in an ISO rating change from a class 10 to a class 7. The Clever, Missouri fire department added service company and engine company equipment and

carried and implemented pump testing (Waters, 2008). The community added a 300,000 gallon elevated water tank and replaced most of its water mains and all of its fire hydrants. Chief Louis LaVecchia of the Milford Connecticut Fire Department spent years trying to improve their ISO class rating from a 3 to a 1. The fire department and the water authority had to coordinate and work together to achieve this rating change. The town's water authority made some innovative changes to help move the Milford fire department from a Class 3 to a Class 1 ISO rating (Galvin, 2007). The Honesdale, Pennsylvania Volunteer Fire Department can thank its municipal water system in large part for a Class 5 ISO rating. Galvin (2007) said that "Honesdale does not have direct control over its water supply and had to work within a joint effort with its water authority to make the improvements needed" (p. 89). Honesdale also views ISO as a good way to measure the department's progress with improved fire protection (Galvin, 2007). While looking at options to improve services within communities, the cost to taxpayers to make those improvements must always be taken into consideration, especially in today's economic minded society. It should be noted that no costs were mentioned in the above examples of the improvements that were made by those departments to improve their ISO ratings.

While ISO has been evaluating and assigning grades to departments all across the United States for more than thirty years, there are some departments that feel that the ISO rating process is outdated or a waste of time. Accreditation standards and IFCAS classification systems are newer forms of outside agencies taking a subjective look at local departments and their capabilities. Oklahoma City Fire Department will not ask for another ISO inspection. Instead they are considering spending thousands of dollars on an IFCAS classification process. Oklahoma City Fire Chief Kellie Lee thinks it better evaluated the department and their capabilities and helps set goals when they go through that process (Surette, 2009). Some critics

say the ISO has fallen behind the times by not awarding credit for new technologies being used and does not take into account communities' individual characteristics (Gentile, 2008). The Bigfork, Montana, Volunteer Fire Department trained extensively to prepare for an ISO evaluation. After the evaluation the department was given a split rating of 6/8. The Class 6 rating was an improvement for the downtown area but the Class 8 remained the same for the rest of the city. When Fire Chief Chuck Harris asked the ISO what the department could do to lower residents' premiums, he was told to purchase smooth bore nozzles for their fire hoses, item's his department considers obsolete (Gentile, 2008). Chief Harris stated that to improve the Class 8 rating would require an outlay of money for equipment that would never get used. Gentile (2008) stated that fire departments train personnel for all types of emergencies, including car wrecks, medical assists, and landing helicopters, but the ISO rating system gives no credit for anything except fire suppression. In Minnesota the Roseville Fire Department held an ISO Class 3 rating. A Class 3 rating was the highest rating earned by any department in Minnesota. After hiring a new chief in 1999, the department undertook the process to try and improve their rating to a Class 2. Gasaway (2003) said that in a conversation with one ISO official "we learned that the benefit of becoming a Class 2 city would come by way of a 2-3 percent savings in insurance premiums for our commercial, industrial, and retail properties" (p. 12). The department identified areas in which to improve their rating including, increasing on-duty staffing, increasing training programs, improving dispatching and documentation of department activities and ensuring the water system was up to ISO standards. After a two year effort put forth by the department they were evaluated by the ISO in 2001. When the score was finalized the department was given a final score of 79.36. To become a Class 2 city they would have needed a score of 80. Gasaway (2003) stated that they made a presentation to their city council to invest

some money in the department to help them get to a Class 2 rating. The council wanted to know what the insurance savings could be for the businesses in their town. An ISO official could not answer that question and suggested they contact an independent commercial insurance underwriter and have them check with local companies. The findings of the underwriter were that there would be no change in insurance premiums for any businesses in the Roseville district. The Roseville chief noted that their effort, time, and money to achieve a Class 2 rating were for not. Gasaway (2003) said “before you commit your department’s resources to improving your ISO rating, you may want to do some homework and you may learn...as we did...it really wasn’t worth the effort” (p. 13).

Another factor becoming more prevalent in today’s economy is how layoffs will affect ISO ratings. Fire departments are considering where to cut money out of their operating budgets. The largest expense to any operating budget is salaries. In Fall River, Massachusetts layoffs could play into their ISO rating which is currently a 2. The Fall River fire chief noted that it was unsure how many layoffs their department was facing but to enter into an ISO process at this time would jeopardize their current ISO rating of Class 2 (Dion, 2009). He stated that with fifty percent of an ISO rating coming from the consideration of manpower that the city and their insurance premiums could be greatly affected by the layoffs.

ISO is a term that not many people, especially firefighters, are familiar with. Festa (2004) received feedback from more than 90 firefighters, line officers, and chiefs. Only one-fifth considered themselves familiar with the PPC program, and only a third knew their own department’s PPC number. These findings were conducted in upstate New York on a small survey of seven departments. For an organization to be as large as ISO, these numbers can have a negative impact on how their rating is received within departments. The ISO’s own

commissioned survey of 501 fire chiefs nationwide indicated that only 87 percent of fire chiefs were familiar with the PPC program and only 76 percent of fire chiefs knew their department's PPC number (Festa, 2004). Festa (2004) said that "firefighters' may not understand how their everyday suppression tactics and training can lead to a lower ISO rating score for their department" (p. 128). He found that of the firefighters he surveyed that consider themselves to be familiar with the PPC program, more than three-fifths said that the program was generally only somewhat accurate. A chief officer would have a hard time achieving buy in from his department to obtain a lower ISO rating if three-fifths of his department didn't have full belief in the process that is being used to evaluate them. Festa (2004) noted that there was too much emphasis on water supply in the grading criteria. A department can improve their water supply score by entering into mutual aid agreements with neighboring jurisdictions. While this can improve their grade it doesn't address any substantive changes made within their own operations. All evaluation systems and processes are flawed and need to be updated periodically. Festa (2004) concluded that fire departments should lobby for changes that increase the accuracy and effectiveness of the PPC rating system, but this cannot be done without first increasing firefighter awareness and understanding of the program. The overall feeling, of the respondents to his survey, was that the criteria used in determining PPC ratings need to be updated and revamped.

Another important consideration in the ISO PPC process is to evaluate how insurance companies use the rating scale to set or not set insurance rates for both commercial and residential properties. Gage (2004) said that "the analytical information the ISO provides for property insurers combines sound actuarial analysis with engineering evaluations of fire loss mitigation programs" (p. 130). The insurance industry learned through large fire losses that it

was more profitable to insure structures in some cities while losing large amounts of money in premiums in other cities. The reason found was that some cities had better fire defenses than others. The NBFU was formed in 1889 to assist a segment of the insurance business in evaluating fire risk potential and a clearinghouse for developing fire insurance rates (Granito, Ed.D. & Hickey, Ph.D., 1999). Since that time, ISO was developed and is still in existence today to provide the insurance industry with an evaluation tool that they can access when determining commercial and residential rates for communities across the United States. Virtually all U.S. insurance companies-including the largest ones- use PPC information ("How PPC Info Affects Individual Insurance Policies", 1996). Insurance companies can use the information to identify opportunities for writing new business, reviewing loss experience in various rating territories, achieving a concentration of property risks, and pricing policies, coverage offerings, and to establish deductibles for individual homes and businesses. The methodology a company uses to calculate premiums for property insurance may depend on the company's fire-loss experience, underwriting guidelines, and marketing strategy ("How PPC Info Affects Individual Insurance Policies", 1996). In the past there could be significant savings for a property owner if there jurisdiction's ISO rating dropped even one Class rating. However in the past thirty years the trend has moved towards grouping rating classes together. Insurance companies are now grouping ISO PPC ratings together. Insurers realize that residential fires usually require less water and manpower to suppress than commercial structures require. Therefore, insurers group such properties by protection class to calculate insurance premium rates. For example, under ISO's homeowners program, one state's groupings may be PPC Classes 1 to 6, Classes 7 and 8, Class 9, and Class 10. Each grouping would have a different premium and those groupings can vary from insurance company to insurance company (ISO, 2002). In Roseville, Minnesota the

findings of an insurance underwriter was that there would be no cost savings for the residents by dropping to a Class 2 from a Class 3 because all the insurance companies that were contacted stated that all properties in a 1-4 classification were given the same premiums (Gasaway, 2003). In Clay County Florida, Knoff (2008) found that no insurance company provided data that showed any cost savings to residential or commercial property policyholders if the Clay County Fire and Rescue Department improved their ISO PPC rating from a Class 5 to a Class 4. On the contrary, Foulks (2007) found that an average 2% decrease in residential property insurance rates and a 1% decrease in business property insurance rates would take place if the Greenville, TN. Fire Department improved their ISO PPC rating from a Class 4 to a Class 3. While many factors contribute to insurance rates and premiums, the insurance industry has used the ISO PPC rating system for many years. Different departments have had different outcomes with their insurance rates in their localities through achieving lower ISO ratings. Some localities insurance rates remained unchanged, even though the fire department invested money and resources to achieve a lower rating. While other localities benefited from the initial cost of the ISO rating process that occurred when their department achieved a lower ISO rating.

Procedures

This research project utilized the evaluative research method to assist in answering the four research questions presented in the introduction. Literature related to the topic of ISO ratings and fire departments was reviewed in March of 2010 at the National Fire Academy's (NFA) Learning Resource Center (LRC) in Emmitsburg, Maryland by the author of this research project. Journals, previous applied research projects for the NFA, and fire magazines were all researched to assist the author in obtaining information pertinent to the topic of ISO ratings and how they have or haven't benefited fire departments and localities and also how the insurance

industry utilizes the ISO system in establishing insurance premiums. From March 2010 through April 2010 internet search engines such as goggle and yahoo were utilized to assist in searches using key words such as, but not limited to, ISO ratings, insurance and ISO ratings, fire department's ISO ratings, and benefits of ISO ratings.

Using the internet to obtain contact information, a phone call was made to the ISO Eastern Processing Center on March 17th, 2010. Kevin Bowman, an ISO representative, assisted the author with research question #1, what is involved in an ISO rating process? The interview lasted approximately 20 minutes and was facilitated by the lead question of, "what takes place during an ISO rating process for a fire department?" Mr. Bowman's answers have been used in the results section to assist with answering the first research question.

To evaluate research question #2, how have other departments benefited or not benefited from obtaining an ISO rating, a survey (see Appendix A), was utilized to question twenty-seven different department's from across the United States. The survey was developed by the author to include open and closed ended questions to allow for personal views on ISO ratings. On April 2nd, 2010, twenty-seven surveys were sent out using electronic mail to the other members, the author excluded, of the Executive Development class of the NFA for February/March 2010. The spacing across the United States was used in this survey to gain a thorough knowledge of how ISO ratings are utilized across a wide and diverse group of fire departments. Of the twenty-seven surveys sent out, twenty-five were returned to the author for evaluation.

The yellow pages of the Roanoke Valley was utilized to assist with identifying potential insurance companies to help in answering research question #3, how do insurance companies use ISO ratings in determining insurance rates? Three major insurance companies were identified for the Roanoke valley based on having the largest amount of agents that advertised selling

homeowners and commercial insurance. Nationwide, Allstate, and State Farm were identified to contact to obtain information in regards to how their individual companies utilize ISO ratings. Lee Griffith, a Nationwide Insurance agent, was called on April 7th 2010, at his office in Blacksburg, Va. Mr. Griffith was unsure how Nationwide used ISO ratings. After a ten minute conversation he gave the author the name and e-mail address for Betty Wooldridge, a Property Product Manager for Nationwide Insurance. A questionnaire (see appendix B) was electronically mailed to Mrs. Wooldridge on April 8th. The questionnaire was returned to the author on April 12th by Mrs. Wooldridge with all questions answered. On April 16th, 2010 a phone call was made to Roger Rakes, an Allstate agent in Salem, Va. Mr. Rakes was not available, however a support specialist named Betty Evans was asked if she knew how Allstate Insurance used ISO ratings in their rate structures. After a brief 10 minute conversation she stated that she would check with Mr. Rakes when he was available and obtain the information for the author. On April 19th, Mrs. Evans contacted the author by telephone and explained that Mr. Rakes was unsure of how they used ISO ratings. However he provided the phone number of Ann Mays who works for Allstate Insurance at a regional office in Fairfax, Va. Phone calls with messages left on April 19th, April 22nd, April 26th, and May 4th were never answered or returned. This left the author with no first-hand account of how Allstate Insurance uses ISO ratings in the premium rates. Brandon Semones, a State Farm agent in Blacksburg, Va. was selected out of the yellow pages to contact about how State Farm Insurance uses ISO ratings in their premium rate structure. Mr. Semones was contacted on April, 21st 2010 by phone at his office. A twenty minute phone conversation took place. The findings of that conversation are discussed in the results section.

During the research some limitations were noted. Of the three insurance agents contacted only one had direct knowledge of how their respective companies use the ISO ratings. Two of the agents had to refer the author to other personnel within their company. Mr. Rakes' referral to Mrs. Evans in Fairfax, Va. led to the author not obtaining any relevant information as to how Allstate Insurance uses ISO ratings.

Results

The first research question pertaining to obtaining an ISO rating and the process that it involves was answered by Mr. Kevin Bowman in a phone conversation on March 17th, 2010. K. Bowman (personal communication, March 17, 2010) stated that to begin an ISO evaluation the Chief of the fire department must fax or mail a letter to the ISO office stating that they would like a formal evaluation conducted of their department. After the notice is received by ISO they will mail out a pre-survey package to the requesting department. The pre-survey package would consist of three separate packages. The three packages cover fire alarms, the fire department, and water supply. Within each package would be questionnaires that would have to be completed and returned to the ISO office. Upon ISO receiving the packet they would then send a field representative to the requesting department for a field review. K. Bowman (personal communication, March 17, 2010) stated that because of the size of the RCFRD that the field representative would review the last three years worth of hose test, pump, and training records so that the RCFRD wouldn't have to mail them in. Being a combination department the volunteer and career call reports would also be used in the evaluation process. After the field representative completes the on sight review, they return to their office to complete the rating and assign a grade or a split grade for the department. It was also noted that there is no cost to

the requesting department for an official ISO survey to be conducted. Once the grading is done the ISO representative will mail the department there final review and ISO rating.

The results for research question #2 were obtained from the information that was obtained through a survey the author conducted. Of the 25 returning surveys a broad range of different size departments was reached. Five departments ranged in size from 0-50, 5 from 51-100, 5 from 101-150, and 10 departments were larger than 150 personnel. The ISO ratings of the 25 departments were diverse as well. Ten departments rated from a 1-3. Ten rated from a 4-6, and five rated from a 7-10. Eighteen departments were all career, four were combination, and three were all volunteers. The average year of the last ISO assessment for all 25 departments was 1996 with two departments not having been evaluated since 1987. Eighty percent of respondents stated that their departments' currently don't have plans for an ISO review in the near future. When asked if their department budgeted for ISO improvements on an annual basis, 92% said that they don't budget for specifically for things that could improve their ISO rating. Seventy-six percent of respondents stated that their department does advertise their current ISO rating. Methods of advertising consisted of it being listed on the department's website, in literature that can be handed out by the department, and by listing the rating on signs that are posted outside individual stations. The last question of the survey generated the most opinionated response of the survey. Eighty-eight percent of respondents didn't feel that an ISO rating process is beneficial to their department. Among reasons listed were that ISO uses old standards, insurance companies are using risk based analysis, and that most constituents within localities don't understand what ISO is and what it means to them. Several respondents stated that a lower ISO rating will only affect commercial insurance rates if the jurisdiction has a large commercial structure base. However to obtain those lower ratings three respondents stated that

the cost to obtain those ratings would be well over 100,000 dollars, for equipment that all three felt was outdated. Of the 12 percent that stated the ISO was beneficial the reasons given were due to budget cuts any outside evaluation process that can take place within a department can be beneficial to help obtain funding. Also it was stated that the ISO criteria can provide a good benchmark for overall department operations that the department can strive to reach on an annual basis.

In response to research question #3, results were obtained through an electronic mail questionnaire and telephone conversations with various insurance representatives. In response to an electronic mail questionnaire that was received on April 12, 2010, Betty Wooldridge supplied information as to how Nationwide Insurance currently uses ISO ratings in their premium rate structure. In response to the question of does your company use ISO ratings for establishing residential and commercial insurance rates, the answer was yes. B. Wooldridge (personal communication, April 12, 2010) stated that utilizing the ISO classification system is a vital component in the rating of homeowner policies. Other factors are also used by Nationwide including construction type, miles to a fire station, and if there is an alarm system present. She stated that Nationwide does currently group rates together. "However with the availability of geocoding technology and improved accuracy and efficiency in obtaining protection class rating, we anticipate fewer rating groups in the future" (B. Wooldridge, personal communication, April 12, 2010). When asked about a significant cost savings as it relates to lowering ISO ratings, it was noted that it depends on the rating. Nationwide groups everything ISO rated 1-8 together. There is no varying rate difference if a locality falls anywhere between a 1 or 8 rating.

On April 21st, 2010 Brandon Semones was interviewed by phone to gain a State Farm perspective on ISO ratings and insurance. When asked how State Farm utilizes ISO ratings, Mr.

Semones stated that State Farm no longer uses ISO ratings in the rate premium process. Actual insurable losses within a given zip code have proven to be a truer indicator of potential losses for State Farm. B. Semones (personal communication, April 21, 2010.) stated that fire is only a small portion of claims that are involved with residential and commercial insurance. Other factors including water damage, wind damage, and personal liability, are great factors for claims than fire damage. Mr. Semones was unsure how long State Farm hadn't been using the ISO rating system. Numerous attempts were made to contact Allstate Insurance to see how they utilized ISO ratings. However those attempts resulted in no information being obtained from Allstate in regards to this research project.

Discussion

ISO has been in place and used by a wide variety of fire departments and insurance companies for many years. There were different ways found during the research of this project to initiate a formal ISO rating process. According to ISO (2002), communities with populations of 25,000 or more are evaluated every 10 years, and communities with populations under 25,000 are evaluated every 15 years. This was in contrast to K. Bowman (personal communication, March 17, 2010) stating that to begin a formal process the chief of the department must fax or mail in a letter stating that the department would like to have an official ISO rating take place within their department. This way of beginning an ISO process seemed to be backed up by the data obtained through the survey conducted with other departments. With the average year of a last assessment being 1996 this would appear that each individual department must contact ISO to begin a rating process and not rely on the ISO organization coming into their department every 10 or 15 years. Nothing was found in the research or literature review about past records that are kept for training, hose testing, and hydrants. However K. Bowman (personal communication,

March 17, 2010) noted that the ISO field representative would review the last three years worth of records for training, hose testing, and hydrants. A major positive to the ISO process is the cost. K. Bowman (personal communication, March 17, 2010) stated that there is no cost to the requesting department. A study would have to be conducted to see if overtime would be needed by the RCFRD to assist with the questionnaires and paperwork that go along with an ISO process.

Many fire departments across the United States have benefited from an ISO process. Waters (2008) cited many examples of departments from Springdale, Arkansas to Hagan Township, Indiana that were able to improve their ISO rating. These departments were able to work through issues that had prevented them from gaining a lower rating. Through years of work and support they were able to lower their ratings. However in the research there is no record of the costs that were absorbed by the departments to make these changes. Nor was there any information found as to how these changes affected the localities insurance rates.

While there was research that showed the benefits of obtaining a lower ISO rating, there seemed to be more literature and research that showed that the ISO process may be outdated and not an up to date review of a department's capabilities. The survey that was conducted seemed to back up this research. Eighty-eight percent of respondents felt that the ISO process is not beneficial to their departments. Reasons for this ranged from ISO using outdated standards, insurance companies going to a more risk based analysis, and that people don't understand the ISO process and what it means. These answers to the survey were found in other's research as well. Gentile (2008) stated that fire departments train personnel for all types of emergencies, including car wrecks, medical assists, and landing helicopters, but the ISO rating system gives no credit for anything except fire suppression. Festa (2004) received feedback from more than 90

firefighters, line officers, and chiefs. Only one-fifth considered themselves familiar with the PPC program, and only a third knew their own department's PPC number. "Before you commit your department's resources to improving your ISO rating, you may want to do some homework and you may learn...as we did...it really wasn't worth the effort" (Gasaway, 2003, p. 13). It appears through the literature review and the research the author conducted that the majority of fire department's don't consider an ISO process to be a modern day method of evaluating a department's overall effectiveness.

Insurance companies were also reviewed and researched to determine if they still utilize ISO ratings in setting rates for their commercial and residential homeowners. It appears through the research that most insurers now group ISO ratings together. In Roseville, Minnesota the findings of an insurance underwriter was that there would be no cost savings for the residents by dropping to a Class 2 from a Class 3 because all the insurance companies that were contacted stated that all properties in a 1-4 classification were given the same premiums (Gasaway, 2003). In Clay County Florida Knoff (2008), found that no insurance company provided data that showed any cost savings to residential or commercial property policyholders if the Clay County Fire and Rescue Department improved their ISO PPC rating from a Class 5 to a Class 4. These examples were backed up from information obtained from Betty Wooldridge of Nationwide Insurance. B. Wooldridge (personal communication, April 12, 2010.) stated that Nationwide Insurance groups everything rated 1-8 together. With Nationwide Insurance there is no cost savings by obtaining a better rating anywhere between a rating of 1 to 8. No information was obtained from Allstate Insurance and State Farm doesn't even utilize the ISO system anymore for its insurance rates.

The author feels that based on the research and review that was done for this project, that there would be little benefit to the citizens of Roanoke County in repeating an ISO process. In 1992 a split rating of 5/9 was obtained by the RCFRD. Since that time improvements have been made, such as staffing, and upgrades to the water supply. However the citizens are already receiving these benefits. Only the changes might affect the ISO rating of the RCFRD. Through the research it appears that little or no change would occur with the insurance rates for the citizens. The ratings that are grouped show that there would be no benefit to the citizens that are currently living in a class 5 rated area. The areas of the county that are currently rated a 9 would need to be researched to see if their rating could improve. However, the changes that have been made by the RCFRD such as staffing and water supply haven't affected the more rural areas of Roanoke County. A comprehensive study would have to be conducted to find out what exact changes would have to be made to lower the class 9 rating. No new stations have been built in the areas that currently rate a 9 so those citizens rated distance from a fire station wouldn't change with a new study.

Recommendations

While fire departments across the United States prepare budgets and cost proposals for their services, they are constantly looking for outside means to be evaluated. The ISO PPC rating process has filled that role for many years. However, after extensive research and literature review, the author would recommend to the RCFRD to seek alternative ways to evaluate their preparedness and response capabilities. The author found that many departments' believe that the ISO process is outdated and hasn't kept up with modern technology and means of a department's capabilities. Insurance companies appear to be moving more towards a risk based analysis for their rate structures. Fire loss appears to be only a small portion of claims that

insurance companies pay out. Further research would be needed to identify what would have to be done in order to lower the current 5/9 rating of the RCFRD. A comprehensive cost analysis would have to be completed after that research to determine the overall cost to lower the current rating. The citizens would benefit little, if any, from an insurance perspective with a lower rating. While change is implemented and the RCFRD grows, the citizens already receive the benefits that have taken place and been implemented since 1992. In these times of proving their operational readiness, the author feels that the RCFRD should look for other modern means of evaluating their department's effectiveness and preparedness.

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Appendix A

Fire Department Survey

1. What is the size of your department?
 - A.) 0-50
 - B.) 51-100
 - C.) 101-150
 - D.) 150+
2. If your department has a current ISO rating, what is it? If you have a dual rating, please use the highest rating.
 - A.) 1-3
 - B.) 4-6
 - C.) 7-10
3. When was your last assessment?
4. Does your department currently have plans for a future ISO assessment to try and obtain a lower rating?
5. Does your department budget annually for things needed to obtain a higher ISO rating?
6. Do you advertise your ISO rating on your trucks or department literature so that the public can regularly see it?
7. Do you feel an ISO rating and process is beneficial to your department, why or why not?

Appendix B

Insurance Questionnaire

1. What is the name of the company you work for and what is your position there?
2. Does your company still use ISO ratings for establishing commercial and residential rates?
3. If you answered yes to #2 how much of a factor do the ratings play in establishing rates?
If you answered no to #2 can you briefly describe how you establish rates and why do you not use ISO ratings?
4. Do you group ISO ratings together in your rate structure?
5. Is there a significant cost savings as they pertain to insurance rates when the ISO ratings of jurisdictions are lowered?