

AFFIDAVIT

My name is Sherry Medina. I am a poultry inspector with the United States Department of Agriculture (USDA) Food Safety Inspection Service (FSIS). I am submitting this affidavit freely and voluntarily to Alyssa Doom, who has identified herself to me as an investigator for the Government Accountability Project (GAP). This statement evidences my concern over the impact of chemicals used in some poultry processing plants on plant employees and inspectors.

I have been an FSIS inspector for 16 years. I worked for FSIS for 10 years before resigning in 1999. I returned to FSIS as an inspector in 2006. My duties in this position include performing ante-mortem and post-mortem inspections of poultry carcasses to ensure they are free of infections or abnormalities and safe for human consumption; inspecting the overall sanitation of processing facilities; inspecting the handling of products to enter commerce; preparing daily reports about poultry passed for food or retained and disposed of; and generally ensuring that inspection requirements are met. As an inspector, I am also responsible for exercising judgment in the full range of slaughter inspection processes.

As a result of my quality work in the inspection industry, I earned an award for ten years of successful appraisals. I have also been appointed a Union officer for the Southern Council of Food Inspection Locals, #2357. Here, I work on women's rights issues within my government sector. I was also the president of an Inspector's Union

in Georgia for two years.

With 16 years of experience in the poultry industry, I understand the extent of the harmful effects that the chemicals used in poultry plants have on plant workers and inspectors. I have personally experienced an abundance of health problems as a result of my exposure to these chemicals, many of which have had very serious negative impacts on my lifestyle, which will be further detailed throughout this document. My observations below are based on my experiences in three poultry plants.

1. Gold Kist Plant(now Pilgrim's Pride),Ellijay, GA, 2006-2009

In 2006, I began working at the Gold Kist poultry processing plant in Ellijay, GA. During my initial years with FSIS, I was never sick, did not have asthma, and only saw a doctor for annual check-ups. I began getting sick within three weeks of starting work at this facility, but continued working because I was in a probationary period. This is a period that lasts for one year after an FSIS employee is hired or reinstated. I soon realized that six other inspectors in the plant were also very sick.

In this plant, the company used a machine called a "Sanova birdwasher", which sprays birds with a chemical that is unknown to me. For safety, there is supposed to be ventilation directly above this machine to allow the chemicals to leave out of the ceiling. However, the plant failed to install this ventilation system when they began using the birdwasher. This caused the chemical to stay inside the



plant where inspectors and plant workers breathed it in. In addition to the product used for the birdwasher, other chemicals were being used in the plant for a system that recycles water. This system mixed many chemicals into the dirty water to purify it and send it back out to be reused. The cleaned water is called "ozone" water.

I believe that the mixture of these chemicals created serious health problems for me and my fellow inspectors, including upper respiratory problems such as shortness of breath, tightness in the chest, and difficulty breathing; burning and irritation of the eyes, nose, and throat; and coughing and sneezing. Some of the inspectors were experiencing other health problems such as strep throat, bronchitis, and the onset of allergies.

After identifying what seemed to be a link between our health problems and the chemicals, I filed a 4791 form March 2006. This is a standard report that FSIS uses to document alleged health or safety hazards in the plant. When an inspector files a 4791 form, the inspector's supervisor is supposed to address the problem with the company and subsequently provide a response to the claim. However, my claim was not addressed in a timely manner and my higher-ups claimed they never received it. When they did later admit to receiving it, they claimed there was no funding to handle the problem.

After there appeared to be no response to the claim, I sought help from Stan Painter, the Chairman of the inspector's union, the National Joint Council of Food Inspection Locals. Mr. Painter

contacted the Environmental, Health, & Safety Branch of FSIS to inform them that 20 out of the 22 inspectors at the plant were experiencing health problems stemming from the unsafe use of chemicals by the plant.

After approximately six months, FSIS acted on the complaint. They sent Daniel Smigal from the FSIS headquarters in Washington, DC, to evaluate the plant. Mr. Smigal is an Industrial Hygienist for the FSIS.

Mr. Smigal set off a smoke bomb in order to evaluate the facility's ventilation system. The smoke from the smoke bomb lingered around the three lines of the building where the inspectors sat, indicating that there was hardly any ventilation in those areas of the plant. In their evaluation, they also found that chloroform gas was lingering on the stands and around the heads of inspectors. The results of this evaluation clearly demonstrated the problems with the ventilation system in the plant. A report on the evaluation is attached.

After the inspection, it took the plant about a year to fix the problem. They tried to fix it by installing a large fan at the end of the inspection line to pull the gases from the chemicals toward the walls and outside. The problem with this solution was that the location of the fan was such that the inspectors walked right through the supposed exit path of the gases on their way into the plant each day. Thus, their plan to eliminate the problem was unsuccessful.

In my experience at the Gold Kist plant, I found that companies do not evaluate the chemicals they use, nor do they evaluate the impacts of these chemicals on the people who work in the plant. Instead, the companies hire maintenance people evaluate the chemical balance in processing facilities. I do not believe these contracted maintenance workers have the expertise to conduct these evaluations.

While in Ellijay, I saw a doctor for my health problems. The doctor sent me to a lung specialist who concluded that my lungs were only functioning at 32% of their capacity. I continued to go to the doctor and was subsequently diagnosed with asthma. I remained in Ellijay from 2006 until 2009, when I was transferred to the Tyson Foods processing plant in October 2009. I remained in the Tyson Plant from October 2009 until April 2010. I was then briefly transferred to the Wayne Farms plant in 2010.

2. Wayne Farms, Albertville, AL, April 2010 - July 2010

At Wayne farms, another poultry processing plant, I did not experience the health issues I had at the plant in Ellijay. During my time here, my health improved. This plant did not use any chemicals other than chlorine, which was mixed with the water in the chill tank. The chill tank is a point at the end of the processing line where chickens are immersed in a large vat of a chlorine-water mixture to chill the carcass.

The reason this plant uses fewer chemicals is that they use a system called "offline reprocessing" to clean the product. In this

process, when inspectors identify fecal matter on a carcass, they have their helper take the carcass off of the processing line and send it to the reprocessing center to be physically cleaned. The alternative to this process is "online reprocessing." In online reprocessing, all of the birds going down the line are sprayed with chemicals which are intended to sterilize fecal matter and wash it off the carcass. This process requires the use of many chemicals, including peracetic acid (PPA). Peracetic acid is used in the plants as a disinfectant and has the potential to cause skin, eye, and respiratory problems. Repeated exposure to this chemical may cause serious health problems, as can be demonstrated by my experience at the Tyson Farms plant.

3. Tyson Foods Plant, Albertville, AL, October 2009 - April 2010;

July 2010 - Present

Shortly after beginning work at Wayne Farms, I was transferred back across town to the Tyson Foods plant. Initially, my health problems were minimal, but they became progressively worse following the implementation of a new process which utilized the chemical paracetic acid. I am certain that these problems can be attributed to the plant's consistent, heavy use of this product, which began in July, 2011.

By August, 2011, I had developed a cyst behind my sinus cavity, which grew quickly. I had to get the cyst removed in October, and continued going to the doctor three times each week for problems related to the cyst. I could not breathe in the plant. Other

inspectors were also getting very sick, and many of us filed 4791 forms.

Due to the severity of the health problems people were experiencing, the plant brought officials from the Tyson Foods headquarters in Arkansas to evaluate the plant's operations. Because this plant was built in the 1950's, it had a limited capacity to ventilate the new chemicals that the company had begun using. Following the evaluation, they installed one fan in the south end of the plant to push air out of the building. They also took all of the fans used for circulating air from behind the inspectors and placed them on the North end of the building, directing them to blow air toward the South end of the building, where the chemicals were to be pushed out by the fan installed there. They claimed to have spent a lot of money to get the system fixed, but the plant's conditions did not improve. Instead of pushing the chemicals out, the fans rotated them around the inspectors.

Around August 2011, the plant started using the cleaning solution Pinesol in the offices and hallways. They did not have any ventilation in the places where they used this product. One day, I went into the office at approximately 9PM and the cleaning staff had just finished mopping with Pinesol. When I entered the room, the chemicals in the Pinesol caused me to have an asthma attack, which resulted in two broken ribs. I had to go to the ER, where I received 6 shots to open my airway back up.

I do not think Pinesol should be used in plants because it is a chemical cleaning solution and could be tracked by the inspectors' feet back into the area where the product is being processed. It is also dangerous in that it may cause health problems for people who are sensitive to these products, such as myself. On several occasions, I asked the plant to change the chemicals they used to clean. It came to a point where the staff would only use water to clean when I was there, but would continue to use the Pinesol when I was not.

The company also brought in 409 cleaning solution to clean the hardhats that inspectors wear. I am highly allergic to the chemicals in this solution. I think that the agency should provide some type of unscented wipe to clean the hats with instead of using 409. Inspectors should not have to provide their own cleaning items in the offices because people do not know who is allergic to what.

By December of 2011, I became so sick that I had to leave the plant. I then filed for disability, and was sent to a lung specialist. In January 2012 I ended up in the hospital for five days. During this stay, the medical staff washed out my lungs to remove bacteria. I then tried to go back into the plant, but couldn't breathe again as soon as I walked in.

Now I have been out of work for almost one year and am on disability. In addition to asthma, I have developed bursitis in my legs and hip, arthritis in the joints of my hip, and have to sleep with an oxygen tank every night. From August, 2011 to March, 2012, I

was on antibiotics to help with my health issues that stemmed from my work in the plant. As a result of the severe episodes of coughing caused by my asthma attacks, my bladder was torn. On September 6th, 2012 I had surgery to fix my bladder, which involved a hysterectomy. As a result of my health problems, I currently take approximately twenty medications per day. My doctor continues to warn me about the dangers of returning to work in the plant.

Many of my fellow inspectors have told me that they are experiencing health problems similar to mine. These symptoms include upper respiratory infections, sinus infections, eye irritation, and eye dryness. The doctors say that more and more people with the same symptoms as me are coming to them from the Tyson Foods plant. Recently, two inspectors had to be hauled out of the plant by ambulance due to health emergencies stemming from exposure to chemicals. Some people do not want to admit that they are feeling sick and go to work anyway. They do this because they know that if a plant employee is sick and out of work for six days in one year, they will be fired.

In the end of 2011, a plan was finally implemented to evacuate inspectors from the line when chemicals became too strong. Doctor Wesweber, an employee from the FSIS District Office in Jacksonville, MS, said that if the chemicals were so strong that people couldn't breathe that they needed to evacuate the plant until the chemicals in the air cleared. Inspectors are able to evacuate when this happens but

employees are forced to remain inside the plant.

I have written numerous safety reports and nobody will do anything about them. Even when other inspectors write reports for the same problems, no action is taken. Our supervisors tell us that they only need one inspector to fill a report out and they do not need everyone to file a report on the same issue. Filling out reports should not be left to one inspector because it is a rule that everyone must document any noncompliance they encounter. This is because if they become ill as a result of the noncompliance, they can refer to their previous report to verify that the problem was documented, giving them the ability to receive Workman's Compensation. If these reports are not filled out, the FSIS will try to fight employees on receiving these benefits.

Because of my health problems, I have applied for early retirement. If I am not offered a retirement plan, I have the right to return to work. However, I know each time I enter the plant, I am shortening my life. My doctor asked me whether the money is worth my life, and I do not think it is. When I asked my work supervisor for accommodations at the plant, I was told none could be made. I was also told I could not be sent to a plant that does not use similar chemicals because there are very few that do not use the same system as the Tyson Foods plant.

I am very concerned about the health impacts of the chemicals used in poultry processing on plant employees and inspectors. As a

Union Officer, I will continue to fight for a change in the use of chemicals in poultry processing plants and will encourage my fellow inspectors to do the same.

I, Sherry Medina, have reviewed this statement of 11 pages and hereby declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief. Dated this __ day of December, 2012.

Sherry Medina
(Signature)

Sworn to and subscribed before me this 17th day of December, 2012.

My Commission Expires June 1, 2014

Charles R. [Signature]
(Notary Signature)

**Industrial Hygiene
Evaluation Site Visit
Establishment P-40
Pilgrim's Pride, Ellijay, GA**

August 27-29 2007

Daniel Smigai, Industrial Hygienist

**Food Safety and Inspection Service,
Office of Management,
Office of the Chief Human Capital Officer,
Workers' Safety and Health Division,
Environmental Health and Safety Branch**

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I. Executive Summary

On August 27-29, 2007, an Industrial Hygiene Evaluation Site Visit was conducted at Establishment P-40, Pilgrim's Pride, Ellijay, GA by Mr. Daniel Smigal, Industrial Hygienist, Food Safety and Inspection Service (FSIS), Office of the Chief Human Capital Officer (OCHCO), Workers' Safety and Health Division (WSHD), Environmental, Health & Safety Branch (EHSB). The visit was requested by the Front Line Supervisor (FLS), Mr. Mike Phillips.

The EHSB discussed with the FLS and the Inspector in Charge (IIC), Dr. Dava Rossom the need to identify the source for repeated inspector complaints of irritation while working in the plant. The EHSB was contacted in early March by Mr. Stan Painter, Chairman, National Joint Council of Food Inspection Locals and informed that inspection personnel in the establishment were experiencing irritation from the use of ozone. The EHSB contacted the FLS and the IIC to address the irritation complaints. The EHSB received nineteen FSIS 4791.27 "Report of Alleged Safety or Health Hazard" forms for the months of June and July, and were informed that additional forms were completed during August that would be forwarded to the EHSB. Of the twenty two FSIS line inspectors located at the facility, twenty have varying complaints of irritation. The inspectors reported experiencing respiratory problems including shortness of breath, tightness in the chest, labored breathing, as well as burning eyes, nose, and throat, coughing and sneezing. Several inspectors indicated an increase in illnesses, such as bronchitis, allergies, and strep throat since beginning to work at the facility.

The investigation involved a walk through survey of the facility, air sampling, and interviews with FSIS personnel in the establishment. Each of the samples taken were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.1 parts per million (ppm) as a Time Weighted Average (TWA) for ozone and 1 ppm as a Ceiling (C) limit (not to be exceeded at any time) for chlorine.

During the investigation, several sources of chemicals were identified that have the potential to become airborne and adversely affect the health of inspection personnel, as well as ventilation issues. The potential formation of irritating compounds or high concentrations of chemicals could be reduced through improvements to the air flow and through covering of the open floor drains. Better process controls within the plant would help in reducing the formation of undesired, irritating disinfection by-products.

Mr. Smigal conducted a close out meeting with the following representatives of Pilgrim's Pride: Complex Manager, Mr. JD Reece, Evisceration Unit Manager, Mr. David Stanley, Second Process Unit Manager, Mr. George Ralston, Quality Assurance Manager, Ms. Patricia Jabaley, and the HACCP Coordinator, Mr. Rob Adkinson. Also present representing FSIS were the FLS, IIC, First Shift Lead

Consumer Safety Inspector (LCSI), Mr. Ron Dotson, and Consumer Safety Inspector (CSI), Ms. Gail Cross.

Mr. Smigal presented his findings and recommendations to the plant personnel, and answered questions concerning sampling chemicals in the air. The plant personnel responded positively to Mr. Smigal's findings and agreed to consider several recommendations. Mr. Smigal provided the following recommendations for consideration and presentation to the establishment:

- the open floor drains collect effluent from a number of chemical interventions. The airflow design draws the air across the floor drains past the inspection personnel. Floor drain covers were recommended to reduce the potential off gassing of chemicals into the air.
- revise their method of introducing chlorine into the chiller, as the current arrangement may increase the release of chlorine into the air.
- when collecting air samples, collect the samples within the breathing zone of the individual, rather than one to two feet from the ground,
- consider redirecting the personal comfort fans to reduce dead air spots and re-circulating air and,
- consider installing shielding to reduce overspray from the IOBW's;

II. Introduction

On August 27-29, 2007, an Industrial Hygiene Evaluation Site Visit was conducted at Establishment P-40, Pilgrim's Pride, Ellijay, GA by Daniel Smigal, Industrial Hygienist, FSIS, OM, OCHCO, WSHD, EHSB. The purpose of the survey was to investigate FSIS inspector complaints of irritation believed by them to be from exposure to airborne ozone and chlorine.

The EHSB would like to acknowledge the following individuals who either participated in or contributed to this survey; Mr. Mike Phillips, FLS, Dr. Dava Rossom, IIC, Mr. Ron Dotson, First Shift LCS, Ms. Gail Cross, CSI, Dr. Hillert, Night Shift Public Health Veterinarian (PHV) Supervisor, Lucy Baliles, Second Shift LCS, Mr. JD Reece, Complex Manager, Mr. David Stanley, Evisceration Unit Manager, Mr. George Ralston, Second Process Unit Manager, Ms. Patricia Jabaley, Quality Assurance Manager, Mr. Rob Adkinson, HACCP Coordinator, Mr. Johnny Zarnich, Water Recondition Plant Manager, Mr. Jeff Allen, Maintenance Supervisor, and Mr. Van Phillips Maintenance.

III. Background

The EHSB was contacted in early March, 2007 by Mr. Stan Painter, Chairman, National Joint Council of Food Inspection Locals and informed that inspection personnel in the establishment were experiencing irritation from the use of ozone. The EHSB contacted the FLS and the IIC to address the irritation complaints. The EHSB received nineteen FSIS 4791.27 "Report of Alleged Safety or Health Hazard" forms for the months of June and July, and were informed that additional forms were completed during the month of August and would be forwarded to the EHSB. The majority of the twenty two FSIS line inspectors located at the facility have varying complaints of irritation. The inspectors reported experiencing respiratory problems including shortness of breath, tightness in the chest, labored breathing as well as burning eyes, nose, and throat, coughing and sneezing. Several inspectors indicated an increase in illnesses, such as bronchitis, allergies, and strep throat since beginning to work at the facility.

The symptoms appear to be more severe from working the night shift, although complaints have been received from day shift personnel as well. Based on phone conversations and emails with the IIC and the FLS, two primary suspected sources of irritation were identified.

- Chlorine use in the chillers might result in the off-gassing of chlorine compounds in the air.
- Ozone is used in the recycled water system, in the chillers and the inside outside bird washers (IOBWs).

IV. Facility Description

Establishment P40 slaughters and processes poultry Sunday through Thursday, across two shifts, beginning at 5:30 a.m. and 9 p.m. The duration of each shift varies depending on the volume of poultry to be slaughtered.

Poultry slaughter consists of three lines on the evisceration floor. Lines one and two have four inspection stations, and line three has three inspection stations. The lines run north to south with stations one on the north end. Line one is on the east side and line three is on the west side of the room. The picking room is to the east of the lines and the chemical interventions (IOBW's, Sanova Cabinets, and Chillers) are west and northwest of the inspector stations.

V. Site Visit Plan

The site visit consisted of the following:

- A walk-through of the establishment to observe general air flow patterns, chemical use, process controls, and other factors that could contribute to irritation.
- Air sampling to measure chlorine and ozone airborne levels using direct reading sampling equipment (Drager detector chips).
- Interviews with inspection personnel to gather more information regarding their health concerns and to answer questions.

In addition, guidance and information was provided to inspectors and supervisory staff in the following area:

- Review of procedures for detection with Drager air sampling equipment and interpretation of results. The inherent limitations in use of the sampling equipment were explained.

VI. Survey Findings

Employee Interviews

Two PHVs, two LCSIs, four CSIs, and twenty three Line Inspectors (LI) were interviewed to gather information on their reported health effects. Two day shift and one night shift LI's were out sick during the site visit and were not interviewed. Four of the LI's interviewed are intermittent relief inspectors. The air quality issues were reported by staff to be related to the use of chemicals in the water, primarily ozone and chlorine.

The reported symptoms and effects varied. The night shift personnel experience more frequent and pronounced irritation. Several employees have sought medical care after work hours for the alleged effects of the air quality in the work place. None of the employees have filed work-related Occupational Disease or Illness Claims (CA-2).

The IIC stated that she has experienced periodic irritation when providing relief at several stations, however she has not had to use sick leave or seek medical attention. The night shift PHV reported no irritation. The concerns have been documented on the FSIS Form 4791, Report of Alleged Safety or Health Hazard.

Several specific areas of concern were raised by the inspectors;

- A strong chlorine odor is sometimes detected. Irritation may occur with a chlorinic smell and may occur without an odor.
- The irritation appears to occur more frequently and strongly when the water re-use system is utilized by the plant.
- The establishment sometimes sprays quaternary ammonia on pieces of equipment to check for leaks, resulting in an odor and irritation.
- The MEYN Maestro system was installed February 2006. This involved moving the inspector line stations to their current position. Prior to February 2006, there were few if any irritation problems.
- The irritation was relatively intermittent and minor before May 2007, when the establishment installed a new de-humidification system.

Plant Evaluation

A walk through of the facility was conducted to review the general air flow, chemical uses, process controls, and any other factors that could contribute to irritation.

Ventilation

The ventilation in the evisceration area is designed to draw the air from the clean areas of the establishment to the dirtier areas. The set up in the evisceration area serves to draw the air across the chillers, Sanova rinse cabinets, IOBWs and the open floor drains before reaching the inspectors and exhausting into the picking room. The ventilation was altered in May 2007 to accommodate a new dehumidification system. This resulted in the blocking of several exhaust ports, which may affect the directional airflow.

The personal comfort fans located at each inspector station were identified as a potential contributing factor to the irritation. There are two to three fans located near each inspector station. In some areas fans are adjacent to one another and directing air in opposing directions. The varied location and directions of the fans may serve to re-circulate air and create stagnant air spots.

Chemical Use (Chlorine in the Chillers)

Chlorine gas is injected into the water stream and used as an anti-microbial in the chiller. Citric acid is introduced into the chiller as a pH buffer. Mr. Allen, the Maintenance Supervisor stated that the target pH is 6.5.

The pH was tested in each of the two small bird chillers and was 5.0. It was observed that the chlorinated water stream is introduced above the top of the chiller. It is questionable how thoroughly gaseous chlorine mixes in the water stream. Applying the chlorinated water above the chiller increases the likelihood of releasing chlorine into the air, and may potentially result in a waste of the chemical.

Chemical Use (Sanova Sprayers)

The poultry undergoes a final spray with Sanova prior to immersion in the chillers. Sanova utilizes acidified sodium chlorite, which converts to chlorine dioxide and is used as an antimicrobial intervention. This can be a source of irritation, and the EHSB has recommended that Sanova cabinets be installed with a dedicated local exhaust system. Mr. Smigal inquired of the establishment if the system had a working exhaust system and if so, how could FSIS ensure the ventilation is working. The plant manager informed Mr. Smigal and the night shift PHV that the Sanova cabinets do have a dedicated exhaust system, and the cabinets are programmed to shut the system off and alarm if the ventilation stops working.

Chemical Use (Ozone)

The establishment has installed a water re-use system that utilizes ozone to disinfect the water. This re-use water is applied in the chillers and on the IOBW's. Residual ozone remains in the water. The concentration will vary depending upon the water demand. The IOBW's are in close proximity to line three, and generate a great deal of overspray. The establishment periodically tests the air for ozone, and has found elevated [above 0.1 parts per million (ppm)] levels. Subsequent readings were lower, indicating that the OSHA PEL was not exceeded. The EHSB collected several ozone samples, one side by side with the establishment's device. The concentrations were well below the PEL. The readings with the two devices varied by 0.02 ppm, which is not uncommon.

Effluent Drains (Chemical Mixing)

The effluent floor drain from the chiller and IOBW's is near line three and was observed to be stagnant and not free flowing. Chlorinated and ozonated water and poultry matter (parts, blood, feces, etc.) may collect in the drain. Such collection and mixing of chemical and organic laden water could create irritating by-products which may off-gas into the air.

VII. Air Sampling Survey

Several chlorine and ozone samples were collected using a Drager Chip Management System (CMS) Analyzer. The CMS utilizes the reaction of an airborne contaminant with a reagent. The analyzer contains an electronic pump mechanism, microprocessor, optics, and software. The optics read the barcode on an inserted chip and menu-driven instructions for the test appear on the analyzer's LCD.

Each factory-calibrated chip is composed of 10 measurement channels (tests) that contain a chemical-specific reagent. Chip barcodes provide information such as gas type, measuring range, and test parameters to the analyzer.

The chlorine and ozone samples reflected concentrations below the OSHA PEL. The results are listed on the following table.

Air Monitoring Results Table					
Date	Time	Location (Station #)	Type	Chip (ppm)	Notes
Aug 27	2245	Line 3, St# 3	Ozone	0.023	Irritation
Aug 28	0630	Line 1, St# 4	Ozone	ND	Irritation
Aug 28	940	Chiller (West)	Chlorine	ND	pH 5.0
Aug 28	940	Chiller (East)	Chlorine	ND	pH 5.0
Aug 28	2130	Line 3, St# 3	Ozone	0.036	Plant device 0.058 ppm
Aug 28	2210	Line 3, St# 2	Chlorine	ND	

*ND = Non Detect (below 0.2 ppm).

The IIC and the PHV were instructed in the use of the device. The EHSB has requested that the IIC periodically collect air samples using the CMS, both when there are complaints of irritation as well as when there are no complaints. The goal is to gather data on the conditions in the plant in order to help correlate irritation with specific conditions in the plant, such as chlorine concentration in the water, pH, relative cleanliness/ dirtiness of the birds, chlorine concentration in the chiller, fans on/ off etc. The EHSB will continue to work closely with the IIC to accomplish this and to interpret the results.

The usefulness of air sampling devices for chlorine in poultry environments is limited and the readings must be interpreted correctly. Mr. Smigal briefly explained the limitations to the PHV's, the plant employee who regularly collects

the air samples during the evening shift, and the plant management during the close out meeting. A detailed description is provided below.

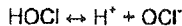
The EHSB has collected over 1,000 chlorine samples via many different methods in poultry environments over the past several years. Very few samples ever approach the PEL even when irritation is present. There are several reasons for this.

Air sampling devices are not well suited to the temperature and moisture conditions that are often present in poultry plants. Additionally, the OSHA standard is designed for exposure to elemental chlorine (Cl_2), as are the devices used to test for chlorine in the air. In poultry establishments, pure Cl_2 is not present in large quantities. Rather, chlorine (either as a gas, aqueous, or anhydrous solution) is added to a water stream. When chlorine is added to water, particularly in the presence of poultry matter, many side reactions may occur.

When chlorine is added to pure water, the chlorine reacts to form hydrochloric acid (HCl) and hypochlorous acid (HOCl).



The hypochlorous acid then breaks down to form hydrogen ions (H^+) and hypochlorite ions (OCl^-).



At a pH of 2.0 to 7.0, the reaction favors the formation of hypochlorous acid. This is much more desired as it provides better disinfection qualities. This is why an acid is typically used to lower the pH of chlorinated water.

Citric acid is used in the establishment to reduce the pH of the water, with a target of 6.5. Generally, a pH of 6.5 or lower is ideal for the production of hypochlorous acid. However, the presence of ammonia (from nitrogen in poultry matter) coupled with the lowered pH may contribute to the formation of irritating compounds.

If the pH of the water drops too low in the presence of chlorine and poultry, many different disinfection by-products may be formed, such as inorganic and organic chloramines. They can be both irritating and have a foul odor. As the ratio of chlorine to ammonia increases and the pH is lowered, we begin to find the formation of monochloramine (NH_2Cl), dichloramine (NHCl_2) and then trichloramine (NCl_3). Dichloramines and trichloramines (nitrogen trichloride) can be very irritating. There are no occupational limits for chloramines, nor are there effective, reliable methods of sampling for them in the air.

There is no one specific pH that irritating compounds are formed. The concentration of chlorine, the relative cleanliness of birds, temperature, etc., can affect the relative amount and ratio (mono-, di-, tri-). Typically above 6.0 there would mostly be monochloramine generation, and as the pH lowers more di- than tri- chloramines are generated. Improved ventilation, effluent piping, better process controls, etc. have proven useful in other establishments in reducing irritation.

VIII. Conclusions

A specific source of the inspectors' irritation was not identified. However, there are several conditions that may result in periodic irritation; ozone from the IOBW's, chlorine from sprays on equipment or in the chiller, the formation of some other chlorine compound either in the air as a gas or chemical laden water mist.

Additionally, individuals may have varying degrees of sensitivity to chemicals or pre existing medical conditions, which may result in irritation even when a chemical is below the OSHA PEL. Personal factors such as cigarette smoking will also factor into an individual's reaction to the presence of chemicals in the air.

The arrangement of the evisceration area serves to draw the air from several chemical interventions past the FSIS inspection personnel. The recent changes to the ventilation system and the position of the personal comfort fans serve to reduce the efficiency of the airflow.

Several solutions were offered that may serve to reduce the potential formation or release of irritating chemicals into the air.

IX. Recommendations

Mr. Smigal conducted a close out meeting with the following representatives of Pilgrim's Pride: Complex Manager, Mr. JD Reece, Evisceration Unit Manager, Mr. David Stanley, Second Process Unit Manager, Mr. George Ralston, Quality Assurance Manager, Ms. Patricia Jabaley, and the HACCP Coordinator, Mr. Rob Adkinson. Also present representing FSIS were the FLS, IIC, First Shift LCSI and the CSI.

Mr. Smigal presented his findings and recommendations to the plant personnel, and answered questions concerning sampling chemicals in the air. The plant personnel responded positively to Mr. Smigal's findings and agreed to consider several recommendations. Mr. Smigal provided the following recommendations for consideration and presentation to the establishment:

- The effluent drains should be free flowing and should not have stagnant water and product in the trough. The floor drains should be covered to reduce off gassing into the air.
- The establishment should consider revising their method of introducing chlorine into the chiller so that it is injected below the water level.
- The establishment should consider redirecting the personal comfort fans to reduce dead air spots and re-circulating air.
- The establishment should consider installing shielding to reduce overspray from the IOBW's.
- The establishment should consider providing a dedicated exhaust system for the IOBW's.

During the investigation, several sources of chemicals were identified that have the potential to adversely affect the health of inspection personnel. The following recommendations were not addressed during the close out meeting but were discussed with the IIC during the course of the investigation.

- The IIC should investigate whether the establishment sprays quaternary ammonia on equipment as a means of checking for leaks. The EHSB will evaluate the method and provide comments and/or recommendations.
- Several inspectors advised that the foot bath outside of the USDA office periodically has caused irritation. This appears to stem from improperly diluting the quaternary ammonia in the foot bath. The IIC should consult with the establishment if this occurs to ensure the solution is properly diluted.

X. Follow-up

Subsequent to the site visit, the plant used smoke producing devices to track the airflow from the personal fans. They found that the airflow was improved by redirecting the fans. The EHSB will continue to work closely with the FLS and IIC.

The EHSB will be available to the Office of Field Operations regarding any interpretation of the report or clarification of the recommendations. Subsequent to a decision on the recommendations cited above, the EHSB will assist with the evaluation of conditions to assess if the recommendations applied reduced or eliminated the inspection staff complaints.

Chlorine dioxide chips will be provided to the IIC so that samples may be collected near the Sanova spray cabinets.

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Attachment Chemical Exposure Limits

Occupational exposure limits are air quality values that apply to workplace exposures. These values have been developed by studying the correlation between the amount of a toxic substance absorbed by the body and the effects on worker health. They are based on industrial experience, animal experimentation, and human sensory response. In general, these limits represent concentrations below which it is believed health hazards are not likely to occur.

There are three sets of exposure limits that are typically used to evaluate occupational exposures. These include;

- OSHA – Permissible Exposure Limit (PEL).
- American Conference of Governmental Industrial Hygienist (ACGIH) – Threshold Limit Value (TLV).
- National Institute for Occupational Safety & Health (NIOSH) – Recommended Exposure Limit (REL).

Chlorine

OSHA- 1.0 ppm (Ceiling [C] limit- not to be exceeded anytime)

ACGIH- 0.5 ppm as an 8 hour time-weighted average [TWA]
1.0 ppm as a short term exposure limit (STEL)

NIOSH- 0.5 ppm (C)
10 ppm (immediately dangerous to life or health [IDLH])

Ozone

OSHA- 0.1 ppm TWA

ACGIH- 0.05 ppm TWA (Heavy Work)
0.08 ppm TWA (Moderate Work)
0.10 ppm TWA (Light work)
0.20 ppm TWA (Heavy, moderate, or light workloads [≤2 hrs])

NIOSH- 0.1 ppm TWA
5 ppm IDLH

Chlorine dioxide

OSHA- 0.1 ppm TWA

ACGIH- 0.1 ppm TWA
0.3 ppm STEL

NIOSH- 0.1 ppm TWA
0.3 ppm STEL
5 ppm IDLH

Exposures at the STEL concentration should not be repeated more than four times a day and should be separated by intervals of at least 60 minutes.

Briefly, the difference between these three sets of limits is as follows:

- the PELs are the legal limits which can be used by OSHA to cite the employer for non-compliance with the federal occupational health standards,
- the TLVs are recommended good practice guidelines, and
- the RELs are recommended limits upon which the PELs (and in some cases the TLVs) are based.

Of the three sets of limits, only the TLVs are reviewed and updated annually. Consequently, TLVs will often differ from (and be more restrictive than) PELs. Therefore, in assessing occupational exposures, TLVs are commonly used in industrial hygiene evaluations as the current, "state of the art" guidelines. PELs however must be used for determination of OSHA violations. NIOSH has a level that is considered immediately dangerous to life or health (IDLH). The IDLH is defined as a concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere.