EXECUTIVE SUMMARY

*When Police Play Russian Roulette…* makes the case for an immediate moratorium on police use of pepper spray. As the report explains, pepper spray is a chemical weapon that has never been properly tested. With one exception, all the available research into pepper spray raises serious questions about its safety for use on humans. The *one* study that claims pepper spray is safe for use by law enforcement agents has since been thoroughly discredited. It was conducted in 1991 by former FBI Agent Thomas Ward who pled guilty to accepting $57,500.00 in kickbacks from a pepper spray manufacturer.

Despite this, Ward’s study marked the point at which police departments around the country began adding pepper spray to their arsenals. Citing the FBI report, departments touted pepper spray as a promising weapon. It seemed to have the potential to resolve key challenges faced by police officers in the 1990s, and its proponents claimed that it provided a “less-than-lethal” alternative that could effectively subdue aggressive or violent people.

However, the weapon has failed to live up to the expectations that accompanied its introduction. First, it is far from a “less-than-lethal” alternative to guns or batons. Instead, at least 100 people have died nationwide after being pepper sprayed by police officers. Second, it simply is not effective in subduing aggressive people. And third, it is used in selective and discriminatory ways, meaning that it is disproportionately used on low-income people of color. In particular, it tends to be used on people (especially men of color) who are experiencing psychiatric crisis. Responsible policing should allow for people experiencing such crises to receive help, rather than be doused with an intensely pain-inducing substance.
When Police Play Russian Roulette... provides a comprehensive overview of all the available literature on pepper spray. It reaches the conclusion that the only responsible course of action is to place a moratorium on police use of pepper spray until adequate testing has been completed. A well-intentioned attempt to deal with public safety issues has ended up creating a far greater public safety problem. No one is safe when our police officers carry and use an unreliable, untested, potentially lethal chemical weapon. Given that police use of pepper spray clearly is not in the public interest, we urge departments around the country to turn in their pepper spray.

INTRODUCTION
Pepper spray is the commonly used name for Oleoresin Capsaicin, a powerful chemical spray. Originally developed as a bear repellent, it is now marketed as a non-lethal tool capable of incapacitating violent people. In reality, pepper spray is an unpredictable weapon that has been implicated in a growing number of in-custody deaths. It is often ineffective and always poses a danger to both the person being sprayed and the person who wields the can.

Oleoresin Capsaicin is one of the most powerful pain-producing substances known to humans. When released, it causes intense coughing, gagging, shortness of breath, and burning of the eyes and skin. It immediately inflames throat, nose and lung membranes and induces copious secretion of mucous in the lungs, nose and mouth. The pain caused by the spray is so intense that, once sprayed, many people temporarily lose the ability to stand.

In the short time that pepper spray has been on the market, at least one hundred people nationwide have died in police custody after being pepper sprayed. Since it was first introduced for use by law enforcement agencies in the late 1980s, no reliable studies have been completed showing that it is safe for use on humans. To the contrary, there is a growing body of evidence, catalogued in this report, that makes the case that pepper spray is both dangerous and unreliable. The problems with pepper spray are exacerbated by the fact that no government agency is designated to monitor and regulate its use. Because it is classified as a weapon -- rather than a food, drug or pesticide -- it is not required to meet government-imposed health and safety standards.

When pepper spray was initially approved for use by law enforcement agencies, no one expected that its subsequent use would result in fatalities, near-fatalities, or unexpected physiological and psychological effects. Similarly, no one expected that it would frequently prove to have no effect whatsoever on intended targets. In effect, pepper spray has been tested “in the field” as law enforcement officers have used it on ordinary people. This report examines all the available data on pepper spray use and concludes that it is a defective product, a health and safety hazard,
and a potentially lethal weapon. Additionally, it is a weapon that has been used by law enforcement officers in discriminatory ways, and also, impermissibly, as an instrument of torture.

THE ELLA BAKER CENTER FOR HUMAN RIGHTS:
STATEMENT OF INTEREST AND RECOMMENDATION

The Ella Baker Center for Human Rights works to ensure universal applicability of the individual rights enshrined in the U.S. Constitution and international human rights laws. These rights include the right to freedom from excessive police force, the right to freedom from torture, the right to due process, and the right to equal protection under the law. The potential health effects of pepper spray -- which include death -- necessarily mean that law enforcement officers, regardless of their intent, risk using extreme and excessive force each time they use pepper spray. Therefore, the Ella Baker Center believes that police use of pepper spray violates individual rights guaranteed by these documents.

The disproportionate use of this weapon on people of color and poor people presents particular concerns. Those who have died after being pepper sprayed by police officers are overwhelmingly low-income men of color. Many of these people were experiencing psychiatric or substance abuse-related crises and were in need of mental health treatment, not violent interventions by law enforcement. Police use of pepper spray is increasingly a factor in deaths in custody, and the continued use of this untested, unpredictable and dangerous chemical spray jeopardizes public health and safety. Given this, the Ella Baker Center calls for a moratorium on police use of pepper spray.

This report advances four key arguments in support of a moratorium:

1. **Defective Product:** Pepper spray was sold to police departments before manufacturers, scientists and government agencies completed comprehensive testing. For many police departments, the decision to purchase the spray for their officers was based on a now-discredited FBI study.

2. **Potentially Lethal Weapon:** Despite the claim that pepper spray is a “less-than-lethal” weapon, almost all the available medical research suggests that it is in fact a weapon that is potentially-lethal when used on humans. Most importantly, pepper spray’s active ingredient, capsaicin, can stop the heart from beating when it is inhaled.

3. **Ineffective Tool:** Manufacturers and law enforcement claim that pepper spray will incapacitate aggressive people. However, police departments’ own statistics, as well as independent testing by self-defense organizations, suggest that pepper spray is far less effective than proponents claim.

4. **Instrument of Discrimination and Torture:** Pepper spray use by law enforcement agencies is selective and discriminatory. It has been used for the purpose of crowd control, despite recommendations to the contrary. Also, it
has been applied directly to the eyes of non-violent demonstrators. Key commentators claim that its use constitutes torture.

**POLICE USE OF PEPPER SPRAY: BACKGROUND**

**History of Pepper Spray Use in California**

In California, police use of pepper spray was initially subject to regulations imposed by the California Department of Justice (CDoJ) and to toxicity and health hazard assessment by the California Environmental Protection Agency’s Office of Environmental Health Hazard Assessment (OEHHA). In 1992, at the request of the CDoJ, the OEHHA temporarily approved pepper spray for police use in emergency situations. The CDoJ believed pepper spray to be safer than batons or guns -- despite their finding that the data supplied by manufacturers was insufficient to evaluate the harmful health effects of pepper spray to the eyes, nervous system, or to people with pre-existing health conditions. The OEHHA recommended police use of pepper spray on the conditions that:

a) pepper spray be excluded from crowd control use;
b) police officers document every use of the chemical; and
c) further research to assess health risks be conducted under the direction of the OEHHA.

The CDoJ authorized police use of pepper spray for a three-year trial period, conditioning its use on police adherence to the OEHHA’s recommendations.

Despite the OEHHA’s mandate, the state of California did not conduct any research into the effects and effectiveness of pepper spray during the three-year trial period. Without any evaluation of pepper spray’s effectiveness or safety, the CDoJ proceeded to authorize the sale of pepper spray to civilians in 1994. The following year, the CDoJ allowed the trial period to end.

**Warnings Ignored** In doing so, the CDoJ disregarded repeated warnings from the OEHHA and the American Civil Liberties Union (ACLU). A 1993 ACLU report on pepper spray, *Magic Bullet Under Scrutiny*, highlighted pepper spray’s potential dangers. This report points to seven pepper spray-related in-custody deaths that occurred in California within the first year of pepper spray being used by police officers. The report notes that manufacturers’ claims of pepper spray’s 100 percent effectiveness were not accurate.\(^1\) The ACLU updated this report in 1995, presenting information about further troubling in-custody deaths, and

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\(^1\) American Civil Liberties Union (ACLU) of Southern California, *A Magic Bullet Under Scrutiny*, Fall 1993.
indicating that pepper spray was potentially ineffective on people in psychiatric crisis and potentially harmful to people with pre-existing health conditions.  

**Restrictions Relaxed**  In 1995, the California state legislature passed a law that relaxed restrictions on the purchase and use of pepper spray. Authored by Assembly member Jackie Speier, Assembly Bill 830 (AB830) repealed the sections of the California Penal Code that regulated tear gas weapons. The new law allowed civilians to buy pepper spray without obtaining a license; removed all reporting requirements for police departments; and stripped the CDoJ and the OEHHA of the authority to control the sale and use of tear-gas and chemical weapons. AB830 was passed, despite repeated warnings from the OEHHA and the ACLU, which released another report on the hazards of pepper spray, *Pepper Spray Update - More Fatalities, More Questions*, that same year.

**Oversight Mechanisms Decimated**  On January 1, 1996, when AB830 went into effect, California’s government agencies lost their oversight mechanisms for tear gas and pepper spray products -- despite approximately 40 known pepper spray-related in-custody deaths statewide. Furthermore, the legislature released manufacturers from the obligation to complete health risk assessment studies -- even though no agency had completed testing of the medical implications or impact of pepper spray.

**History of Pepper Spray Use in San Francisco**  The San Francisco Police Department issued pepper spray to all of its officers in August 1994, two years after police use of pepper spray was approved in California and the year after the ACLU first publicized its concerns about pepper spray. Prior to this, the Department conducted a limited trial run of the weapon that resulted in 14 uses.  

Pepper spray apparently held a mystical allure for the police. As the San Francisco Police Commission debated pepper spray’s approval, then Police Chief Anthony Ribera claimed that, “The SFPD, like all law enforcement agencies is in vital need of a tool that, like the phaser on Star Trek, will stun and not kill a suspect intent on doing injury to another... We have come a step closer to the imaginary phaser... The tool which brings us closer is OC, or pepper spray.”

Following this recommendation, the Police Commission approved department use of pepper spray on violent people. The protocol for using pepper spray was added to Department General Order 5.01. It specified that the faces and eyes of those sprayed should be flushed out with water after police used pepper spray. It also

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required that an ambulance should be summoned for those who were having trouble breathing after being sprayed.\textsuperscript{5}

**Training Guide Flawed** The Police Commission’s safety precautions were undermined by the SFPD’s written training guide, which claims that pepper spray is effective when used against people who are violent, under the influence of alcohol or drugs, mentally ill, injured, hysterical or agitated. It also says that pepper spray has no lasting side-effects or after-effects. Additionally, the it claimed there were “no substantiated instance of adverse reaction to OC by any subject with respiratory illnesses, heart problems, or poor reflexes.”\textsuperscript{6}

**Death of Aaron Williams** Within one year of the SFPD adding pepper spray to its arsenal, Aaron Williams became the first San Francisco resident to die in police custody after being subjected to the spray. Aaron Williams was a 35-year-old African American man who was beaten and pepper sprayed by a dozen officers in front of his home on June 4, 1995. None of the officers involved in Williams’ arrest followed General Order 5.01’s requirements for pepper spray use: they did not wash Williams’ face, they did not monitor him for adverse health effects, and they did not seek medical treatment for him. Instead, officers simply handcuffed Williams and placed him face-down in the back of a police van. They discovered him dead upon arrival at the police station.\textsuperscript{7}

Williams’ death prompted an investigation into police use of pepper spray. As a result, the SFPD’s General Order governing Use of Force was revised in October 1995. The changes included: the requirement for police cars to carry bottles of water to be used to flush out people’s eyes; a person who has been sprayed must be visually monitored; and all people who have been sprayed must receive medical attention.\textsuperscript{8}

**Death of Mark Garcia** However, despite these changes, just six months later, on April 6, 1996, Mark Garcia died in police custody under circumstances alarmingly similar to those surrounding the death of Aaron Williams. Garcia, who was 41

\begin{footnotes}
\item[5] San Francisco Police Department General Order 5.01, Use of Liquid Chemical Agent (Mace/Oleoresin Capsicum) to Accomplish Custody, August 24, 1994, p.5.
\item[8] See San Francisco Police Department General Order 5.01, Use of Force, Revised, Oct. 24, 1995. According to the revised General Order, officers “must flush the person's eyes with clean water at the scene as soon as possible. Subjects are to be closely monitored and transported in an upright position. Hobble cords must not be used to connect the subject's legs to his waist or hands in a trussed position. Persons who have been sprayed with mace or OC must now receive medical evaluation prior to booking. Finally, [police] supervisors must ensure that any person who has been sprayed with mace or OC is kept under direct visual observation until he/she has been medically evaluated.”
\end{footnotes}
years old, was wandering down the middle of a major San Francisco street. He was naked from the waist down and yelling for help. When officers arrived at the scene, they sprayed Garcia, held him to the ground, cuffed him and placed him face-down in a police van. Garcia suffered a heart attack on the way to San Francisco General Hospital. He was successfully resuscitated but died the next day after suffering a second heart attack.\textsuperscript{9}

In May of 1996, the Police Commission convened a task force of police and city officials to investigate police use of pepper spray and its association with in-custody deaths. Despite the evidence provided by the deaths of Williams and Garcia, Lt. Jim Hall and Lt. Ed Springer, both members of the task force, reported that pepper spray “Works, more often than not, on those who are: under the influence of drugs, under the influence of alcohol, suffering mental crises, highly motivated or agitated.”\textsuperscript{10} The task force recommended a second set of policy changes to the guidelines for pepper spray use. They required that police wash the sprayed person's face, monitor her or his health condition, transport the person upright, recognize the symptoms of “excited delirium,” and call an ambulance each time a person is sprayed with pepper spray.

\textbf{Too Many Problems} Following Garcia’s death, questions pertaining to the predictability and safety of pepper spray prompted San Francisco District Attorney Terence Hallinan to remove pepper spray from his investigators’ arsenals. Dan Addario, Chief Investigator, explained the decision: “There's got to be a better way out there. [T]here’s [sic] just too many problems with pepper spray.”\textsuperscript{11}

\section*{1. Pepper Spray is a Defective Product:}

\textbf{Summary of Argument:} Pepper spray was sold to police departments before manufacturers, scientists and government agencies completed comprehensive testing. For many police departments, the decision to purchase the spray for their officers was based on a now-discredited FBI study.

\textbf{The FBI Testing/ Bribery Scandal} In the early 1990s, police departments around the country started using pepper spray. They did so largely as the result of

\begin{footnotesize}
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\item \textsuperscript{11} Mike Doubet, \textit{The Medical Implications of OC Sprays}, 1997. A PPCT research publication, funded by PPCT Management Systems, Inc., 500 South Illinois, Millstadt, Illinois, 62260, p.49.
\end{itemize}
\end{footnotesize}
a Federal Bureau of Investigations (FBI) study that concluded the weapon was safe for use on humans and effective at incapacitating aggressive people. This 1991 study was conducted by Special Agent Thomas Ward at the FBI Academy Firearms Training Unit in Quantico. However, in 1996, Ward pled guilty to a federal felony conflict of interest charge. While conducting the pepper spray research, he accepted $57,500.00 in payments from Luckey Police Products, which at that time was the manufacturer of the Cap-Stun brand of pepper spray. During the course of his research, Ward heavily promoted this brand of pepper spray.12

Despite the publicity surrounding Ward’s conviction, the damage had already been done. As a result of the FBI study, the Bureau purchased Cap-Stun pepper spray for their officers, and police departments around the country began to purchase pepper spray for their officers. Pepper spray manufacturers, many of whom have done no independent research into pepper spray, often cite the FBI’s findings as evidence of their product’s safety.13 And police department training materials, including those of the California Commission on Peace Officer Standards and Training (POST), use the FBI’s findings to advocate for use of pepper spray by officers.14

**FBI Admits Flaws** In a February 1996 letter to Attorney General Janet Reno, the ACLU warned that the Quantico studies “are still cited throughout the literature of OC research and are accorded almost biblical credence by advocates of greater reliance on OC as a tactical alternative to higher levels of the scale of force.”15 In May of the same year, an FBI press release admitted that current information about pepper spray was inadequate and further testing was required.16 However, three years later, the FBI has conducted no new research testing, and police departments continue to use training guidelines that were developed according to the safety claims in Ward's report.

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13 See, for example, the web site of Guardian, a pepper spray manufacturer, [www.accoutre.com/guardian.htm](http://www.accoutre.com/guardian.htm). According to this website, “The Federal Bureau of Investigation Firearms Training Unit (FTU) conducted research to determine the most effective chemical agent product to be carried by their Special Agents. Based on that research and testing, along with information provided by the U.S. Army Chemical Research and Development Center, FTU approved the use of oleoresin capsicum. FBI chemists who were consulted during the study did not foresee any long-term health risks associated with the use of OC. Furthermore, police agencies responding to an FTU questionnaire did not report any medical problems.” (June 1999.)
15 Ibid.
Consumers and Police Departments Misled by Some Manufacturers’ False Advertising

As already noted, pepper spray manufacturers have enthusiastically promoted their product. One manufacturer advertises pepper spray as “effective against those who feel no pain such as psychotics, drunks, or drug abusers.” Another claims that it stops attackers without causing permanent harm.

FTC Slams False Ads

However, in March 1994, the Federal Trade Commission (FTC) investigated the promotional practices of pepper spray manufacturer, MACE Security International (MACE), regarding false effectiveness and safety claims. The FTC found that MACE had made false claims, including the claim that it had conducted safety testing, and that pepper spray is capable of immediately halting an assailant. The FTC ordered MACE to stop promoting these products and to write to all distributors and consumers to explain their false advertising and to warn that the products might be ineffective on drugged, armed, intoxicated, or enraged individuals.

Other Manufacturers Express Concerns about Pepper Spray

Some manufacturers have acknowledged the lack of adequate research into pepper spray. In The Medical Implications of OC Spray, the most comprehensive research summary on pepper spray available to date, Mike Doubet of PPCT Management Systems references a product testing proposal written by David DuBay, Director of Research for Defense Technologies Corporation of America (the manufacturer of the First Defense brand pepper spray). DuBay admits the likelihood that pepper spray “may have detrimental effects on people with pre-existing respiratory problems.” He also expresses concern about the lack of information concerning pepper spray’s potential health risks.

Implications for Civilians and Police Departments: The results of pepper spray being marketed without being properly tested are grave. Essentially, police departments play “Russian roulette” every time they use the spray. The claim that pepper spray is a “less-than-lethal” option that can effectively halt violent people is optimistic at best and completely erroneous at worst. Furthermore, officers are carrying and using a weapon that can cause serious injury or death. The next two sections explore the effects of pepper spray on the human body.

2. Pepper Spray is a Potentially Lethal Weapon:

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18 Security Equipment Corporation Product Catalog (Fenton, MO), 1997, p.4.
Summary of Argument: Despite the claim that pepper spray is a “less-than-lethal” weapon, almost all the available medical research suggests that it is in fact a weapon that is harmful and potentially-lethal when used on humans. Most importantly, pepper spray’s active ingredient, capsaicin, can stop the heart from beating when it is inhaled.

Tracking Pepper Spray-Related Deaths: Virtually every medical and science professional who has studied the available information on the health effects of pepper spray agrees that the weapon has not been tested adequately to determine exactly how it affects humans. As shown below, preliminary research finds that pepper spray can cause severe damage to human lungs, eyes, nerves, and skin. Furthermore, individuals with asthma, heart conditions, lung conditions, psychiatric conditions, or other pre-existing health conditions have had especially serious reactions to the spray.

Pepper spray’s association with numerous in-custody deaths is cause for the most serious concerns. Conclusive answers are difficult due to inadequate research, but it is impossible to ignore the similarities found between numerous fatal incidents. John Crew, director of the ACLU Police Practices Project in San Francisco, estimates a national total of at least 100 people reported dead after being pepper sprayed and restrained by police. The actual numbers are likely significantly higher. In California, there has been no formal tracking system to monitor the effects of pepper spray since 1995. This means that it is now much more difficult for interested agencies to monitor deaths and serious injuries related to police use of pepper spray. The death may go unrecorded unless the death received considerable media attention or is reported by surviving family members.

The lack of scientific research and the elimination of documentation requirements also complicate the coroner’s job. In its report, Pepper Spray Update: More Fatalities, More Questions, the ACLU flags the possibility of under-reporting of pepper spray related deaths because “so little is known about the residual effects of pepper spray that medical examiners may not know what to look for during an autopsy.” Without documentation requirements, coroners may not even know that pepper spray was used on the deceased individual. Furthermore, misleading medical terms may disguise pepper spray’s role in an in-custody death. For example, “excited delirium” is used as an explanation for many of the fatal cases.

23 But see: Lisa M. Flannagan, M.D., Office of the Chief Medical Examiner, Chapel Hill, NC, Report of Autopsy Examination, August 26 1993. This autopsy report of a person who died in police custody directly links the death to police use of pepper spray.
However, this term is merely a vague description of the behavior a person exhibited just before dying in-custody; it is not a scientifically recognized cause of death.\textsuperscript{24}

In many in-custody deaths that involved pepper spray, the official cause of death is recorded as pulmonary edema, cardiac hypertension or heart failure. However, none of these descriptions exclude the probability that pepper spray at least exacerbated these conditions. Furthermore, preliminary research into pepper spray (see below) demonstrates that the chemical can have serious and/or fatal effects on the heart and lungs.

**The Role of Capsaicin:** Despite the difficulties of tracking pepper spray-related in-custody deaths and the tendency to contribute these deaths to factors other than pepper spray, there is an important body of research that calls into question the safety of pepper spray’s active ingredient, capsaicin.\textsuperscript{25} Dr. Hazel Coleridge and Dr. John Coleridge, retired neurophysiologists at the Cardiovascular Research Institute and professors emeriti the University of California at San Francisco,

\textsuperscript{24} In 1994, The International Association for Chiefs of Police (IACP) described excited delirium as a mysterious medical condition that overcomes people. In such situations, it claims, the police have limited capacity to respond safely. “Police must necessarily restrain [individuals exhibiting signs of excited delirium], and a violent struggle generally ensues; however, force used by police often has minimal effects. Sudden death occurs either during or immediately after the struggle...the mechanism of death is uncertain, and autopsy findings are generally nonspecific, revealing only injuries sustained from the struggle with police.” John Granfield, Jamie Onnen, and Charles S. Petty, M.D., “International Association of Police Chiefs Executive Brief: Pepper Spray and In-Custody Deaths,” 1994, p.4.

In a 1995 report to the San Francisco Police Commission, the city’s Department also claimed that excited delirium is a mysterious medical condition. According to this report, “In the early stages of the syndrome, victims had high temperatures, were grossly psychotic and violently agitated. Often they performed amazing feats of strength and, at the same time, seemed to be oblivious to pain. This phase lasted anywhere from one to two hours. What happens next is not entirely clear. For whatever reason, agitation ceases, the patient become [sic] quiet, and then dies.” Report to the Police Commission: OC Pepper Spray and Related Issues, 1995, p. 11, authored by Commander Richard Holder, Captain Mindy Pengel, Sergeant Willa Brown, Mr Bruce Kapsack, Officer Tom Shawyer and Officer Glenn Sylvester.

However, in May 1996, Dr. Marshall Isaacs, Medical Director for the Department of Public Health Paramedic Division and the San Francisco Fire Department submitted written testimony to the San Francisco Police Department that states: “From a clinical emergency medicine standpoint, [excited delirium] does not exist. [Excited delirium] is a descriptive term from outside of emergency medicine practice that does not adequately describe how the patient is behaving or that behavior's medical implications.” Marshall Isaacs, M.D., FACEP, “Testimony before the San Francisco Police Commission,” May 8, 1996, p.3.

\textsuperscript{25} Capsaicin works by stimulating fine sensory nerve fibers (C-fibers) that transmit messages of pain from peripheral areas of the body to the central nervous system, and whose endings in the skin and elsewhere release a chemical -- Substance P -- which may cause redness, swelling and blistering. Because of capsaicin's unique ability to stimulate very small sensory nerve endings that are otherwise difficult to study, capsaicin has been used in neurophysiology research since at least the 1940s. See, for example, Robert A. Howd, *Deaths in Police Custody in Temporal Association with Hot Pepper Tear Gas Exposure*, Office of Environmental Health Hazard Assessment, CalEPA. This report was presented to the California Coroners’ Association, September 21, 1994.
have used capsaicin for the past 30 years to study the interrelated control systems regulating the heart and lungs. Their research involved injecting capsaicin into the lungs of anesthetized dogs and recording electrical impulses of the nerves as they traveled to the brain, as well as the resulting effects on the heart and on breathing. Similar results were obtained in other species.

Translating their data to human physiology, the Coleridges found that inhaling only 1.5 milligrams of capsaicin could stop the human heart. One milliliter of “First Defense,” the pepper spray product used by the San Francisco Police Department, contains 2 milligrams of capsaicin. This is sufficient to stop a human heart from beating. Further calculations show that a single 0.5 second blast of pepper spray, if inhaled into the human lungs, contains at least twice the amount of capsaicin necessary to stop the heart from beating.

The Coleridges discovered that capsaicin stimulus catalyzes a set of "pulmonary defensive reflexes." These impulses are relayed to the vital organs through the autonomic nervous system, which regulates unconscious body functions. The Coleridges describe the result as an “emergency switch off” in the heart and lungs: the heart stops beating and the animal stops breathing (see appendix A). After a few seconds, breathing resumes in the form of gasping and panting, and the heart begins to beat again slowly, then with increasing speed. The air tubes swell, constrict and begin secreting excessive mucous. As the heart recovers, the normal sequence of electrical conduction through its walls is initially slow and may be blocked. The heart's ability to pump blood is reduced and blood pressure is low. The heart's recovery from this may take up to ten minutes. Additionally, the animal’s muscles lose their tone.

26 Interview with Dr. Hazel Coleridge, January 23, 1998, in which she summarized findings based on more than 30 years of research into capsaicin.
28 According to promotional literature produced by Defense Technology Corporation of America (the producers of First Defense pepper spray (the most common brand for police departments in California) a three-ounce can of pepper spray contains about 35-40 half-second blasts. Considering the ounce-to-milliliter ratio, and assuming that the same amount of pepper spray is dispersed in each half-second blast, there are about 2.5 milliliters of pepper spray in each half-second blast.
29 In the January 23, 1998 interview cited above, Dr. Hazel Coleridge explained that this research was conducted on dogs and other mammals.
30 Interview with Dr. Hazel Coleridge, January 23, 1998.
“Life-threatening arrhythmias:” Pepper spray manufacturers have observed and described these breathing difficulties, the loss of muscle tone and the tendency to collapse, just as observed in animals.\(^{31}\) However, manufacturers fail to note the accompanying changes in the heart's ability to function – probably because these effects are hidden from the ordinary observer. These changes, however, may be the most life-threatening effects of pepper spray. Dr. Hazel Coleridge noted that the transient slowing of cardiac output that follows heartbeat cessation might induce “life-threatening arrhythmias, even in healthy people, especially if they are physically stressed in the immediate aftermath of pepper spray exposure.”\(^{32}\) If there are circumstances prejudicial to recovery, including stress, the subject could develop ventricular fibrillation, i.e. a lack of blood pumped from the heart due to unsynchronized ventricle contraction.\(^{33}\) After reviewing information about the numerous in-custody deaths associated with pepper spray, Dr. Hazel Coleridge stated that these people probably died because of ventricular fibrillation.\(^{34}\)

Dr. Coleridge advocates a complete ban on police use of pepper spray. She argues that, “The claim of manufacturers that the use of pepper spray is an effective and safe means for police control of agitated individuals is clearly without foundation... [T]hey have misled the police and the public to thinking that pepper spray is not lethal, but this isn't true. It is very dangerous and needs to be taken seriously as a life-threatening weapon.”\(^{35}\)

**Other Scientists And Research Labs Support Coleridges’ Findings:** The following studies, conducted independently of the Coleridges’ work, corroborate the claim that pepper spray is a weapon with deleterious and possibly lethal effects on the human body.

- **United States Army: “Mutagenic,” “Carcinogenic” Effects**

In 1993, the United States Army Research and Technology Department at Aberdeen Proving Ground produced *Toxicology Overview on Capsaicin*. This report encapsulates the existing scientific literature on the dangers of both capsaicin and oleoresin capscicum. The report finds that capsaicin has “profound, acute effects on respiratory function.” Immediately after exposure, “bronchoconstriction, the release of substance P ... from sensory nerve terminals

\(^{31}\) For example, Defense Technology Corporation of America describes effects in their brochure as: “subject's respiratory system may become inflamed causing coughing, gagging, hiccuping or a feeling by the subject that they cannot breathe...subject may lose their balance and lean forward or backward at the waist.” *First Defense Less Than Lethal Pepper Spray Projectors*, manufacturer’s brochure.

\(^{32}\) Interview with Dr. Hazel Coleridge, January 23, 1998.

\(^{33}\) Dr. Hazel Coleridge and Dr. John Coleridge, “Pepper Spray and Its Dangers” (written statement for Ella Baker Center for Human Rights press conference, November 11, 1997).

\(^{34}\) Interview with Dr. Hazel Coleridge, January, 23, 1998.

\(^{35}\) Interview with Dr. Hazel Coleridge, January, 23, 1998.
and airway mucosal edema” results.\textsuperscript{36} The report concludes that capsaicin may cause “mutagenic effects, carcinogenic effects, sensitization, cardiovascular toxicity, pulmonary toxicity, neurotoxicity and human fatalities... There is a risk in using this product on a large and varied population.”\textsuperscript{37}

\begin{itemize}
\item **California Environmental Protection Agency: May Harm Embryos**

In *Health Risk Evaluation of Tear Gas Products Containing Oleoresin Capsicum*, CalEPA’s Office of Environmental Health Hazard Assessment discusses the dangers of using pepper spray. The report notes that people with pre-existing pulmonary or cardiovascular disease are likely to be more sensitive to the adverse effects of the chemical. OEHHA also stressed the lack of scientific data concerning the effects of pepper spray, emphasizing the scope of the damage pepper spray might cause to the eyes, to the nervous system, or to developing embryos.\textsuperscript{38}

\item **Dr. Michael Cohen, Journal of Correctional Healthcare: “Sudden Deaths”**

Dr. Michael Cohen, an expert in pediatric medicine and consultant in correctional health services, authored *The Human Health Effects of Pepper Spray - A Review of the Literature and Commentary*. Without prior knowledge of the Coleridges’ research on capsaicin effects on the heart and lungs, Cohen independently drew the same conclusions regarding the lethality of pepper sprays. He explains that “[M]assive exposure to capsaicin in pepper spray risks altering or disrupting the most vital functions of the body, and provides a mechanism for sudden deaths associated with pepper spray exposure.”\textsuperscript{39}

Cohen’s research detailed six dangers resulting from pepper spray use. These included the exacerbation of asthma, laryngeal spasm and croup,\textsuperscript{40} chemical pneumonitis, loss of protective reflexes, chemical burns on both skin and eyes, and physical and emotional abuse or torture.\textsuperscript{41} The presence of other substances (due to use of either prescription or illegal drugs) that

\begin{itemize}
\item Ibid. p.10.
\item California EPA, Office of Environmental Health Hazard Assessment, *Health Risk Evaluation of Tear Gas Products Containing Oleoresin Capsicum*, presented at 32\textsuperscript{nd} Annual Meeting of the Society of Toxicology, March 14-19 1993, pp. 6-7.
\item Ibid, p.81. This is “a spasm of the muscles that control the vocal cords...and obstruction of the middle airway of the neck...[can] cause suffocation by completely obstructing the upper airway. This is another possible mechanism for sudden, unexpected death.”
\item Ibid, pp.77-82.
\end{itemize}
affect the autonomic nervous system can also exacerbate the effects of pepper spray. Cohen explains that:

[W]hen pepper spray is used on someone who is already taking antipsychotic medicine or cocaine, drug interactions may give rise to clinically significant autonomic dysfunction ... It may be that pepper spray was the precipitating agent, in combination with other drugs and underlying disease, that caused the lethal event.  

- **Dr. Woodhall Stopford, Duke University Medical Center: Asthma Danger**

Duke University Medical Center's Director of Occupational and Environmental Medicine Education Program produced a 1996 report, authored by Dr. Woodhall Stopford, that analyzes records from the North Carolina Department of Correction’s mandatory pepper spray exposure training for prison guards. Stopford lists seven major risks associated with pepper spray exposure. These include damage to the eyes, skin, respiratory arrest and laryngospasm, pulmonary edema, bronchospasm, acute elevations of blood pressure, and hypothermia. Conditions such as asthma, lung conditions, and prior parainfluenza or mycoplasma infections could greatly exacerbate the effects of pepper spray on a subject. Stopford cautions against exposure for “individuals with pre-existing hypertension, asthma, eye conditions, chest infections or airway reactivity.”

### 3. Pepper Spray is an Ineffective Tool:

**Summary of Argument:** Manufacturers and law enforcement claim that pepper spray will incapacitate aggressive people. However, police departments’ own statistics, as well as independent testing by self-defense organizations, suggest that pepper spray is far less effective than proponents claim.

**The Case of the Berkeley Police Department** The only independent assessment of pepper spray’s effectiveness within a particular police department was conducted by Berkeley's civilian review board, the Berkeley Police Review Commission (PRC). In 1997, the PRC found pepper spray to be “effective” only

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42 Ibid, p.77.
43 Woodhall Stopford, M.D., M.S.P.H., “Statement of Dr. Woodhall Stopford Concerning Pathophysiology Of Capsaicin And Risks Associated With Oleoresin Capsicum Exposure,” Division of Occupational & Environmental Medicine, Duke University Medical Center, June 19, 1996, pp.3-4.
17 percent of the times it was used. “Effectiveness” was defined as a situation where an officer was able to restrain a subject who would not voluntarily submit to arrest. The same study found that in 28 percent of cases, the person sprayed became more aggressive; the effect was unknown in 17 percent of cases; the officer experienced cross-contamination of the spray in 19 percent of cases; and the spray had no effect at all in 53 percent of cases.  

**Effectiveness of Police Use of Pepper Spray in Berkeley, CA until 1997**

- Subject Unaffected by Pepper Spray: 53%
- Aggression Increased After Pepper Sprayed: 28%
- Other Response: 2%
- Pepper Spray Effective: 17%

**Information from Other Police Departments: Independent Analysis of Self-Reported Police Data Shows Inflation of Pepper Spray Effectiveness** In *The Medical Implications of OC Sprays*, Mike Doubet compared research studies on pepper spray effectiveness by five different police departments and found, in each department, that the publicized effectiveness rating was higher than their own data indicated. In Baltimore, MD, the local police department claimed that pepper spray is 90 percent effective. However, Doubet’s analysis of the same data found the effectiveness rating to be 80 – 82 percent. This high rate may be attributable to misuse of the weapon. Although officers were told to spray at no closer of a range than four to six feet, Doubet found that “in most incidents, [officers] failed to maintain this distance.” Similarly, the police department in Portland, OR concluded that the spray was 95-97 percent effective. However, when Doubet analyzed the same data he found it was 80 - 85 percent effective.

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45 Mike Doubet, op. cit., p.24.
46 Mike Doubet, op. cit., pp.16-18.
44 Mike Doubet, op. cit., pp.19-21.
Troubling Data from the SFPD  The San Francisco Police Department’s statistics on pepper spray also call into question the weapon’s effectiveness. When the Police Commission initially approved pepper spray for use by the SFPD, a report produced by the office of then-Chief Ribera claimed that, based on 6,831 reported pepper spray applications in California, the weapon was 86% effective. Meanwhile, statistics from the SFPD’s 1993-4 pepper spray trial run showed that 13 out of 14 reported uses (92%) were effective.\(^48\) Four years later, however, a Department memorandum stated that pepper spray use in 1997 had been effective 63% of the time (59 out of 94 applications). According to the memorandum, “[C]ommon causes for O/C [Oleoresin Capsicum] ineffectiveness were due to the officer failing to strike a susceptible area, subject resistant to effects due to drugs/alcohol or the subject evaded contact by covering his/her facial area.”\(^49\)

Testing by Self-Defense Organizations: False claims of effectiveness by manufacturers may result from flaws in their testing models. Some manufacturers base their claims that pepper spray is highly effective on reports from police officers’ responses during pepper spray exposure training classes. Many manufacturers are in charge of both supplying departments with the chemical and teaching officers how to use it. Frequently, trainers lecture the officers on the product’s ability to incapacitate anyone, douse the officers with the spray, and record the results. Not surprisingly, immediately after being told they will collapse, most officers do just this.

However, independent studies conducted by bodies other than law enforcement or manufacturers have taken a different approach to determining effectiveness that has produced new results. Independent research was conducted by the Modern Warrior Defensive Tactics Institute and the American Women’s Self Defense Association (AWSDA) in New York in 1990. Modern Warrior training instructor, Phil Messina, conducted “active stimulation experiments” in which subjects were given specific goals prior to being sprayed with pepper spray, with the instruction to complete a (usually violent) task after being sprayed. Messina found that every single subject was able to accomplish this short-term goal after being sprayed.\(^50\)

Modern Warrior and AWSDA’s studies raised so much controversy that they were re-enacted repeatedly in front of different audiences and the media. The results were always the same: every person was able to march through the pepper spray and “stab” their “attacker” with a rubber knife. Not one person was deterred even though s/he was sprayed at least three times.\(^51\)

\(^{48}\) Anthony Ribera, op. cit., p.7.
\(^{49}\) SFPD internal memorandum from Capt. Lawson to Officer McKee, dated 5/19/98, titled “Use of Force Re-cap for 1997,” pp.3-4.
\(^{50}\) Mike Doubet, op. cit., pp.43-44.
\(^{51}\) Mike Doubet, op. cit., p.47.
Even when the tests were more complex, the subjects were not stopped, let alone incapacitated, by the pepper spray. For example: “The sprayer was instructed to spray [the subject] for three seconds then to walk in a zig-zag fashion to test [the subject's] ability to see and adjust. After being sprayed, the subject [who was standing behind a table] picked up the [rubber] knife threw over the table and followed the sprayer. Each time the sprayer changed directions, she adjusted stabbing and slashing him about 20 times. [The subject] then sat down, untied her sneakers, removed them and jumped in the pool.”

4. Pepper Spray is an Instrument of Discrimination and Torture:

Summary of Argument: Pepper spray use by law enforcement agencies is selective and discriminatory. It has been used for the purpose of crowd control, despite recommendations to the contrary. Key commentators claim that its use constitutes torture.

As outlined above, pepper spray use is fraught with problems. It cannot be relied upon to meet law enforcement goals of incapacitation, and it is a hazardous and potentially lethal product. This section will outline the ways in which pepper spray use often constitutes unnecessary force, particularly because it is frequently used against people experiencing psychiatric crisis. Furthermore, its use regularly involves violation of civil and human rights as guaranteed under the U.S. Constitution and international human rights law.

Who is Pepper Sprayed? The ACLU’s 1995 report, Pepper Spray Update: More Fatalities, More Questions, examined the circumstances surrounding the first 26 known pepper spray related in-custody deaths in California. None of these 26 cases involved an arrest for a serious or violent crime. In fact, only four of the individuals had either committed, or were suspected of having committed, any crime at all before police arrival. The majority of those who died were acting in an irrational manner or experiencing some sort of psychiatric crisis when the police arrived. Although most of the deceased reportedly tested positive for drug toxicity, in only six of the 26 cases was the amount of drugs in the person’s body determined sufficiently toxic to be lethal.

The ACLU’s data points to a broader trend of pepper spray being used against men, especially men of color, who are experiencing psychiatric or substance abuse

51 Ibid.
52 ACLU, 1995, op. cit., p. 25.
related crises. Pepper spray is definitively not an appropriate tool with which to respond to psychiatric crises. Nor, given the data above, is it effective. Furthermore, its use arguably violates the terms of the Americans with Disabilities Act.⁵⁴

In addition to arguable bias against people with psychiatric disabilities, pepper spray is disproportionately used against people of color. In 1995, the ACLU reported that Latinos accounted for 27 percent of the pepper spray-related deaths in California. 19 percent of those who died were African-American. Nationwide, the percentages were 43 percent African-American and 17 percent Latino.⁵⁵ The San Francisco Police Department reported 81 incidents of pepper spray use by police. Forty of those people sprayed were African-American. Only one of those 40 was a woman.⁵⁶ The 1997 pepper spray-related death of an African-American man in Winston-Salem, NC focused community attention on the fact that 80% of those sprayed by the police that year were African-American.⁵⁷

These numbers concretely demonstrate common biases about who criminals are and what they look like. By more frequently associating “danger” with people of color, African Americans, Latinos, Asian Americans and Native Americans are frequently forced to suffer excessive and unwarranted abuses based on the private prejudices of whoever wields the pepper spray can.

**Pepper Spray and Crowd Control** The original CDoJ and CalEPA regulations governing pepper spray clearly stated that the weapon should not be used for crowd control purposes. Despite this, there are a number of incidents where the weapon has been used to this end. The only conclusion that can be drawn from this misuse of the weapon is that officers cannot be trusted to use it in a safe and responsible manner, regardless of the regulations that accompany its use.

- In April 1995, the Eureka, CA police department used pepper spray at that town’s Earth Day Music Festival after a fight broke out between two people. According to eye-witnesses:

  “They were pepper-spraying everybody,” says Robin Walker, who attended the festival. “People were leaving, and they were being sprayed inside and outside.”
  “It looked like a big fog on the whole block,” says David, a concert attendee who asked that we not use his last name. “They were spraying on and off for at least twenty minutes.”⁵⁸

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⁵³ This 1990 Act provides for equal treatment of people with disabilities, including psychiatric disabilities, by public agencies, including law enforcement agencies.
⁵⁸ COPWATCH Report, Spring 1996, Berkeley, CA, p.3
Later that year, on October 20, 1995, police in Fresno used pepper spray to break up a fight in a high school. "First hand reports indicate that police used pepper spray even after the fight ended to disperse students who were watching, and that individuals waiting at a nearby bus stop were affected."  

In April 1997, students at the University of California at Berkeley attempted to take over a campus administration building during a protest against Proposition 209, a statewide initiative that ended public affirmative action programs. Campus police responded by pepper-spraying students.

**Pepper Spray as an Instrument of Torture** As noted above, Michael Cohen draws attention to the potential for pepper spray to be abused as an instrument of torture. He is particularly concerned about the use of pepper spray on minors. He writes:

"I have reviewed aerosol restraint practices in secure juvenile facilities in two states. In these facilities, when defiant youth disobeyed correctional officers, escalating cycles of provocation and restraint occurred. This resulted in repeated use of tear gas or pepper spray... [T]he punitive use of pepper spray to force compliance through fear of reprisals is within the scope of common definitions of torture."

Cohen’s concerns have become particularly relevant in the light of actions taken in northern California by Humboldt County Sheriffs’ Deputies. During the fall of 1997, activists protesting the logging of ancient redwoods were subjected to unlawful use of pepper spray when deputies applied the chemical directly to protestors’ eyes with Q-Tips. This happened on three occasions between September 25 and October 16. The first and third incidents were videotaped by authorities. This footage was aired on national television causing widespread concern. Amnesty International called for a national review of police use of pepper spray, arguing that, “Pepper spray by police in California against peaceful protesters...is cruel inhuman and degrading treatment of such deliberateness that it is tantamount to torture.”

In letters to the Humboldt Sheriff’s Department and the Eureka Police Department, Amnesty International wrote:

61 Michael Cohen, op. cit., p.83.  
[The use of pepper] spray was clearly abusive as it was… applied in a calculated and deliberate way to inflict pain as a way of gaining compliance in cases of demonstrators who posed no threat... The sheriff's department and possibly the police departments actions during the protests also appear to have violated international standards set out in the UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials.  

These Principles require careful control in the use of non-lethal weapons, so as to minimize the risk to uninvolved people. Three criteria should guide the use of force: it should be used only as a last resort; it should guard against arbitrariness or abusiveness; and it should be used in proportion to the threat encountered. Clearly, these criteria were not followed by Humboldt County Sheriffs when they used pepper spray on protestors.

Police Use of Pepper Spray In San Francisco

African-American 49%
Other 51%

In-Custody Deaths Following Police Use of Pepper Spray in the State of California

African-Americans 19%
Latinos 27%
Other 54%
In-Custody Deaths Following Related to Police Use of Pepper Spray Nationwide

- African-Americans: 43%
- Latinos: 17%
- Other: 40%
Conclusion:

This report makes the case that there is an urgent need for a moratorium on police use of pepper spray. As this report argues, pepper spray is unpredictable, unreliable and potentially lethal. It was adopted for use by law enforcement agencies across the country before being adequately tested; according to medical research, its active ingredient is extremely hazardous when inhaled by people or animals; it is often incapable of meeting the stated goals of incapacitating aggressive people; and it is used in a discriminatory, and sometimes torturous, manner.

At least 100 people have already died nationwide; this number is likely to rise if officers continue to carry and use pepper spray. When officers use pepper spray they are effectively playing “Russian roulette” with people’s lives. The risks associated with police use of pepper spray are so great, and the possible benefits are so minimal, that the only appropriate and responsible action is to place a moratorium on its use.

Back cover:

Ella Baker picture and text – explaining who she was – from web site

Back page –

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