Environmental Crime Forensics

Jim Ramer

Abstract

The Law Enforcement Agencies in the State of Florida have a new mission and face very dangerous additional tasks that go far beyond traditional crime investigations. In today's world of increased threats of International and Domestic terrorism and unconventional environmental crime Law Enforcement has been forced to undergo tactical and operational changes. The threats have broadened the risks and subsequently agencies have had to increase the training, equipment and technical skills of first responders, emergency management, uniform officers, forensic specialists and investigators. Surveys were sent to Sheriff's Offices and Police Departments across the State of Florida to determine the level of knowledge and investigations of environmental crimes by local law enforcement.

Introduction

The Department of Environmental Protection (DEP) has forged ahead in the field of Emergency Response and Environmental Crime Scene Forensics to deal with these non-traditional incidents. DEP personnel and forensic technology is available today to assist all levels of Law Enforcement Agencies within Florida. DEP was the first state agency to establish an Emergency Response Team (ERT) capable of deploying Law Enforcement Officers and Forensic Specialists equipped with Level A Personal Protective Equipment and instrumentation into a "Hot Zone" to collect evidentiary samples for criminal investigations. DEP in addition has a State Wide Forensic unit with a high tech portable lab with scientific forensic technology and support personnel capable of responding statewide to assist in matters of environmental crime and public safety issues.

The information presented in this research project will provide a conduit for other Federal, State and Local Law Enforcement Agencies to increase awareness, facilitate education and to disseminate reference materials on forensic technology deployment. A comprehensive presentation demonstrating the technologies, personnel, and services available to investigate environmental crime scenes and tactical information to help protect our first responders and the safety of our citizens will be the result of this research project presentation. Finally, information about what new forensic technology is being developed both domestically and internationally for future use by law enforcement and forensic technicians will be reviewed.

Based on personal experience established through actual field work and extensive statewide networking there appears to be a situational problem regarding the knowledge and familiarization on all levels of law enforcement in the state of Florida concerning the technology, personnel, and response services available for Domestic Security, Weapons of Mass Destruction, bio-chemical, hazardous materials and especially routine environmental crime scene investigations currently available from DEP Division of Law Enforcement. The focus of solving the problem will be primarily to educate law enforcement personnel on the forensic technology and tactical response personnel currently available and more importantly what new future technologies will become available to assist in crime scene investigations.

The questions that were researched and ultimately answered are as follows. What are the tactical resources available currently to respond to "Hot Zone Crime Scenes" involving hazardous materials? What technology, forensic equipment, and assets are currently available? What are the dangers responding to "Hot Zone" crime scenes by first responders? What are the scientific skills and knowledge of environmental crime scene investigators and forensic specialists? Why is it important to have environmental forensic technologies available to crime scene investigators? What are the future trends and advances being made in environmental crime scene forensics technologies? What are the associated costs and requisition problems involved with forensic technologies? What can environmental crime scene forensic technicians do to educate law enforcement agency personnel on resource availability?

Actual research material was solicited from closed case files within the Department of Environmental Protection's Division of Law Enforcement. To include environmental crime investigations that utilized DEP Bureau of Emergency Response's Forensic Unit specialists and field equipment.

Research material on the dangers to First Responders deploying to crime scenes will be taken from: North American Emergency Response Guidebook, 2006, U.S. Department of Transportation; N.I.O.S.H. – Pocket Guide to Chemical Hazards, 2006, U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health; Emergency Response Guidebook for Weapons of Mass Destruction Incidents, 2001, U.S. Department of Justice, State Preparedness Support; Department of Homeland Security, 2006, Incident Command for Emergency Personnel; and the Environmental Protection Agency, 2001, Criminal Investigation Division, Federal Law Enforcement Training Center Manual, Advanced Environmental Crimes Training Program.

Research materials on the technology, forensic equipment and tactical resources and operations will be taken from Department of Environmental Protection (DEP), Bureau of Emergency Response, 2002, Forensic Sampling Resource Standard Operating Procedures, Statewide Forensic Coordinator Timyn Rice and DEP's Emergency Response Team, Standard Operating Procedures, 2007, Lt. Tim Gorman, Team Supervisor. Research materials on future technology for crime scene forensics were taken from Internet sites.

The objective of the research paper is to educate and disseminate information to my fellow agency supervisors about the environmental crime

scene forensics currently available from the Department of Environmental Protection to include a summary of the technologies, personnel and services available to investigate environmental crimes. DEP's Bureau of Emergency Response (Forensics) and Emergency Response Team (Tactical) are capable of entering Hot Zones in Level A Personal Protective Equipment to process and collect forensic evidence in addition to site evaluation and clean-up assessments.

Literature Review

First Responder Safety

The most important implication is that your agencies first responders and investigators are aware and cognizant and are not put in harms way but are kept safe from the multitudes of dangerous materials. It is recommended that patrol and investigative personnel receive some type of training to heighten their awareness of potential risks associated with environmental crimes. First responders can be unknowingly subjected to exposure to hazards and pollutants that can affect their health immediately or long term. Hazardous materials and waste can be brought home on their clothing or in their police vehicles affecting family or patrol partners.

Hazardous waste and pollutants can have many characteristics. The four most common characteristics are combustibility, corrosive, reactive, and toxic. Combustibility can result in tremendous fire. The corrosive types can be extremely caustics to eyes, skin and lungs even during minimal exposure. Reactivity, some hazardous waste under certain circumstances can cause explosive and violent chemical reactions. Toxicity includes many heavy metals that can poison the human system and not become apparent for a long period of time. (North American Emergency Response Guidebook, 2006.)

Emergency Response Team

Due to the potential for environmental criminal acts to occur, which may involve intentional hazardous and bio-chemical releases, the DEP Division of Law Enforcement, in partnership with other state and federal agencies, established the Environmental Response Team (ERT).

As part of the operational plans found in the National Incident Management System (NIMS), local law enforcement agencies will secure and preserve the crime scene but may be unable to enter the contaminated or hot zone. First responders will address the immediate safety threats outside the exclusionary zone. (DHS - National Incident Management System, 2006.)

The ERT was established to fill this need for providing entry into a contaminated hot zone to collect evidence. The ERT provides technical assistance and investigative and forensic sampling support to operational personnel at locations were an environmental pollution incident or public health threat has occurred. The ERT may also be called upon to respond to incidents

involving Weapons of Mass Destruction. The team has Personal Protective Equipment Level A entry, criminal investigative and environmental forensics capability. This request may come from local fire departments, the State Warning Point, the Regional Domestic Security Task Force, local emergency management directors, and/or other State or Federal agencies.

The Department of Environmental Protection's (DEP) Emergency Response Team (ERT) is a specialized team consisting of representatives from the Florida Departments of Environmental Protection (DEP), Health (DOH), Agriculture and Consumer Services (DACS), Transportation (DOT), Law Enforcement (FDLE), Financial Services – State Fire Marshal (SFM), Florida Highway Patrol (FHP), Florida Fish & Wildlife Conservation Commission (FWC), Florida National Guard 44th Civil Support Team (CST) and the U.S. Environmental Protection Agency (EPA). (Emergency Response Team Operations, 2007.)

The ERT has DEP Law Enforcement Special Agents and other State Law Enforcement officers that can enter contaminated areas known as "hot-zones" for the purpose of documenting and collecting criminal evidence. Additionally, the ERT has trained technician level responders that have the ability to conduct forensics sampling of unknown chemicals and other materials, conduct on-site preliminary analysis of chemical or biological threats and to obtain and secure evidentiary samples for the purpose of analytical testing at support laboratories.

In the National Strategy for Homeland Security Report in October of 2007 a section titled "Respond To and Recover From Incidents" states the homeland security community has used the terms "incident management" and "response" in complementary and occasionally interchangeable manners. Within this strategy, "response" refers to actions taken in the immediate aftermath of an incident to save lives, meet basic human needs, and reduce the loss of property. "Incident management", however, is a broader concept that refers to how we manage incidents and mitigate activities, including prevention, protection, and response and recovery. (National Strategy for Homeland Security, October 2007.)

The ERT was established to support local and state response operations for incidents suspected to involve criminal activity including potential terrorist events. The ERT can deploy to an area of operations to assess a suspected chemical or hazardous material event in support of a local Incident Commander, advise civilian responders regarding appropriate response actions, and investigate potential criminal activities including terrorism events. The ERT does not replace the role of first responders, such as the Fire Department HazMat or the Incident Commander, but will support local and state resources with special technology. Wearing protective gear, the ERT can verify the perimeter of the exclusion zone; this is a considerable safety measure for uniformed officers arriving on scene to set up cold zone perimeters.

Of particular interest for local agencies is the unique presence of Law Enforcement officers and agents in Level A equipment embedded within the entry team. Being armed and connected by intrinsically safe communications they provide security for first responders and forensic technicians entering the

contaminated area or “hot zone”. The Law Enforcement personnel conduct reconnaissance and detection of threats down range prior to sampling missions.

The team also has access to state laboratories for chemical analysis of unknown agents including Department of Health, Department of Agriculture and DEP Central Laboratory in Tallahassee. In addition, the ERT is supported by the Army 44th Civil Support Team which can provide analysis of biological warfare agents. (Emergency Response Team Operations, 2007.)

Statewide Forensic Unit

The Department of Environmental Protection (DEP) is the lead state agency responsible for environmental crime investigation. Within DEP Division of Law Enforcement there are the Bureau Environmental Investigations (BEI), Bureau of Park Police (BPP), and Bureau of Emergency Response (BER). Part of the BER group is the Statewide Forensic Unit.

The Bureau of Emergency Response (BER) has assigned one person to be the Statewide Environmental Forensics Coordinator for all the district offices. The Forensic Coordinators duties include the organization of resources statewide including personnel, investigative mobile forensic lab, and other technology and equipment. He coordinates sampling support from the DEP Central Laboratory and oversight of forensic sampling activities at major search warrants or crime scenes. The coordinator establishes training for forensic technicians and law enforcement officers working within the forensic unit. The coordinator in tandem with law enforcement agents brief Prosecutors at the State Attorney’s Office, provides expert witness testimony, interprets technical analytical data for criminal case files and supports others called to testify in judicial proceedings.

One BER Environmental Specialist in each district office is designated as the district Environmental Forensics Specialist. They support DEP Bureau of Environmental Investigations (BEI) criminal investigations and the Environmental Forensics Coordinator. Responsibilities include assisting BEI Investigators with case development, witness interviews, search warrants, environmental crime scene sampling, and proper chain-of-custody for evidence.

Forensic evidence may be from various environmental violations including illegal disposal or storage of hazardous waste, pollutants, oil spills, and industrial discharges. In addition to chemical evidence, samples are routinely taken of contaminated air, water, and soil at crime scenes. (Forensic Sampling Resources Standard Operating Procedures, 2002, Rice.)

In a report released by the Environmental Protection Agencies (EPA) National Enforcement Investigative Center it states that; all the scientific tools and technological capabilities, along with the resources required to investigate an environmental case, should be singularly focused to prove the allegations. Scientific and technical conclusions then should be presented cogently so a jury can clearly understand that the defendant committed the crime. (EPA National Enforcement Investigative Center, 13th Interpol Forensic Science Symposium, October 2001.)

Incidents involving an on-going release, the spill/release must be stopped and the area made safe to work in before the criminal investigation starts. A BEI special agent that is trained to the level of Federal Standards for Hazardous Waste Operations and Emergency Response, (HAZWOPER), may be used with the BER responder to make entry into the hot zone. The BER responder and BEI Agent will work together to conduct a safe entry consistent with the hazard level. Crime scene processing procedure would include photographing the entire scene before the investigation begins to document what it looked like prior to the investigation, checking the integrity and condition of the containers, noting any swelling, noise, vapors, crystallization, hardening and heat which can reveal the condition of the product. The Law Enforcement Agent on the forensic team is also capable of obtaining fingerprint evidence from containers at the scene. In safe conditions a first responder or patrol officer can record and document any markings, labels, and signs on containers. In addition, checking for footprints, tire tracks, other physical evidence, such as papers or trash items can be handled by the first officers on the scene.

In the EPA report to the 13th Interpol Forensic Science Symposium in France, October of 2001 the author states; all members in an environmental investigation have the personal responsibility for contributing quality work. The relationship between the QA procedures and actions in an investigation has a significant affect within the courtroom. The scientific expert, giving an opinion on how the data relates to the case, must be someone with the experience, education, or training to address the issues. But the expertise of the scientific witness is not always the focus of the strongest amount of scrutiny; it is quite often the execution of the methods involved in the measurement process (sample collection and handling, chain of custody, QA/QC, etc.) that is examined most closely. Therefore, all individuals involved in any part of the investigation must produce defensible work. (EPA National Enforcement Investigative Center, 13th Interpol Forensic Science Symposium, October 2001.)

Forensic Technologies

The BER Forensic Unit and emergency responders have at their disposal specialized technologies for use at incidents and crime scenes. Equipment including self contained breathing apparatus, Level A Suits, which are totally encapsulated, Level B Suit, and Level C gear. The team is set up to conduct field decontamination of personnel and equipment.

BER vehicles and forensic mobile lab are equipped with response gear that includes Digital PH meters, used to determine corrosively characteristics for hazardous waste determinations; Draeger CDS Kit, a colorimetric air sampling tubes used to determine specific concentrations of specific pollutants in the air; BW Personal Air Monitor that clips onto the belt and alerts the wearer of hazardous atmosphere, especially oxygen content and explosive gases, costing about $300 apiece; Photovac Photo Ionization Detector, which measures total organic vapor concentrations in the air (in parts per million), cost approximately $2500; RKI Eagle Portable Multi-gas Detector, it provides simultaneous detection

of 6 types of gases, Oxygen, LEL, Carbon Monoxide, H2S, NH3, Cl2, costing around $3000; Lumex Zeeman Spectrometer, a highly sensitive atomic absorption technology that measures mercury concentrations in air down to the parts per trillion range, starting cost $18,000; Ludlum Radiation Detector, measures alpha, beta, and gamma radiation, Smith's Detection Travel/R infrared spectrometer, identifies unknown liquids, solids, and powders by measuring the molecular infrared absorbance and comparing it to an internal library, costing $53,000. Additional forensic technology currently employed includes Responder RCI Raman Spectrometer, HGVI Ion Mobility Spectrometer, Portable GC/MS and HazCat Kit, a field wet Chemistry set.

The Forensic Units Mobile Lab has a laboratory grade instrument used to conduct presumptive field-testing called a Constellation Technologies Gas Chromatograph/Mass Spectrometer. It is used to positively identify volatile and semi-volatile organics. This includes all solvents, pesticides, nerve agents, blister agents, VX, etc. It has been miniaturized and stabilized for field deployment. Initial cost was $130,000.

Future Technologies

The DEP Forensic Unit is requesting procurement of new advanced technology available on the market today. New Technologies being considered includes Smiths Detection HazMatID/RespondeR RCI System, a combination infrared spectrometer and Raman spectrometer for the rapid identification of unknown liquids, powders, and solids. Projected cost, $83,000. Smiths Detection HGVI, Hazardous Gas and Vapor Identifier, is a hand held, multi-sensor TIC and CWA detector and identifier. Projected cost, $25,000. Niton XL3 Hand Held X-ray Fluorescence Analyzer to identify and quantify heavy metals and other elements in solid and liquid samples. Estimated cost, $28,000. The GSSI Ground Penetrating Radar System to assist in the location of buried or hidden threats and evidence. Cost around $20,800. (BER Statewide Forensic Unit, 2007, Rice.)

Forensic Technology for Chemical Fingerprinting is an example of future technology in Environmental Crime Scene Forensics and the use of mass spectrometry and liquid chromatography, LC-MS. The use of mass spectrometry (MS) to extract chemical fingerprints from microscopic levels of collected substances is very valuable in establishing evidentiary identification and quantification of a wide range of compounds. In the past few years' science has made great strides in development of powerful technologies, which have provided forensic scientists with new analytical tools. Currently open to specialists from a variety of scientific disciplines are gas chromatography (CS)-MS, liquid chromatography (LC)-MS, isotope ratio MS, and coupled plasma –MS. All have become routine tools enabling detection and characterization of minute quantities in what can often be very complex matrices. There has been an expansion in the range of new products available for solving many analytical problems and the instrumentation has reached an affordable price for many agencies. (G. De Boeck, M. Wood and N. Samyn. 2002, November).

On the international environmental forensic scene there have been some new innovative technologies becoming available to investigators. Now science and law enforcement have a forensic tool to help determine which vessels and persons are responsible for oil spills. It is known as Oil Spill Fingerprinting. A multinational team developed a system referred to as “Eurocrude”. Its mission was to improve the scientific methods and technical knowledge in support of forensic evidence. This would result in the ability to uniquely identify the suspect and be sustainable in legal proceedings. The goal was to develop a database of fingerprints for crude oil produced and transported over international waters. The “Eurocrude” system would provide an effective identification to work those cases where there was no suspect ship. The fingerprinting of crude oil and refined oil products is based on geo-chemical characteristics and composition. Petroleum oils contain a diverse and complex group of chemicals known as biological markers, or “biomarkers”. They occur naturally over millions of years and cannot be make artificially by man. There are some 100 biomarkers but their complexity and variations are based and depend on geographical areas from where the oil was extracted. These are the characteristics that provide a unique “fingerprint’ and the method produces the highest quality evidential value for law enforcement and prosecution. (Oil Spill Fingerprinting and Source Identification by Eurocrude, April 2006.)

Environmental Pollution has become a worldwide problem not only affecting a communities natural resources but as current trends demonstrate there has been a profound change to economic losses and escalation of associated crime. Local, state, federal and international law enforcement agencies are increasing manpower, resources, budgets and prevention cost for an environmental problem that has gone global. Interpol’s new approach, *Pollution Crimes Working Group*, is an international strategy focusing on multiple countries in a cooperative partnership.

Interpol has focused its investigations on the role of organized crime and the huge profits from illegal environmental crime activity. The world has a global economy and Interpol is making efforts to develop analytical trends and patterns in the transportation and disposal of hazardous wastes to assist countries from becoming victims of contamination. Interpol is developing a manual to help countries worldwide in the prevention and investigation of the cumulative and adverse effect of oil discharges to all waterways. More importantly, is Interpol’s development of a *Penalties Project;* criminal punishment on an international scale that fits the crime. The economic penalties must be a deterrent to violators; the penalties must outweigh the illegal profits. (Interpol – Environmental Crime, (2007, March 13). *Pollution Crime Issues.*)

Research Method

Information for my research paper was generated from practical field experiences and supervision of major environmental case investigations, search warrants, regulatory inspections, and forensic evidence sampling events that

occurred around the entire state involving forensic technology. Active participation in the Tampa Bay Regional Domestic Security Task Force and a supervisory leader in the Tampa Bay Environmental Task Force provided extensive experiences in networking among the local Sheriff Offices and Police Departments.

Some Sheriff's Offices and Police Departments have either agriculture deputies or environmental deputies/police officers that conduct investigations within their own County/City jurisdictions. Based on DLE case experience most do not have access to environmental forensic units. DLE Special Agents under my direct supervision have had extensive interactions with deputies and police officers conducting fieldwork, but most importantly, providing technical assistance, and coordinating forensic sampling by DEP's Statewide Forensic Unit for those agencies without those resources. With this in mind the survey questions were sent to Sheriff Office's and Police Departments in Florida to obtain a consensus and capture information on the amount of environmental crime occurring and the potential need for forensic support in local jurisdictions. In addition, was training needed for patrol, investigative and special operations personnel among those local agencies?

The survey sent to respective agencies had two parts. The first section of the survey contained questions in reference to the number of criminal violations of Florida's Environmental Laws were occurring in each county or city jurisdiction. More specifically, violations dealing with chemical, hazardous waste, petroleum, water and air, illegal dumping of solid wastes, and pollution. (Of special note: depending on circumstances of the violations, potentially certain violations could result in the need of technical assistance in the form of Forensic Evidentiary Sampling.) The survey instrument also attempted to capture the amount of arrests by local agencies around the state of Florida and finally how many of those violations were forwarded to DEP Division of Law Enforcement for criminal investigation, which could potentially require forensic sampling. The second section of the survey contained the question of whether or not each agency would be interested in DEP providing training for their law enforcement personnel on environmental crime investigation and forensic technology.

Results

A survey questionnaire was disseminated to 365 Sheriff Office's and Police Departments in the State of Florida. (See Appendix A.) A total of 140 agencies responded to the survey questionnaire. The survey instrument captured statistical information on environmental violations occurring in respective jurisdictions for the year through November 2007.

Out of the 140 total responses 88 agencies reported one or more of the listed types of environmental violations on the survey, which include; pollution, dumping, chemical/petroleum and air/water violations having occurred in their jurisdictions.

From the above total of 88 agencies reporting violations 80 reported a total of 3 or less individual environmental violations occurring in their jurisdictions in 2007.

Out of the 88 agencies reporting environmental violations a total of 43 conducted criminal investigations. And out of the 43 agencies that conducted criminal investigations, only 29 of those agencies made criminal arrests for a total of 1,304 arrests.

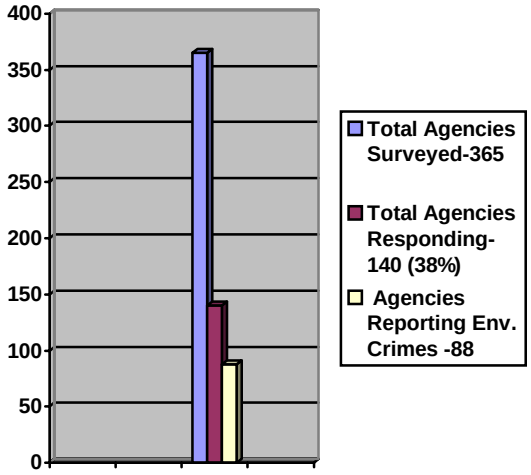
Pollution violations were reported by 16 agencies for a total of 199 individual violations. Petroleum/chemical violations were reported by 27 agencies for a total of 361 individual violations. Air/Water Environmental violations were reported by 24 agencies for a total of 278 individual violations. (Technically the above violations could result in potential major case investigations requiring some degree of forensic sampling for evidence for prosecutorial purposes.)

From the 140 responding agencies 39 of those agencies referred violations to other government entities, such as Code Enforcement, Health Department, Department of Agriculture, etc.

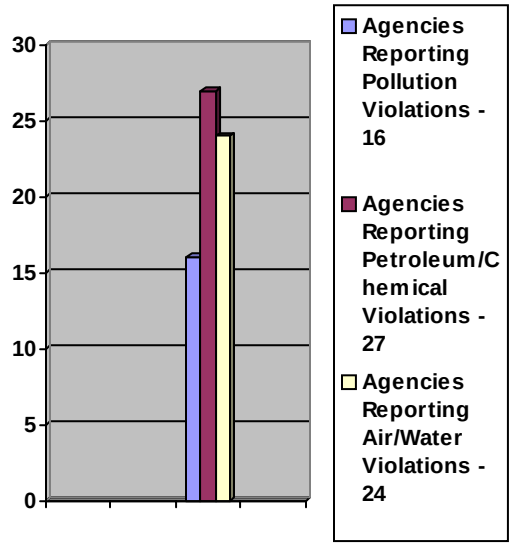
Of the 140 Sheriff Office's and Police Departments responding to the survey only 14 agencies forwarded a total of 508 cases involving pollution, petroleum, chemical, air, and water environmental violations which typically require some degree of evidentiary sampling for prosecution or compliance enforcement. Of those 508 violations only 63 environmental violations were brought to DEP Division of Law Enforcement for investigation according to the survey feedback.

Included are four graphs depicting pertinent data relevant to environmental forensic evidence and investigations.

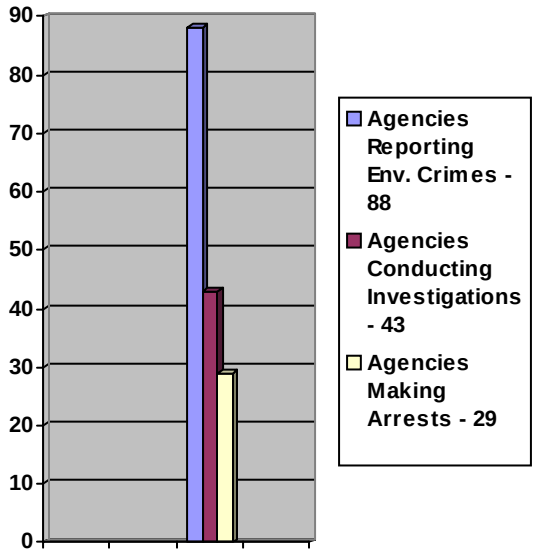
Graph 1



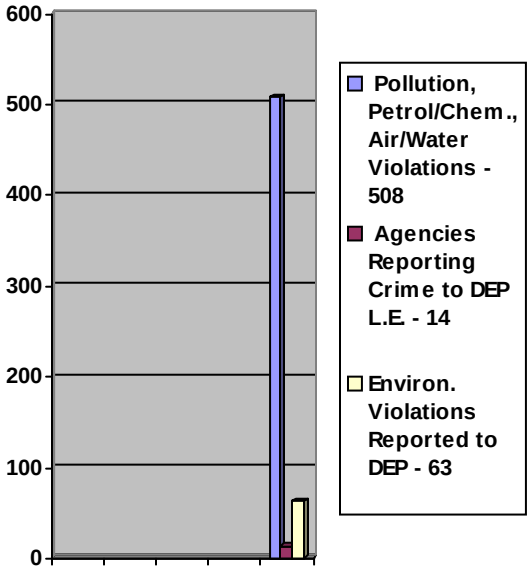
Graph 3



Graph 2



Graph 4



The second part of the survey questionnaire requested a response from the agencies if they would be interested in environmental investigative training. 88 agencies requested information on training and 52 declined services.

Discussion

Historically over the last fifty years environmental laws and regulations in the United States became more and more pronounced especially starting in the 1960's and 1970's. For many years the United States Environmental Protection Agency and Florida's regulatory agencies were the first defense against violators. Generally using compliance and enforcement through civil action to deal with environmental violators.

In the state of Florida, Sheriff's Offices and Police Departments over generations have dealt primarily with commonly known public safety issues and crime fighting. There are some Sheriff's Offices who have Agriculture Units enforcing particular crimes related to rural areas in their perspective jurisdictions. Most state agencies such as the Florida Highway Patrol, Florida Department of Law Enforcement and Department of Transportation for example, conduct specialized crime enforcement in their particular area of expertise.

There are agencies historically who have enforced laws for resource, fishing and boating violations such as the Florida Marine Patrol and the Fish and Wildlife Commission. The Fish and Wildlife Commission worked with the then Department of Environmental Regulation in past years enforcing environmental laws, subsequently being taken over by the Florida Marine Patrol who established an environmental investigative unit in the 1990's.

In 1999, the Florida Marine Patrol and Fish and Wildlife Commission merged together to form a new agency. The then established Department of Environmental Protection retained the environmental investigative unit from the FMP. Thus, in 1999 the first full time state agency dedicated primarily and exclusively to investigate environmental crimes was established within the Department of Environmental Protection. The Division of Law Enforcement Bureau of Environmental Investigation's mission was to partnership with Regulatory Districts to protect Florida's environment.

The DEP Division of Law Enforcement has made tremendous strides in investigation, remediation and prosecution of environmental crime in Florida. After the unfortunate incident on 9/11 DEP Division of Law Enforcement partnered with other state agencies to establish the first Environmental Response Team for tactical and forensic operations around the state. DEP Office of Public Education and Training has provided basic environmental investigations training. This writer believes after extensive networking, interviews, training, field work and reviewing the results of the research survey there is still work to be done to heighten awareness of the resources and personnel available to assist other local and state agencies with environmentally related issues in their communities. DEP Division of Law Enforcement has the experience and technology to successfully resolve those issues.

Recommendations

In reviewing the information from interviews from within the environmental enforcement community and activity reported in the survey of Sheriff Offices and Police Departments, some recommendations can be made.

- Send a letter to Agency heads offering continued training and education for law enforcement personnel from DEP
- Provide environmental crimes prosecution training to the State Attorney's Offices
- Continue basic environmental investigation training classes from DEP Office of Public Education and Training
- Encourage local law enforcement attendance at DEP regional Environmental Task Force meetings.
- Active participation in Regional Domestic Security Task Force meetings.
- Disseminate DEP's Handbook to State Environmental Crimes for Patrol Officers, Investigators, and Regulatory Specialists.
- Networking with State and Local agency Special Operations Units.

- Involve civilian environmental groups in discussion of issues in their communities.

- Conduct a media campaign through television, radio and print to encourage participation in environmental awareness and to educate the public about DEP resources, personnel and services.

- Continue building relationships with local law enforcement by networking and providing technical assistance for investigations.

Captain Jim Ramer has been in Law Enforcement with the Department of Environmental Protection for over 21 years. He started with the Florida Marine Patrol in 1986 as a uniformed police officer. In 1999, the Florida Marine Patrol left the Department of Environmental Protection to form a new agency with the Florida Fish & Wildlife Conservation Commission. Jim remained with DEP as an Environmental Investigator. Jim has a bachelor's degree in Criminology from the University of South Florida.

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Appendix A
Research Questions

Florida Department of Environmental Protection
Division of Law Enforcement

Environmental Crimes Survey

Please tell us who you are.

- Organization Name: _____
- City/County Location: _____

1. In the last calendar year, how many calls for service did your agency/department respond to which involved allegations of environmental crimes, including causing pollution; illegal dumping of hazardous, solid, or other wastes; chemical or petroleum violations; or other violations relating to the air, water or the environment?

a. Pollution Violations? _____
b. Illegal dumping? _____
c. Chemical or Petroleum Violations? _____
d. Other Air, Water, Environmental Violations? _____

2. Of these calls, how many were handled as criminal violations, and how many were referred to other agencies or entities for enforcement or disposition (such as DEP, the Florida Department of Agriculture and Consumer Services, Health Departments, local code enforcement, environmental management, etc.)?

a. Handled as criminal violations? _____
b. Referred to other agencies? _____

3. If handled criminally by your agency, how many resulted in arrest? _____

4. How many were forwarded to the DEP DLE for criminal investigations? _____

5. Please provide the name of a contact person in your agency that might assist in gathering more information relating to environmental crimes that are occurring in your jurisdiction, including arrests, investigations, records, and referral procedures regarding these crimes.

- Name: _____
- Title: _____
- Phone #: _____

6. Yes, we are interested in specialized training on enforcement and investigation of environmental crimes. Please contact:

- Name: _____
- Title: _____

Phone: _____