NYC

After Action Report

Chemical Disaster Management

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Lastly, but indeed the most important element in our research, we would like to thank our Emergency Responders for they are the glue that keeps our great City together. This report will hopefully improve the training, equipment and preparedness they will have in this specific area of concentration.

After Action Report

Chemical Disaster Management

Executive Summary:

The City of New York has an obligation to provide for the safety and security of all who live, work and visit here. Our City views the safety of its citizens as its paramount responsibility and as more of a contract than a duty; there is no other major city in this country which devotes a similar or an equivalent amount of energy and resources towards this mission.

Our approach to assuring the safety and security of our citizens, as well as maximizing the energies and resources of our agencies is accomplished through the use of an Integrated Emergency Management System (I E M S). This coordination process is an enormous undertaking, requiring virtually every public agency and many private groups to organize their actions in the four phases of emergency management: mitigation, preparedness, response and recovery. The Administration has sought to calm fears of all New Yorkers by exercising the I E M S during a drill and to reassure them that the City of New York is ready and capable to respond to incidents like the Tokyo Subway disaster.

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The City of New York's first No Notice Mobilization Exercise of April 11, 1995 provided our citizens with a snapshot of the energies, resources and commitment that the men and women from our emergency community provide on a regular basis. This exercise has resulted in each of the participating agencies reviewing their procedures, protocols and emergency management approach to chemical disasters. This report will walk through the events leading up to the mobilization, examine research conducted afterwards and discuss recommendations for the future. The facts of this report will show that while staged exercises/drills derive some benefits, a No Notice Mobilization Exercise, which gradually becomes more developed over time will provide a more effective evaluation tool for senior staff to determine:

- Human Resource - Training needs
- Equipment - Assessment/Procurement
- Policy - Review/Enhancement
- Procedural - Implementation/Compliance

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Each of the three primary responding agencies (NYPD, FDNY and NYC*EMS) have been provided with a video tape which captured this exercise (Production compliments of WNYC). This video tape will augment each agency's own video, still photography and institutional memory of this exercise.

These agencies have been requested to review the video tapes and their procedures, so the Office of Emergency Management can develop a comprehensive plan to prepare for these types of emergencies. This planning exercise by the Office of Emergency Management is in progress and is due to be completed by Fall of 1995.

Background:

On March 20, 1995, alleged followers of Japanese cult leader Shoko Asahara released a chemical substance identified as Sarin* into the Tokyo subway system. Sarin is an odorless, tasteless and highly toxic gas that affects a person's central nervous system in a matter of seconds. This substance was designed to be used in chemical warfare and has no beneficial or otherwise useful application. The introduction of Sarin into the Tokyo subway system was for one purpose: to kill. Upon its release into the subway system, twelve people were killed and hundreds of people were otherwise overcome by the gas. This senseless attack against a civilian population prompted many cities with a subway system to reexamine their security and safety programs. New York City proceeded immediately to research the available resources and personnel necessary to defeat a similar occurrence. However, the safety and preparedness issues took on an entirely different dimension. If there was a similar incident in the subway system, was New York City capable of responding and to what extent? Did the City have the necessary resources and personnel to effectively undertake a rescue operation? All these concerns and issues fell directly into the scope of the City's Administration. This

provided the Administration with an important opportunity. Did the City's primary first responders and rescue apparatus (FDNY, NYPD, EMS*NYC) have both the capability and the appropriate level of preparedness to respond to a toxic gas or chemical incident?

***SARIN**

Isopropylmethylphosphonoflupridate is a nerve gas (organophrosphorus compound) that is stable, easy to disperse, and is odorless and invisible. Sarin, as in the case of all nerve agents, is stored as a liquid but may be dispersed as a cloud of vapor or as a spray of liquid droplets. Should the agent penetrate the body, either by inhalation or by percutaneous absorption, it will react with several enzymes but principally with acetycholinesterase, which is an enzyme responsible for destroying acetylcholine after is has performed its function of transmitting nerve impulses. Inhalation of acetycholinesterase will precipitate a loss of control over the affected part of the nervous system and permit a rapid accumulation of acetylcholine, a very powerful poison. Very low dosages will cause a running nose, a tightness of the chest, dimness of vision and contraction of the pupils. At higher dosages the symptoms will progress from difficulty in breathing to drooling and excessive sweating, nausea, vomiting, cramps and involuntary defecation and urination; twitching, jerking and staggering; confusion, drowsiness, coma, convulsions and finally death. These symptoms will appear much more slowly

from skin dosages than from respiratory dosages. Respiratory lethal dosages will kill in 1 to 15 minutes and, although lethal dosages absorbed through the skin could kill as quickly, death from percutaneous absorption of the Sarin could be delayed from 1 to 2 hours. The victim(s) of a sublethal exposure will probably recover within a few days, but some may suffer irreversible damage to the central nervous system because of anoxaemia.

Initiative in Chemical Defense, Chemical Research & Development Center, Aberdeen Proving Grounds.
Health Aspects of Chemical and Biological Weapons, World Health Organization (Geneva), 1970,pp 39

Introduction:

The City of New York has been both a host and a victim to many challengers and some disasters. However, in every instance it has been the tenacity, the expertise and the vast resources of the City's agencies and employees that have risen to the occasion. On the occasions where disasters have occurred much of the successful outcomes can be contributed to the City's rescue orientated agencies.

The resiliency of these emergency responders have exemplified the City Administration's motivation and commitment to emergency planning. Thus, the development of a wide range of training programs to meet a broad spectrum of potential disasters has begun. Yet, in most of these scenarios there has always been a common tangible denominator. That one factor, or set of factors, clearly dictates and regulates what type of condition exists and the procedures to follow. Whether it be a fire, an explosion, or a building collapse initial reaction evokes mental check list of procedures and counter measures. Implementing an instantaneous, check list approach to disasters is beneficial, because training and procedural processes can be easily recalled and acted upon. However, the potential of some disasters, essentially human in design, goes far beyond traditional procedures and conventional training.

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In the age of intentional human casualties many of the procedures and training must adapt to the prevailing mandates. If not to complicate matters more, some of these more insidious, premeditated incidents are aimed principally at the rescuers rather than at the stereotypical targets. There is no question that the City's primary rescuers are well trained, equipped and experienced in a variety of potential and actual incidents of conventional means. The issues here are both managerial and operational. A review of the present level of training, an equipment and procedure assessment and an intelligence data collection needs to meet the requirements of unconventional situations. One of the best means to determine the City's capabilities would be to simulate a tenable disaster. The unfortunate events of the Tokyo subway system offered this City a similar backdrop. The City's Administration is not determining the plausibility of anticipating an extraordinary incident, but rather the City's ability to effectively respond this danger.

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There are six major concerns facing the City in respect to Chemical Disaster Mangement and Emergency planning for all disasters:

- Is the City's disaster plan adequate and comprehensive? Does this plan enhance the quality of staged drills? The concern here is that well developed plans should provide an adequate backdrop for agency's to test their procedures.
- Are the primary rescuers supplied with necessary clothing and equipment to meet the environmental requirements?
- Are the primary rescuers fully trained and familiar with procedures pertinent with this type of incident? Have Operational staff received updates and briefings on topical issues and incidents which might require the reviewing of more technical information?
- Are the primary, secondary, auxiliary and support personnel familiarized with the contamination and containment procedures?
- Are the primary health care providers familiar with the adverse medical conditions and the extraneous medical procedures that must be observed. Have EMS and the authorities in the emergency medine field conducted mock field hospital exercises?
- In deciding to have several Citywide No Notice Emergency Mobilizations Exercises each year can City agencies improve their planning development, procedural implementation and response capability?

Objective:

At the direction of the Mayor, the Office of Operations was given the responsibility to determine the capabilities and the preparedness of the City in light of the tragedy in the Tokyo. This type of evaluation and assessment of the City's first responders and primary rescuers would be most beneficial in a joint operation rather than an individual exercise. The general consensus was that such an enterprise would have to be set in a challenging location, at the least favorable time with as much confusion as a massive New York City disaster could generate. In strained, unusual and uncomfortable conditions often problems and procedural inadequacies become more readily apparent and can be addressed and rectified in the common interest. The intent of this exercise was to create an adverse atmosphere and demonstrate this City's ability to galvanize in a time of crisis. The participants of this exercise had the opportunity for re-assessment and reevaluation of their agency's procedures, resources and training. This exercise afforded the City's Administration the opportunity to examine the disaster plan and make a determination as to whether it was properly implemented. If this exercise were to achieve any conclusions or to assess the capacity of the City to react to a disaster, it would have to first replicate

the scene of a subway disaster. In the case of a deliberate gas or chemical release there would be little in the way of physical damage. That is of course unless the release was dependent on an explosive device. Second, one would have to examine the behavior of the emergency participants realizing that a minimal amount of information is available and most reactions are the results of bias and selective recall of traditional training. The depth of this conclusion, especially the behavior of the rescuers, depends on the perception of the initial rescuers and the presence of unexplained causalities (panic). What becomes more critical and germane to the intent of this exercise is the reaction and behavior of the second wave of rescuers. This behavior is perhaps the element that would be indicative of a response of an actual incident, resulting in additional causalities which could have been avoided. While increasing numbers of causalities may represent a comedy of errors, in a controlled environment, it is again symptomatic of the need for additional training.

Another element, and one that should have been very apparent, during this exercise was the need for specialized types of equipment. This inherently would include protective clothing designed to defeat the effects and exposure of toxic chemicals and lethal gases. In these types of incidents, especially for the Fire Services, the

turnout coat and SCOTT pack are totally inadequate and become a personal liability. All principle rescuers must be equipped with a Level A self-contained encapsulated suit. While these suits are extremely cumbersome and expensive there are, plainly put, no alternatives. Another piece of specialized equipment is a monitoring device used for the detection and analysis of toxic gases and chemical vapors. Instruments constructed solely to measure the level of oxygen in an area would have a restricted and limited use at incidents involving toxic gases. Meters dedicated to chemical and toxicity analyses not only determine the indigenous dangers, but also provide integral information on the potential character of the chemical or gas. This type of data is influential for health care providers in determining the necessary medical protocol and decontamination procedures. Contamination being one of the most critical and involved concerns resulting from this type of incident. The long term ramifications associated with contamination from gases or chemicals cannot be overstated. An opportunity such as this exercise provided the platform for such reinforcement of the importance for containment control.

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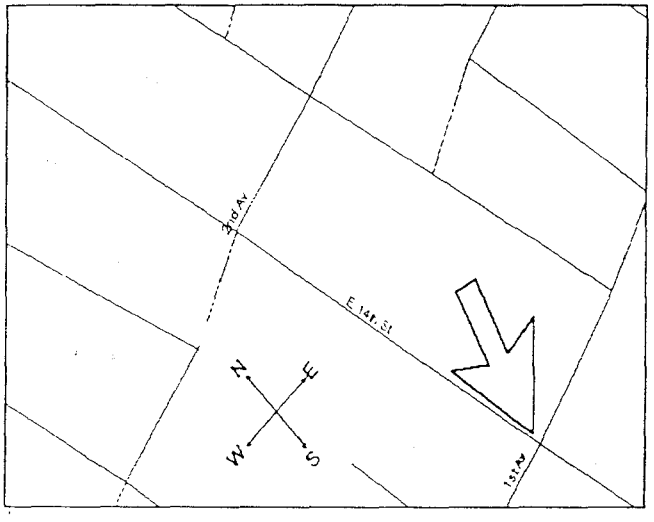
On April 11, 1995, at approximately 7:00 P. M. a report of an explosion and fire at the subway station located at East 14th Street and 1st Ave was transmitted over New York City Transit Authority, Transit Authority Police and New York City Police Departments, Fire Department and Emergency Medical Service Radio frequencies. At unspecified intervals there were updated broadcasts until fire, police and EMS units on the scene confirmed unconscious passengers and that a gas had been released on the mezzanine level. The confirmation, even one based on observation rather than on scientific fact, sets into motion the initial mechanism for a Hazardous-Material incident. This activation naturally changes the complexion of the response and the units that were to respond. ***These were the two most important time periods:*** the period before it is determined that the substance in the subway is a toxic gas and the period immediately after this determination. It is in this time reference where the greatest potential for human loss can unfortunately take place.



However, within this framework and acknowledging the limitations of an exercise, actual disasters have no sense of conformity, so that many factors were taken into consideration. The essence of a good mobilization exercise is the ability to bring to the surface not what is intrinsically done correctly or what inadvertently goes wrong, but rather the perseverance to bring effectiveness and efficiency from the sudden and headlong chaos of a disaster.

If this exercise were to achieve any goal, or to draw a conclusion it would have to be conducted in such a manner to develop the obvious and expect the unexpected. It was vital that this exercise replicates a disaster scene to the extent that there were casualities not only from the civilian population, but also from the ranks of the rescuers. Observing casualities from within their own ranks, the second wave of rescuers confronted not only what they saw, but questioned the very methods that had been universally accepted.

The most critical elements of this exercise were the actions of the first responders who descended on to the subway mezzanine. These individuals, armed with minimal information and faced with unexplained causalities lying on the ground, had to try to cope with confusion and conflicting priorities. Yet, the deciding segment of

this rescue operation would be decided by the second round, the back-ups, that were now entering the scene. The secondary personnel were faced with limited information that a toxic gas was involved. This led to more confusion and in discovering additional casualities, many of which were first responders, compelled the rescuers to make some very difficult decisions. Granted, by this time many rescuers knew that this was an exercise, however, the operation continued with as much authenticity as possible. From this point, the Office of Operations in cooperation with the participants, began a review of the individual agencies' performance and objectives.

When it was reported that an explosion and fire had occurred at the subway station at East 14th Street and 1st Avenue, it was initially under the operations control of the Fire Department. However, when it was determined that the incident was not a fire but an release of a lethal and toxic gas, the command and control reverted to the New York Police Department and operated with the representatives from all participating and appropriate government and private agencies and organizations. At the same time the individual agencies, departments and private organizations established their own command structures and visible and accessible Command

Posts (CP). Original difficulties developed with some of the Command Post locations, which would be a factor that permeated throughout the entire exercise. This concentration of the Command Post's locations in such a close proximity to the scene of a toxic gas or lethal substances incident would certainly limit their effectiveness. The Command Post developed blinders to events around them while at the same time needlessly exposed themselves to the lethal gases and fumes. Overall, the most glaring and disturbing action of the participants, specifically those who are responsible for the management of their individual operations, was the control of personnel, equipment and apparatus. This is a case of poor judgment and placed in its proper perspective is one that is easily corrected.

A second factor that was not as conspicuous but equally important was the lack of radio communications between participants. In many cases the On-Site Commander and the Command Post were relegated to face to face communications if any information was to be exchanged. There were occasions where components within the same organization could not communicate with each other. During the course of the exercise it became necessary to use messengers which can be time consuming and unreliable. What is being suggested is not a question of establishing a dedicated

frequency for disasters and other unusual occurrences within the City. The frequency mechanisms are in place and functioning; it is only a question of the participants employing the modified radios. Further more, the need to communicate utilizing cellular technology was hampered by the lack of secured cellular banks (cellular banks set aside in advance). This technology could have enhanced communication during this exercise.

Lastly, it was apparent from the beginning of the exercise that the staffing levels of some departments were so low that some participants were engaged at both the Incident Command and their individual Command Post. This duplication of the decision making process at times complicated situations by reducing the effectiveness of key management personnel and prerogatives.

Yet, this not withstanding, the intensity and the willingness to cooperate and exchange information, although not always flattering, was genuine and contributed to the success of this exercise.

THE NEW YORK CITY FIRE DEPARTMENT

The New York City Fire Department (FDNY) plays a vital role as a mechanism of the Office of Emergency Management's Disaster Plan. The implementation of the containment and the mitigation procedures of Hazardous-Materials is an area of immeasurable importance. The handling and containment protocols of toxic substances demands a great deal of sophistication and practicality. The FDNY has accrued a standing as the authority and innovator in the area of the Hazardous-Material substances. Lethal gases present a variety of new challenges in which there is a great deal yet to be learned. This exercise provided a forum for testing known procedures and revealing a need to rethink standard operating procedures.

On April 11, 1995, FDNY responded to East 14th Street and 1st Avenue for a report of a fire and explosion at the subway station. During the interval between the first units arriving and the secondary units responding, additional information was made available that a toxic, perhaps lethal, gas was involved. The firefighters who had entered the station, unaware of the presence of gas, had made entry in accordance with accepted procedures, yet while not confronting smoke, did not employ their self-contained breathing apparatus (SCBA). These firefighters along

with some civilians and police officers, were to become casualities. Firefighters who entered the station, even those employing their SCBA, despite firefighting clothing eventually became victims. A concerted effort was mounted to rescue as many victims as possible from the area and to ascertain as much information as possible concerning this incident. When the inherent dangers of the substance involved became apparent, no further actions were taken until the arrival of rescue personnel trained and furnished with equipment essential and impervious to these atmospheric conditions.

The character of nerve gas allows it to permeate the skin and for percutaneous absorption. While the adverse effects of a chemical or lethal gas exposure take longer to manifest with some protective clothing, the only enhanced degree of protection is afforded by an encapsulated self-contained, impermeable butyl rubber suits. Naturally, these suits must be restricted to those personnel thoroughly trained in Hazardous-Material (Haz-Mat) Incidents. At that moment only those firefighters assigned to the FDNY Haz-Mat Unit were trained and equipped with these types of suits. Of course, it is not just these suits that are important, it is also the equipment and training that is vital to stabilize these precarious situations. The absence of

essential personnel and equipment initially was very obvious, but upon the arrival of the Haz-Mat unit the situation became more efficient. The FDNY has recognized the need for more trained and equipped personnel not only in the area of commercial chemical products, but also substances of unknown origin. The FDNY is developing a program that will go a long way to correct this inadequacy by expanding the FDNY's capabilities by qualifying additional units as Haz-Mat response units.

The FDNY was able to activate the Emergency Response Plan (ERP) for Hazardous Materials. The concept and the implementation of the ERP are a detailed and cohesive blueprint of the FDNY structure at a toxic Haz-Mat scene. The Plan covers the areas of search and rescue of persons trapped or incapacitated in the effected area. It provides for intelligence gathering as to the extent of the contamination and the nature of the substances. The primarily focus of the Plan is the systemic control of all mitigating assignments and functions as it relates to the substances or toxic materials. These procedures would be implemented in conjunction with any traditional firefighting function. This design is constructed on the elaborate structure and methodology of the FDNY's Incident Command System

(ICS). The general understanding is that the ERP will facilitate the command and control of the FDNY's response. The ERP which is a managerial asset to a command structure does seem to take an inordinate amount of time to place on line. The fact that every piece of apparatus and seemingly almost every individual must be a component in the plan make the implementation somewhat protracted and involved. Naturally, this may not be the case in more traditional fire incidents but considering the substance was nerve gas, there were casualities and in the scope of the exercises it is reasonable to expect some difficulties. By totally relying on the ERP, although managerial sound in a very fluid and subtle operation, it may not be in the best interests for an overall command and control structure. It was apparent no matter what command structure was employed there are continual problems in the arrangement of responding apparatus. While the number of vehicles may not exceed other responding departments or agencies in number, the sheer size and space afforded this apparatus makes a multi-agency incidents more prone for misunderstandings. This observation is not endemic of just the fire service:

All agencies must coordinate and control the response of critically needed equipment and supporting apparatus. Equally important is the ability to be able to quickly withdraw apparatus and again re-evaluate an agency's needs to accomplish a particular mission. These services need to be continually re-evaluating a variety of needs while remaining eminently ready for other emergency deployment possibilities (a secondary incident). Events are not determined solely by their initial impact, but rather by the continual planning to bring them to a safe and successful conclusion.

During this exercise the FDNY's emplacement of vehicles and its CP in such a close vicinity to the incident source made it both subject to the containment and the decontamination process. The positioning of vehicles and equipment was a problem that all departments and agencies experienced. However, in the case of the FDNY, the number and size of the apparatus and equipment that must be decontaminated was significant.

The FDNY demonstrated throughout this exercise a wealth of knowledge and experience in the complex approaches that toxic gases dictate. What was even more obvious was the FDNY's ability to recognize its mistakes and to make the necessary alterations to its training program. The formation of drill teams will help refine future critiques and assist FDNY in assessing training needs.

THE NEW YORK CITY EMERGENCY MEDICAL SERVICES

It would be unimaginable to suggest, and even more difficult realize, an exercise or a planning session without the active participation of the Emergency Medical Services (NYC*EMS). In the most basic analysis NYC*EMS provides a service no other department or agency is capable of accomplishing on a full time basis or the same level of professionalism. NYC*EMS is an intricate and vital element of the foundation which makes up the primary responders and rescue units of this City. The exercise of April 11, was as much a test of NYC*EMS response and capabilities as it was for any other department or agency. The purpose of the exercise was not to question the quality of care provided by NYC*EMS; the exercise purpose was to observe the ability of NYC*EMS to deliver preliminary medical care or pre-hospital protocols under the most unfavorable circumstances and not necessarily from a medical standpoint. NYC*EMS must balance its role as a medical services provider with its role as a rescue operation.

NYC*EMS was dispatched to East 14th Street and 1st Avenue in response to a report of a fire and explosion at the subway station. Upon arrival the NYC*EMS, personnel were informed of the presence of a toxic gas in the subway station. These

personnel and units first arriving set up a preliminary triage but soon discovered conventional procedures and general practices were insufficient to meet the demands of the physical layout of the station, the peculiarities of a search and rescue operation and the physical designs of a lethal gas incident. EMS then regrouped its resources to the street level and proceeded to reassess the extent and level of service required. This move although generated by necessity, did create the perception that managerial uncertainty existed. This misunderstanding would be compounded when there seemed to be a great deal of confusion on the street level as to where medical assessment and protocols would take place (physical location of staging area). Unfortunately, EMS was experiencing some staffing difficulties and while it was attempting to consolidate resources, EMS was not totally successful in correcting the condition. This matter was addressed when both additional supervisory and field personnel arrived on the scene. It is important to note that because of the time restraint a great deal of the anticipated medical care could not be performed. However, while the level of treatment was never in question, the proximity of the treatment area to the incident was a source of major concern. While the location that EMS had decided upon did not expose a greater threat then the injured already

had experienced it did make movement to a hospital, or to a decontaminated area, that much more difficult and protracted.

However, considering the time variables, the difficulties establishing medical protocols and the general inconsistencies that gas exposures create had developed some operational problems for NYC*EMS. None of these problems were insurmountable and could be properly addressed with adequate research of the problem areas and re-directive training.

THE NEW YORK CITY POLICE DEPARTMENT

It would be impossible for any type of emergency planning to be formulated without the inclusion of the New York City Police Department (NYPD). The unequivocal number of resources, personnel and equipment make them an intricate factor not only in the development stages, but also in the application. The NYPD has a tradition of extending itself especially in the areas of planning, procedural development and actual exercises. The present management of the NYPD has placed great emphasis on Rapid Mobilization as a preventive measure for civil disorders. In essence the NYPD's Mobilization Plan is the rapid deployment of Task Forces and predetermined precinct personnel from their individual patrol areas to any location within the City. The number of responding personnel is determined by the gravity of the situation by supervisors on the scene.

The Mobilization Plan has been assimilated as a flexible asset within the NYPD's Disaster Response Plan. Likewise, the Mobilization Plan has developed more structural adaptability to the City Disaster Response Plan. The activation and deployment of the Mobilization Plan during the exercise of April 11 added the dimension of increased security and greater control of the perimeters surrounding

the scene. The Plan allowed deployment of police officers to all surrounding intersections thereby directed all vehicular and pedestrian traffic away from the location. However, before activation of the Mobilization Plan, patrol personnel were the initial responders.

In the interest of clarity and identification purposes, the New York City Police and the New York City Housing Police will be refereed to as the New York City Police Department. Excluded is the New York City Transit Police Department (TPD), although known now as the Transit Bureau of the NYPD, is for all practical purposes autonomous. This dichotomy was abundantly clear when the problem of communications became an issue and a factor during this exercise. The NYPD and the TPD communicate on two distinct radio broadcasting systems and the individual receiving and transmission capabilities are ostensibly different in configuration and design.

The first responders on the scene were the police, as is the case with all the responders. The number of police officers was in proportionate to the nature of the assignment. The natural, and correct, conclusion would be that an overwhelming number of officers were assigned to the TPD. At this time, as the first police

officers were entering the station, the NYPD were alerted that a lethal gas was releases at the location. As events would have it, the NYPD radios were inoperable below ground. Additionally, the TPD was not provided with this information for about 3 to 5 minutes, so no similar broadcast was transmitted to TPD units.

After the initial confusion had subsided, the true nature of the situation had been determined as a lethal gas release. When recognition of a hazardous-material site existed, the NYPD implemented a Frozen Zone. From the outset the size of this Frozen Zone did not meet the requirements of a Hazardous-Material incident involving a lethal gas. The dimensions of this Zone in a lethal gas or chemical incident meet with the requirements of a Frozen Zone of about 1000 ft, normally associated with an explosive device. This area would normally afford some degree of safety without needlessly obstructing vehicle and pedestrian traffic. However, the unpredictable nature of gas and toxic substances requires an area that is determined by atmospheric conditions and the nature of the substance. Subway Stations are not self contained facilities, as such they allow for the free flow of airborne gases; these stations are constructed so that ventilation can take place. Additionally, Subway entrances, sidewalk gratings and underground walkways are

all area's outside the station were potential hazards may develop. When it was decided to redefine the area of the Frozen Zone, such action placed a majority of the responding vehicles and personnel within the Frozen Zone. Thus rendering these specialized vehicles contaminated, immobile and subject to a lengthy denomination process. If the realistic size of the Frozen Zone had been determined earlier, preferably by the Incident Command Post (CP) or the On Scene Coordinator(OSC), the bulk of the vehicles would not have been restricted to the containment area and the decontamination process.

The Emergency Service Unit (ESU), a component of the NYPD, arrived at the scene with the City's Inter-agency Decontamination vehicle. The ESU initially was the only unit equipped with the Level A Haz-Mat suits which are self-contained breathing apparatus (SCBA) encapsulated, impermeable, butyl rubber suits. These suits enabled members of ESU to enter the station and conduct a search and rescue operation. The Unit was also able to supply the lighting and electrical requirements for this exercise through the use of their specialized vehicles.

The NYPD was a major factor in this exercise and played a significant role in the success of this operation. There were however, some challenges such as

communications and the Frozen Zone/containment area dilemmas. The question concerning the communications systems is a legacy of two police departments. This is a problem that the NYPD will have to resolve but it was a flaw that deserved mentioning. The responsibility for size of the containment area and/or the Frozen Zone must be borne by the NYPD's Command Post. The Command Post personnel conducted their operations at the entrance of the subway station. In conducting these operations within the Frozen Zone, CP personnel subjected themselves and other emergency responders directly in the path of escaping gases. Assuming there were no adverse effects from the gas, the location of critical command posts so close to the area of operation placed great restrictions on the CP management's ability to function objectively. In all fairness, this would be a problem all other agencies and departments would experience, but for the NYPD it would be more problematic. The NYPD's Command Post controlled an extensive operation below ground, while simultaneously attempting to direct a totally unrelated operation above ground. Command Post personnel clearly prioritized their decisions as the exercise unfolded.

THE NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Department of Environmental Protection is not a rescue or first responder in the literal sense of the word. However, the agency provides key resources and expertise with hazardous materials. While there is a need to enter contaminated areas to determine a chemical's properties, it is no less dangerous and may be as important as the rescue itself. The identification process sets the tone and character of the operation immediately following the deployment of DEP personnel. Until this point much of the rescue operation was conducted with the worst possible scenarios imaginable and for all practical purposes functioned without any empirical, scientific information . On April 11 just after the preliminary search and rescue had been completed, the DEP personnel on the scene were able to identify the mock chemical involved in the incident. DEP then determined the safety and logistic to the extent of attempting to reduce the chance of any unexpected problems. Yet, at the same time the Department provided as much technical advice as possible in the critical fields of: mitigation of the substance, determination of the levels of protection clothing, the appropriate type of breathing apparatus and other factors of

a scientific and empirical background. Notwithstanding is the observation that DEP did experience some difficulties with the Level A encapsulated suit (over pressurized).

The responding personnel of DEP were an important factor not only understanding some of the peculiarities relating to toxic and lethal gases, but also in providing the instructional hands on application of procedures. The participation of DEP was invaluable and informative. In a large extent and to an immeasurable degree DEP provides a greater understanding, or perhaps an appreciation, for the dynamics and complexity of toxic gases It would be in the interest of all concerned if the DEP's scientific staff were more involved in the formulation of the New York City's Chemical/Radiological/Biological Disaster Plan. DEP must continue to monitor chemical/radiological/biological events and make recommendations for updating the City's Disaster Plan.

OFFICE OF EMERGENCY MANAGEMENT

The Office of Emergency Management (O.E.M.) has evolved over time from the Office of Civil Preparedness established in 1951. While the Office has changed its name several times its core mission has essentially remained the same:

> *"The Office of Emergency Management functions as the administrative and operational arm of the Mayor's Emergency Control Board. The mission of the unit is to assure the efficient use of the personnel and resources of the various city, state, federal and private agencies, on an around the clock basis, at the scenes of disasters in order to mitigate the adverse effects of the particular incident. In order to accomplish its mission, the unit is required to develop, implement, and evaluate contingency plans concerning the response to emergency situations. It serves as the liaison and coordinates the activities of the various agencies at the scene as well as the disaster relief programs after the incident. "*

Organizationally, O.E.M. is located in the New York City Police Department and is staffed by police personnel. The Office personnel have coordinated almost every conceivable disaster imaginable. New York City has a population of 7.5 million people, daily commuters and visitors (several million more) provide an interesting

back drop for the size, complexity and management skills required for managing emergencies in this urban setting. O.E.M. has proven over time that they too can rise to the many challenges that they awake to each day. The level of training and experience is of great value to the emergency community, while providing valuable institutional knowledge for its changing leadership.

The No-Notice Mobilization exercise was as much a test for O.E.M. as it was for all City agencies. The exercise provided the forum to implement the City's disaster emergency plan. While no such emergency plan for intentional chemical disasters existed prior to the exercise, the framework for a plan now exists and is due for completion in the fall of 1995.

As has been described earlier in this document the elements of this exercise were to simulate, as much as possible the Toyko disaster of one month prior. Additionally, the exercise provided information which revealed many of the needs described in the recommendations of this report. While the mobilization, coordination and organizational development occurred, the Interagency personnel fell victim to contamination, as did each of the Incident and On-Site Command centers. At no point was the Interagency Command Site relocated during the two hour drill. While

the police Emergency Service teams searched for a bomb, each command center remained intact, in place and was subject to the same defeat, if in fact the incident had been real. To O.E.M.'s credit this type of scene is typical of a busy hospital emergency room, under staffed - organized chaos. Information was flowing from agency to agency, however messengers were the primary carriers of directives. O.E.M. needed to establish greater utilization of the 800MHZ radio frequency (lack of utilization). Because of the close proximity of all the responders communication was hampered. There was no model for responding to a disaster of this type and little controlling the assemblage. All observers had noted that if an emergency plan structure had existed it would have been a reference to fall back on and may have reduced some of the less problematic area's such as:

- Communications
- Logistics
- Staging

These critical area's of performance impacted the response of the primary, secondary and specialized units. It was not clear that any one single approach to

mitigating the circumstance was initialized; no further significant improvement to scene occurred. However, each agency did communicate within their agency and deliver occasional reports to the coordination site. Again, this report points to both the areas which need to be enhanced and to the specialized areas that require specific focus. The focus of this report is on training and preparation for the next mobilization or actual event. Continued drills and procedural revisions should improve the quality of future responses.

Conclusion:

The object of this exercise was to determine the ability of the City's primary emergency agencies to collectively respond to an incident similar in nature to the events in Tokyo. The conventional means of developing an exercise that is scheduled on a predetermined date and prearranged set of parameters, would not help to evolve the agencies into the next stage of disaster management planning. The general announcement of a "drill" was not the approach that would best illustrate a realistic picture of the City's potential ability to response to major emergencies. The traditional approach of drills on occasions brings to the surface those aspects of an agency or department that need some sort of corrective actions. Learned procedures are implemented and then reinforced. However, when deficiencies were found by the offending agency, it is suspect as to whether they were ever fully corrected. In the context of an unannounced city-wide exercise the expectation was not to "catch" City agencies. Neither was the intent of this exercise to accent the qualities of the City's primary rescuers and first responders -- these attributes are generally recognized and appreciated. This exercise was to draw out those aspects that were not so apparent and would be recognizable only during an

involved and fluid incident. In the actuality of an unrehearsed and unsolicited exercise, the greatest possibility of an untested staff, dubious procedures and unanticipated circumstances came to the surface. This was not an attempt at providing the Administration with the material needed to second guess a primary rescuer's qualifications or proficiency. Categorically just the opposite, it would enable those actively involved in the creation, design and implementation of rescue procedures the opportunity to evaluate their plan in a non-clinical environment. Management could more effectively review its procedures and redirect resources towards a more qualified and realistic model. Likewise, in an operational context this was a chance to inspect the proficiency of the inexperienced or uninitiated personnel. And at the same time, the drill afforded a rare opportunity to examine the interactions of personnel and equipment in a representative rather then a engineered setting. This form of exercise would place a great deal of demand on every element and aspect of this type of operation along with the ensuing rescue. The fabric and character of this exercise was not only to find problems, but also find areas of mutual concerns and to resolve problems in the most productive and amicable means. Otherwise the nature of these problems if not managed in a

responsible and candid platform would have become the fixation of individual prerogatives. The subsequent negative outcome would be substantial and irreversible.

This Administration is determined to not only encourage the spirit of cooperation but to compel agencies to work cooperatively towards the most efficient and effective conclusion. General comments that are given are strictly done as observations and not at all as criticisms.

The first observation that needs to be addressed is that of communications. While it is recognizable that each department and agency have their own channels of communication, it becomes an entirely different matter when communications between the On Scene Coordinator and the individual Command Post are non-existent. If the On Scene Coordinator is to have any form of reliable communication with a particular Command Post, the On Scene Coordinator must have access to a Command Post's frequency or radio. This can be extremely difficult in the best of times but would be impossible under entangled circumstances. An effort by Office of Emergency Management to correct the deficiencies of communication especially in respect to radio and dedicated frequencies would alleviate this problem.

Cooperation on the part of the departments involved would go a long way in enhancing communications among the agencies and the On Scene Coordinator.

A second consideration must be training. Hazardous Materials should be mandatory training for all departments that have immediate interests in this discipline Hazardous Materials and spin-offs such as Sarin nerve gas, are a rapidly changing field, not only for toxic and lethal substances, but also for equipment, procedures and governmental policies. The lack of this specialized training can negatively impact our emergency first responders.

Our local government recognizes the possibility that injuries will likely be sustained in a senseless, premeditated and malicious assault against the people of this City. Yet, the Administration will not subscribe to the tactical notion that there is an acceptable level of injuries. The Administration has established and has acknowledged its moral obligation to do what is necessary to prevent even one death or injury from occurring. This exercise only reinforced what has been widely recognized and generally accepted: this City has the ability to respond and the capability to deal with any type of emergency.

RECOMMENDATIONS:

- Communications:
  - → NYPD to Transit Bureau (underground transmitting ability needs to be enhanced).
  - → FDNY point to point communication (fallen firefighters activated their P.A.S.S. Alarms, thus creating beeping and blocking clear communication). FDNY needs to assess the operational impact these alarms will have in a chemical incident and whether its posses a threat to effective communications.
  - → DGS dedicated 800Mhz frequency for emergency operations needs to be implemented early on in disasters to improve coordination and communication.

- Training:

  Course - Foundations of Hazardous Materials.
  - → Executive Level.
  - → Managerial Level.
  - → Operational Level.
  - → Conduct, City wide No Notice Mobilization Exercises twice a year.
  - → Mandated cross training for equipment - operational level.

- Logistics:
  - → Centralized procurement of specialized equipment.
  - → Proportional distribution of equipment and training.
  - → Relieving schedules for onsite personnel.
  - → Resource replenishment plan.

- Planning:

  → Affected Commissioners receive a copy of Emergency Plans which incorporates components of their agency (Quarterly).

  → Oversight agencies sign off on plans.

  → All drills wherein an agency either participates or attends receives an official critique.

  → All agencies report semi annually as to the character of their emergency plans and level of their training.

  → Emergency Plans which have specialized areas of concentration should have specialized professionals assisting in the development and future improvements of the plans.

  → Recommend one professional planner be on staff at the Office of Emergency Management and be available to the agencies for guidance and questions.

- Other:

  →Incorporate personnel of differing disciplines into Emergency Management planning.

  →Unitize the necessary technology so that agencies as well as the Office of Emergency Management can operate from remote locations.

  →Automate the Police Department's Operations Center, so that each agency can speak to remote field units, Borough locations and home agency points.

  →Decentralized the Office of Emergency Management and set up Borough based Offices. Borough based offices should work jointly with L.E.P.C.'s (the Local Emergency Planning Committee, established out of Sara II legislation).