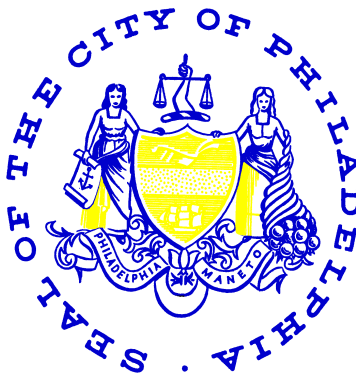


# **CITY OF PHILADELPHIA**

## **DEPARTMENT OF PUBLIC HEALTH**

AIR MANAGEMENT SERVICES

March 22, 2001



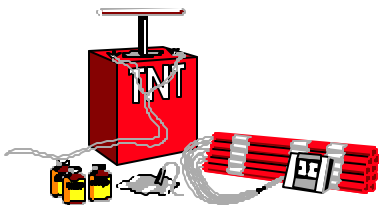
### **GUIDELINES for**

### **CONTROLLING DUST**

### **and PROTECTING HEALTH**

### **at IMPLOSIONS**

**CITY OF PHILADELPHIA**  
**DEPARTMENT OF PUBLIC HEALTH**  
**Air Management Services**  
321 University Avenue  
Philadelphia, PA 19104  
(215) 685-7576



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## INTRODUCTION

Any contractor submitting an application to the Department of Licenses and Inspections for a permit to demolish any building that involves implosion techniques must submit a Dust Control Plan that fully addresses the requirements of these guidelines.

Through observation of numerous implosions of varying scope, the Health Department recognizes that implosions by nature generate large amounts of dust that can not be prevented from escaping into surrounding areas. The dust almost always impacts adjacent neighborhoods and can be carried downwind a considerable distance.



As opposed to conventional demolition where the object is to prevent the dust from being generated, the primary objective of the Dust Control Plan for implosions is to minimize the exposure of the public to the generated dust. The plan therefore relies heavily on public outreach and awareness, evacuation and sheltering, use of proper respiratory protection by those who are at risk of exposure, proper clean-up of impacted areas and air monitoring for particulate matter including lead and asbestos.

The plan must be submitted no later than six weeks prior to the proposed date of the implosion. The plan should be mailed to the following address:

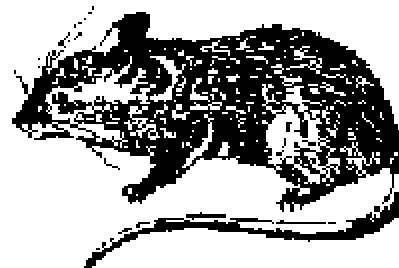
Air Management Services  
Source Registration Section  
321 University Ave.  
Philadelphia, PA 19104

## **IMPLOSION SITE AND PLANS (MAPS)**

The site of the implosion, including the location, the condition of the neighborhood, the structure of the building to be imploded (area, height, type and the age) and the prevailing wind direction must be analyzed in order to establish a Dust Impact Zone (DIZ). A plan or map of the DIZ including the evacuation area, the inner and outer perimeters, and emergency vehicle locations preferably color coded, must be submitted to the City Managing Director's Office and Air Management Services for review. The inner and outer perimeters are used to control and regulate the traffic, travel and parking in the DIZ. The inner perimeter could be one block around the implosion site and secured by police and barricades, with absolutely no entry, traffic or parking within the inner perimeter. The outer perimeter could be the outer perimeter of the DIZ secured by police and barricades, with no entry, traffic or parking behind this line except authorized personnel and vehicles with a permit. Residents that own cars inside the outer perimeter are to be instructed to park their cars in designated safe parking areas. (Sample map, Page 6)

## **PRE-DEMOLITION HEALTH SAFETY PLANNING**

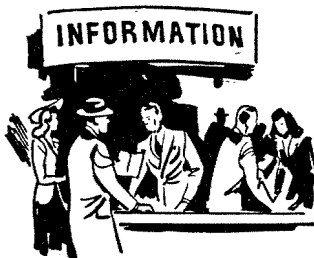
In order to protect the public's health, attention must be paid to health risks prior to the implosion. A survey of lead contamination risk must be included. Lead abatement must be performed prior to demolition. Plans to remove lead may be reviewed with the Philadelphia Department of Public Health, Lead Poisoning Prevention Unit (215) 685-6551. Rodent and pest infestations must be abated prior to implosion. Plans for rodent abatement may be reviewed with the Philadelphia Department of Public Health, Vector Control Unit (215) 685-9700.



The Department of Licenses and Inspections will not issue a demolition permit unless an Asbestos Inspection Report (AIR) is included with the permit application. The asbestos inspection must be performed by a City of Philadelphia licensed Asbestos Investigator. Prior to demolition, all friable asbestos and any non-friable asbestos materials that will be rendered friable, must be removed by a licensed abatement contractor. Asbestos notifications, permits and plans for removal must be approved by the Philadelphia Department of Public Health, Air Management Services, Asbestos Control Unit (215) 685-7576.

## **PUBLIC NOTICE AND OUTREACH**

The demolition contractor is responsible for notifying, educating and providing outreach to the public regarding the pending implosion. Methods, including intensive use of community meetings, door to



door canvassing, electronic media, telephone hot line and the distribution of outreach information packets, should be used, as appropriate. Data regarding the population in the Evacuation Area can be gathered from the Census Bureau Regional Philadelphia office, reverse directory, or area survey. The plan submitted for Health Department approval must include copies of any documents prepared for notice and outreach.

No later than one week prior to the implosion, the contractor shall submit a detailed report fully addressing the extent to which the activities listed in the paragraph below were accomplished. The report must include specific areas where canvassing was performed, and the dates and locations where the community meetings and informational sessions were held.

Specific areas to be addressed should include:

1. Information document. This document shall answer general questions about the implosion and how it will affect the community. Some typical examples are: What will happen the day of the implosion? How long will the implosion take? What type of device will be used? Will the dust affect breathing? How far will the dust travel? How will the implosion affect the nearby homes? Will any evacuation be necessary? What type of security will be provided during the evacuation? Will the implosion affect any utilities? How will the schools be affected? Will the windows break? Is any other damage expected? Who will be responsible if there is any?



2. Dust Impact/Evacuation Zone Information. Inform the residents in the evacuation area of the time of evacuation and their options, including being sheltered in designated neighboring community centers, several days in advance. Inform the remaining residents within the DIZ that they will be asked to remain in their homes, shut their windows and doors, close any vents, and turn off HVAC systems. Any resident who wishes to leave their home can either be shuttled to a shelter or stand behind the barricades.

3. Community Outreach List to inform and educate City Officials, Public School Officials, Media Organizations, Community / Neighborhood Organizations, Community Churches, Hospitals, Nursing Homes and Clinics about the implosion activities.

4. Public Information. Press Releases, Flyers, Safety Notices, Door Hangers, and Community Notices for publication in the neighborhood newspapers, radio spots, etc.



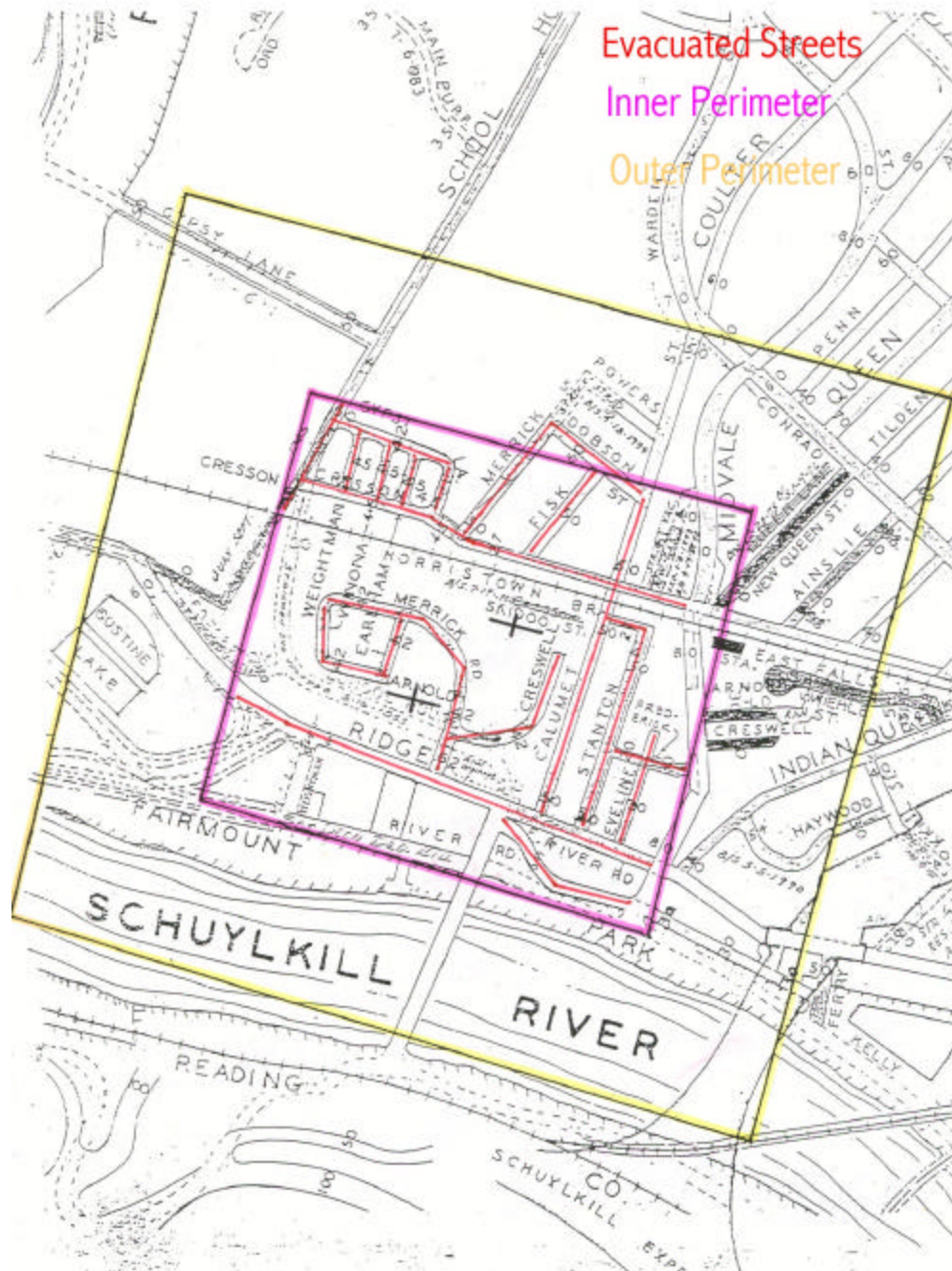
**School near building to be imploded**

5. Implosion Information Telephone Line to monitor, record and answer the concerns of the public.

6. Door to Door Canvassing. Homes and businesses within the DIZ should be canvassed or surveyed "door-to-door." A plan on how this will be done, and a schedule should be included.

7. Electronic Media. The Media should be asked to inform the public at-large about implosion activities. The public should be discouraged from attending the implosion activities through the Media.

## Example Dust Impact Zone Map



8. Special Medical Consideration. Individuals with respiratory conditions will be identified through community meeting sign-in sheets, survey questions, and recorded implosion information line messages. Individuals with respiratory conditions shall be advised to shelter in place or in designated neighboring community centers (specify the centers).

9. Medical Care Providers. Neighborhood hospitals should be notified so that they may inform the emergency staff, pulmonologists, and medical personnel about the implosion and the scheduled plan of operation on the day of the implosion.

## **PUBLIC BOUNDARIES / EVACUATION PLAN**

Using the Dust Impact Zone maps (See Example, Page 6), coordinate with the Police and Fire Departments to establish an evacuation, parking, and emergency plan. Plans must consider major roads that may need to be temporarily shut for the safety of traffic, Public Transportation rerouting, Air Traffic rerouting, etc. The residents evacuated shall be given the option to be sheltered in designated "safe areas" during the implosion. Negotiate with local institutions, such as schools, recreation centers and hospitals for use of public "safe areas". Consideration should be given to providing transportation to "safe areas." Contact the local humane society for pet safety issues, American Red Cross for human assistance, etc.



**Road near buildings to be imploded**



**Public transportation near building to be imploded**

It is recommended that the Police secure the Evacuation Area and the DIZ on the day of implosion. The Police and Fire Departments must approve all evacuation, perimeter securing and street closing plans prior to the implosion. Police shall man and secure the "Inner and Outer Perimeters" of the Dust Impact Zone. Police should place barricades and secure all streets/alleys in the Inner Perimeter. Place barricades and secure the Outer Perimeter as well.

The residents shall not be allowed into their homes in the evacuation area until the following items have been completed:

1. Implosion is over.
2. The Managing Director's office (with input from the Police, Fire, Streets and Health Departments) has issued an " All Clear Signal."
3. Utility Companies have completed inspection of the surrounding utility lines.
4. Streets, sidewalks and buildings have been adequately cleaned.

Police patrols shall provide security for the resident's homes while they are sheltered or displaced during the implosion.

Once the area is pronounced safe and the streets have been cleaned, the DIZ and Evacuation Area shall be opened in a sequential manner and the residents shall be allowed to return to their homes.

## **SCHEDULING**

The plan must be filed at least six weeks prior to the implosion date unless special circumstances prevail. Earlier telephone notification to the Department (215) 685-7572 is recommended. The implosion should be scheduled in early morning hours on a weekend to minimize dust exposure to the public. Implosions shall not be scheduled between December 15th and March 15th. The plans must include safe handling and security for the explosives, to protect the public.

## **AIR MONITORING PLAN**

An air-monitoring contractor, certified for lead and asbestos testing, shall be retained to take and analyze air and "dust wipe" samples in the vicinity of the implosion. The sampling and analysis is to measure concentrations of ambient particulate, lead and asbestos, and must be conducted using approved EPA and NIOSH Test Methods. Lead presence should be determined on digested materials using EPA method SW846/7420. Documentation should be submitted showing laboratory participation in a recognized proficiency program (i.e. ELPAT or NLLAP for lead).

Pre-implosion testing should include:

1. Respirable dust (air)
2. TEM asbestos (air)
3. Lead dust on surfaces (wipes)

Air samples should be collected along the safety zone perimeter in all directions around the implosion site; eight samples for each type of analysis. Wipe samples should be collected on window ledges; eight sample locations.

During-implosion testing (immediately prior to and fifteen minutes after) should include:

1. Respirable dust (air)
2. TEM asbestos (air)

Post-implosion testing should include:

1. Respirable dust (air)
2. TEM asbestos (air)
3. Lead dust on surfaces (wipes)

Copies of the results from all the tests shall be submitted to AMS without delay. The Contractor shall submit information and samples. AMS may perform additional testing using other dust monitoring techniques, as deemed appropriate.



**AMS Dust Collection  
Bucket**



The plan must include protective dust masks and face shields for all implosion contractors, safety (Police, Fire) or other people required to be within the Evacuation and Dust Impact Zones. Dust masks shall be "LAB SAFETY, Dust / Mist Respirators with Exhalation Valve, NIOSH / MSHA Approval No TC-21C-602" or any approved equivalent.

The plan should include Seismographic Monitoring. A "Site Survey" must be taken prior to the implosion, identifying the various types of building structures in the area. The exterior surface of the existing buildings within the Zone should be photographed, videotaped, and structural conditions recorded. If needed, considerations should be given to covering buildings near the Site with black geotextile fabric to prevent damage to windows and doors during the implosion. Seismographic monitoring and air over pressure test equipment should be set between the implosion site and existing buildings. Copies of the test results must be submitted to Licenses and Inspections.



**Homes near implosion site**

## **PROTECTING VENTILATION SYSTEMS (HVAC)**



**Dust protection sheets**

During the Site Survey, HVAC systems within the DIZ shall be identified and the risk of dust infiltration determined by the Contractor. If protection is needed, the system shall be covered with polyethylene sheets prior to the implosion by the Contractor. Those HVAC systems within the DIZ will be protected.

The HVAC Systems not within the DIZ (Homes, hospitals, clinics, churches, hotels, ext.) determined by the Contractor to be at risk shall be

protected by coordinating efforts between the Contractor and those entities. The entities shall be notified about the possible increase in registered dust levels on the systems due to the implosion not less than 5 days before implosion.

The buildings within the Dust Impact Zone shall be required to have windows, doors, vents, and openings shut or closed prior to the implosion. Any additional protection needed for HVAC systems, windows or vents in the Dust Impact Zone shall be addressed by the contractor.

## **POST IMPLOSION CLEANUP**

The plan may consider including preventive measures, such as wrapping nearby buildings with geotextile fabric, covering ventilators with tarps, installing dust barriers, or other actions, as appropriate for the location.

Since moisture keeps down the amount of air borne dust, it is strongly recommended that the plan include immediate wetting of the debris pile. The day of the implosion the Contractor shall provide flusher trucks, street sweepers and broom crews (dry sweeping is not recommended). The cleaning activities can start as soon as the "all clear" is given.



**Street Sweeper**

In areas heavily impacted, the sequence will be as follows:

Individuals using hand sprayers will wash down buildings and roofs. After the buildings are sufficiently clean, the hand spraying should be directed toward washing the dust from the side walks into the street. After approval by AMS that this work has been satisfactorily completed, the street flushers will lightly spray the street, and the mechanical sweepers will follow. A heavier flushing will follow this, and the remaining material will be hand swept from the gutters and collected. The final clearance of the area will be given by AMS and reported to the Command Post. As each subdivision is cleared, the Police will remove pedestrian and traffic restrictions.

In areas with a lighter impact, the above process will be followed except that the step involving the light spray and mechanical sweeping will be omitted.

Wherever the propylene glycol mixture is used for washing down buildings, the Police Dept will establish a one-block perimeter from the point of spraying. Within the perimeter vehicular and pedestrian traffic will be restricted. Should the area fall outside the Dust impact zone, the police shall move to secure the perimeter prior to the commencement of the spraying.

In park areas within the Dust Impact Zone the contractor will lay a covering of sufficient strength. In addition, park areas that have a dust covering will be rinsed to prevent the dust from becoming airborne.

No later than three weeks prior to the implosion, representatives from Health, Streets, Police and the Contractor will meet to develop a detailed cleanup plan (see Sample Plan attachment) that clearly establishes goals, responsibilities and lines of communication. The Health Department will distribute the plan two weeks prior to the implosion date.

## **PRE/POST IMPLOSION RUBBLE AND DEBRIS REMOVAL**



**Post Implosion Rubble**

As demolition and subsequent debris loading, crushing and trucking progresses, the rubble and debris shall be misted with water continuously whenever dry conditions prevail, and watered down when dust is observed. The site shall not be wet to the extent of puddling or where it shall create adverse conditions such as mud or ice. Haul routes out of the site should also be maintained in a condition that will not cause a nuisance to the community or environment. The route shall be swept and hosed twice daily or as necessary to keep down dusting as well as prevent tracking of mud and dirt on to the streets.

In order to protect the environment and our natural water resources, the disposal of fuels, oils, bitumens, calcium chloride, acids or other harmful materials found on site shall be in compliance with Federal, State, and Local Laws. Machinery shall be checked daily for excessive leaking and repairs made as needed. Refueling of machinery shall be performed on a concrete pad to prevent spillage on the ground. All spillage on the pad shall be solidified or absorbed and disposed of properly. Water used for dust control shall not be allowed to mix with any contaminant on the site.

## **OTHER CONSIDERATIONS**

Implosion site contractors must submit plans and coordinate their efforts with many public entities. This document is only the current blueprint for plans to be submitted to the Philadelphia Department of Public Health. Other implosion plan components to be addressed may include:

1. Police Department
  - ◆ Coordination of security and zone closures
  - ◆ Safety and approval of explosives transport
  - ◆ Street and highway closures
2. Fire Department
  - ◆ Deployment of emergency fire and paramedic equipment
  - ◆ Assistance with snorkel equipment to wet rubble immediately after implosion
3. Federal Aviation Administration
  - ◆ Clearing airspace
4. Utility Companies
  - ◆ Capping existing gas and electric supply to building to be demolished
  - ◆ Assuring safety after implosion to surrounding electric, gas and water conduits
5. Licenses and Inspections
  - ◆ Demolition Approval
  - ◆ Explosives licenses and permits
6. Streets Department
  - ◆ Expertise and assistance with clean-up
7. Other
  - ◆ Humane Society
  - ◆ American Red Cross
  - ◆ Other, as appropriate

# **APPENDIX A**

## **Sample Post Implosion Dust Clean up Plan**

# Sample

## Post Implosion Dust Clean up Plans

### Introduction

This plan addresses the responsibilities, procedures, and coordination for the governmental and private entities involved in the clean up following the implosion of the *Site Name*. The plan is intended to ensure the participating entities, work effectively and in concert to return the dust impacted areas to normal conditions as quickly as possible.

### Participants

Health Department – Air Management Services  
Police Department  
Demolition Contractor  
Streets Department

### Subdivisions

The dust impact zone is the area bounded by Queen St., 2<sup>nd</sup> St., Moyamensing Ave., Federal St., 3<sup>rd</sup> St., Manton St. and 6<sup>th</sup> St. For the purpose of clean up coordination, the dust impact zone has been subdivided into seven areas;

Subdivision 1 – Bounded by Washington Ave. 6<sup>th</sup> St., Queen St., and 6<sup>th</sup> St.

Subdivision 2 – Bounded by 3<sup>rd</sup> St, Queen St., 2<sup>nd</sup> St., Moyamensing Ave., and Washington Ave.

Subdivision 3 – Bounded by Washington Ave., 5<sup>th</sup> St., Manton St., and 6<sup>th</sup> St.

Subdivision 4 – Bounded by Washington Ave., Moyamensing Ave., Federal St., and 3<sup>rd</sup> St.

Subdivision 5 – Bounded by Christian St., 3<sup>rd</sup> St., Queen St. and 5<sup>th</sup> St.

Subdivision 6 – Bounded by Federal St., 3<sup>rd</sup> St., Manton St., and 5<sup>th</sup> St.

Subdivision 7 – Bounded by Christian St., 3<sup>rd</sup> St., Federal St., and 5<sup>th</sup> St.

### Assessment

After the all clear is given a team composed of one representative from Air Management Services, Demolition Contractor, and the Streets Department will assess each area to determine the degree of dust impact and the clean up procedure required (see below). The assessment for each area will be communicated to the Command Post for the setting of priorities.

## **Priorities**

The first priority will be to clean Washington Ave. so that it may be opened to vehicular traffic. After that priorities will be set by subdivision to allow for the greatest number of people to return to their homes in the least amount of time. In order to accomplish this, subdivisions 1 and 2 will be considered first and clean up will be directed to the area least impacted. In general clean up will proceed from the areas least impacted to those most impacted. It is expected that Subdivision 7, will be the last to be reoccupied.

## **Clean-up Procedures**

At all times when the temperature during clean up is below freezing, an appropriate propylene glycol/water mixture will be employed on all equipment applying water to the impacted surfaces.

The clean up procedures will depend on the degree of dust impact. In areas heavily impacted, the sequence will be as follows:

Individuals using hand sprayers will wash down buildings and roofs. After the buildings are sufficiently clean, the hand spraying should be directed toward washing the dust from the sidewalks into the street. After approval by AMS that this work has been satisfactorily completed, the street flushers will lightly spray the street, and the mechanical sweepers will follow. A heavier flushing will follow this, and the remaining material will be hand swept from the gutters and collected. The final clearance of the area will be given by AMS and reported to the Command Post. As each subdivision is cleared, the Police will remove pedestrian and traffic restrictions.

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In park areas within the Dust Impact Zone the contractor will lay a covering of sufficient strength. In addition, park areas that have a dust covering will be rinsed to prevent the dust from becoming airborne.

## **Communications**

One representative from each participant organization will be located in the Command Post. In addition, there will be one field representative from each participant organization in each subdivision undergoing clean up. Each field representative will coordinate activities with their field counterparts. They will report progress and receive instruction from the Command Post.