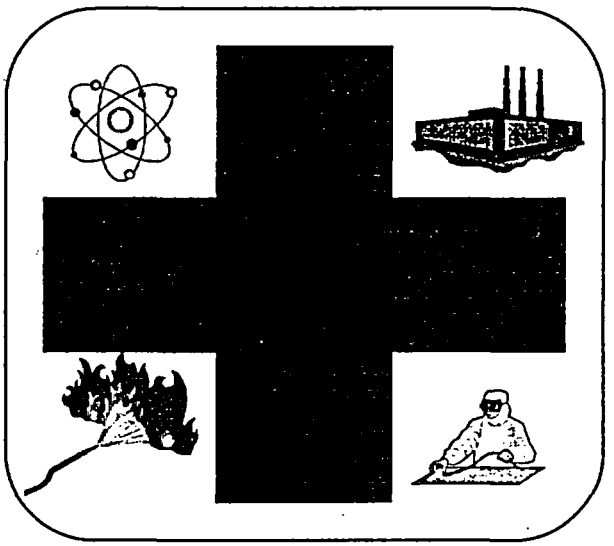
Honeywell

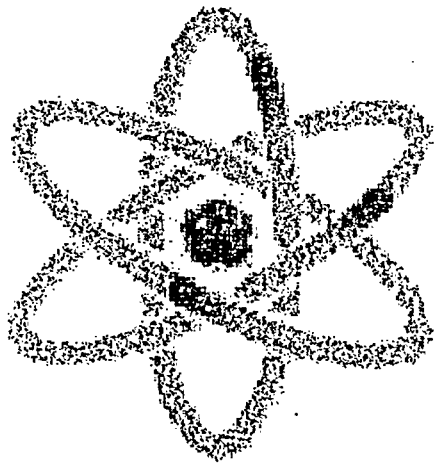
METROPOLIS WORKS

EMERGENCY RESPONSE PLAN



RADIOLOGICAL CONTINGENCY PLAN MANUAL

EMERGENCY RESPONSE PLAN



RADIOLOGICAL CONTINGENCY PLAN

METROPOLIS WORKS

Honeywell International Inc.

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INTRODUCTION

The Emergency Response Plan (ERP) and Radiological Contingency Plan (RCP) describe measures developed and implemented at Honeywell Specialty Chemicals Metropolis Works for preventing, recognizing, and responding to emergency conditions that may arise at the plant. These measures have been developed to minimize hazards to human health or the environment from events that may arise during facility operations, including fires, explosions, or any unplanned sudden or non-sudden release of hazardous materials to air, soil, or surface water. The Metropolis Works' ERP and RCP have been developed to facilitate the rapid, orderly assembly of plant personnel and to activate trained Emergency Response personnel to assist in personnel rescue and controlling and containing an emergency condition on-site.

The provisions of the ERP and RCP and their supporting procedures have been developed to provide an appropriate means of detection and response for multiple industrial incidents and natural disasters, including those described in the Metropolis Works Risk Management Plan and the Honeywell Application for Renewal of Source Materials License, Chapter 14, Accident Analyses (November 2002). These plans are intended to be fully consistent with the multiple regulatory requirements that apply to activities at the plant, including 10 CFR 40.31(j), 40 CFR 264, and 29 CFR 1910.120(q). The Metropolis Works maintains a separate RCRA Contingency Plan that has been developed to implement the requirements of 40 CFR 264 and related regulations. The provisions of the RCRA Contingency Plan augment and complement the provisions of the ERP and RCP.

The ERP and RCP address the following subjects:

- Pre-emergency planning and coordination with outside agencies
- Personnel roles, lines of authority, training and communication
- Emergency prevention, recognition, and classification
- Safe distances and places of refuge
- Site security and control
- Evacuation routes and procedures
- Decontamination
- Emergency medical treatment and first aid
- Emergency alerting and response procedures
- Personal protective equipment and emergency equipment
- Critique, debrief, and follow-up procedures

Within this revision of the Metropolis Works ERP/RCP, changes from the previous revision have been marked with change bars in the margins.

Additional information or clarification related to the ERP and RCP can be obtained by contacting the Metropolis Works Regulatory Affairs Manager.

ACTIVATION OF EMERGENCY RESPONSE PLAN

1. Introduction

Communication is extremely critical in successfully activating the Emergency Response Plan. Expeditious mustering of all personnel involved and maintenance of an effective communication system are essential during the emergency incident.

The Plan may be activated as a result of notifications of external events, such as natural disasters or civil uprisings, or by employee notifications of internal events, such as fires, injuries, or hazardous material releases. Emergency Plan Implementing Procedures (EPIPs) provide guidance for a Metropolis Works employee who is witness to an event that may require activation of the Plan, such as the uncontrolled release of radioactive or non-radioactive hazardous materials. The EPIPs indicate that the affected individual should contact a Control Room Operator in either the Feed Materials Building, South Fluorine Plant or Powerhouse, identify themselves and give a brief description of the problem and the area affected.

The plan is activated by the Incident Commander's assessment of the conditions and subsequent determination that the event falls into one of three emergency classifications (See RCP Section 3). Employees are notified of the plan activation by plant paging system announcements and, for Alerts and Site Area Emergencies, sounding of the Disaster Siren. Disaster siren switches are located in the UF_6, South Fluorine Plant and Powerhouse Control Rooms. The sounding of the disaster siren will be followed by an announcement on the public address system such as, "This is a (give short description)," stating the nature and location of the emergency, followed by a wail of the siren mounted on the fluorine building. Repeated announcements of the emergency will follow shortly thereafter. All announcements will be repeated three (3) consecutive times. Proper notification of public authorities will be made following the announcement.

In the event an emergency condition exists over an extended period, a follow-up announcement will be made under the direction of the Incident Commander (IC), to alert Plant personnel the emergency condition still exists. All precautions shall be maintained until the "All Clear" notice is given.

2. Classification of Emergencies

Three levels of emergency classification are defined in the ERP/RCP:

- A Plant Emergency is declared for a minor incident or situation that deviates from normal operation and that could, under certain conditions, escalate to an Alert, although this is unlikely.

- An Alert is declared for an incident that has led, or could lead, to a release to the environment of radioactive or other hazardous material, but the release is not expected to require a response by an offsite response organization to protect persons offsite. An Alert or Plant Emergency may require offsite support for onsite protective actions, such as fire-fighting or medical support.

- A Site Area Emergency is declared for an incident that has led or could lead to a significant release to the environment of radioactive or other hazardous material and that could require a response by an offsite organization to protect persons offsite. Declaration of a Site Area

Emergency requires implementation of pre-planned Protective Action Recommendations, which consist of sheltering in place for all residents within a 1.3 mile radius of the site, consistent with the findings of the site's Risk Management Plan.

An "event" can be defined as something other than "incidental" which requires activation of the Emergency Response Plan because it goes beyond the capability of the routine operating organization to control or otherwise contain the situation under normal circumstances. This may pertain to fires, chemical or medical emergencies, natural disasters such as an earthquake or tornado, and bomb or terrorists threats.

Reference:

Emergency Classifications and Notifications	Section 3.0	RCP

3. Organization

3.1. Normal Workday Organization

The Emergency Response Organization will be fully activated for Site Area Emergencies and may be activated, fully or in part, for lower-level emergencies. Processes for activating the Emergency Response Organization are described in the plant EPIPs.

The normal on-site Organization is shown in Figure 1. The Emergency Response Organization during normal dayshift operations is shown in Figure 2. This organization defines responsibilities for assuring prompt reaction and control for an incident that may have an impact upon the health and safety of employees or members of the public.

3.2. Off-Shifts, Weekends, Holidays

During plant operations, the Lead Foreperson present in the plant will immediately become the Crisis Manager and IC until relieved by these designated officers. The IC will ascertain the safety of personnel and act to control the release. The IC is responsible for assuring that the Control Room Operator activates the Emergency Response Organization, if warranted by the nature of the emergency.

In the event the Emergency Officers are not in the plant when the emergency arises, all officers will check in with the senior officer on-site upon arrival at the plant, prior to proceeding to duty assignment, to facilitate communication and organization.

Upon notification that the Emergency Response Organization is to be activated, the Control Room Operator will notify or cause to be notified the appropriate emergency personnel or their designated alternate. The plan currently relies upon a manual call-out system, which is usually implemented by the Control Room Officer. Beginning in April 2004, ~~Normally, an~~ automated notification system will be ~~us~~installed; ~~however, a~~ and the manual call-out system ~~is~~will be maintained as a backup.

The Emergency Response Organization is shown in Figure 3 for off-shifts, weekends and holidays. The roles and responsibilities for each officer are essentially the same as the day organization (Figure 2), except that personnel staffing for those roles will be different. In

some cases, dual roles have been combined for those personnel on staff until the designated day officer arrives on the scene.

Figure 1 - Honeywell Metropolis Plant Normal Plant Organization

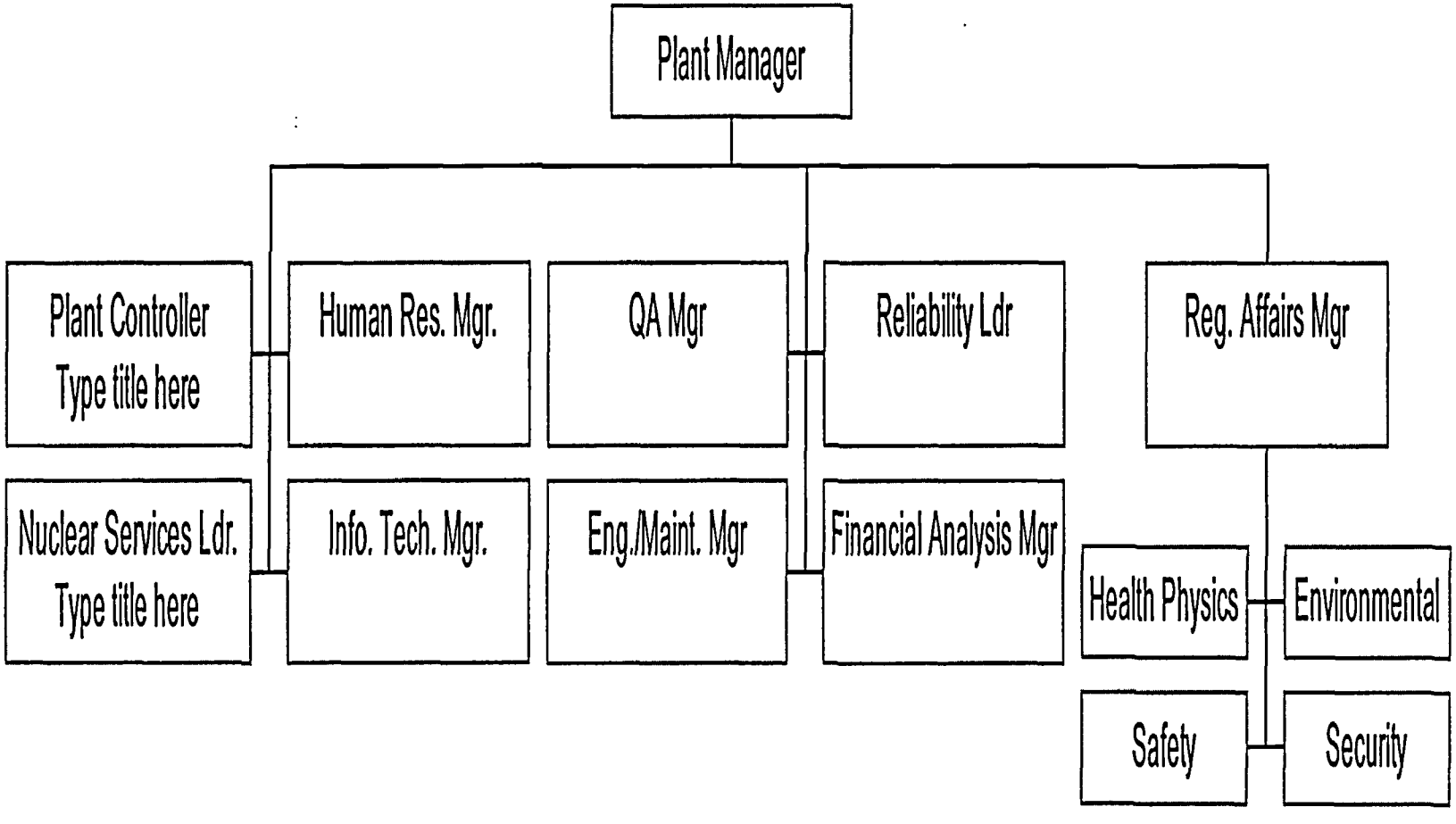
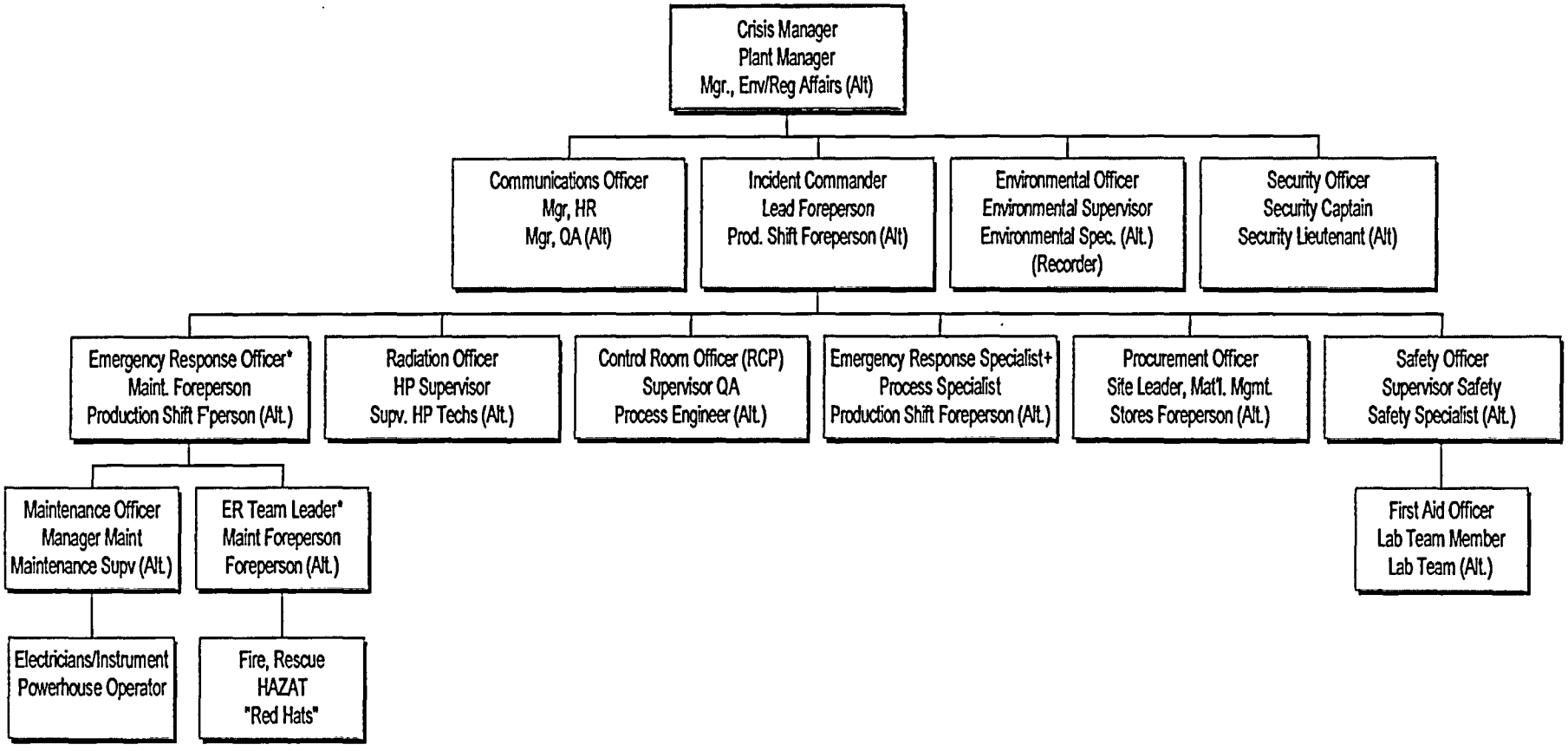


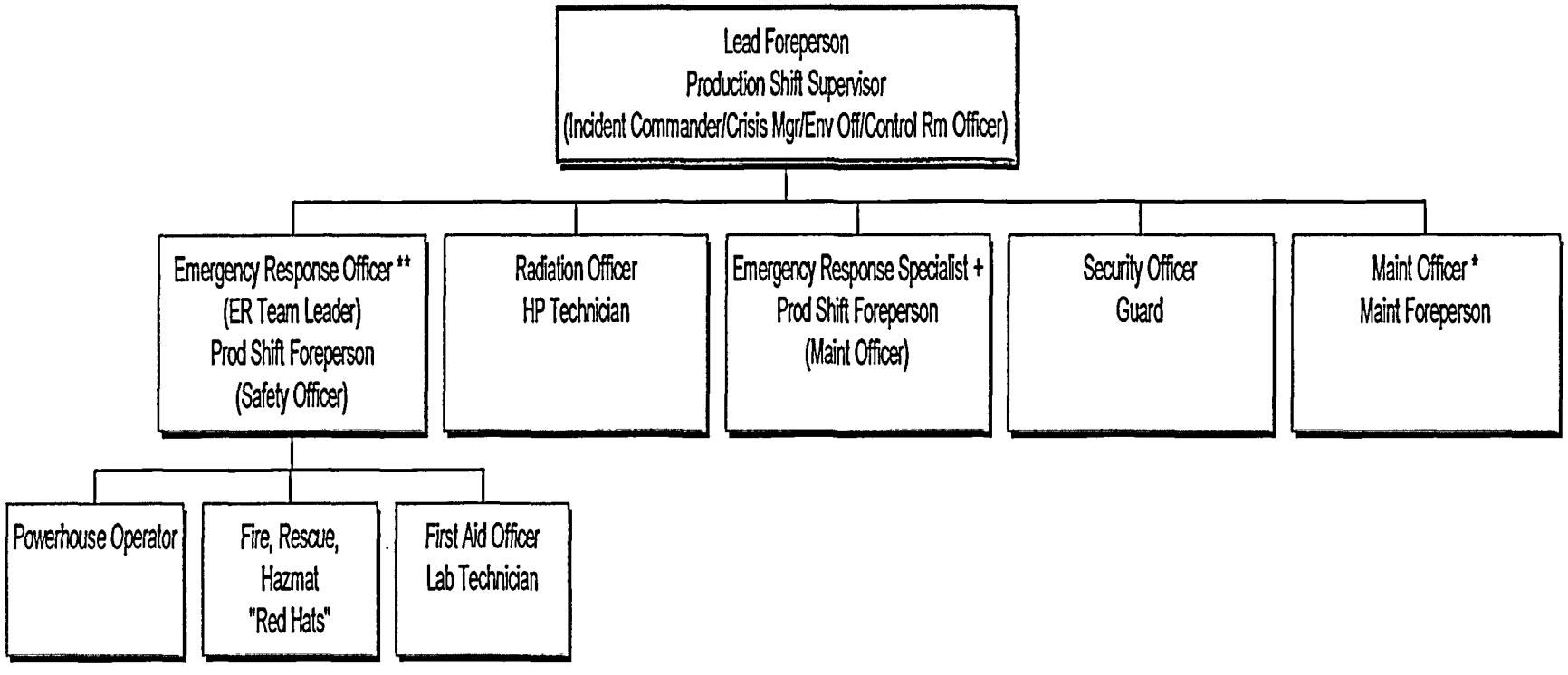
Figure 2
Emergency Response Organization Days



* Officer depends on the location and type of emergency. Maintenance Foreperson is the ERT "Red Hat" Leader unless an alternate is specified.

\+ In a UF_6 Release the Emergency Response Specialist may be part of the Entry Team in the FMB.

Figure 3
Emergency Response Organization
Off-Shifts/Holidays/Weekends



* When present in the plant. Otherwise the Emergency Response Specialist assures this duty.

** Depends on the location and type of emergency. Production Foreperson for the non-emergency area is the ERT "Red Hat" Leader unless an alternate

\+ In a UF_6 Release the Emergency Response Specialist may be part of the Entry Team in the FMB.

4. Duties Of Officers

~~1.1.~~4.1. Crisis Manager

The Plant Manager is the Crisis Manager (CM) for all emergency situations, including Radiological Contingencies. The Crisis Manager will normally approve final termination of an emergency situation.

During the emergency period, he will establish and maintain communication and act as a liaison with local, state and federal agencies and pertinent corporate personnel. Information normally required by offsite response personnel is discussed in the EPIPs to allow for collection of needed information. He coordinates and reviews all releases of information to the public and news media in the event of a "Alert" or "Site Area Emergency." No information will be released to outside agencies (including the press) without prior approval of the Crisis Manager or his designate. He is advised of controls implemented by the IC, and apprised of support readiness through the Communications Officer.

4.2. Incident Commander

The Incident Commander reports directly to the Crisis Manager and his responsibilities include overall coordination of the plan. Following an emergency signal, the IC will establish a local command and communications control point from which he will contact the Crisis Manager and apprise him of the situation. Following establishment of the control point the IC will make communication of the location over the plant PA system or radio. He will coordinate the group effort from the control point, allocating available manpower required to establish control of the incident site. This officer will be responsible for the decision to escalate or downgrade the class of emergency declared. On the off-shifts, holidays and weekends, he will assume the role of the Crisis Manager, Environmental Officer and Control Room Officer until relieved by those officers.

In addition, the responsibilities of the IC include the following duties:

- Prepares and organizes the background review of the hazardous materials incident.
- Briefs the field Emergency Response Officer on specific assignments.
- Communicates with the Safety Officer to ensure that safety requirements are met.
- Maintains ongoing communications with Emergency Response Team (ERT) activities through the Emergency Response Officer.
- Arranges for personal protective equipment and supplies, in consultation with the Safety Officer and Procurement Officer.
- Establishes liaison with any community fire-fighting organizations that may be called into Metropolis Works and provides pertinent information to assist their fire-fighting efforts and avoid process and plant hazards.
- Appoints a recorder to keep a log of all response activities.
- Appoints census takers, timekeepers, and sees that effective control of personnel is maintained in and out the incident area.
- Directs salvage and re-establishment of operations after the emergency is under control.
- Initiates a debrief and critique of the response.

4.3. Communications Officer

The Communications Officer reports directly to the Crisis Manager. He is responsible for all in-plant communications. He will have at his disposal the administrative clerical staff, and will direct activities in these areas. His responsibilities include the following duties:

- Establishes communications with outside authorities and media under the direction of the Crisis Manager.
- Arranges for ongoing communication and updates appropriate parties.

4.4. Security Officer

The Security Officer reports directly to the Crisis Manager. He is responsible for all plant security and traffic control, and will maintain liaison with public law enforcement agencies as required to provide crowd and traffic control. In addition to these duties, the Security Officer will be responsible for the accountability of outside contractor personnel and visitors during the evacuation procedures. His responsibilities include the following duties:

- Coordinates evacuation, as assigned by the Crisis Manager.
- Secure entrance/exit of plant site.

4.5. First Aid Officer

The First Aid Officer will report to the Safety Officer. First Aid Operations will be set up in the plant dispensary. Following the emergency signal, the First Aid Officer will designate an aide to secure a plant vehicle and provide the following equipment:

- (1) Oxygen Therapy Unit
- (1) Bag Mask Resuscitator
- (1) Stretcher and Blankets

A vehicle will be kept on standby for prompt dispatch to the emergency site. Health Physics and Laboratory personnel will be organized into First Aid teams to care for injured personnel under direction of the First Aid Officer or his designee. The First Aid Officer will also request physicians and/or ambulances as required.

The First Aid Officer will notify the Guard at the Main Gate entrance if an ambulance has been requested. First Aid Teams are to assist the medical staff (physician, nurse, and first aid responders) in the treatment of injured personnel. Names of injured and extent of injuries should be supplied to the IC by telephone communication. In the event the dispensary becomes over-crowded or uninhabitable, alternate facilities will be used as determined by the First Aid Officer.

4.6. Maintenance Officer

The Maintenance Officer reports directly to the Emergency Response Officer on days and the IC on off-shifts, holidays and weekends. The Maintenance Officer will assume the following duties:

- Arrange for emergency shut-off of utilities as necessary and for the procurement of auxiliary equipment required to cope with the emergency.

- Initiate and direct all emergency maintenance work to facilitate control of the emergency situation to prevent injury to personnel and minimize damage to property, product or materials.
- Assist the ERT Leaders as requested.
- Assist in restoration of production facilities, utilities, communications and roadways following control of the emergency.

4.7. Emergency Response Officer

The Emergency Response Officer reports directly to the IC. The Emergency Response Officer is responsible for the following duties:

- Coordinate with the ERT Leader and organize ERT members into fire, rescue and HAZMAT teams.
- Be advised through the IC on appropriate personal protective equipment and proper decontamination methods
- With the Safety Officer, facilitate movement of all injured personnel from the scene of the emergency to the cold zone for further medical evaluation.
- Ascertain conditions of all operating units and be prepared to take action to correct spills, leaks or similar operational problems as required.

On the off-shifts, holidays and weekends, he will assume the role of the Safety Officer and Maintenance Officer until relieved by those officers.

4.8. Safety Officer

The Safety Officer reports directly to the IC. The Safety Officer is responsible for the following duties:

- Monitors on-site hazards and conditions during the emergency and consults with the IC on appropriate personal protective equipment and proper decontamination methods.
- Coordinates with the IC on additional safety equipment needed for the site response.
- Advises the IC on the classification of non-radiological emergencies.
- Coordinates with the First Aid Officer for movement of all injured personnel from the scene of the emergency.
- Monitors the rescue teams for signs and symptoms of stress, such cold or heat exposure, and fatigue.
- Advises the IC if personnel health and safety are threatened and whether activities should be halted.

Following emergency control, the Safety Officer will:

- Assemble the rescue crews and check for any additional First Aid or medical treatment that may be needed.
- Assemble and inventory all special safety gear. Arrange for safety gear to be returned to storage following cleaning and repair. Replace all damaged gear promptly.

4.9. Procurement Officer

The Procurement Officer will be under the direction of the IC. The Procurement Officer will be responsible for obtaining material and equipment necessary to control or contain the emer-

gency situation. He will arrange for meals and comfort items for plant personnel as required depending on the duration of the emergency.

4.10. Radiation Officer

The Radiation Officer reports directly to IC. He will be responsible for directing activities through the IC to minimize public and employee exposure in the event of a release of radioactive materials, and will be responsible for hospital and ambulance monitoring and decontamination, if required.

He will advise the IC of potential public exposure and the need to notify off-site residents. The Radiation Officer will advise the IC on the classification of emergencies as defined in the Radiological Contingency Plan.

4.11. Environmental Officer

The Environmental Officer reports directly to and advises the Crisis Manager of the proper response and reporting requirements related to the notification of regulatory agencies. The Environmental Officer will consult with the IC regarding the containment of the release and spill control measures to be taken.

4.12. Control Room Officer

The Control Room Officer reports directly to IC. He has the responsibility of staying in the UF_6 Control Room to control and advise people, record data, and relay information to the IC from that point. He will remain on standby on an as needed basis for non-radiological emergencies.

4.13. Emergency Response Specialist

The Emergency Response Specialist reports directly to the IC and will be part of the Entry Team in a UF6 release. In a non-UF6 release he may be responsible for all non-emergency activities outside the emergency area. The Production Shift Foreperson in this role will:

- Have the responsibility of personnel accounting requirements as part of the plan.
- Advise people, record data, and relay information to the Incident Commander.

On off-shifts, weekends and holidays, he will act as Maintenance Officer until relieved by that officer.

4.14. Emergency Response Team Leader

The ERT Leader reports directly to the Emergency Response Officer on days. On off-shifts, holidays and weekends, he/she assumes the role of the Emergency Response Officer. ERT Leaders are comprised of the day Maintenance forepersons and Production shift forepersons. Following the emergency signal, he will designate an Emergency Response Team member to obtain the emergency response vehicle to be brought to the control point. Under the direction of the Emergency Response Officer, his responsibilities throughout the response effort include the following duties:

- Establishes work zones to protect personnel and coordinate containment of the release.

- Supervise activities of entry and back-up teams.
- Records and tracks entry team work duration and rotation.
- Analyzes resources of necessary safety protective equipment.
- Coordinates and supervises activities of the decontamination line.

4.15. Entry/Backup Emergency Response Team Members

The entry team will consist of at least two ERT Members. An equal number of backups must be available and ready to replace the entry team as needed. The roles and responsibilities are to include:

- Reports directly to the ERT Leader.
- Implements entry plan
- Dons appropriate personal protective equipment.
- Performs tasks such as personnel rescue, containment and confinement of the release and fire fighting measures.
- Follows decontamination procedures.

4.16. Decontamination Emergency Response Team Members

Decontamination ERT Members report directly to the Emergency Response Team Leader. They have the responsibility of setting up the decontamination line, and decontaminating both safety equipment and personnel throughout and following the response effort. Their responsibilities include the following:

- Implement the decontamination plan.
- Don appropriate personal protective equipment.
- Perform tasks at assigned stations.
- Follow decontamination procedures.

4.17. Production Safety Operator

The Production Safety Operator is under the direction of the Safety Officer. The Production Safety Operator has the responsibility of maintaining necessary emergency equipment during the emergency response effort. After reporting in for census purposes, the Production Safety Operator will proceed to the Safety Shack or control point and stand by to service emergency gear as required.

5. Safety Emergency Equipment And Supplies

All safety emergency equipment shall be stored and maintained in strategic areas throughout the plant for immediate access and availability to facilitate the swiftness of response efforts. A listing of emergency equipment shall be posted at each location and the equipment will be inspected on a monthly basis. (See Exhibit "A"). Requirements for inventory and operational testing of emergency equipment are established in Plant EPIPs.

Reference:

Radiological Contingency Plan	Section 6.5	RCP
Decontamination of Personnel, Personal Protective Equipment and Emergency Equipment	Section I	ERP

6. Site Layout And Security

Reference:

Site and Facility Description and Process Description	Section 1.2	RCP

7. Site Security And Control

The purpose of site security and control is to establish control over access to and egress from the site as necessary to minimize potential contamination of emergency responders and protect plant personnel and the public from site hazards. The degree of site control necessary depends on the extent of the natural disaster or hazardous materials emergency involved.

7.1. Site Security

The Security Officer will assume the responsibility of maintaining plant security during an emergency incident. Site security is necessary to:

- Prevent the exposure of unauthorized, unprotected personnel and public to the hazard site.
- Avoid interference with safe working procedures.
- Maintain the entry and exit requirements while a site area emergency exists.

During an emergency situation, all personnel will remain on duty, ignoring shift change schedules, until relieved by a supervisor or until the emergency has been controlled. Employees reporting to work will assemble in the locker room and wait for assignment.

Normally, an all clear announcement will be made on the plant P.A. System after the emergency is brought under control on direction of the IC or the Crisis Manager, if involved.

8. Site Work Zones

Upon activation of the Emergency Response Plan, the IC will establish a local command and communications control point. Site work zones will then be established based on hazardous materials characteristics and conditions that determine the level or degree of the response effort. The establishment of site work zones will help to ensure that:

- Personnel involved in the response activities are aware of the location of potential hazards and risks.
- Site isolation and control exists and is maintained throughout the response effort.
- Designated hot, warm and cold safety zones are identified where necessary.

Reference:

Civil Disturbance	Section F	ERP
Decontamination Procedures	Section I	ERP
Radiological Contingency Plan	Section 2.1.3.1.3	RCP

9. Emergency Escape Procedures And Evacuation Procedures

Spills of process materials or hazardous waste products may create a vapor cloud (Example HF and F_2). Employees are instructed to move away from the area at a right angle to the drift path. Do not go through the vapor cloud to report to the designated accounting area. Employees who must remain at their post to operate the plant are advised to secure all building openings, turn off the heating/air conditioning systems and remain inside until the vapor cloud passes.

Requirements for area evacuation and personnel accountability are established in the plant EPIPs. All personnel are to assemble and report as specified on the Emergency Assembly and Notification Chart provided in ~~Appendix C~~the EPIPs.

10. Emergency Response Critique And Follow-Up Procedures

Requirements for post-event critiques are established in the plant EPIPs. A debrief and critique meeting will be conducted following restoration of plant operation. All key personnel involved in responding to the incident shall be present for the critique to assess the response efforts and determine a plan of action for follow-up procedures. Follow-up actions will be assigned to the appropriate personnel and completed in a timely manner.

Copies of documentation for the critique will be maintained for future reference. A review of the critique information will be made available to all ERT Members during annual refresher training.

EXHIBIT "A"

EMERGENCY RESPONSE VEHICLE

Personal Protective Equipment:

Self-Contained Breathing Air Packs	4	
Additional Air Pack Cylinders	2	
Full Face Canister Gas Masks		6
Half Face Respirator Cartridges		6
Total Encapsulated Suits		4
Chemical Protective Acid Suits		9 sets
Confined Space Rescue Kit		2 kits
Safety Body Harness	2	

First Aid Equipment:

First Aid/Bloodborne Pathogens Kit	1	
Oxygen Therapy Unit	1 unit	
Backboards (Full body and half)		1 each

Emergency Response Tools:

14" Pipe Wrench		2
#430 Channel Locks	1	
9/16" - 1 1/4" Combination Wrench	1set	
10" and 12" Adjustable Wrench		1each
6" and 8" Long Standard Blade Screwdriver	1each	
1 1/2 lb. Ball Pin Hammer		1
Blade Scraper		1

Miscellaneous:

Flashlights	6
Fire Extinguishers	
-Dry Chemical	2
-CO_2	2
Extension Ladder	1
Decontamination Equipment (Ref. I-9, ERP)	

DISTILLATION/ORE STORAGE CABINET SAFETY EQUIPMENT

18 each		Chemical Coats
18 pair		Chemical Pants
16 pair		Chemical Boots
18 pair		Chemical Gloves
6 each		Gas Masks With Canisters* (Date: _____)
4 each		MSA "Dual Purpose" Air Packs
4 each		Medium Air Mask Face Pieces
(Spare)		
2 each		Large Air Mask Face Pieces
(Spare)		
1		Small Air Mask Face Piece
(Spare)		
4 each		Spare Air Cylinders
1		Megaphone
1 set		Megaphone Batteries
6		Flashlights
12		Flashlight Batteries
2 each		Oxygen Therapy Units
1		Orange Vest
2		Tool Bags
1		Blanket
1 box	Large	Nitrile Gloves
1 box	X-Lg.	Nitrile Gloves
2		Radio Holders
1		Loud-mouth speaker

1.One (1) Bag marked "Bolt-Up Tool" containing:

(1)	3/4" Combination Wrench
(1)	7/8" Combination Wrench
(1)	15/16" Combination Wrench
(1)	1 1/16" Combination Wrench
(1)	1 1/8" Combination Wrench
(1)	1 1/4" Combination Wrench
(1)	10" Adjustable Wrench
(1)	12" Adjustable Wrench

2.One (1) Bag market "Misc. Tools" containing:

(1)	6" Long Standard Blade Screwdriver
(1)	8" Long Standard Blade Screwdriver
(1)	1 1/2 lb. Ball Pin Hammer
(1)	Blade Scraper
(1)	14" Pipe Wrench
(1)	18" Pipe Wrench
(1)	Pinch Bar, 1" Wide Blade, 5/8" stock x 16" long
(1)	Linoleum Knife
(1)	#430 Channel Lock

*Replace canister(s) if in service over twelve months.

UF_6 EMERGENCY KIT

1 OF 4

DESCRIPTION		SIZE	NUMBER IN STOCK
Acid Resistant Jacket	XL		2
Acid Resistant Pants	XL		2
Chemical Gloves Prs.			2
Chemical Boots		X-LRG-Pr	1
Chemical Boots		Giant Pr.	1
Hardhat with Faceshield			2
*Canister Gas MasksCanister Date: _____			2
MSA Respirators			2
Lif-O-Gen Oxygen Unit			1
1½" Box-end Wrench			1

UF_6 EMERGENCY KIT
2 of 4

5 lb. CO_2 Fire Extinguishers	2
$^3/_8$" X 12' Welded Chain	2
$^3/_8$" Chain Boomers	2
14" Pipe Wrench	1
10" Crescent Wrench	1
6" Pipe Wrench	1
8" Screw Driver	1
10" Screw Driver	1
2 lb. Sledge Hammer	1
2 Blade Work Knife	1

UF_6 EMERGENCY KIT
3 OF 4 AND 4 OF 4

Patch for UF_6 Cylinder	2

Additional air pack storage is located in:

- GF_2 Control Rooms (1 each)
- DUF_6 Control Room (1 each)
- Laboratory Hallway (2 each)
- Safety Shack (spare cylinders)

Additional Personal Protective Equipment is located in:

- Powerhouse Safety Laundry
- CF_x Safety Supply Room
- Safety Shack (Encapsulated suits)

Attachment 1

TOTAL ENCAPSULATED SUIT
INTEGRITY CHECK

SUIT NUMBER	DATE CHECKED	LOCATION	CONDITION	INITIALS
1				
2				
3				
4				
5				
6				

NOTES: _____

_____

Attachment 2

SCBA INSPECTION

Mask# :			
	DATE CHECKED	CONDITION	INITIALS
Check Gaskets			
Check Clarity of Lens			
Check whether rubber is hard or distorted			
Check exhalation valve			
Check whether plastic bag is O.K.			
SCBA# :			
Check air pressure in tank (2216 psi minimum)			
Check for leaks (by covering outlet and opening yellow valve)			
Check pressure at which bell starts (520 psi)			
Check pressure at which bell stops (0 psi)			
All valves properly closed			
All harness straps fully extended			
SCBA properly installed in case			
Inspection sticker signed			
All guards in place			

NOTES: _____

Attachment 3
HAZARDOUS MATERIAL INCIDENT RISK EVALUATION

SUBSTANCE INFORMATION

CHEMICAL NAME: _____ UN/NA #: _____ EPA WASTE #: _____

COMMON or TRADE NAMES: _____ MANUFACTURER/SHIPPER: _____

CHEMICAL FORM: ☐SOLID ☐LIQUID ☐GAS/VAPOR ☐POWDER VOL. or WEIGHT INVOLVED:_____

IMMEDIATE HAZARDS:
☐FLAMMABLE ☐CORROSIVE ☐REACTIVE (w/ _____) ☐RADIOACTIVE ☐INFECTIOUS
ALL RELEASED SUBSTANCES MUST BE CONSIDERED TOXIC UNLESS DETERMINED OTHERWISE

FLASH POINT: _____ IGNITION POINT: _____ BOIL POINT:_____ VAPOR DENSITY: _____
FLAMMABLE LIMITS (UPPER) _____ WATER SOLUBLE: _____ VAPOR PRESSURE: _____
(LOWER) _____ SPECIFIC GRAVITY: _____

MEASURED RISK PARAMETERS
AIR-BORNE CONCENTRATION (PPM): _____ PERCENT OF LEL: _____
pH: _____ RADIOACTIVE : _____

SITE INFORMATION

☐INDOOR ☐OUTDOOR LOCATION _____
ACCESS _____

WIND DIRECTION (FROM) ☐NORTH ☐SOUTH ☐EAST ☐WEST

ENVIRONMENTAL THREATS:

	TYPE	LOCATION TO INCIDENT
☐STORM DRAIN		
☐SOIL		
☐EFFLUENT/RIVER		
☐PROPERTY LINE		

(sketch the incident scene on reverse side)

VICTIMS/PERSONNEL CONTAMINATION
IS ANYONE INJURED OR CONTAMINATED? ☐YES ☐NO
IF YES, DESCRIBE_____

BASED ON THE ABOVE INFORMATION, THE RISK IS ESTIMATED AS: ☐HIGH ☐LOW

*** **RESPONSE PROCEDURES** ***

PERSONNEL

PRIMARY	BACK-UP	RESOURCES
		☐HEALTH
PHYSICS		
		☐
SAFETY/MEDICAL		
		☐
ENVIRONMENTAL		

INDUSTRIAL HYGIENE

PPE TO USE

GENERAL PROTECTION LEVEL: ☐LEVEL A ☐LEVEL B ☐LEVEL C ☐LEVEL D

BODY COVERING: ☐ENCAPSULATING ☐COVERALLS ☐JACKETS ☐TYVEK

ACID SUITS: ☐PVC ☐NEOPRENE ☐POLYPROPYLENE

GLOVES (outer): ☐NEOPRENE ☐NITRILE ☐PVC ☐LATEX ☐BUTYL

GLOVES (inner): ☐NITRILE ☐LATEX

BREATHING PROTECTION: ☐SCBA ☐AIRLINE ☐AIR PURIFYING/CARTRIDGE _____ ☐NONE

HEAD/EYE PROTECTION: ☐ HARD HAT☐ FACE SHIELD ☐ ACID HOOD

FOOT PROTECTION: ☐ PULL-OVER BOOT COVERS ☐ STEEL-TOED RUBBER BOOTS

SUPPORT AGENCIES SECTION
B

MUTUAL AID

1. Hazardous Chemical Inventories

The Honeywell, Metropolis Works facility complies with the EPA SARA Title III regulations also known as the "Emergency Planning and Community Right-To-Know Act of 1986." These regulations require submission of certain Material Safety Data Sheets (MSDS) to County and State Emergency Planning Agencies (SARA 311), the submission of a hazardous chemical inventory (SARA 312), and the annual emission of certain regulated chemicals (SARA 313). A hazardous chemicals inventory for the Metropolis plant is provided in Table 1. The list contains the chemical by name, the typical quantity on site, and the primary locations of use and storage. Typical quantities will vary somewhat, depending on the production requirements. Table 2 provides a listing of the chemicals used and stored onsite for which Honeywell has submitted MSDS to the Massac County Fire Department and Emergency Planning Commission and to the Illinois Emergency Management Agency.

2. Coordination With Offsite Support Organizations

The Illinois Chemical Safety Act specifies off-site agency responsibilities. The Chairman of the County Commissioners has signed an agreement in accordance with the Act. A current telephone list is maintained in the event that outside agency support might be needed during an emergency. The Crisis Manager is responsible for contacting off-site agencies, if required.

The Metropolis Plant maintains appropriate agreements and working relationships with State and local government agencies to ensure that these agencies can carry out their public safety missions in the event of a plant emergency. Affected agencies include the following:

- Massac County Emergency Services and Disaster Agency
- Illinois Emergency Management Agency
- Massac County Fire Department

2.1. Medical Services

The plant also maintains emergency service agreements with three (3) area hospitals, as follows:

- Massac Memorial - located approximately one mile from the plant
- Lourdes – located approximately 14 miles from the plant; and
- Western Baptist – located approximately 14 miles from the plant.

Massac Memorial Hospital provides ambulance service, allowing for rapid and efficient ambulance and emergency medical treatment for injured plant personnel who cannot be properly treated in the Plant Dispensary. The plant Physician is trained and aware of the potential chemical hazards and injury treatment required for chemical exposures. Hospital emergency treatment personnel have also been trained in the standard treatment procedure to be used on plant personnel.

2.2. Firefighting Support

There is presently a mutual aid organization in operation between the Massac County Fire Department and Honeywell's Metropolis Works facility. A letter of agreement to participate in

a mutual aid organization between the above mentioned parties is located in the Safety Office files for further review.

3. Requests for Offsite Support

In the event of an emergency requiring offsite support, the Crisis Manager will coordinate off-site emergency response through a dedicated phone line or the Massac County 911 emergency system. The Crisis Manager will coordinate reports of an Alert or Site Area Emergency to the local emergency services organization, IEMA, and NRCOC as soon as possible. The notification to the local emergency services organization will be made within 15 minutes of the emergency declaration. Notifications to IEMA and NRCOC will be made immediately following the notification to the local emergency services organization and within one hour of the emergency declaration. While IEMA has agreed to specific notification requirements (four hours) when a "Site Area Emergency" is declared for non-radiological emergencies ~~is declared, all reasonable efforts will be made~~ the EPIPs require the Crisis Manager to complete this notification immediately following the notification to local authorities and ~~within~~ no later than one hour ~~of~~following the emergency declaration.

When a Site Area Emergency is declared, the site automatically issues Protective Action Recommendations (PARs) to shelter in place all members of the public within a one mile radius of the plant. These PARs are communicated to local emergency response officials. The Crisis Manager is responsible for ordering the sounding of ~~three~~ the near-site siren system.~~, one each located at:~~

~~□Mt. Mission Road~~
~~□Franklin School~~
- ~~Hospital Drive~~

Massac County Emergency Services may notify, based on the need expressed by the Crisis Manager, the Fire Department, the Sheriff and the Massac County Illinois Emergency Service and Disaster Agency (ESDA) Coordinator.

The Massac County Fire Department will be utilized in the event an emergency exceeds plant Emergency Response Team capabilities. The Sheriff will coordinate with the Illinois State Police to initiate activities, such as control of civil disturbances or offsite traffic, that may be necessary during a plant emergency.

Should emergency conditions necessitate rapid plant access by offsite emergency response personnel, the Security Officer will be responsible for establishing appropriate compensatory measures. These measures may include assignment of one or more escorts to accompany the responders. If necessary to ensure employee or public safety, the Security Officer may suspend normal access control measures and coordinate a search of the plant following the emergency to ensure that all unauthorized personnel have left the site.

Beginning in April 2004, ~~I~~instructions for sheltering in place ~~are~~ will be provided to affected members of the public within ~~one~~ a radius of not less than 1.3 miles of the plant by periodic distribution of emergency preparedness information. While the 1.3 mile radius was selected for consistency with the findings of the site Risk Management Plan, the actual area affected by the distribution may be larger than the 1.3 mile radius, consistent with corporate practices for effective community relations. This pre-distributed information may be augmented during emergencies by real-time instructions provided by the automated telephone warning system (to be activated during April 2004), local radio ~~and television~~ broadcasts and by local public safety officials.

Also, any time that plant radio communications are being used during a simulated emergency, the Communications Officer will announce over the radio at regular intervals that a test drill is underway. This prevents unnecessary alarm of members of the public who may intercept plant radio messages. Procedural measures are in place to provide for verification of information and to identify drill and exercise communications.

Press releases that result from local plant activities or conditions are drafted by the Plant Manager or his designee. They are faxed to the Marketing Communications Director in Morristown, NJ for final approval. The approved document is then faxed back to the Plant Manager for release to the local media and response organizations through regular mailing, fax transmission, or through a press conference, depending on the urgency of the message.

Although the Crisis Manager may delegate some or all of his communication responsibilities, he cannot delegate responsibility for determining the Protective Action Recommendations that are communicated to public authorities.

The current telephone list of all off-site agencies is maintained and distributed in accordance with the requirements of the EPIPs.

Representatives of the Metropolis Plant will meet with representatives of the affected agencies at least once per year to review issues of mutual interest, including:

- Changes in responsibilities, facility processes and hazards, Emergency Action Levels, or notification procedures;
- Results of recent drills and exercises and associated corrective actions;
- Adequacy of the organization, plans, and equipment; and
- Overall coordination of emergency response capabilities.

TABLE 1 - LIST OF HAZARDOUS CHEMICALS*

Chemical	Typical Quantities (lbs.)	Location of Use and Storage
Ammonia	82,000	Tank Farm
Ammonium Sulfate	19,000	Sodium Removal bldg.; #3 & #4 Ponds
Ant. Pentafluoride	1,000	IF_5 Unit; F_2 Products Area
Calcium Fluoride	1,200,000	CaF_2, Storage Bldg.; Ponds at EPF
Calcium Hydroxide	101,000	Lime Silo at EPF; Ponds at CaF_2/EPF Ore Storage Bldg.
Ethylene Glycol	13,000	Process Tank in FMB; Storage Drums @ Ore Storage and Stores
Fluorine	6,000	Liquid Fluorine Trailers at liquid LF_2 Unit
Fluorspar	52,000	Calcium Fluoride Warehouse; Ore Storage; FMB
Fuel Oil, No. 2	71,000	Tank Farm
*G-114	4,000	Tank Farm; FMB
AZ-50	1,400	
*G-123	500	
*G-134A	11,500	
*Hydrochloric acid		Wastewater Treatment Plant
Hydrofluoric Acid	730,000	Tank Farm; FMB; Fluorine Plants
Iodine	53,000	Ore Storage Bldg.; Fluorine Products Bldg.
Iodine Pentafluoride	9,000	Fluorine Products Bldg. & Storage Pad
KOH (spent & regen)	157,000	Scrubbers outside SF_6, inside SF_6, FMB, Fluorine Plts; Various Tanks outside EPF Bldg.; Tank Farm Storage
Liquid Nitrogen	110,000	Liquid Nitrogen Storage Tanks; Liquid Nitrogen Jacket on Liquid Fluorine trailer pond.
Molybdenum hexafluoride	526,000	FMB; Cyl. At storage yard
Potassium Bifluoride	770,000	Fluorine Plants; Ore Storage; Various tanks at FMB S. Pad; EPF; SF6 & Fluorine Products Scrubbers
Potassium Hydroxide	75,000	Tank Farm
Soda Lime	4,000	Ore Storage; Waste Storage Pad, SF_6 Bldg.
Sodium Bicarbonate	< 5,000	Ore Storage Bldg;
Sodium Carbonate	11,000	Outside EPF; Ore Storage Bldg.; FMB

* Less than Threshold Planning Quantities.

Chemical	Typical Quantities (lbs.)	Location of Use and Storage
Sulfur	63,000	Sulfur Storage Tank – outside and inside SF_6; Waste Storage Pad
Sulfur Hexafluoride	167,000	SF_6 Storage Tanks; SF_6 cylinders in Fluorine Products
Sulfuric Acid	48,000	Tank inside SF_6 bldg.; Tank outside EPF bldg.; Tank Farm
CO2	12,000	FMB
MgOH	5,000	Ore Stg., Ore Prep South Pad
NaOH	7,800	Tank Farm
UF6	1,130,000	FMB, UF6 Cyl. Stg. Pad
U3O8	20,000,000	Samp. Plant, Samp. Plant Stg. Pads, Ore Prep Stg. Pads, Ore Prep
UF4	550,000	FMB, Ore Storage
BMFF	1,400,000	FMB, BMFF Bldg.

TABLE 2 – MSDS PROVIDED TO LOCAL AGENCIES

Ammonia
Ammonium Sulfate
Antimony Pentafluoride
Bed Material/Filter Fines
Calcium Hydroxide
Calcium Nitrate
Ethylene Glycol
Ferrous Sulfate
Fluorspar
Fluorine
Fuel Oil
Genetron 11
Genetron 114
Hydrochloric Acid
Hydrofluoric Acid
Iodine
Iodine Pentafluoride
Liquid Nitrogen
LPG
Molybdenum Hexafluoride
Potassium Bifluoride
Potassium Fluoride
Potassium Hydroxide
Recovered CaF_2
Soda Lime
Sodium Bicarbonate
Sodium Carbonate
Spent KOH
Sulfur
Sulfuric Acid
Sulfur Hexafluoride
Uranium Hexafluoride
Uranium Oxide
Uranium Tetrafluoride

MEDICAL SECTION C

CODE ONE

1. Introduction

This program is designed to provide rapid, trained assistance to personnel involved in serious injury or life threatening situations. Guidance for responding to medical emergencies is provided in the site EPIPs.

Under this concept, individuals involved in or observing such a situation need only activate the emergency number on the plant public address system, announce "CODE ONE", and give the location of the problem. An Emergency Response Team and First Aid Responders will respond to the scene. The First Aid Officer will request physicians and/or ambulances as required. The plant guard will be informed that an ambulance is en route and the Plant Nurse and/or Dispensary personnel will stand by to assist as/if needed.

This system is to be used only in instances involving serious injury, i.e., extensive chemical exposure, fractures, unconsciousness, employee distress or collapse, etc., where it would be advisable to start treatment at the accident scene.

It must not be used to summon routine first aid that will continue to be administered in the Dispensary.

2. Emergency Rescue

In instances where rescue operations are required to remove injured persons from buildings or hazardous areas, the Emergency Response Team will handle such operations. Rescue will be accomplished using the most suitable rescue technique consistent with the immediate hazard and the patient's condition. In all emergency situations, personnel welfare will be the first consideration.

3. Medical Treatment Assessment

Triage is the screening and classification of sick, wounded or injured persons to determine priority needs in order to ensure the efficient use of medical manpower, equipment and facilities. Within the scope of the Emergency Response Plan, only competent medical personnel trained to carry out such decisions will perform triage. In the absence of the Plant Physician, the Occupational Health Nurse at MTW will perform these duties.

I. Guidelines for Serious Injuries During Off-Shifts:

A. Security personnel will call **911** and request an ambulance. Be prepared to give employee's sex, age (approximate), and condition and/or nature of injury or illness.

B. Notify Guard to open gate.

C. If the injury is due to exposure to Hydrofluoric acid, the First Aid Responder should go in the ambulance with the patient and continue the **ZEPHIRAN®** soaks or application of calcium gluconate gel while en route to the hospital.

D. In case of any **severe accident** where an employee was sent to the hospital and **all Hydrofluoric Acid** exposures requiring injections call:

1. Company Physician: Call Company Physician (Refer to Plant Telephone List).

   a. Identify yourself from Honeywell.
   b. Give information regarding the injured personnel and extent of injuries that you observed.
   c. Give name of hospital where victim or victims were transported.

E. For all hospital cases, call as soon as possible the following persons (Refer to Plant Telephone List):

1. Occupational Health Nurse
2. Safety/Medical Leader (or Safety Cell Phone)
3. Appropriate Department Manager

F. If the employee leaves the plant wearing plant clothing, call one of the following persons:

Health Physics Department Supervisor, or their designated alternate

II. Guidelines for Minor Injuries During Off-Shifts:

A. If the injury or illness is minor (whether work-related or personal), but a physician's examination is advisable or requested, employee may be transported by taxi, or if not available, in the Security Guard's vehicle. The employee is allowed to drive his/her personal car upon the discretion of the First Aid Responder.

III. Guidelines on Hospitalization of Employees Directly From Metropolis Works

A. If the patient's condition is, or is suspected to be, work-related, patient should be transported to Massac Memorial Hospital and examined by the physician on call.

B. If the patient's condition is not work-related and the patient is conscious of actions, he/she may request to be taken directly to Western Baptist or Lourdes Hospital. This decision rests with the ambulance attendant, who will render judgment depending upon the patient's condition. For all injuries or illnesses, work-related or personal, the incident is to be logged on the Medical Log.

If an incident results in an employee death or hospitalization of three (3) employees within thirty (30) days after the incident occurs, notification by the Safety Leader to OSHA must be performed within eight (8) hours after receiving the information.

Reference:

See Table 1 for Tier 1 and Tier 2 Reporting

FIRE SECTION D

FIRE EMERGENCY

1. Introduction

The Plant EPIPs provide guidance for responding to a fire on site. In the event of fire, the person discovering the fire should activate the emergency number on the plant public address system and announce three times, "Fire at _____", being sure to give location.

The Plant Emergency Response Team will respond to the call. Upon arrival, the Emergency Response Team Leader, under the direction of the Incident Commander, will assume command of the area and all associated personnel.

If duties permit and the fire is small, persons in the area may attempt to suppress the fire with fire extinguishers. If the fire involves chemicals or if the smoke is heavy, the area is to be evacuated immediately without attempting extinguishment.

Emergency Response Team personnel will be allowed use fire water hoses to suppress incipient fires. Responding Team members may be required to wear full turnout gear and self-contained breathing apparatus; however, outside fire departments must be involved for all internal structural fire fighting. Our emergency responders are to focus on extinguishing initial stages of a fire and shall not remain inside buildings/ structures to fight fires that progress beyond incipient stages. Turnout gear will consist of:

Fireman's Helmet with face shield
Nomex Head Cover
Turnout Coat
Turnout Pants
Fireman's Gloves
Boots-knee length - insulated

Turnout gear is stored in #2 and #4 hose houses and the Emergency Response Vehicle. Turnout gear is to be used only for fire fighting purposes.

Reference:

Organization and Activation	Section A	ERP

2. Emergency Response Team Duties

Duties of the Emergency Response Team will include incipient interior and all exterior fire fighting, spill and leak control, personnel rescue, and emergency control procedures where their expertise and training may be utilized.

The Emergency Response Team will consist of Maintenance and Production personnel.

For the purposes of fire fighting, the initial duty assignments are as follows:

Team Leader:	Maintenance/Production Foreperson
1st Man Reporting:	Nozzle Man
2nd Man Reporting:	Hydrant Man
3rd Man Reporting:	Assistant Nozzle Man

Additional Personnel: As Assigned

NOTE: Canister Gas Masks are not suitable protection and are not to be worn as a substitute for SCBA during fire fighting activities.

The Emergency Response Team will receive a minimum of twenty-four hours formal training per calendar year.

Training will consist of both classroom and "hands-on" practical experience.

Reference:

Emergency Response Preparedness Section J ERP

3. Fire Hazard Analysis

A Fire Hazard Analysis was completed in December of 1994 and May of 1998 for the Metropolis Works facility. In summary, the fire hazards associated with the plant operations were reviewed and deemed low in comparison to other Honeywell locations. Fire hazards are analyzed annually in the "Global Risk Report," which is maintained on file at the plant.

4. Fire Suppression

Metropolis Works maintains an inventory of fire extinguishers. These extinguishers provide minor fire suppression capability for all classes of fires and are conveniently located in all plant areas. Fire suppression and prevention equipment is under the control of the Safety Supervisor.

FIRE SUPPRESSION EQUIPMENT

FIRE EXTINGUISHERS:

Carbon Dioxide:	Flammable liquids, electrical, computers
Dry Chemical:	Flammable liquids, electrical
Dry Powder:	Burning metals - magnesium
Water:	Solids, e.g., wood, paper

HOSE HOUSES:

There are seven equipped fire hose houses at Metropolis Works that contain fire hose. Six of these have a fire water hydrant either pre-connected or in close proximity. Hose house numbers 2 and 4 contain complete turnout gear.

Each hose house contains a minimum of 300' of fire hose and accessory fittings.

SPRINKLER SYSTEMS:

Several plant areas are protected by automatic sprinkler and/or deluge systems.

SHOP/STORES:

Protected by automatic "wet pipe" sprinkler system (always pressurized to sprinkler head). Shut off/control valve located west of A & B Fluorine Plant.

FLUORINE PLANT RECTIFIERS:

Protected by automatic "dry pipe" sprinkler deluge system. (Pipe is dry until system is tripped by a heat-actuated system.)

LIQUID PROPANE DELUGE:

Protected by manual dry pipe (underground) system. Deck guns, (water cannon) activated from valve at #1 hose house at northwest corner of laboratory building.

STANDPIPES:

Several buildings are also provided interior hose stations, i.e., stand pipes. These stand pipe cabinets or reels contain fifty feet of 1½" fire hose pre-connected to the fire water line.

*Administration Building
*Laboratory
Stores
Maintenance Shop
Feed Materials Building

*These buildings are supplied with firewater from process water lines.

COMMUNICATIONS SECTION E

EMERGENCY PHONE SERVICE

The Plant EPIPs establish requirements for maintaining an up to date listing of emergency telephone numbers. During a power outage the plant telephones connected to the site switch will remain in normal use from the plant's UPS system for a period of 8-12 hours. After that time, a selected list of emergency numbers, not connected through the site switch will remain in service from the telephone service supplier.

Other Telephones

A dedicated telephone number has been established between the plant and the local emergency services organization (911 office). These phones have been located in the plant at the Security Desk and in the FMB Control Room. This line can be kept open under emergency conditions to facilitate ongoing communications. This phone number is not published and is held only by the plant and the local emergency services organization.

In addition to the above listed telephones, there are several cellular phones that can be used during a power failure if necessary. Plant EPIPs establish requirements for maintaining a current listing of cellular telephone assignments. Up-to-date listings will be maintained in locations, such as with copies of the Emergency Plan, where they may be required during emergencies.

RADIO COMMUNICATIONS

Metropolis Works is equipped with two-way hand-held radios, a base station that is located in the Guard Office, and a Mobile Unit in the Guard vehicle. These radios operate on assigned FCC frequencies.

Depending on the crystals installed, these radios are capable of transmitting and receiving several frequencies. It is the frequency designation and not the channel capability that determines how the unit may be used. All emergency channels (1 and 8-16) are the same frequency.

Plant EPIPs establish requirements for maintaining a current listing of radio assignments. Up-to-date listings will be maintained in locations, such as with copies of the Emergency Plan, where they may be required during emergencies.

CIVIL DISTURBANCE SECTION F

METROPOLIS WORKS

DISASTER CONTROL PLAN FOR

BOMB THREATS, RIOTS,

CIVIL DISTURBANCES, &

TERRORISTS / SABOTAGE THREATS

METROPOLIS WORKS PROCEDURES

SUBJECT: Emergency Response Plan
Bomb Threats, Riots, Civil Disturbances & Terrorists/Sabotage Threats

PURPOSE: To supplement established Emergency Response Plans and Procedures in effect at Company locations to cover Bomb Threats, Riots, Civil Disturbances & Terrorists/Sabotage Threats

RESPONSIBILITIES:

A. Corporate Safety and Loss Prevention: Develop and provide functional management of Emergency Response Plans including procedures for contending with bomb threats, riots, civil disturbances & Terrorists/Sabotage Threats at Company locations.

B. Division Management: Implement and direct appropriate action to be taken by local personnel.

C. Location Management: Maintain an Emergency Response Plan and comply with bomb threat, riots, civil disorder defense procedures & Terrorists/Sabotage Threats as outlined.

PROCEDURE - BOMB THREATS:

Bomb threats may be received at an Honeywell location by telephone, mail, or in person. Company personnel likely to receive such threats should be informed of their responsibility to report any bomb threat immediately to designated location or divisional management. Personnel that may receive such threats are:

- Plant Guards
- Mail Room
- Supervisors or Managers

If a bomb threat is received by telephone, the following action should be taken in accordance with the EPIPS:

1. Obtain as much information as possible from the caller as outlined in the Sabotage Threat Checklist. Note the time of the call, the exact wording of the message and the time the bomb is supposed to explode.
2. Immediately notify the designated company official and relay the message.
3. Do not discuss with others unless advised to do so.
4. The Incident Commander will properly classify the event and ensure key personnel designated in the Emergency Response Plan are contacted.

The action to be taken will be decided by theCrisis Manager and Incident Commander. Proper evaluation of the threat depends on the circumstances surrounding each threat. The main objective is to protect company personnel. The secondary objective is to prevent or minimize damage to company property.

The local Police should be notified immediately advising them of the bomb threat received. The Police Department should make any request for a Bomb Squad to report to the scene.

DECISION TO EVACUATE OR SEARCH:

A. Evacuation

Minimizing the possible consequences of a bomb threat can result in serious injuries to personnel. Therefore, in event any such threat is received, the first consideration must be given to the need for evacuation of an area, part of plant or entire plant. It may be prudent to promptly evacuate any unneeded personnel from the threat area.

If threat is to an operating area, shutdown procedures should be started immediately.

The Crisis Manager and Incident Commander must decide on the extent of the evacuation.

If evacuation is determined necessary, then the following steps should be taken:
If during working hours,

1. The Plant Emergency Response Team should be on standby and available to help with the evacuation if necessary.
2. Line managers and all supervision in the area affected will be notified to evacuate all personnel in their areas and affect emergency shutdown procedures. Accountability procedures are implemented
3. Employees evacuated will be instructed to remain on standby.
4. If feasible, a search of the area for a bomb will be conducted by qualified off-site personnel. If a search is negative and with the lapse of sufficient time, employees may be instructed to return to their work areas.

If during off hours:

1. The Emergency Response Officers named in the Emergency Response Plan will be notified and report to the scene.

B. Search

If management and the Police have reason to believe the threat is valid and that sufficient time remains before the bomb is scheduled to explode, an area search should be made. The extent of the search will vary based on the evaluation of the threat. In searching a plant, supervisory personnel are required to assist Police because they are familiar with the physical layout of the location, can provide access to locked areas, know vital operating equipment, and can identify objects foreign to the premises.

Limited search might include:

1. An initial search of the more public area at the location; i.e., restrooms, corridors, stairwells, unlocked rooms off corridors such as pipe shafts, etc.
2. A thorough search of key and critical areas such as boiler house, electrical substations, water supplies, computer rooms, telephone switching rooms.
3. A more detailed search of a specific area or location in the plant if indicated by the threat.
4. To prevent exaggerated rumors, employees in the immediate area should be kept informed by their supervisor and if a search is ordered, the immediate area should be evacuated.

In searching for an explosive device, be alert to such things as:

- A lunch box in an unexpected area.
- A piece of pipe closed at ends.
- A ticking sound.
- An object with wires.
- An object that is out of place in surroundings such as a package.
- Items in storage closets or lockers used by cleaning personnel.
- In mail room or delivery areas look for:
- A crudely lettered package.
- A package wrapped in an unusual manner.

If something suspected to be a bomb is found, do not touch the object. Do not put it in water. Leave it strictly alone for the experts to handle.

C. Discovery of a Bomb

In the event a bomb or incendiary device is discovered:

1. Evacuate the Area - All personnel should be evacuated from the area including those in the adjacent buildings.
   Do not attempt to disarm or to move the device.
2. Request the local Police Department to secure the services of a Bomb Squad.
3. Block the area where the bomb was discovered and permit no one to go in the area except plant officials, police or Bomb Squad members.
4. Telephone the local Fire Department and any available ambulance services and request them to stand by.
5. Notify the nearest office of the Federal Bureau of Investigation.

Complete details of any bomb threat should be reported to appropriate Division Management and Corporate Safety and Loss Prevention.

PROCEDURE - RIOTS AND CIVIL DISTURBANCES:

Riots and civil disturbances involving our Company could occur at any time. We cannot foretell what location may be affected by an area riot or become the target for demonstrations, violence or harassment by dissident groups.

Security measures to be taken should be preliminary planning and procedures during disturbances. Primary consideration must be given to the protection of our employees and property. The key is to have a procedure that can be put into effect quickly and efficiently.

Preliminary Planning

A. Plans should be made for safe guarding of records at the location that are not already covered under previously established disaster control plans which would disrupt operations if destroyed. Important records should be duplicated and stored remotely from the location.

B. A survey should be made of critical equipment that would seriously curtail the ability of the plant to resume or maintain production if damaged. Electrical substations, transformers and vital instruments for process equipment would be in this category.

C. A survey should be made of plant equipment that could be for used for the destruction of other equipment (i.e., bulldozers, cranes) and plans made to minimize seizure of such equipment for that purpose.

D. Plans for evacuation of employees, calling in of personnel or keeping them at the location should be considered in terms of the best forecast of what might be expected and the probably time of day or night.

E. The most common device used in civil disturbances if the Molotov Cocktail. This is usually a bottle of gasoline with a burning wick that ignites the gasoline when the bottle is broken. Flat building roofs are often targets for these incendiary devices. The best protection is to have charged dry chemical fire extinguishers on hand. Filling roofs that can hold water safely with a couple of inches of water is a protective method. Otherwise, hose lines ready on the roofs or nearby backed up with dry chemical extinguishers are good defenses.

F. Good housekeeping is essential in minimizing damage. Trash is not only a source of ignitable materials, but can be used as weapons to break into buildings and to damage equipment. Where materials such as pipe and lumber must be stored outside, the storage area should be as remote as practical from operating and work areas.

G. If the location has security guards, the decision should be made as to whether they should be armed. The primary objective should be peaceful protection of property without resort to arms. Armed guards may provoke a more serious situation than the one existing.

H. Protective lighting is one of the best measures available. Most riot and firebomb damage occurs after dark, and nothing discourages hit and run types like full coverage glare lighting. You may be able to reposition existing lighting for this purpose. Consider stand by lights and power supply to provide additional emergency protection for the location. Several other points on lighting to consider:

1. Continuous lighting may not be needed in remote areas, but plans for directing light into these areas from existing or portable units should be reviewed.
2. Movable lighting, such as manually operated search lights which may be available in an emergency from local police, fire or guard armories could prove a valuable addition to emergency equipment. Whether operated continuously or lighted during hours of darkness, such systems would normally supplement conventional lighting.
3. Continuous lighting of plant entrances where such entrances are under guard surveillance is important, except where intrusion detection devices can be considered adequate substitutes. Continuous lighting should be provided also for ground floors and parking lots.
4. Screening should protect lights vulnerable to thrown objects.

I. Where windows face on streets, the need for protection such as removable plywood covers which can be put on if necessary in a few moments should be considered. Where windows or doors are in vulnerable entry positions, steps to protect them should be planned.

J. The need for emergency equipment such as bull horns for communication should be considered.

K. Adequate plant fencing should be a requirement. Where invasion of premises can be limited, it is easier to control damage from thrown objects such as Molotov Cocktails.

PROCEDURE - DURING RIOTS OR DISTURBANCES:

A. Be prepared to initiate the emergency plan quickly.

B. Limit activities within the plant or premises to safeguard personnel, buildings and equipment. Discontinue activities that could result in exposure of personnel such as working in open structures, or going to or from isolated parts of the plant such as pump houses. Avoid confrontations with protesters.

C. Have communication lines ready for contact with Police and other law enforcement agencies.

D. Let law enforcement agencies handle out-of-hand situations.

E. Peaceful picketing should present no problems. Confrontations should be avoided.

PROCEDURE - SABOTAGE/TERRORISTS THREATS

Refer to "Crisis Communication Management Planning Guide", TAB 3.

BOMB THREAT CHECK LIST

Bomb Threat Information Received:

Date: _____ Time: _____

Place: _____

If by phone:

Internal Extension: _____

Other: _____

EXACT MESSAGE RECEIVED: _____

_____

IF BOMB OR EXPLOSIVE:
Where: _____
Type of Explosive: _____
When - Time: _____
Why: _____

WHO THE CALLER IS:
Name (if given): Male ___ Female ___
Voice - Pitch of Voice: Low ___ Moderate ___ High ___
Estimate of Age: _____
Speech Characteristics: Stuttering _____

Unusual Accent _____

_____

Peculiar Grammar _____

_____

Other _____

_____

WHERE HE IS:
Background and Level of Noise: _____

OTHER HELPFUL INFORMATION:
If the caller hasn't given his name, ask for it; sometimes it is blurted out unintentionally. This should be done as a final attempt for more information since it could also have the effect of abruptly ending the conversation.

_____

_____

ACTION TAKEN (Who was notified, etc.): _____

_____

_____

_____

(Name)

EMERGENCY POWER ACTION PLAN
SECTION G

STANDBY POWER ACTION PLAN

The Metropolis Works maintains detailed procedures for responding to events involving a loss of electrical power to the site. Because of the detailed procedural nature of this material, it has been transferred from the site Emergency Response Plan to Emergency Operating Procedures effective with the March 2004 revision of the Emergency Response Plan.

SHUTDOWN PROCEDURES
SECTION H

SHUTDOWN PROCEDURES

The Metropolis Works maintains detailed procedures for responding to events involving an emergency shutdown of site systems. Because of the detailed procedural nature of this material, it has been transferred from the site Emergency Response Plan to Operating Procedures effective with the March 2004 revision of the Emergency Response Plan.

DECONTAMINATION OF PERSONAL PROTECTIVE EQUIPMENT AND EMERGENCY EQUIPMENT

1. Introduction

The role of decontamination is critical in controlling and removing contamination from personal protective equipment and emergency equipment while eliminating or reducing the exposure to personnel. Decontamination procedures contain and control the spread of hazardous materials to people and the environment through neutralization of harmful contaminants. Decontamination activities are performed in accordance with site EPIPs.

2. Methods of Decontamination

Determination of methods and extent of decontamination of emergency personnel and equipment will depend on four factors:

- Type of contamination present
- Amount of contamination present
- Type of emergency activity performed
- Level of personal protective equipment worn

Two types of decontamination methods, physical and chemical removal, are performed at Metropolis Works on both personnel and emergency equipment. Physical removal of gross contaminants can be accomplished through rinsing, wiping, scrubbing or scraping using brushes and high-pressure spray units. The use of safety showers located throughout the Plant can be considered an adequate form of initial physical contamination removal in most situations. Dust and residual vapors can be removed with water or a liquid rinse. Volatile liquid contaminants can be removed through evaporation followed by a water rinse.

Chemical decontamination shall consist of dissolving contaminants in a liquid solution, usually detergent and water. Neutralization of hazardous materials can be accomplished through the use of low-suds detergents or sodium carbonate diluted with water (10 gallons water + 4 pounds of carbonate). Infectious agents can be disinfected using a detergent solution, or a 10 percent bleach solution with water.

Reference:

MTW Bloodborne Pathogens Exposure Control Plan

3. Decontamination Line Procedures

The decontamination line will be set up in an organized sequence. Separate stations will be arranged in order of decreasing contamination levels. All decontamination procedures are performed in the Warm Zone or Contamination Reduction Zone. The Emergency Response Officer will determine the best location for the decontamination line based upon the following criteria:

- Upwind from the Hot Zone or Exclusion Zone
- Levels and types of decontamination needed
- Potential for injury or exposure based on responder activities
- Proximity and movement of personnel and equipment to the work zone
- Lighting and visibility in nighttime or adverse conditions

Levels of protection worn and the type of decontamination needed will determine the basis for properly setting up the decontamination line. Location of the decontamination line should begin with a contaminated equipment drop in the Hot Zone or Exclusion Zone. All other activities are contained in the Warm Zone or Contamination Reduction Zone (CRZ). Entry and exit pathways shall be designated and recognizable to emergency response personnel (yellow barrier tape and/or orange traffic cones).

4. Levels of Personal Protective Equipment

The Environmental Protection Agency (EPA) defines four levels of protection based on the degree of protection needed for the emergency.

Level AProvides the highest level of skin, respiratory and eye protection.
MTW personal protective equipment worn for Level A consists of:

- Fully encapsulated chemical suit with integral boots and gloves
- Positive pressure, full-face piece, Self-Contained Breathing Apparatus (SCBA), pressure demand or positive-pressure supplied-air respirator with SCBA for escape
- Inner chemical-resistant gloves (nitrile or Silver Shield®)
- Inner pull-over boots
- Hard hat

Level BProvides the highest level of respiratory protection, but a lower level of skin protection. MTW personal protective equipment worn for Level B consists of:

- Hooded chemical-resistant clothing or acid suit (neoprene or polyvinyl chloride)
- Positive pressure, full-face piece, Self-Contained Breathing Apparatus (SCBA), pressure demand or positive-pressure supplied-air respirator with SCBA for escape
- Outer, chemical-resistant boots with steel-toed shank
- Inner chemical-resistant gloves (nitrile or Silver Shield®)
- Outer, chemical-resistant gloves
- Hard hat

Level C Provides a lower level of skin, respiratory and eye protection; used only with specific known substances at acceptable concentrations. MTW personal protective equipment for Level C consists of:

- Chemical resistant clothing or acid suit (neoprene, polyvinyl chloride)
- Full-face or half-mask air purifying respirator (NIOSH approved)
- Inner chemical-resistant gloves (nitrile or Silver Shield®)
- Outer, chemical-resistant gloves
- Outer, chemical-resistant boots with steel-toed shank
- Hard hat
- Safety glasses

Level D Provides minimal protection from chemical exposure. MTW personal protective equipment for Level D consists of:

- Coveralls
- Chemical-resistant boots or shoes with steel-toed shank
- Hard hat
- Safety glasses

5. Decontamination Procedures for Personal Protective Equipment

Outer chemical protective clothing and self-contained breathing air equipment should be decontaminated first, then removed, followed by facepiece, inner boots, and inner gloves .

All emergency personnel assisting in decontamination procedures must themselves be decontaminated before entering the cold or Support Zone. The sequence of decontamination follows the basic rule that each individual in the same level of protection will decontaminate each other. The next lowest level of protection will assist until all remaining personnel are decontaminated. For example, Level B personnel decontaminate Level B personnel until it is safe for Level C personnel to assist. Similarly, Level C personnel decontaminate each other until it is safe for Level D personnel to assist.

The following list details the procedure and layout of decontamination stations for Level A, B, and C decontamination for Honeywell's Metropolis Works facility.

6. Procedure for Typical Decontamination Line Layout

Segregated Equipment Drop (Hot Zone)

Personnel enter the decontamination area and deposit equipment (tools, sampling devices, containers, radios, etc.) on plastic drop cloths or plastic-lined containers on the contaminated side of decontamination line. Personnel proceed to Station 1.

Station 1: Level A, B, or C Suit Wash

The decontamination team members assist the entry team in decontamination procedures. Scrub outer gloves, boots and chemical-protective suit with appropriate decontamination solution in a diked area or wading pool. Note: Decontamination solution may vary depending upon the type and concentration of contaminant(s) involved. For most types of contamination contained on-site, low-suds detergent and water is considered adequate decontamination solution. Personnel proceed to Station 2.

Station 2: Level A, B, or C Suit Rinse
Decontamination team members rinse off decontamination solution with adequate amounts of water in a diked area or wading pool. Repeat as needed. Any run-off liquid must be controlled in the decontamination line. At this point a pH check with litmus paper can be performed after each rinse to ensure adequate decontamination. Personnel proceed to Station 3.

Station 3: Level A, B, or C Suit Removal
With assistance, remove chemical-protective suit and place on contaminated side of the decontamination line on plastic drop cloths or in available plastic-lined containers. Caution will be taken to remove the suit from the inside out so as to avoid skin contact with contaminants on the outside of the suit. Inner gloves, pull-over boots and SCBA equipment will be removed last. Personnel proceed to Medical Evaluation area.

Re-Entry Considerations: SCBA Removal/Air Tank Exchange

While still wearing the facepiece, disconnect air hose from regulator valve and hold hose above waist level. With assistance, remove SCBA backpack and place on contaminated side of decontamination line. Air tank exchange can occur at this point. The entry team member then returns to the hot zone.

Safety Shower Considerations:

Where practical, the use of a safety shower located in the decontamination area can be considered a substitute for Stations 1 and 2 in a typical decontamination layout. Measures may be taken to ensure that contamination is contained unless emergency decontamination is required (see **Emergency Decontamination of Personnel**).

7. Personnel Medical Evaluation

Personnel shall receive immediate medical attention as deemed necessary. All emergency response team members responding to an emergency incident will receive a medical evaluation following decontamination procedures. Emergency medical treatment is performed in accordance with the MTW "Emergency Medical Procedures Manual".

Follow-up medical evaluation or attention may be necessary in certain circumstances. In such cases, personnel shall report to the Dispensary for follow-up medical evaluation by the Plant Occupational Nurse or Physician on duty.

Reference:

MTW Emergency Medical Procedures Manual

8. Emergency Decontamination of Personnel

Emergency decontamination of personnel will be required when personnel show signs of acute chemical exposure and whether a medical emergency elicits other action. Emergency decontamination may consist of a quick wash and rinse, followed by protective clothing removal and another quick wash. If medical assistance is needed immediately for life support, then decontamination must be delayed. The personnel can be wrapped in a blanket, plastic or rubber to reduce cross-contamination to other personnel.

For heat stress emergencies, PPE must be removed immediately. In other cases, it may be deemed necessary to remove PPE immediately to aid in minimizing further contamination to the victim. Off-site emergency medical personnel must be alerted about the specific decontamination procedures if necessary.
Medical decontamination and treatment involving radiation hazards is performed in accordance with plant policies and procedures.

Reference:

MTW Medical Procedures Manual	Uranium	
Radiological Contingency Plan	Section 5.5- 5.7	RCP

9. Decontamination of Equipment

Safety equipment involved in a radiological hazardous materials incident shall be considered potentially contaminated until determined otherwise as specified in the Radiological Contingency Plan.

Reference:

Radiological Contingency Plan	Section 9.2	RCP

10. Assessment of Effective Decontamination

Effective decontamination for chemical and radioactive contamination requires follow-up evaluation. The effectiveness of personal protective equipment decontamination will be determined at Metropolis Works by utilizing the following methods:

- Visual inspection by natural light to detect:
  a. Discoloration, stains, corrosive effects
  b. Visible dirt or alterations in clothing material

2. pH sampling
   a. Wiping tools, equipment, PPE (inside and outside) with pH or litmus paper
   b. Analyzed by Safety personnel

3. Monitoring
   a. Health Physics survey instruments

Reference:

Radiological Contingency Plan	Section 6.5	RCP

11. Decontamination Equipment List

Materials used in decontamination of personnel and safety equipment involved in a hazardous materials incident, can be found in the Decontamination Cabinet, located outside the Production Office or in the Emergency Response Vehicle.
Decontamination items used in the decontamination line set up may include:

- Plastic pre-formed wading pools
- Water spray unit
- Long-handled, soft-bristled scrub brushes
- Buckets, 3-gallon
- Plastic liner, 100 foot
- Traffic cones
- Absorbent socks, bags
- Safety barrier tape
- Hose
- Detergent
- Litmus or pH paper
- Step stools

12. Disposal of Contaminated Materials

Contaminated material and equipment that cannot be decontaminated must be disposed of properly. Disposal involves containment and proper labeling of those containers in accordance with local, state and federal regulations.

Reference:

Low Level Radioactive Waste Manual

DECONTAMINATION
SECTION I

DECONTAMINATION OF PERSONAL PROTECTIVE EQUIPMENT AND EMERGENCY EQUIPMENT

1. Introduction

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- Inner pull-over boots
- Hard hat

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   a. Wiping tools, equipment, PPE (inside and outside) with pH or litmus paper
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3. Monitoring
   a. Health Physics survey instruments

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Radiological Contingency Plan Section 6.5 RCP

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- Traffic cones
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- Safety barrier tape
- Hose
- Detergent
- Litmus or pH paper
- Step stools

12. Disposal of Contaminated Materials

Contaminated material and equipment that cannot be decontaminated must be disposed of properly. Disposal involves containment and proper labeling of those containers in accordance with local, state and federal regulations.

Reference:

Low Level Radioactive Waste Manual

TRAINING
SECTION J

EMERGENCY RESPONSE PREPAREDNESS

1. Emergency Response Training Requirements

Training for personnel who do not hold ERO responsibilities is limited to actions necessary to recognize alarms and warnings, obey commands and announcements, and report to assigned areas for accountability and further instructions.

Training may be presented by any means determined to be appropriate and effective, depending on the subject and audience. Acceptable methods include required reading, computer-based training, classroom training, or practical exercises. Participation in offsite industry meetings and drills and exercises may also fulfill some training needs. To the extent appropriate, as dictated by the nature and complexity of the material presented, mastery of the subject matter may be demonstrated by group interaction, written examinations, and/or practical demonstrations.

1.1. Emergency Response Organization Training

Emergency Response Training is provided to all individuals prior to assignment to a position in the ERO and annually thereafter.

Training for onsite personnel holding ERO positions includes the following topics, to the extent appropriate to the responsibilities of the position held:

- Plant hazards, alarms and other warnings of emergency conditions;
- Emergency classifications and responses to those classifications;
- Procedures for activating and deactivating the ERO;
- Organization and responsibilities of the ERO;
- Locations of assembly areas and control points;
- Responsibilities of ERO positions;
- Procedures related to the ERO positions;
- Operation of any equipment used under emergency conditions;
- Use of any appropriate protective equipment, including respiratory protection equipment;
- First aid and decontamination procedures; and
- Requirements for records and reports related to emergency and recovery operations.

Members of the Emergency Response Team who respond to a hazardous materials incident will receive an initial 24-hour course of training with an annual 24-hour refresher training as defined by the NRC license for Honeywell's Metropolis Works. Training on hazardous material release control procedures is provided for personnel plant-wide through "B" Council Safety Meetings to ensure the effectiveness of the program.

The initial 24-hours of training includes the following requirements under OSHA 29 CFR 1910.120(q)(6)(iii), Hazardous Material Technician level:

- Understand hazard and risk assessment techniques
- Know how to secure the hazardous materials incident scene
- Proper selection and use of personal protective equipment.

- Physical hazards of chemicals (potential for fire, explosion, etc.)
- Health hazards associated with exposure to chemicals.
- Procedures to protect against hazards (personal protective equipment required, proper use and maintenance, work practices or methods to assure proper use and handling of chemicals and procedures for emergency response).
- Know how to implement basic decontamination procedures
- Know how to perform basic confinement and control measures
- Know the emergency response plan and basic standard operating procedures
- Recognize information found on Material Safety Data Sheets, labels, and other resources.
- Understand how to operate air monitoring equipment

A program that uses both audiovisual materials in a classroom setting with hands-on application has been prepared for Emergency Response Team members. Each team, with the Team Leader, will be trained in fire safety, personnel rescue, and emergency control procedures to ensure safe and efficient team operation.

First Aid personnel are trained annually in Cardiopulmonary Resuscitation (CPR) and applicable First Aid certification. Periodic first aid training is provided through the Plant Occupational Nurse.

Medical, Occupational Health, and Environmental support and training are also provided by the Corporate Staff as needed.

Refresher training is provided annually and emphasizes those items listed above in addition to the following material:

- Be able to function within an assigned role in the ERO structure;
- Know how to implement the Emergency Response Plan;
- Identify and understand hazards normally found on-site;
- Know how to select and use site-specific respiratory and personal protective equipment in an emergency response;
- Understand personnel rescue techniques and equipment for both confined spaces and removal out of buildings on-site;
- Know where MSDS are located, how to read and interpret the information on both labels and MSDS and how employees may obtain additional hazard information;
- Certification in first aid and CPR; and
- A review of critique information from recent drills, exercises, and emergency plan events.

The ERO Officers will be retrained when necessary as the plan is changed. The Health Physics Staff is responsible for providing appropriate training for radiological monitoring.

Training on the use of respiratory protection equipment is conducted in accordance with the plant's Respiratory Protection Program. This training is provided to affected employees prior to the initial use of a respirator and periodically thereafter.

1.2. Training for Personnel Who Maintain the Plans

Training for personnel who prepare and maintain the ERP/RCP and procedures includes the following topics:

- Regulatory and license requirements and guidance for the Plans and EPIPs;
- Any management commitments related to the Plans and EPIPs;
- Results of recent plan and procedure audits and drill and exercise critique audits related to plan and EPIP content and effectiveness; and
- Industry events related to emergency preparedness and Plan execution;

1.3. Training and Orientation for Offsite Emergency Response Personnel

The plant offers training and orientation opportunities to off-site support groups (hospitals, fire departments, police, rescue services, public officials, etc.) for initial training of new personnel and retraining of current personnel. This may include facility tours, discussions of facility hazards, classroom training, practical demonstrations, discussions of lessons learned, communications tests and exercises, and opportunities to attend offsite meetings and seminars.

The content of the training and orientation provided to offsite emergency response personnel will be sufficient to allow them to effectively discharge their responsibilities related to an emergency at the site. To the extent appropriate, the training will address issues such as site layout and processes, site hazards, personnel monitoring requirements, exposure guidelines, contamination control, and implementation of Protective Action Recommendations.

2. ERP/RCP Shift Coverage

Following discussion of emergency response coverage for evenings, midnight's, weekends, holidays and vacancies, it was decided that a minimum of six (6) hourly personnel and three (3) supervisors are required on-site during plant operations to provide adequate response efforts. If plant operations are down, a minimum of four (4) hourly personnel are required to maintain the response effort under the ERP/RCP. As a result, any emergency response team member or "Red Hat" (an employee who has completed the full 24 hour response training) is required to respond as part of their job position unless the following applies:

- employee is on restricted duty
- employee is working overtime in a position not required to respond
- employee is noted on the schedule as "ERT Qualified"

Any personnel properly trained in emergency response may be utilized in the response effort if the Incident Commander requests their assistance.

Radiological Contingency Plan

U.S. Nuclear Regulatory Commission

DOCKET NO. 40-3392

Material License No. SUB-526

METROPOLIS WORKS

Honeywell

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1.0 General Description of the Plant/Licensed Activity

Honeywell operates a privately-owned uranium hexafluoride conversion/deconversion facility at Metropolis, Illinois. At this facility, natural uranium ore concentrates are chemically converted into high purity uranium hexafluoride (UF_6), and uranium hexafluoride can be deconverted into uranium oxides. The UF_6 product from the facility is shipped to enrichment facilities for enrichment of the U-235 isotope. Following enrichment, the uranium is converted into fuel for use in nuclear power reactors.

The Metropolis Plant was originally built at this location to supply UF_6 conversion for the U.S. Atomic Energy Commission under a five-year contract (1959-1964). Presently, however, the Metropolis facility supplies conversion services for the nuclear power industry.

1.1. Licensed Activity Description

The Metropolis Plant is currently licensed to produce uranium hexafluoride by processing source material that is received as uranium ore concentrates in accordance with USNRC Source Material License No. SUB-526. The maximum inventory of source material authorized by the license is one hundred and fifty million (150M) pounds of natural uranium. The license also permits Honeywell to possess and use other types and forms of radioactive material as needed to support its uranium conversion operations, including:

- Cesium-137 (sealed sources) – 100 millicuries
- Depleted uranium (Yellowcake, U_3O_8) – 150 pounds
- Unirradiated uranium (UF_4) – 9,000 pounds
- Any licensed material with atomic numbers 1 – 100 (quality control samples) – 1 microcurie

The present plant is a multi-product chemical manufacturing facility producing sulfur hexafluoride, iodine and antimony pentafluoride, liquid fluorine, synthetic calcium fluoride, uranium oxides, and uranium hexafluoride. The production of uranium hexafluoride and uranium oxides are the only operations requiring licensing by USNRC pursuant to the provisions of 10 CFR 40. The production of uranium oxides from UF_6 has been performed only on an experimental basis. The licensed facility is designed to produce about 14,000 short tons per year of uranium as UF_6 from uranium concentrates. The plant feed usually assays about 80% uranium and the final UF_6 product contains less than 300 parts per million impurities. In the Honeywell process, the ore concentrates feed is carried through the successive steps of feed preparation, reduction, hydro-fluorination, fluorination and distillation. Chemical reactions are carried out in fluid bed reactors. A simplified flow chart of the manufacturing process is presented in Figure 1.1.

1.2. Site and Facility Description and Process Description

The Honeywell Metropolis Plant is located on approximately 1,000 acres of land in Massac County, at the southern tip of Illinois, along the North bank of the Ohio River. A general area map showing a five-mile radius around the plant is provided in Drawing No. MTW 2963. Drawing No. MTW 2963 also illustrates the locations of offsite emergency response facilities and special use facilities, such as hospitals, schools, and nursing homes. The site perimeter is formed by U.S. Highway 45 to the North, the Ohio River to the South, an industrial coal handling plant to the West and privately-owned land to the East. The company also owns approximately 80 acres of land northeast of U.S. 45, some of which is leased for farming operations. Plant operations are conducted in a double-fenced restricted area covering approximately 59 acres in the North Central portion of the site. Most of the land within a few miles of the site is relatively flat and dedicated to agricultural operations.

Most of the uranium processing equipment is housed in a six-story structure called the Feed Materials Building (FMB) where essentially all of the steps in the UF_6 manufacturing process are conducted. Other areas and buildings in which operations are conducted involving the handling or processing of significant quantities of source material include the following:

a. The Sampling Plant, where ore concentrates are received and sampled for subsequent uranium assay and impurities and moisture analyses.

b. The Sodium Removal and Uranium Recovery Facilities, where high sodium content ore concentrates are treated to remove this impurity and where recycled materials are processed to recover contained uranium.

c. The KOH Muds facility, where potassium diuranate solids generated in the fluorination scrubber system are separated from spent KOH liquors. The potassium diuranate is then processed through Sodium Removal and the spent KOH liquors are regenerated at the Calcium Fluoride - Environmental Protection Facility (EPF).

d. The Calcining Facility, where the incoming ore concentrates and recovered uranium are dried as the first step in ore preparation.

e. The Laboratory Building, which houses facilities for conducting process control and product and radiological control analyses.

f. The Cylinder Wash Building, where UF_6 product cylinders are periodically washed and hydrostatically tested prior to reuse.

g. Outdoor pads, for the storage of ore concentrates and other uranium-bearing materials in drums and UF_6 product cylinders.

Additional plant facilities that are involved directly in the UF_6 manufacturing process, but do not involve the handling of any significant quantities of source material, include: a fluorine manufacturing facility; a fluoride waste treatment facility with five settling ponds; a powerhouse; a reductor off-gas incinerator; and two settling ponds to collect any uranium contained in pad run-off.

The Feed Materials Building is the processing area most likely to be the source of a major radioactive material (uranium hexafluoride) release, which could require activation of the Radiological Contingency Plan. The relationship of this processing area to other plant facilities, near-site facilities, and environmental monitoring stations is shown on Drawing No. MTW 4781.

There are approximately 500,000 people located within a 50-mile radius of the Metropolis Plant. Within a one-mile radius of the facility, the population is concentrated in the NNE and E sectors. About 500 people live within one (1) mile of this facility; in two (2) miles, the population is approximately 5,000. The workforce on-site during day shift is approximately 280 people with approximately 40 employees each on 2nd and 3rd shifts.

A flow chart of the process used for the conversion of uranium ore concentrates into UF_6 is depicted in Figure 1.1, where the sources of effluents and emissions from the various process steps are also shown. The UF_6 conversion and deconversion vessels important to safety were fabricated in accordance with ASME Codes. Special metals and alloys are used in UF_6 service to

minimize the possibility of a UF_6 release. Performance criteria for these systems are discussed in Section 2.

Descriptions of each major processing area and confinement and control systems follow.

1.2.1. Sampling and Storage

The plant normally receives uranium ore concentrates in 55-gallon drums. Each drum of ore concentrates is weighed, sampled, and then stored on storage pads until accountability procedures and the uranium and impurity analyses are completed.

1.2.2. Pretreatment Facility

Some ore concentrates and all uranium compounds from the uranium recovery facility contain undesirable amounts of contaminants, principally sodium, that must be removed. This pretreatment consists of a one-stage partial digestion treatment using sulfuric acid and the re-precipitation of dissolved uranium using ammonia. The uranium solids from this facility discharge into the ore calciner in the ore preparation section.

1.2.3. Ore Preparation

Incoming ore concentrates are charged into the system through a drum dumping station. The concentrates go directly to the ore preparation section via the calciner. Following the calcination, the ore concentrates are blended, agglomerated, dried, crushed, and sized to a uniform particle size. Dusts and fumes from this process are controlled by use of dust collectors.

1.2.4. Reduction

The sized uranium concentrates enter a fluidized bed reactor called the reductor. In the reductor, the mixed uranium oxides are reduced to the dioxide utilizing hydrogen, which is the reactant, and nitrogen as the fluidizing gases. Both hydrogen and nitrogen are obtained from the dissociation of ammonia. The reductor off-gas (principally hydrogen, nitrogen, water vapor and some hydrogen sulfide) is passed through filters to remove particulate uranium, and the residual gas is incinerated to burn the hydrogen and convert the hydrogen sulfide into sulfur dioxide.

1.2.5. Hydrofluorination

The uranium dioxide from the reductor is fed into two fluidized bed hydrofluorinators operated in series. A countercurrent flow of anhydrous HF fluidizing gas converts the uranium dioxide into uranium tetrafluoride (UF_4). The off-gas is filtered to remove particulate uranium and scrubbed with water and potassium hydroxide solutions to remove HF before being vented to the atmosphere. The HF scrubber liquors are neutralized and treated to remove fluoride in the Environmental Protection Facility before being discharged with the main plant effluent.

1.2.6. Fluorination

The UF_4 is fed into a fluidized bed fluorinator that also contains an inert bed material. Elemental fluorine, used as the fluidizing gas, converts the UF_4 to UF_6, which is volatilized from the fluorinators. Residual uranium and nonvolatile uranium daughter products

remain in the bed material, which is recycled and reused until the buildup of contaminant levels prohibits further use. The bed material is then retired for radioactive decay and subsequent recovery of the uranium content. Gases from the fluorinator are passed through primary and secondary filters. After leaving the filters, the gases pass through primary cold traps where the bulk of the UF_6 desublimes and is collected as a solid. When the fill level is reached, the primary cold traps are taken off line and heated to liquefy the UF_6. The UF_6 is then drained into the distillation feed tanks. The capacity of each primary cold trap is approximately 40,000 pounds liquid at 200°F, but 18,000 pounds is the normal in-plant limit. The gas stream exits the primary cold traps and is then passed through secondary and tertiary cold traps for recovery of any UF_6 not trapped in the primary system. When a secondary or tertiary trap is full, it is valved off and heated, and the UF_6 is vaporized back to the primary cold traps.

1.2.7. Distillation and Product Packaging

Crude UF_6 from the still feed tanks is gravity fed to a vaporizer through a control valve to maintain a constant weight in the vaporizer. The UF_6 from the vapor phase of the vaporizer is fed to the low boiler distillation column. The UF_6 that has been stripped of low boiling impurities is then fed through a flow control valve to the high boiler still. The UF_6 product comes off vapor phase from the high boiler column, is condensed, and flows as a liquid into the product cylinder.

Prior to filling each UF_6 product cylinder, the cylinder fill line (pigtail) is thoroughly inspected. New gaskets are installed, and the pigtail is leak-tested before flow to the cylinder is initiated. Cylinder overfilling is prevented by strict adherence to weight limitations. Two load cells are utilized at each cylinder fill spot to give continuous readings of the weight of UF_6 in the cylinder. A totalized weight from an orifice flow meter is also utilized to monitor the amount of UF_6 in the cylinder during the fill process. Additionally, operating experience indicates product distillation rate can reliably be used to confirm load cell readings. Refer to Honeywell's application for renewal of Source Material License (SUB-526), Section C-1.5.1 for a detailed packaging procedure.

After the product flow is shut off, the pigtail is thoroughly evacuated before breaking connections. The cylinder weight is then verified using a crane scale before the cylinder is moved to the cylinder buggy for a final weighing.

Plant personnel are always present when cylinder connections, leak testing, sampling, and disconnections are made. A UF_6 leak can be immediately recognized by the visible white vapor that occurs when it reacts with moisture in the air. A small leak may be terminated by "freezing off" the leak using pressurized CO_2.

Full product cylinders are moved within the process building by use of equipment specially designed to minimize the probability of damaging a hot product cylinder. Two persons are always in attendance during cylinder moving operations. Production personnel make a visual inspection of cables, lifting eyes, clevises, and strong backs. Proper operation of the cylinder crane is confirmed before each series of lifts involving a hot UF_6 cylinder. Cylinder movements are performed carefully and slowly while minimizing the required vertical lift. In addition, the cylinder crane is inspected and serviced weekly as part of the plant preventative maintenance program.

After weighing, the filled cylinders are transported on specially-designed cylinder buggies to the product cylinder cooling area. The full cylinders remain on these buggies for a

minimum of four days to allow the liquid UF_6 to cool and solidify before they are located on storage cradles.

All UF_6 product cylinders and valves are manufactured and inspected in accordance with the provisions of ANSI N14.1.

1.2.8. Uranium Recovery

Different types of uranium-bearing liquors are processed in Wet Process/Uranium Recovery to recover as much uranium as possible. These include FMB and cylinder wash liquors, rainwater from certain storage pads, and Fluorination scrubber liquors. Regardless of the origin of the uranium-bearing liquors, the uranium is precipitated from solution by pH adjustment, separated from the solution using rotary drum vacuum filtration, and returned to the process via Ore Preparation. The liquors in each case are treated in the Environmental Protection Facility (EPF) to remove fluorides and then discharged into the plant effluent.

Fluorination scrubbing liquors, which contain potassium diuranate solids, may also be shipped to a mill for toll reprocessing.

1.2.9. Cylinder Wash Facility

Periodically, UF_6 product cylinders must be washed and pressure tested to assure integrity and to conform to DOT regulations. The cylinders are washed with sodium carbonate solution to leach the uranium from the residual solids. The leach liquors are then filtered to remove particulates and transferred to the uranium recovery facility. The remaining solids which contain daughter products of uranium, principally Th-234 and Pa-234, are disposed of at a low-level radioactive waste disposal facility.

1.2.10. Fluorine Production

Fluorine, which is one of the raw materials required for the UF_6 process, is produced on-site by electrolysis of hydrogen fluoride. A portion of this material is consumed in the UF_6 operation, and the remainder is used to produce other fluorine-based chemical products.

1.3. Waste Confinement and Effluent Controls

1.3.1. Gaseous Effluents

All areas in the UF_6 process that produce dusts, mists, or fumes containing uranium or other toxic hazardous materials are provided with dust collectors, scrubbers, or ventilation equipment to reduce employee and environmental exposures. Refer to the Source Material License SUB-526 for cold traps and off-gas cleanup.

The ventilation system used in the UF_6 process area consists of a series of fresh air intake units and a series of exhaust fans. The total air flow through the process building is sufficient to ensure a complete air changeout approximately once every five minutes.

The main control room has an emergency fresh air blower used to maintain positive pressure. The emergency blower and the heat and air conditioning systems are connected to a common fresh air ventilation duct located outside the UF_6 process building.

An in-line damper is used to take in air from either the East or West side of the UF_6 process building.

There are approximately (52) individual stacks and exhaust fans associated with the operation of the UF_6 facility which could contain significant concentrations of uranium. These exits are sampled continuously at isokinetic flow conditions. Stack samples that could have a high loss potential are collected twice per 24 hours and are counted for alpha radioactivity. If the loss potential is small, the samples are collected once every 24 hours.

In addition to the analysis of air samples, operating personnel provide continuous surveillance of the operation of pollution control equipment. Analytical samples are routinely analyzed to insure that emissions are minimized. Other precautions are taken as necessary to insure optimum performance of pollution control equipment.

Stack discharge alarms have not been found to be feasible for use in the large number of plant stacks that are continuously sampled for natural uranium. Operational and administrative controls are utilized to shut down equipment when the concentration of uranium in the exit stack exceeds the established administrative limit for that stack.

A release of UF_6 could occur when equipment containing this material is opened for inspection or maintenance activities. Normally two or more individuals are present during these activities. They would be able to detect a UF_6 leak immediately, and in most cases, stop the source of the leak at that time. Administrative controls, including Emergency Operating Procedures and Emergency Plan Implementing Procedures, are utilized when the leak cannot be immediately contained.

Accidental spills and releases of other hazardous chemicals such as hydrofluoric acid (HF), fluorine (F_2), or ammonia (NH_3) are not expected to have a significant impact on UF_6 operations because the UF_6 operations control room is maintained under a positive pressure. An auxiliary fresh air blower is also available to prevent entry of hazardous gases into the Control Room during an emergency. Additionally, minimal inventories (in process lines) are maintained in the Feed Materials Building. Bulk storage for these hazardous chemicals is provided outdoors away from the Feed Materials Building.

1.3.2. Liquid Effluents

All liquid wastes from the facility are discharged through the main effluent via natural drainage into the Ohio River. The main plant effluent is continuously sampled, and the composite sample is analyzed daily for uranium. Suspended solids, pH, and fluoride are analyzed in accordance with the NPDES permit.

Wastewater that may contain uranium, except the HF water scrubber liquors and the uranium recovery leach liquors, is routed through settling ponds No. 3 and No. 4 which are used as uranium spill control ponds. These ponds receive spent ammonium sulfate solutions from the pretreatment facility and all other uranium-contaminated water that does not contain significant fluoride concentrations. As the effluent leaves the second uranium pond, a flow totalizer records the flow, and a flow proportional 24-hour composite sample is collected. The pH and uranium content of the composite sample is analyzed daily. The effluent from the uranium settling ponds is then mixed with the remainder of the facility effluent before the plant outfall is sampled.

Administrative controls are utilized in conjunction with daily sampling to limit liquid effluent concentrations of uranium. The administrative investigation level is established at 10% of the NRC public dose limit, which is considered ALARA for materials facilities. In the event of a major spill that could significantly increase effluent water concentrations of uranium, additional controls, e.g., diking, neutralization, etc., are utilized to minimize the environmental impact.

1.3.3. Solid Materials

Radioactive solid wastes are generated from routine operation of the UF_6 facility. The routine wastes generated consist primarily of contaminated blotting paper, floor sweepings, cleaning rags, etc. Disposal of this contaminated trash is accomplished through a licensed radioactive waste disposal firm. The solid radioactive materials generated in the uranium recovery facility consist primarily of inorganic fluorides that contain residual natural uranium, natural thorium, and uranium daughter products. These materials are shipped to a licensed disposal site. As an alternative, solid wastes in the form of bed material and filter fines may be shipped off-site for recovery of uranium and subsequent recycle.

1.3.4. Contaminated Equipment

Contaminated pieces of process equipment and piping being discarded are decontaminated when feasible. They are then compacted before disposal at a licensed site. Non-contaminated scrap metal is sold to various scrap metal dealers. Thorough radiation monitoring is performed to assure that the residual radioactivity level is below applicable NRC guidelines.

1.4. Process Design and Construction

All major equipment is of standard chemical plant design and construction. Vessels critical to safe operation are constructed in accordance with ASME Codes. Process flow diagrams, and safety and control instrumentation used in the major process areas are depicted in Drawings MTW 2869, 3392, 3393, 3396, 3401, and 3010 in "Appendix D."

The Feed Materials Building is the only location that contains significant quantities of liquid UF_6. Process vessels that may contain significant quantities of UF_6 are listed in Table 1.1.

The location of additional significant quantities of radioactive and non-radioactive materials is shown on Figure 1.4, Drawing MTW 4781.

1.5. Summary of Site Hazards and Emergency Operations

Table 1.1 provides a summary of the quantities of UF_6 typically present in specific equipment in the Feed Materials Building.

The Honeywell, Metropolis Works facility complies with the EPA SARA Title III regulations also known as the "Emergency Planning and Community Right-To-Know Act of 1986." These regulations require submission of certain Material Safety Data Sheets (MSDS) to County and State Emergency Planning Agencies (SARA 311), the submission of a hazardous chemical inventory (SARA 312), and the annual emission of certain regulated chemicals (SARA 313). A hazardous chemicals inventory for the Metropolis plant is provided in Section B of the ERP. The list contains the chemical by name, the typical

quantity on site, and the primary locations of use and storage. Typical quantities will vary somewhat, depending on the production requirements. Section B of the ERP also provides a listing of the chemicals used and stored onsite for which Honeywell has submitted MSDS to the Massac County Fire Department and Emergency Planning Commission and to the Illinois Emergency Management Agency.

During an emergency situation, the communications and emergency response activities are coordinated and implemented from multiple response stations. Ongoing plant operations and certain plant communications, such as operation of the site evacuation siren, are directed from the Control Room. Direct assessment and control of the incident are exercised by assigned supervisory and emergency response team personnel from the Control Point. There are three pre-designated Control Points to provide a range of options that are adequate to address a wide range of incident locations, potential release points and meteorological conditions. On-scene personnel are supported by management and technical personnel who respond to the plant Administrative Building or other designated location. These personnel provide technical, administrative, and offsite communications support. Additional personnel staff the Dispensary to provide required first aid services.

TABLE 1.1
TYPICAL QUANTITIES OF UF_6 IN FEED MATERIALS BUILDING

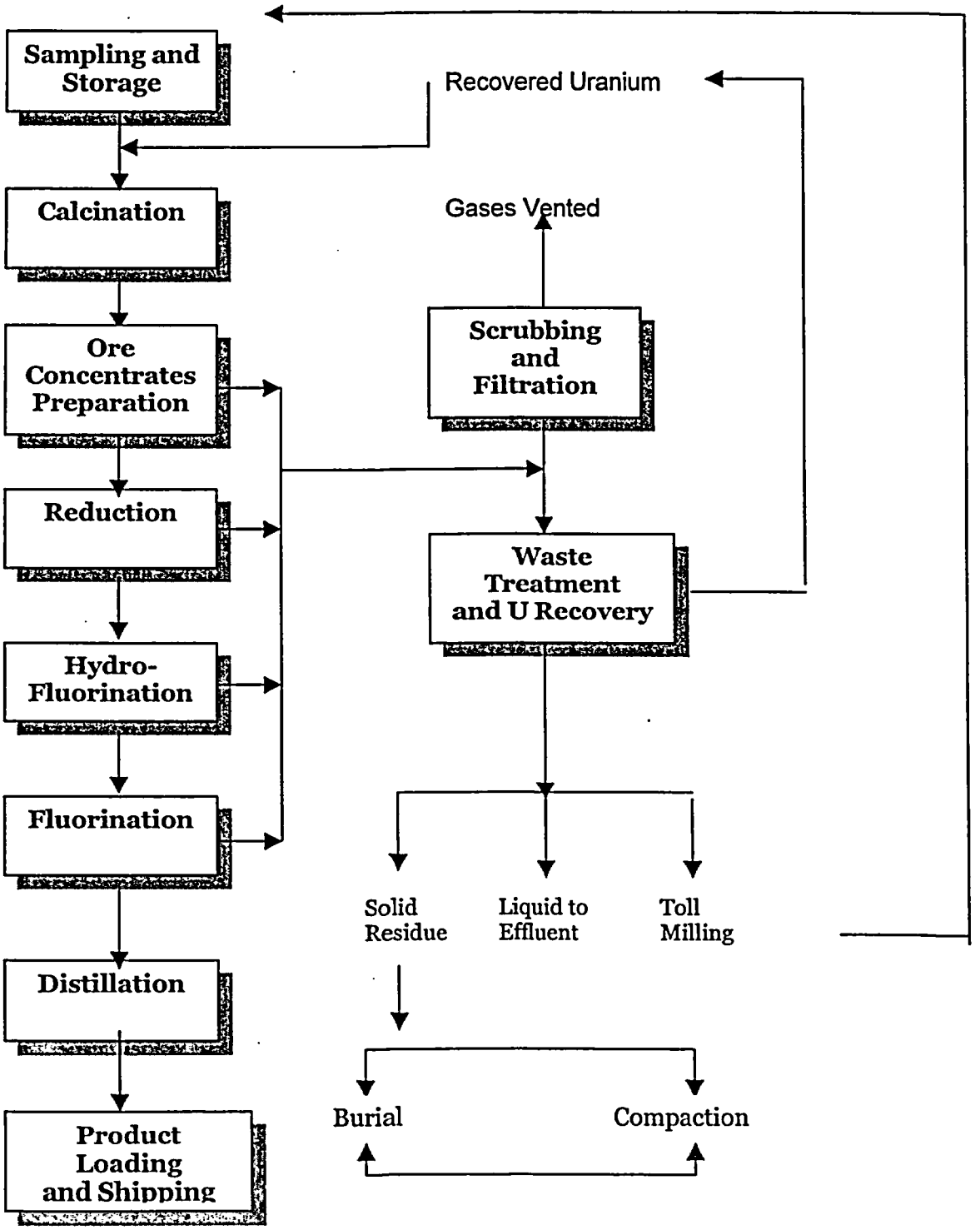
Basement Equipment	UF_6
UF_6 Vaporizer	10,000 lbs.
UF_6 Vaporizer Flush Pot	100 lbs.
High Boiler Still	1,000 lbs.
**Low Boiler Still	2,000 lbs.
High Boiler Pot	10,000 lbs.
Low Boiler Pot	10,000 lbs.
1st Floor	
UF_6 Cylinder Fill #1	Normally one station has 27,000 lbs. Other three are empty.
UF_6 Cylinder Fill #2	
UF_6 Cylinder Fill #3	
Uf_6 Cylinder Fill #4	
Sampling System	100 lbs, 50 lbs. in one. Other empty.
Sample Cold Traps	
2nd Floor	
"A" Fluorinator	Normally two on line containing 20 lbs.
"B" Fluorinator	
"C" Fluorinator	
UF_6 Dump Tank	0 lbs.
6th Floor	
#1 Low Boiler Still Condenser	Normally one is on line and contains 200 lbs.
#2 Low Boiler Still Condenser	
#3 Low Boiler Still Condenser	
#4 Low Boiler Still Condenser	
A1 Primary Fluorination Filter	Normally, two sets of filters on line containing approximately 75 lbs.
A2 Primary Fluorination Filter	
A-3 Primary Fluorination Filter	
B1 Primary Fluorination Filter	
B2 Primary Fluorination Filter	
B3 Primary Fluorination Filter	
C1 Primary Fluorination Filter	
C2 Primary Fluorination Filter	
C3 Primary Fluorination Filter	
A1 Secondary Fluorination Filter	
A2 Secondary Fluorination Filter	
A3 Secondary Fluorination Filter	
B1 Secondary Fluorination Filter	
B2 Secondary Fluorination Filter	
B3 Secondary Fluorination Filter	
C1 Secondary Fluorination Filter	
C2 Secondary Fluorination Filter	
C3 Secondary Fluorination Filter	

* Located on Floors Basement through 2nd.
** Located on Floors Basement through 5th.

3rd Floor	
#1 Still Feed Tank	20,000 lbs.
#2 Still Feed Tank	20,000 lbs.
#3 Still Feed Tank	20,000 lbs.
4th Floor	
1A Primary Cold Trap	9,000 lbs.
2A Primary Cold Trap	9,000 lbs.
3A Primary Cold Trap	9,000 lbs.
4A Primary Cold Trap	9,000 lbs.
1B Primary Cold Trap	9,000 lbs.
2B Primary Cold Trap	9,000 lbs.
3B Primary Cold Trap	9,000 lbs.
4B Primary Cold Trap	9,000 lbs.
Alt. Primary Cold Trap	9,000 lbs.
Product Condenser	200 lbs.
5th Floor	
1A Secondary Cold Trap	1,700 lbs.
2A Secondary Cold Trap	1,700 lbs.
3A Secondary Cold Trap	1,700 lbs.
1B Secondary Cold Trap	1,700 lbs.
2B Secondary Cold Trap	1,700 lbs.
3B Secondary Cold Trap	1,700 lbs.
1A Tertiary Cold Trap	1200 lbs.
2A Tertiary Cold Trap	1200 lbs.
1B Tertiary Cold Trap	1200 lbs.
2B Tertiary Cold Trap	1200 lbs.
Sample Cold Trap	1000 lbs.
UF_6 Surge Tank	-0-

Figure 1.1

UF_6 FACILITY FLOW CHART



2.0 ENGINEERED PROVISIONS FOR ABNORMAL OPERATIONS

2.1. Criteria for Accommodation of Abnormal Operations

2.1.1. Process Systems

The UF_6 distillation process is controlled primarily through use of process instrumentation located in the central control room. Essential temperature and pressure readings are continuously recorded. The quantity of UF_6 in critical process vessels is continuously monitored by weight recorders or weight indicators to prevent overfilling. Pressure and weight indicators are attached to alarms to alert the operator of an abnormal operating condition for critical equipment (the operator also records essential data on a log sheet approximately every two hours). Deviations from established operating conditions are expeditiously corrected. If the abnormal condition cannot be readily corrected, the unit is shut down until the abnormality has been corrected. The major process systems are electrically interlocked to assure the proper sequence of startup and shutdown of the process.

2.1.2. Alarm System and Release Prevention

The UF_6 distillation process is designed to provide containment of UF_6 and to ensure safe operating conditions. Materials of construction for the process vessels and piping are selected to provide excellent resistance to corrosion. There are numerous places throughout the distillation system where double, and in some cases, triple block valves are used to assure isolation of process vessels in case of an emergency or abnormality. In most cases, welded construction is used rather than flanged or threaded connections to minimize the possibility of a UF_6 release. The process vessels were fabricated and are maintained in accordance with applicable engineering standards and codes. The process vessel relief system is a closed system. If a vessel should become overpressurized due to an abnormal condition, the design provides an alternate storage vessel for containment of the UF_6 that might have otherwise escaped to the atmosphere. An emergency shutdown button will automatically close critical process control valves in the event of an emergency or abnormality.

Honeywell-owned containers used to package UF_6 comply with the provisions of ANSI N14.1. The UF_6 cylinders are inspected for visible defects when received, prior to filling, after filling, and prior to shipment in accordance with the Quality Assurance Program and other plant operating procedures. Customer-owned containers used to package UF_6 at Metropolis Works must be leak free as determined by a pressure test and must pass the visual inspections mentioned previously.

The "process piping to cylinder valve" connectors used for filling the cylinders are routinely inspected and maintained locally. The connections are leak-tested each time one of the connections is re-established. The connector is evacuated and purged of UF_6 before each disconnect from the cylinder or process piping.

Each product UF_6 cylinder is filled, liquid phase, in one of four (4) fill positions. The UF_6 continuous sampling system is normally used to obtain a UF_6 sample between the high boiler column and the product take-off control valve. The following controls are utilized to minimize movement of hot cylinders and to minimize the potential of a cylinder overfill:

a. Two sets of load cells are used to monitor cylinder filling operations. The load cell weights are continuously indicated and recorded in the control room. A separate UF_6 product flow totalizer is utilized to measure the amount of UF_6 filled into a cylinder. A manual calculation is also performed of flow rate vs. time to determine, by a third method, when the cylinder has been filled to the plant administrative limit. Cylinder filling operations are not conducted unless at least two independent methods exist for determining the amount of UF_6 filled into the cylinder.

b. After the cylinder has been filled and the pigtail has been disconnected, the cylinder is lifted a short distance above the fill spot using a crane equipped with a built-in digital scale. This weighing is used to verify the fill weights.

c. After the cylinder weight has been verified, the cylinder is lifted vertically about 8-10 feet above the fill position and moved horizontally up to about 50 feet and lowered onto a beam scale buggy for final product weight determination.

d. The weighed cylinder is then transferred to a mobile storage buggy using a vertical lift of about six feet and horizontal movement of approximately ten feet.

e. The mobile storage buggy is transported to a designated cooling area where the cylinder remains on the buggy for a minimum of four days for product solidification. The product cylinder is then transferred to the UF_6 cylinder storage area, where the cylinders are allowed to solidify for a minimum of four days prior to shipment.

The primary alarm system utilized to alert personnel to an accidental release of uranium hexafluoride is an evacuation siren located in the Feed Materials Building. This alarm is manually activated from the control room. The alarm is sounded as a result of visual observation of a significant release of UF_6. Plant personnel respond in accordance with plant emergency plan implementing procedures. Equipment related to the source of the release is immediately shut down, the release is brought under control, and repairs are initiated promptly.

2.1.3. Support Systems

2.1.3.1. Structural Performance Vs. Site Environmental Factors

2.1.3.1.1. Severe Natural Phenomena

Vessels used in the UF_6 conversion and deconversion processes are fabricated in accordance with A.S.M.E. Codes. The entire processes are constructed using standard chemical plant design; however, special metals and alloys are used extensively in UF_6 and fluorine systems. Performance of these systems is more fully discussed later.

The plant site is located in the Central Mississippi Valley seismic region, which produced the New Madrid earthquake of 1811-1812; however, the plant is not in the most active part of this seismic region. Seismologists are unable to predict the recurrence rates for destructive earthquakes because of their infrequent occurrences. Nevertheless, indications are that major earthquakes originating

along the New Madrid fault zone are capable of causing substantial damage in the Metropolis area.

A severe earthquake or tornado which might impact directly upon the Feed Materials Building may cause substantial property damage and could result in a significant release of source material. Seismic studies have been performed and the implementation of study recommendations is complete for the Feed Materials Building and the Tank Farm.

2.1.3.1.2. Confinement of Barriers and Systems

Process equipment associated with the production of UF_6 is provided with filters and scrubbers in series to prevent environmental release. Additionally, dust collectors and vacuum pumps are used, when feasible, to prevent leakage of material into workroom air. Adequate surge capacity is provided to allow material transfers prior to reaching fill capacity alarm levels.

Uranium ore concentrates are normally stored on concrete pads that are diked and equipped with sump pumps so that uranium spills can be recovered. Concentrates may also be stored on crushed stone pads if space is not available on the concrete pads. Additionally, a series of settling ponds is utilized for cleanup and containment of plant uranium spills. A comprehensive spill control program is utilized throughout the plant.

2.1.3.1.3. Access and Egress of Operating Personnel and Emergency Response Teams

The 59-acre plant operating area is surrounded by two six-foot cyclone fences with three strands of barbed wire at the top. Surveillance cameras are utilized by the security guards to monitor personnel at the entrance gates 24 hours a day. Entrance to the restricted area is made through the main gate, construction gate, or the Sampling Plant gate. Off-duty personnel entering the plant in response to an emergency would also enter and exit through these gates.

Clearance of plant aisles, roadways, and stairwells is maintained during normal operations to allow emergency response personnel to respond in the event of an emergency. A control point is established to control access by operating personnel into an area where an actual emergency exists, e.g., UF_6 release, chemical spill, or fire.

2.1.3.1.4. Fire and Explosion Resistance and Suppression

Essentially all process areas are constructed of concrete and steel, which pose a minimal fire hazard. Storage room areas that contain combustible or flammable materials are provided with sprinkler systems. Fire extinguishers are available throughout the plant, and a trained Emergency Response Team is available to utilize the fire fighting equipment maintained in the plant. The plant maintains working arrangements with local emergency response organizations to ensure adequate response to any fire that progresses beyond the incipient stage.

LPG may be used at any time as an alternative to the plant natural gas supply. The hazard associated with a release of LPG is a potential for fire and/or explosion. There are three LPG storage tanks at Metropolis Works with capacities of 30,000 gallons each. A 1000 gallon day tank is also in service when LPG is being consumed. The LPG storage area is flanked by two deluge spray nozzles capable of delivering 250 gallons of water per minute each at a pressure of 85 PSIG. Other possible hazards include asphyxiation and frost bite. The most likely cause of a release of LPG would be leaking equipment (e.g., valves, pumps, lines, etc.). Additional procedures to minimize fire incidents are outlined in the plant Emergency Plan Implementing Procedures. Refer to Drawing MTW-A4825 for the location of fire water lines.

2.1.3.1.5. Shielding

The extensive use of radiation shielding is not necessary in a plant processing natural uranium compounds due to the very low specific activity; however, personal Approved Monitoring Devices (AMD) are worn by the employees within the restricted area to determine actual exposure to external radiation sources.

2.1.4. Control Operations

The performance of equipment, piping and instrumentation to operate within designed specifications is determined by routine testing, inspection and calibration. Inspection schedules are established for specific pieces of equipment and instruments that are critical to the safety and quality of the operation. The inspection frequency is determined by operating experience, company engineering and/or vendor specifications, or a combination of these. Established inspection programs exist for the UF_6 cylinder handling crane, the UF_6 cylinder handling fork truck, rupture discs, relief valves, critical vessels, UF_6 product cylinders, the UF_6 cylinder scales, UF_6 cylinder buggies and critical instrumentation.

The frequencies of these inspections range from daily visual inspections by operating personnel to weekly, monthly, quarterly, semi-annual, annual, or two and three year intervals. The maintenance inspections are documented and results maintained for a minimum of one (1) year.

Non-destructive testing of equipment is routinely done on a scheduled basis. In addition, non-scheduled testing can be readily performed if deemed necessary. Non-destructive tests currently performed are:

a. Ultrasonic thickness testing of critical vessels and piping.

b. Vibration analysis of critical rotating equipment.

c. Eddy Current testing of heat exchanger "U" tube bundle tubes.

d. Stroboscope visual inspections of external rotating members of operating equipment.

e. Infrared inspections of electrical equipment and switch gear.

2.2. Demonstration of Engineered Provisions for Abnormal Operations

2.2.1. Process Systems

Process equipment that fails to perform properly will normally trigger an alarm. The malfunctioning equipment is shut down and repaired or replaced. Process instrumentation, alarms, and interlocks are checked and calibrated in accordance with the previous section. If the instrumentation is found to be defective, the Inoperative Instrument Procedure included in the unit's operating procedures manual is followed. Additionally, a planned maintenance shutdown is taken during which major process equipment is inspected for defects that might result in an abnormal release of material.

2.2.2. Alarm Systems and Release Prevention Capability

Alarm systems associated with UF_6 releases include those associated with ionization detectors located within the Feed Materials Building and a series of halide detectors located at the plant security fence. Gaseous alarm systems capable of detecting UF_6 below the visual threshold of 1 mg/m^3 are slower in response and less reliable than actual visual observation. The major strength of visual observation is that it allows an immediate response in shutting down the equipment, isolating the source of the release and thus minimizing loss of material and area contamination. Because the most reliable indicator of a UF_6 release is visual detection of the condensing UF_6 cloud, an alarm associated with either of these systems will trigger operating personnel to undertake efforts to perform a visual confirmation of the release.

Should a UF_6 release be confirmed, the plant uses the installed plant paging and siren systems to alert personnel to the release and required actions, such as evacuation and accountability. The alarm system utilized to alert personnel to an accidental release of uranium hexafluoride (UF_6) is tested monthly.

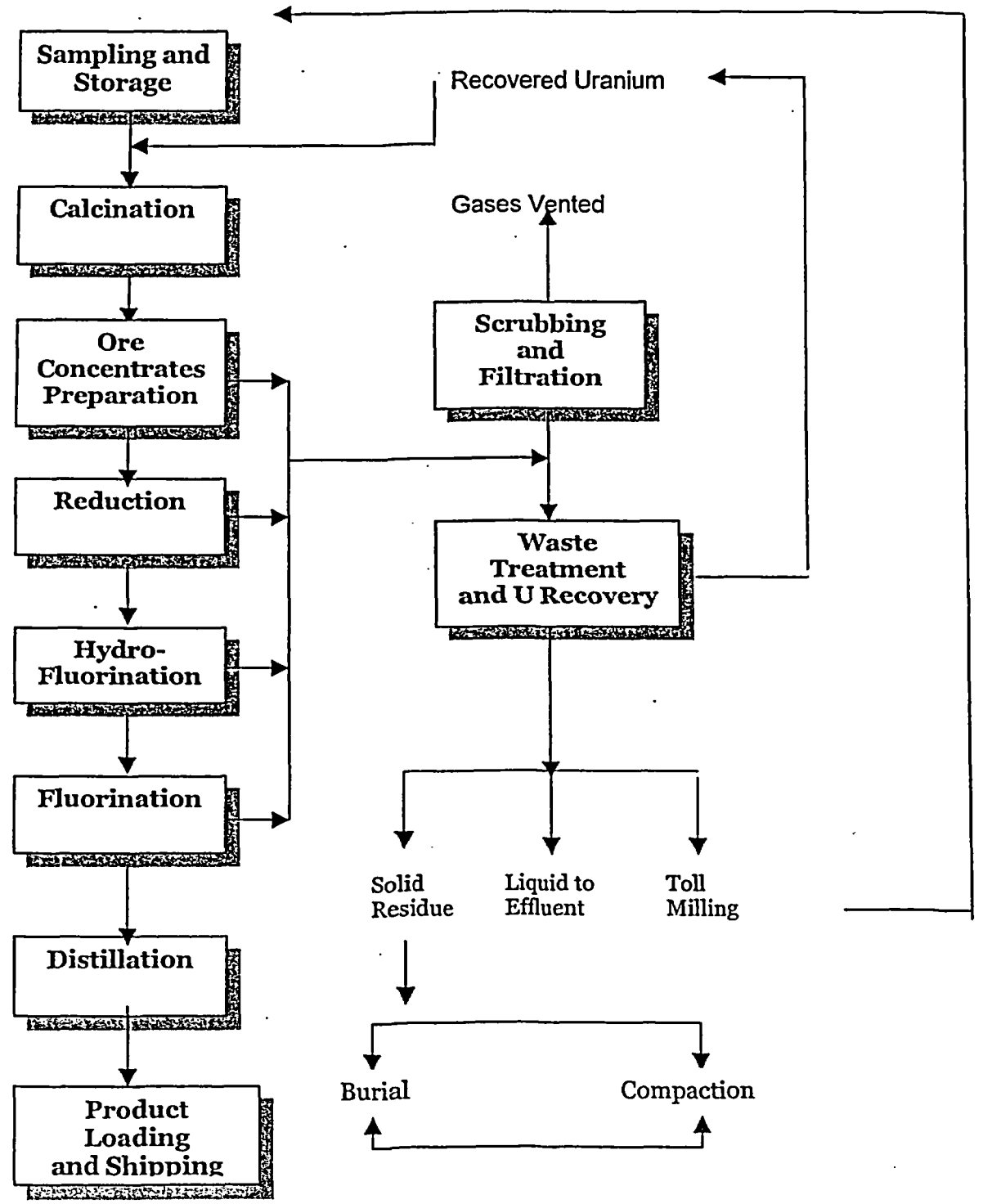
2.2.3. Support Systems

Support systems consist of vacuum cleaners, dust collectors, a cold trap vacuum system, a vessel relief containment system, instrumentation, automatic shut-down circuits, remote operated control valves, and personal protective equipment.

Performance of the vacuum cleaners, dust collectors, and cold trap vacuum systems is monitored by visual checks by operating personnel via pressure/vacuum gauges and routine internal inspections of dust collectors and vacuum cleaners. Cold trap vacuum systems are monitored via pressure/vacuum gauges. Redundant equipment provides a reliable source of vacuum. Relief valves, instrumentation, automatic shutdown circuits, pumps, blowers, and piping performance are monitored by procedures described previously.

Figure 1.1

UF_6 FACILITY FLOW CHART



3.0 Emergency Classifications and Notifications

3.1. Classification System

The UF_6 conversion/deconversion facility processes only natural uranium. Chemical toxicity of uranium to the kidney rather than radiation dose is limiting for exposure to soluble forms of natural uranium. For this reason, the EPA Protective Action Guideline exposure levels and criteria do not apply to this type of facility.

The Metropolis Plant has been converting uranium into UF_6 since 1958 except for a four-year period from 1964 to 1968. These many years of operating experience indicate the potential for public exposure resulting from a spill of uranium oxide or uranium tetrafluoride (UF_4) is insignificant due to the large particle size and high density of the solid material processed in the reaction vessels. A release of UF_6 is considered the only credible radiological event that might have an off-site impact. However, a number of other emergencies have been evaluated and are included in the emergency classification system provided in Section 3.2, due to the potential for these events to adversely affect the plant's safety systems.

When released to the atmosphere, UF_6 reacts with the atmospheric moisture to form HF and particulate UO_2F_2. The UO_2F_2 and HF, which form quickly during a release, are readily visible as a white cloud. A concentration of 1 mg of UO_2F_2/m^3 of air is visible as a white haze, and the cloud from a large release may obscure vision. The corrosive properties of UF_6 and HF are such that exposure can result in skin burns and temporary lung impairment. For this reason, the control of UF_6 releases is of primary concern and requires preplanning with respect to emergency procedures and equipment. The plant develops and maintains Emergency Plan Implementing Procedures (EPIPs) to guide actions in response to releases of UF_6 and to address other emergency conditions that may affect plant safety.

The most reliable warning property of released UF_6 is visual observation of the white vapor due to HF and UO_2F_2 formation. Visual observation provides an immediate warning of a leak that may be observed by employees working in the operating area or detected through a series of TV monitors installed in critical liquid UF_6 transfer areas. Ionization-type industrial smoke detectors and fenceline halide detectors with alarms have also been installed for detecting UF_6 releases; however, they do not appear to provide more immediate detection than visual observation.

Computerized dispersion modeling has been utilized to determine the quantity of UF_6 released inside the process building that, after exiting building vents, would result in a visible plume at the nearest fence line (230 meters). The Industrial Source Complex - short term (ISCST) model calculations indicate a release of 120 pounds of UF_6 would be required to produce the visual threshold concentration of UO_2F_2 at the fence line. It was assumed the release occurred over a 30-minute period, under conditions of "D" stability, and average site wind speed of 3 meters/sec. It was estimated that approximately 1/3 of the actual released quantity would escape through building vents over the 30-minute period. The ISCST model provides for building downwash effects and volume source releases; however, particulate deposition of UO_2F_2 was not considered in the calculations once the plume exited the building. It should be noted that the plant has never experienced a UF_6 release exceeding 100 pounds.

The visual threshold of UF_6 decomposition products provides an immediate warning that is utilized within the plant to trigger administrative controls and onsite evacuation and accountability procedures. This threshold is also utilized to declare an emergency condition.

Use of this criterion is effective for members of the public because it is highly unlikely that an informed individual would remain in a cloud of material that he can actually see and smell.

The visual threshold may also be utilized during nighttime or other limited visibility conditions at the plant restricted area fence line because these outside areas are well lighted to permit employees to work there during the normal continuous operation of the plant. The Incident Commander is responsible for escalating or downgrading the category of the event declared in accordance with the criteria described in this plan. The Crisis Manager is responsible for directing telephone notification to appropriate off-site agencies. An Alert or Site Area Emergency will be reported as follows:

- To local emergency response authorities within 15 minutes of the emergency declaration;
- To the Illinois Emergency Management Agency within one hour of the emergency declaration; and
- to the USNRC Operations Center immediately after notification has been made to the local and state agencies and within one hour of the Alert or Site Area Emergency classification.

3.2. Classification of Emergencies

It is imperative that several factors be considered in emergency classification. The primary considerations must be the level of threat that the situation imposes on the health and safety to both employees and the general public and the potential impact on property and the environment. Consideration must be given to the quantity of material released, the duration of that release, the dispersion characteristics of the resulting release cloud, and the potential impact of the release on people and the environment. For this reason, some evaluation and interpretation are required. The classification of emergencies is not necessarily progressive. For example, the release of a significant quantity of UF_6 might immediately be classified as an Alert, or, in very extreme cases, a Site Area Emergency depending upon the severity of the situation. The Emergency Actions Levels used for classifying emergencies are provided in Table 3.1. The following sections provide a description of conditions associated with the emergency classifications.

3.2.1. Plant Emergency

A "Plant Emergency" is defined as a minor incident or situation that deviates from normal operation and that could, under certain conditions, escalate to a higher classification, although this is not likely. Any release of UF_6 that cannot be stopped and mitigated almost immediately must be considered a "Plant Emergency." For example, a "Plant Emergency" associated with a UF_6 release would result in a haze or a release cloud that may or may not be visible outside the Feed Materials Building. A small wisp of material that can readily be contained using a vacuum hose would not be considered a "Plant Emergency." The release of a very small quantity of material when the release is stopped immediately and the resulting "smoke" dissipates very quickly would not constitute a "Plant Emergency" either. These situations are most likely to occur when disconnecting a fitting or operating a valve when there is still some level of control over the operation being performed. An emergency occurs when the situation gets out of control for even a relatively short period of time.

An example of an event which would fall within this classification would be a minor release of UF_6 that may be visible outside the Feed Materials Building but which does not meet the criteria for an "Alert." Vision would possibly be impaired on at least one floor of the building.

Other non-radiological events could be considered to be a "Plant Emergency." Examples of these include minor fires, personal injuries, chemical spills, loss of primary electrical supply, hazardous weather, or minor releases of toxic gases. These non-radiological events would be covered either as part of the normal operating procedures or by the EPIPs.

Typical Response Actions – for a "Plant Emergency" involving the release of UF_6:

- Initiate EPIPs as appropriate
- Activate the Feed Materials Building evacuation siren
- Assess the magnitude of the incident
- Terminate the release
- Perform appropriate decontamination
- Perform special sampling and monitoring as needed
- Perform maintenance on malfunctioning equipment

3.2.2. Alert

An "Alert" is defined as a situation in which events may occur or have occurred that could lead to a release of a hazardous material, such as UF_6, but are not expected to require assistance from off-site organizations to protect members of the general public. The following criteria may cause a UF6 release event to be classified as an "Alert." Complete evacuation of the plant is not anticipated; however, the release cloud does have the potential to be visible at the fence line.

a. If the release cloud becomes visible at the edge of an imaginary circle with a radius of approximately 150 feet from the location of the release and is of sufficient quantity to potentially reach the fence line that defines the restricted area, the event will be classified as an "Alert." The boundaries of this circle, with the Feed Materials Building in the center, are approximated by the north end of the ore calciner to the north, the tank farm to the east, the liquid fluorine unit to the south, and the forepersons' offices to the west. A very faint haze at the edge of this circle does not necessitate an Alert classification if there is very little potential that this cloud will reach the fence line and the emergency situation is under control.

b. If the release is determined to be a significant quantity and the cloud outside the building is very dense, the event may be classified as an "Alert" even if the release cloud has not reached the edge of this imaginary circle.

c. If it is determined that the release cannot be stopped promptly, the emergency may be classified as an "Alert" even if other criteria for an Alert are not met.

In this classification, the release is of a larger quantity and of a more serious nature than a "Plant Emergency" with the potential to pose a greater risk to people and the environment.

A number of non-radiological events could also be classified as an "Alert." Examples include earthquakes, threatening weather or tornadoes in close proximity to the plant, major fires or explosions, significant hazardous chemical releases, and bomb threats.

Typical Response Actions – for an "Alert":

- Initiate the EPIPs as required
- Activate the plant disaster siren and Emergency Response Organization, as needed
- Terminate the release

- Determine the wind speed and direction and notify the local emergency services (911) and the IEMA as soon as possible (see Section 3.1 for timeliness requirements)
- Perform special sampling and monitoring as required
- Perform appropriate decontamination
- Notify the NRC Operations Center within one hour of declaring an "Alert"

3.2.3. Site Area Emergency

A "Site Area Emergency" is a condition in which events are in progress or have occurred that could lead to a significant release of a hazardous material, such as UF_6, and may require a response by off-site response organizations to protect persons off-site. Protective actions may include evacuation of facility areas and relocation of assembly areas.

An event of this magnitude would involve the release of a significant quantity of a hazardous material and would possibly pose some risk to persons located off-site. Mitigation efforts might be hampered due to either the nature or location of the release resulting in an increased duration of the event.

Other non-radiological events could also be classified as a "Site Area Emergency." Examples of these could include significant releases of other hazardous chemicals, natural disasters and civil disturbances that threaten the safety of operations, and accidents that result in major equipment damage. Normally, the Emergency Response Plan would be activated to control events such as these.

Typical Response Actions – for a "Site Area Emergency":

- Initiate plant evacuation and accountability and activate the Emergency Response Organization
- Activate the plant disaster siren
- Terminate the release
- Activate near-site siren and telephone warning systems
- Determine the wind speed and direction and notify the local emergency services (911) and the IEMA as soon as possible, including notification of preplanned PARs (shelter in place) (see Section 3.1 for timeliness requirements)
- Perform special sampling and monitoring as needed
- Perform appropriate decontamination
- Notify the NRC Operations Center within one hour of declaring a "Site Area Emergency"
- Perform the Honeywell tier event reporting
- Notify the National Response Center if the quantity of UF_6 released exceeds 440 pounds
- Conduct a meeting of Emergency Response Organization officers to investigate and document the event and develop a plan to prevent a recurrence of the event

The Emergency Plan Implementing Procedures require implementation of the personnel accounting process for any emergency involving the release of UF_6. Personnel accounting will also be done for non-radiological "Alerts" and "Site Area Emergencies."

3.3. Range of Postulated Accidents

A number of potential accident situations, ranging from trivial to very serious have been analyzed for events that could occur in the plant. A large UF_6 release is the only radiological event that has the potential to cause health hazards to the nearby population. Postulated accidents for the release of other non-radioactive chemicals are provided in the "Application for Renewal of Source Materials License SUB-526," Chapter 14, "Accident Analyses." Although a major chemical spill might have an impact on the nearby population, a condition cannot be hypothesized in which a major chemical spill would result in the release of UF_6. During such an event the UF_6 production operation could quickly be shut down, as occurs during a power outage, and employees evacuated from the affected production areas.

The currently installed engineered safeguards in the UF_6 cylinder filling and handling area are adequate to preclude a large uncontrolled release of UF_6 which might produce significant off-site consequences.

3.3.1. Maximum Credible UF_6 Release

The maximum credible UF_6 release that could occur in the plant is believed to result from a UF_6 "pigtail" failure. Presently installed engineered safeguards, including an automatic closure device on the cylinder valve and automatic closure devices on the UF_6 filling manifold, would limit the UF_6 available for release to 290 pounds.

Computerized dispersion modeling has also been used to determine the potential impact of this maximum credible accident. Using the conservative assumption that 1/3 of the indoor release escapes the building vents, the calculated concentration at the nearest fence line would be 2.4 mg/m^3 of UO_2F_2 in air. This concentration is visible and would be declared a "Site Area Emergency." If a member of the public were present at the fence for the entire duration of the 30 minute release modeled, the intake of soluble uranium would be 1.1 milligrams. This intake is below the intake threshold of 8 mg of uranium that might produce some transient changes in urine - indicating some effect, and significantly below the 40 mg intake level which may result in permanent kidney damage.

Although a release of this magnitude might be visible at the nearest plant boundary, it would not be expected to produce measurable changes in the off-site environment.

3.3.2. Hypothetical UF_6 Release

Although the currently installed engineered safeguards in the UF_6 cylinder filling and handling area are believed to be adequate to preclude a large uncontrolled release of UF_6 which might occur from a cylinder failure, such an incident has been modeled to determine the hypothetical public health impact. The following assumptions were utilized with the ISCST dispersion model:

1. The entire contents of a liquid UF_6 cylinder are released over a 15 minute period, inside the process building.

2. Complete hydrolysis of UF_6 to release 6,140 lbs. HF and 18,256 lbs. of uranium (uranium concentration x 0.336 = HF concentration).

3. Approximately 1/3 of the release escapes the building through vents and exhaust fans resulting in a source term of 3067 gm/sec. as uranium.

4. Average site wind speed of 3 m/sec. and "D" stability category were assumed.

The distance from the process building to the nearest residence is 564 meters in a NNE direction. The modeling results indicate a peak centerline concentration at this receptor of 190 mg/m^3 uranium. Dosage calculations assume an exposure period of 18 minutes for this receptor due to reduced concentrations from the front and tail of the plume as it passes. The maximum calculated intake for an outdoor receptor at this location is 68.4 mg of soluble natural uranium; however, an individual properly informed would immediately take cover inside his dwelling, close windows and doors, and shut down dwelling ventilation during the 18 minutes of plume passage. Protection factors provided by dwellings under these conditions have been estimated to range from 5-15, depending on age, type of construction, etc. Using a protection factor of 5, the resulting intake would be 13.7 mg of uranium. A uranium intake of this magnitude might produce some transient kidney changes. Some reference documents indicate that an intake of 40 mg is a reasonable estimate of the threshold at which permanent kidney damage might begin to occur.

The calculated outdoor concentration of HF in the plume is 63.8 mg/m^3. This level is considered dangerous. Above 26 mg/m^3, HF would cause irritation and possible health effects; however, sheltering inside a dwelling would reduce the concentration to about 13 mg/m^3 and result in an intake of 4.6 mg. This intake of HF would not expected to produce any long-term health effects since an industry worker could receive an intake of 20 mg from one eight hour shift at the threshold limit valve (TLV) of 2.5 mg/m^3.

3.4. Notification of Public Officials and Protective Action Recommendations

3.4.1. Notification of Public Officials

Upon declaration of an Alert or Site Area Emergency, the Incident Commander completes a checklist that establishes the pertinent information to be communicated to the local emergency services office. The pertinent information includes the following:

- Facility identification
- Name of person reporting
- Classification of emergency
- Description of event and facility conditions
- Status and magnitude of any radioactive or hazardous material releases
- Status and nature of any injuries
- Recommended protective actions for employees and members of the public
- Any offsite support requested

The required information is communicated to the local ESDA Coordinator via phone by calling on a dedicated unlisted number or 911, or by a backup radio system. Follow-up communications are made to the Illinois Emergency Management Agency and to the NRC Operations Center. The notification to the NRCOC includes verification that the local and state officials have been notified of the event.

3.4.2. Protective Action Recommendations

Because the most reliable indication of a UF_6 release from the plant is observation of the condensing UF_6 cloud, it is unlikely that sufficient time will exist in an emergency situation involving a UF_6 release to allow for evacuation of the downwind population. Efforts to evacuate downwind members of the populace are likely to worsen the exposure potential by drawing the population outside as the cloud is passing. Therefore, the only preplanned protective action recommendation provided from the plant to the local authorities is for sheltering in place within a radius of 1.3 miles of the plant. This is consistent with the analyses provided in the Metropolis Works Risk Management Plan. These preplanned PARs have been communicated to the affected offsite response organizations and will be reaffirmed in accordance with Section 7 of this plan.

In the event that sheltering of the near-site public is required, the Incident Commander is responsible for the sounding of ~~three~~ the near-site siren system, which provides a shelter in place warning for local residents within a 1.3 mile radius of the plant. ~~The sirens are located at:~~

~~□Mt. Mission Road~~
~~□Franklin School~~
- ~~Hospital Drive~~

The siren system ~~are~~ will be augmented by broadcast radio announcements and (beginning in April 2004) an automated telephone calling system, also activated by the Incident Commander or his designee. These systems provide detailed information regarding Protective Action Recommendations to local residents. The telephone calling system has the capacity to place up to 15,000 calls per hour. Telephone numbers ~~are~~ will be updated on a quarterly basis.

Table 3.1, Metropolis Plant Emergency Action Levels		
Emergency Classification	**Event Description**	**Examples**
Site Area Emergency	Events have occurred or are in progress that have led, or could lead, to a significant release of UF6 and may require a response by offsite organizations and protective actions by the public OR~~Events have occurred or are in progress that have led, or could lead, to a significant release of UF6 and may require a response by offsite organizations and protective actions by the public~~ ~~OR~~	A release of a significant quantity of UF6 that is likely to pose some risk to individuals offsite (e.g., the cloud has crossed the fence or its size and density, more significant than those described for an Alert classification, make escape from the plant site likely). Mitigation efforts may be hampered by the nature or location of the release point.~~A release of a significant quantity of UF6 that is likely to pose some risk to individuals offsite (e.g., the cloud has crossed the fence or its size and density, more significant than those described for an Alert classification, make escape from the plant site likely). Mitigation efforts may be hampered by the nature or location of the release point.~~
	Significant offsite release of other radioactive or hazardous materials that may require offsite response OR~~Significant offsite release of other radioactive or hazardous materials that may require offsite response~~ ~~OR~~	A significant, unplanned offsite release of radioactive or hazardous process chemicals, such as HF, Ammonia, Fluorine, IF5, SbF5, etc., that may affect individuals offsite.~~A significant, unplanned offsite release of radioactive or hazardous process chemicals, such as HF, Ammonia, Fluorine, IF5, SbF5, etc., that may affect individuals offsite~~
	Natural disasters or civil disturbances that threaten the operation of safety systems. OR~~Natural disasters or civil disturbances that threaten the operation of safety systems.~~ ~~OR~~	Tornado sighted approaching or within the fence Flood waters rising within process buildings housing radioactive or other hazardous materials High winds, lightning strike, or earthquake causing major damage to process buildings Intrusion by hostile forces within the fence.~~Tornado sighted approaching or within the fence~~ ~~Flood waters rising within process buildings~~ ~~High winds, lightning strike, or earthquake causing major damage to process buildings~~ ~~Intrusion by hostile forces within the fence.~~

Table 3.1, Metropolis Plant Emergency Action Levels		
Emergency Classification	**Event Description**	**Examples**
	Other events that result in major damage to safety systems OROther events that result in major damage to safety systems OR	Explosion or uncontrolled fire damaging safety-related systems.Explosion or uncontrolled fire damaging safety-related systems.
	Events have occurred or are in progress for which the Incident Commander determines that activation of the Emergency Response Organization AND offsite support organizations is necessary to ensure protection of public health and safety.Events have occurred or are in progress for which the Incident Commander determines that activation of the Emergency Response Organization AND offsite support organizations is necessary to ensure protection of public health and safety.	

Table 3.1, Metropolis Plant Emergency Action Levels		
Emergency Classification	**Event Description**	**Examples**
Alert	Events have occurred or are in progress that do not meet the criteria for a Site Area Emergency, but could lead to a release of UF6 with the potential for the UF6 release cloud to be visible at the fence line, but no response by offsite organizations is necessary to protect the public. OR ~~Events have occurred or are in progress that do not meet the criteria for a Site Area Emergency, but could lead to a release of UF6 with the potential for the UF6 release cloud to be visible at the fence line, but no response by offsite organizations is necessary to protect the public.~~ ~~OR~~	A UF6 release is occurring, determined to be a significant quantity, and the cloud outside the building is very dense. A UF6 release cloud is visible at the edge of an imaginary circle with a radius that extends to approximately the end of the ore calciner to the north, the tank farm to the east, the liquid fluorine unit to the south, or the forepersons offices to the west. A UF6 release is determined to be significant and cannot be stopped promptly (e.g., within approximately 15 minutes).~~A UF6 release is occurring, determined to be a significant quantity, and the cloud outside the building is very dense.~~ ~~A UF6 release cloud is visible at the edge of an imaginary circle with a radius that extends to approximately the end of the ore calciner to the north, the tank farm to the east, the liquid fluorine unit to the south, or the forepersons offices to the west.~~ ~~A UF6 release that is determined to be significant and cannot be stopped promptly.~~
	Significant release of other hazardous chemicals that does not require offsite response OR~~Significant release of other hazardous chemicals that does not require offsite response~~ ~~OR~~	A significant, unplanned release or spill of hazardous process chemicals, such as HF, IF5, SbF_5, Ammonia, Fluorine, etc., that is not expected to affect individuals offsite.~~A significant, unplanned release or spill of hazardous process chemicals, such as HF, IF5, SbF_5, Ammonia, Fluorine, etc., that is not expected to affect individuals offsite~~

	Natural disasters or civil disturbances reported near the plant property ORNatural disasters or civil disturbances reported near the plant property OR	Tornado sighted within one mile of the plant property. Flood waters rising and threatening to enter process buildings housing radioactive or other hazardous materials. High winds (e.g., sustained winds greater than 80 mph), or earthquake affecting site, but not causing major damage to process buildings housing radioactive or other hazardous materials. Hostile forces approaching, but outside the fence.Tornado sighted within one mile of the plant property Flood waters rising and threatening to enter plant buildings High winds, lightning strike, or earthquake affecting site, but not causing major damage to process buildings Hostile forces approaching, but outside the fence.
	Other events that result in major equipment damage OROther events that result in major equipment damage OR	Explosion or uncontrolled fire lasting more than 15 minutes or threatening operability of safety-related systems or equipment Explosion near or uncontrolled fire approaching safety-related systems or equipment
	Events have occurred or are in progress for which the Incident Commander determines that activation of all or part of the Emergency Response Organization is necessary to ensure protection of plant property or employee health and safety.Events have occurred or are in progress for which the Incident Commander determines that activation of all or part of the Emergency Response Organization is necessary to ensure protection of plant property or employee health and safety.	

Table 3.1, Metropolis Plant Emergency Action Levels

Emergency Classification	Event Description	Examples

Plant Emergency	Minor events that do not meet the requirements for a Site Area Emergency or Alert have occurred or are in progress ORMinor events that do not meet the requirements for a Site Area Emergency or Alert have occurred or are in progress OR	A hazardous material release (e.g., UF6, IF5, SbF_5, Ammonia, Fluorine, etc.) that cannot be controlled almost immediately (e.g., within approximately 15 minutes). This may involve a visible cloud outside the FMB. For a UF6 release, vision may be impaired on at least one floor of the FMB. Minor fires that cannot be immediately extinguished (e.g., within approximately 15 minutes) Personnel injuries requiring offsite medical assistance Loss or primary electrical supply Hazardous weather (e.g., high winds, lightning, hail, ice, or snow), that inhibits safe plant operation) Minor releases of toxic gases that cannot be stopped almost immediately (e.g., within approximately 15 minutes)A hazardous material release (e.g., UF6, IF5, SbF_5, Ammonia, Fluorine, etc.) that cannot be controlled almost immediately. This may involve a visible cloud outside the FMB. For a UF6 release, vision may be impaired on at least one floor of the FMB. Minor fires that cannot be immediately extinguished Personnel injuries requiring offsite medical assistance Loss or primary electrical supply Hazardous weather Minor releases of toxic gases that cannot be stopped almost immediately
	The Incident Commander determines that events have occurred or are in progress that require a heightened level of staff awareness and possible support by onsite or offsite response personnel.The Incident Commander determines that events have occurred or are in progress that require a heightened level of staff awareness and possible support by onsite or offsite response personnel.	

4.0 Emergency Response Organization

4.1. Normal Plant Organization

The normal plant organizational structure is depicted in Figure 1.1, Section A, Organization/Activation, of the Emergency Response Plan. Due to continuous plant operations, supervisory personnel are on duty 24 hours per day, seven days per week. The Production Shift Leader on duty has the overall responsibility for classifying the emergency and activating the Emergency Response Organization (ERO).

A minimum of six (6) hourly personnel and three (3) supervisors are required on-site during plant operations to provide adequate response efforts. Because the likelihood of an emergency resulting in a significant release is reduced when the plant is not operating, a minimum of four (4) hourly personnel are required to maintain the emergency response effort during shutdown periods. Any emergency response team member is required to respond to an emergency condition as part of their job position unless one of the following applies:

- employee is on restricted duty; or
- employee is working overtime in a position not required to respond; or
- employee is noted on the schedule as "ERT Qualified" (indicating that the individual has not completed the full 24 hour training as discussed in Section J of the ERP).

Any personnel properly trained in emergency response may be utilized in the response effort if the Incident Commander requests their assistance.

4.2. Normal On-Site Emergency Organization

The on-site Emergency Response Organization for normal working hours is shown in Figure 1.2, Section A, Organization/Activation, of the Emergency Response Plan. The initial ERO for off-normal working hours is shown in Figure 1.3. This organization remains in place until supplemented by the offsite members of the ERO in accordance with ERO activation procedures. The Emergency Response Plan and Radiological Contingency Plan, used in conjunction with the Emergency Plan Implementing Procedures, define responsibilities for assuring prompt reaction and control for emergency conditions that could adversely affect employee, public, or environmental health or safety. Alternate personnel are provided for each area of responsibility to assure timely response during an emergency and to provide for relief for extended duration emergency response activities.

4.2.1. Direction and Coordination

Responsibility for overall coordination of the emergency activities is vested in the Crisis Manager. This position is initially filled by the Lead Foreperson until relieved by a designated senior management member of the ERO. The Crisis Manager is responsible for coordinating liaison with local, state and federal agencies and Honeywell Headquarters, including notifications of the emergency classification and Protective Action Recommendations. He coordinates and reviews all releases of information to the public

and news media. He is advised of emergency response efforts through the Incident Commander.

The Incident Commander reports directly to the Crisis Manager; his responsibilities include overall coordination of the plan. Following declaration of an emergency, the Incident Commander will establish a local command and communications Control Point (if needed) from which he will establish communications with the Crisis Manager and apprise him of the situation. The Incident Commander will communicate the location of the event over the plant PA system or radio and coordinate the group effort from the Control Point, allocating available manpower required to establish control of the incident site. This officer will be responsible for the decision to escalate or downgrade the class of emergency declared. On the off-shifts, holidays and weekends, he will assume the role of the Crisis Manager, Environmental Officer and Control Room Officer until relieved by that officer.

In addition, the responsibilities of the Incident Commander include the following duties:

- Prepares and organizes the background review of the hazardous materials incident.
- Briefs the field Emergency Response Officer on specific assignments.
- Communicates with the Safety Officer to ensure that safety requirements are met.
- Maintains ongoing communications with Emergency Response Team activities through the Emergency Response Officer.
- Arranges for personal protective equipment and supplies, in consultation with the Safety Officer and Procurement Officer.
- He will establish liaison with any community fire-fighting organizations that may be called into Metropolis Works and provide pertinent information to assist their fire-fighting efforts and avoid process and plant hazards.
- Appoints a recorder to keep a log of all response activities.
- Appoint census takers, timekeepers, and sees that effective control of personnel is maintained in and out the incident area.
- Direct salvage and re-establishment of operations after the emergency is under control.
- Initiate a debrief and critique of the response.

4.2.2. Plant Staff Emergency Assignments

The duties and responsibilities of each officer in The Radiological Contingency Plan and the Emergency Response Plan are outlined in Section A, Organization/Activation, Emergency Response Plan.

4.3. Off-Site Assistance to Facility

The Crisis Manager or his designee is responsible for coordinating reporting of information to government agencies and the media and requests for offsite emergency response support. The Crisis Manager oversees provision of the following information to the off-site government agencies:

- Facility identification
- Name of person reporting

- Classification of emergency
- Description of event and facility conditions
- Status and magnitude of any radioactive or hazardous material releases
- Status and nature of any injuries
- Recommended protective actions for employees and members of the public
- Any offsite support requested

The Crisis Manager, his alternate, or his designee is responsible for providing communications to the media and outside response organizations. Local media and response organizations have been informed that these persons are the primary communicators and that all communications they receive from plant personnel should be verified by a return call to the plant. This action is necessary to prevent emergency response to a "prank" call.

During a Site Area Emergency or drill, the Crisis Manager or his designee will contact local officials by calling 9-1-1 to inform them that an emergency or drill is underway. Also, any time that plant radio communications are being used during a simulated emergency, the Communications Officer will announce over the radio, at regular intervals, that a test drill is underway. This prevents unnecessary alarm of members of the public who may intercept plant radio messages. ~~Procedural measures are in place to provide for verification of information and to identify drill and exercise communications.~~

Press releases that result from local plant activities or conditions are drafted by the Plant Manager or his designee. They are faxed to the Marketing Communications Director in Morristown, NJ for final approval. The approved document is then faxed back to the Plant Manager for release to the local media and response organizations through regular mailing, fax transmission, or through a press conference, depending on the urgency of the message.

Although the Crisis Manager may delegate some or all of his communication responsibilities, he cannot delegate responsibility for determining the Protective Action Recommendations that are communicated to public authorities.

The current telephone list of all off-site agencies is maintained in accordance with the requirements of the EPIPs.

4.4. Coordination with Participating Offsite Agencies

Measures implemented to ensure proper coordination with offsite emergency response organizations are discussed in Section B of the ERP.

5.0 RADIOLOGICAL CONTINGENCY MEASURES

5.1. Activation of the Emergency Response Organization

The ERO will be fully activated for any Site Area Emergency. The ERO may be fully or partially activated for any Plant Emergency or Alert, at the discretion of the Incident Commander.

During normal weekday working hours, Honeywell emergency response personnel are activated through use of a UF_6 release siren, a plant disaster siren, and plant paging system announcements. During off-shifts and weekends, an automated telephone call-in system is utilized to notify responsible officers of a radiological emergency. Should there be a failure of the automated system, a manual telephone call system is in place and can be used as a backup. Emergency Plan Implementing Procedures establish requirements for performing periodic verifications and updates of affected telephone numbers and distributing updated telephone listings to designated locations.

Off-site emergency response personnel are alerted to the emergency condition via a plant telephone notification to the local emergency response office. A radio system provides backup communication capability. Messages can be authenticated via call-back to the plant.

The alerting and call-in processes, including processes for back-up systems, are fully described in the Emergency Plan Implementing Procedures..

5.2. Assessment Actions

The assessment actions to be taken for each class of emergency are described in Section 3.2. In addition, should an actual event occur with off-site consequences, Honeywell's Corporate Engineering Department would be asked to perform dispersion calculations to identify the potential size of the off-site plume for a chemical or radiological release. These data can then be used by plant health physics and environmental personnel to determine potential radiological dose or chemical exposures to the off-site environment. Environmental samples (soil, vegetation, or human bioassays) would then be collected from the path of the plume to measure actual environmental impact and determine what remediation actions are necessary.

Equipment and methods available for performing on-site and off-site sampling include the following:

- Collection of samples from routine effluent pathways;
- Sampling equipment and methodologies for air, soil, groundwater, and vegetation;
- Portable radiological monitoring and sampling equipment, including equipment for direct radiation monitoring and surface and airborne contamination monitoring; and
- Portable chemical monitoring equipment.

These methods and equipment are supplemented by on-site and off-site laboratory analysis capabilities for the expected range of chemical and radioactive contaminants.

5.3. Mitigating Actions

Some of the mitigating actions required by this plan are identified in Section 3.0 and in Emergency Plan Implementing Procedures. In addition to these actions, the plant maintains a detailed set of operating procedures that include procedures for emergency shutdown, isolating services to plant structures, and actions upon loss of the primary electrical power supply. A summary of installed accident mitigation systems is provided in Section 2 of the RCP.

In addition, the following actions would be used for the events described:

- Major Chemical Spill or UF_6 Release:

  The plant Emergency Response Team would be activated to limit and control the size of the release, rescue injured personnel, and provide immediate first aid. Team response actions may include use of fire hose fog nozzles to knock down chemical or UF_6 fumes and diking or neutralization to prevent liquid releases to the environment.

- Fire:

  A major fire cannot be hypothesized in a radioactive materials usage area because most construction materials are nonflammable. However, a fire could occur in office or storage areas that are generally some distance from chemical usage areas. These areas are provided with sprinkler systems, fire extinguishers, and fire hoses. The plant Emergency Response Team would be activated to control any incipient fire that might occur. Assistance from local fire departments would be required to control major fires.

- Natural Disaster (wind, tornado, earthquake):

  The plant Lead Foreperson is provided with a weather warning radio that provides a distinctive alarm to alert the supervisor. The Shift Leader then can monitor the weather warning to determine potential impact on plant operations. These weather warnings are issued from the Paducah, Kentucky National Weather Service (at Barkley Airport) approximately three (3) miles south of the plant. Direct telephone and radio communications to the Metropolis City Police are also available to obtain information on natural phenomena that might affect the plant.

  The decision to shut down processes or the entire plant during a major emergency is the responsibility of theLead Foreperson. This individual has the necessary information and authority to determine which processes should be shut down and appropriate response actions. Experience indicates the entire plant can be shut down immediately, as the result of a major power outage, with no release of hazardous materials. Systematic securing of all operating units and activation of standby power normally requires approximately three (3) hours. Since the flow of all raw materials can be stopped immediately, the major emphasis during an emergency shutdown is the provision of steam to vessels and lines containing UF_6. This prevents UF_6 blockage of lines and minimizes the potential of a UF_6 release when the production process resumes operations. The entire plant will be shut down during a "Site Area Emergency." The decision to shut down processes during lower class emergency events will be made by the shift supervisor during off-shifts and

weekends or the Crisis Manager during day shift. This decision will be based on the best information available at that time.

5.4. Protective Actions

5.4.1. Personnel Evacuation and Accountability

A radiological emergency that could require evacuation of the entire plant restricted area cannot be hypothesized. The maximum credible accident hypothesized could require evacuation of portions of the site downwind of the release point.

The plant staff is notified of the need to evacuate affected areas and report for accountability via the evacuation alarm and announcements on the plant paging system. These notification systems are essentially instantaneous. Because of the multiple access points and possibility that evacuation routes may be blocked by hazardous conditions, there are no preplanned evacuation routes. The announcements include specific instructions regarding areas to be avoided to maintain employee safety. Experience indicates that evacuation activities can be completed rapidly, generally in about ten (10) minutes.

5.4.2. Use of Protective Equipment and Supplies

A comprehensive respirator fitting and training program is utilized in the plant. Basic procedures used in implementing and maintaining the program are contained in the Health Physics Procedures Manual. The location and utilization of special protective equipment used in controlling plant emergencies are listed in the Emergency Response Plan.

Because the primary hazard associated with emergency conditions at the plant involves visible releases of UF_6, most decisions regarding use of protective equipment and supplies can be made based on visual observation of plant conditions. Protective equipment is withdrawn from the designated storage cabinets by the ERT members and used at the direction of the Incident Commander and Emergency Response Officer. Decisions regarding downgrading of protective equipment requirements may be based on a combination of visual observations and the results of chemical and radiological monitoring. EPIPs establish requirements for decontamination of emergency equipment and restoration of equipment operability.

5.4.3. Contamination Control Measures

The spread of UO_2F_2 contamination resulting from a UF_6 release inside the Feed Materials Building is controlled by shutting down the building exhaust ventilation and allowing the particulate UO_2F_2 to settle. Standard plant decontamination procedures are utilized to decontaminate the affected area of this water-soluble contaminant.

Fire hose spray may be utilized to control the spread of HF vapors that may occur outside the process building in the event of a major UF_6 release. However, water should not be sprayed directly on liquid UF_6. Rather, CO_2 fire extinguishers should be used to freeze out small liquid UF_6 releases.

5.5. Exposure Control in Radiological Contingencies

5.5.1. Emergency Exposure Control Program

The primary exposure of concern during a major UF_6 release is skin and lung burns from HF and inhalation of soluble UO_2F_2 which, in higher concentrations, is chemically toxic to the kidney. Control of these exposures is provided by requiring appropriate protective equipment for potentially exposed employees in accordance with the Emergency Plan Implementing Procedures. Due to the nature of the material processed, the EPA guidelines for radiation doses to emergency workers are not applicable and no provisions exist for authorizing doses exceeding the occupational dose limits established in 10 CFR 20.

The Radiation Officer is responsible for establishing and maintaining a program that will provide for on-site and off-site radiation monitoring during a major UF_6 release. Personnel exposures to external radiation are monitored by the use of routine plant external monitoring dosimeters, which are provided as part of a NVLAP-accredited program. The dosimeters are available in wall racks and are readily available to each employee at the beginning of the work day. The results obtained from air monitoring may be used in conjunction with bioassay measurements and respiratory protection to assess inhalation exposures.

Individual dose records are maintained consistent with the requirements of 10 CFR 20. Any personnel doses resulting from exposures received under emergency conditions would be recorded and reported in accordance with these requirements.

5.5.2. Decontamination

Should personnel onsite be exposed to significant levels of radioactive airborne or surface contamination, it may be necessary to provide for decontamination activities onsite or, in the event of a contaminated, injured person, in a local medical facility. Individuals are considered to be contaminated when contamination monitoring equipment indicates skin contamination levels equal to or exceeding 1000 disintegrations per minute per detector area.

Personnel and equipment are easily decontaminated of UO_2F_2 using soap and water. All equipment, protective clothing, and routine work clothing are provided by and stored within the facility. The plant laundry provides cleaning and decontamination of protective equipment and clothing following a UF_6 release.

5.6. Medical Transportation

Injured employees may be transported to the plant dispensary using plant vehicles. Treatment of HF injury is initiated as soon as possible, whether in the field or in the dispensary. The extent of injury is determined by the Plant Nurse during day shift or First Aid personnel during off-shifts. If the injury is more serious than can be treated effectively in the plant dispensary, an ambulance is called from Massac Memorial Hospital, and the patient is transported to a hospital for additional treatment by a physician. In certain cases, the ambulance may be directed to the on-site location of injured personnel.

5.7. Medical Treatment

Off-site medical treatment of injured employees is provided by Massac Memorial Hospital, which is approximately one mile from the site. Massac Memorial Hospital utilizes Emergency Medical Technicians (EMT-A) and Paramedics to operate the ambulance service. Massac Memorial Hospital has a "linkage agreement" with Lourdes and Western Baptist hospitals in Paducah, Kentucky. The distance to both Lourdes and Western Baptist Hospitals is approximately 14 miles. Emergency room personnel are knowledgeable of proper treatment for HF injuries. Training in the treatment of HF injuries and appropriate contamination controls is provided to employees of these hospitals by Metropolis Works' personnel and the plant physician.

Should it be necessary to transport a contaminated person offsite for any reason, such as for medical attention, plant Health Physics personnel will accompany the individual and provide contamination control guidance (both chemical and radiological) for the attending medical personnel. The affected areas of the hospital and ambulance and affected personnel will be monitored for residual contamination. Contaminated materials will be collected and returned to the site for proper decontamination or disposal.

6.0 Equipment and Facilities

6.1. Control Point

Upon declaration of an emergency requiring on-the-scene management oversight, the Incident Commander establishes a Control Point that serves as a command center for coordination of communications and mitigating actions and as a dispatch point for emergency response teams. There are three pre-designated Control Points, each of which is provided with a telephone (with a common extension number) to provide for communications. The primary pre-designated Control Point is a telephone booth located outside the UF_6 processing building by the south distillation door. Alternate sites are provided near the Ore Storage Building and the Cylinder Wash Building. These locations provide a range of acceptable locations that may be used, depending on the incident location, actual release point and meteorological conditions. If none of these three locations is habitable, the Incident Commander may designate another location as the Control Point.

The Incident Commander selects the Control Point to be manned based on consideration of the location of the emergency, likely release points, and meteorological conditions. The Control Point may be evacuated and re-established at an alternate location based on the Incident Commander's assessment of current habitability and plant conditions. Because the primary hazard that may result in habitability issues is a potential release of UF_6, and those releases are readily visible and will cause significant irritation to exposed persons, many decisions regarding Control Point relocation can be made based on human sensory input. Monitoring of radiological and chemical conditions may also provide an input to decision-making regarding Control Point relocation. The Control Point will be relocated if airborne chemical concentrations or surface or airborne radioactivity levels create the need for protective measures (e.g., protective clothing or respiratory protection) that inhibit effective ERO activities. The location of the actual Control Point in use is announced to the ERO via the plant paging system, with radios serving as a backup system.

6.2. Communications Equipment

An extensive telephone system is maintained within the plant. In addition, a public address (plant paging) system accessed by phone is used for announcing general and emergency messages. Speakers for this system are located in all buildings, storage, and yard areas. A back-up power supply is provided for the plant telephone system to ensure operability in the event of a loss of electrical service to the site. During a plant emergency, a 4.0-watt, 2-way radio system is also used for communications. The base and mobile stations have a range of 8 to 10 miles, and individual radios have a range of about one mile. A radio is assigned to each Contingency Plan Officer. The Safety Supervisor maintains a listing of radio assignments.

In an emergency involving full activation of the ERO, the Communications Officer will establish a communications center in the Administration Building. Communications with offsite organizations are provided via commercial telephone service. In addition, a dedicated telephone number is established between the site Security Office, the FMB Control Room, and the local Emergency Services office. Also, the site is equipped with a radio that operates on Massac County emergency management frequencies to provide a backup for telephone communications.

If the Administration Building is uninhabitable, the Crisis Manager will designate an alternate location from which offsite communications will be coordinated, using the same inputs and criteria as those discussed above for the Control Point.

6.3. Facility for Assessment Teams

The plant conference room, located in the Administration Building will normally be used for performing post accident assessment. If the Administration Building is uninhabitable, the Crisis Manager will designate an alternate location.

6.4. On-Site Medical Facilities

The on-site medical facility consists of a plant dispensary containing routine first-aid supplies appropriate for the hazards present in the plant. Life preservation equipment is available for use until ambulance service arrives on site. The dispensary furnishings include a tub and shower for burn treatment, examination tables, a counter with sink, a washroom, and an office for the Plant Nurse. Oxygen administration equipment is also located in this area.

6.5. Emergency Equipment

Emergency equipment, including radiological and chemical monitoring instruments, is provided in designated storage locations within the site. These locations have been established to provide ready access during a wide range of postulated emergency conditions, with additional locations to serve both as backups and as alternate locations in the event that the primary location is uninhabitable. The alternate locations are located such that they will be accessible when the primary location is inaccessible, as may be the case during emergencies involving fires, flooding, or hazardous material releases.

6.5.1. Health Physics Survey Instruments

Instruments that are routinely used by the Health Physics Department and available for emergency monitoring are listed in the following table; a minimum of one of each type is available:

RADIOLOGICAL SURVEY INSTRUMENTS

Type	Use	Sensitivity	Range	Calibration Frequency
Geiger Counter	General Survey	Beta-Gamma >40 KeV	0-200 mr/hr	Quarterly *
Thin window Radiation Monitor	Surface Con-Tamination	Alpha-Beta-Gamma	0 - 50,000 CPM	Quarterly *
Scintillation Alpha Counter	Surface Con-Tamination, Air Filters	Alpha	0.3 – 1000 CPM	Monthly *
Internal Pro-Portional Counter	Air Filters, Surface Contamination	Alpha-Beta	0.1-1000 CPM	Monthly *

* Or immediately prior to use.

In addition to the survey instruments, the Health Physics Department has high and low volume air samplers that may be used to take in-plant or environmental air samples.

6.5.2. Chemical Monitoring Equipment

Due to the nature of the materials handled at the plant, the Health Physics Department maintains and uses an extensive inventory of chemical sampling equipment that can be used in an emergency situation.

6.5.3. Emergency Equipment

6.5.3.1. Health Physics Transportation Kit

This kit contains items that might be used off-site in the event of a chemical spill or other transportation incident. It would not normally be used for on-site emergencies.

6.5.3.2. UF_6 Cylinder Patch Kit

This kit is located in the south locker room and would be used by salaried personnel for an off-site transportation incident. The kit contains tools and equipment that would aid in patching a UF_6 cylinder.

6.5.3.3. Protective Safety Equipment Cabinet

These cabinets are located on each floor of the Feed Materials Building next to the hoist well. The protective equipment in these safety cabinets is designated for "Emergency Use Only." The equipment could be used for both radiological and non-radiological emergencies in the building.

6.5.3.4. UF_6 Emergency Release Cabinet

These wall-mounted cabinets are located near the Distillation Area on each floor of the Feed Materials Building and in the Control Room. These cabinets contain tools and equipment that might be required to prevent or stop a UF_6 release. These materials are designated for "Emergency Use Only."

6.5.3.5. Distillation Emergency Cabinet

This cabinet is located at the primary control point outside the south Distillation door of the Feed Materials Building and at the Ore Storage Building. This protective equipment is designated for "Emergency Use Only."

6.5.3.6. Control Room Safety Cabinet

This cabinet, which contains personal protective equipment, is located in the Feed Materials Building Control Room.

6.5.3.7. Hospital Kit

The Health Physics Supervisor, the Health Physics Specialist, and the Supervisor of Health Physics Technicians have monitoring kits that are stored at their personal residences. These kits may be used during off hours to perform monitoring of the hospital facilities into which injured employees have worn contaminated clothing.

6.5.3.8. Standby Electric Generator

This diesel-powered generator is located in the Power House and is used to supply standby power to the following:

a. Boiler Feed Pumps

b. No. 1 and 2 Boilers and Control Instrumentation

c. Power House Lights

d. Ash Vacuum Cleaner

e. Electrical Alarm for Fire Pump

f. Disaster Siren

g. Health Physics Vacuum Pump

h. A-1 Nash Vacuum Pump

i. "A" Coke Box Blower

j. Control Room Blower (FM Building)

6.5.3.9. Additional Equipment

Additional emergency equipment available in the plant includes such items as an on-site fire water tank, encapsulating chemical suits, four fire hose houses, numerous air packs (SCBA), fire extinguishers, and chemical spill control boxes.

6.6. Routine and Special Effluent Monitors

Environmental monitoring for chemical or radioactive contaminants associated with an emergency event will be performed using a suitable combination of available monitoring methods, systems, and equipment, including:

- Collection of environmental samples from the normal effluent flowpaths;
- Collection of radiological data using portable radiological monitoring and sampling equipment, including equipment for direct radiation monitoring and surface and airborne contamination monitoring; and
- Collection of environmental chemical data using portable chemical monitoring equipment.

As may be appropriate for the nature of the release, environmental sample media, such as soil, vegetation, air, and groundwater, will be collected for chemical and radiological analyses by either on-site or off-site laboratories. The locations to be sampled may be specified based on the results of plume tracking performed by Honeywell's corporate support organization.

The results of these monitoring activities will be compiled to assess the magnitude and dispersion of releases associated with emergency events.

6.7. Meteorological Monitoring Equipment

To support assessments of the movement of any airborne releases of hazardous materials, the plant maintains an on-site meteorological monitoring system. This system provides input to a computerized system that can be used to provide a preliminary assessment of the extent of any offsite releases. Due to the nature of the likely release scenarios associated with the facility (a single short-duration release) and the scope of the pre-planned PARs (shelter in place for affected members of the public), the on-site Emergency Response Organization is not expected to perform complex real-time computerized plume dispersion modeling. As discussed in Section 5 of this plan, provisions exist to use external resources to provide a more sophisticated analysis, as needed. The primary use of the meteorological data is as an input for the PARs that are provided to local officials. In addition, the output from these instruments can be used to determine the extent and locations of post-event radiological and chemical monitoring that is performed to determine the environmental impact of any releases associated with a plant emergency event.

The meteorological tower monitoring instruments are located on a sixty (60) foot tower located at the southeast corner of the Administration Building. The instruments mounted on the tower continuously monitor applicable meteorological data, including temperature, wind speed and direction and solar radiation data. Data from the meteorological tower instruments are displayed in the Laboratory Building and provided to the Emergency Response Organization by Health Physics personnel.

7.0 Maintaining Emergency Response Capability

7.1. Written Plans and Procedures

The Metropolis Plant maintains a set of detailed Emergency Plan Implementing Procedures (EPIPs) that implement the requirements of the ERP/RCP, including requirements for assessing and classifying emergencies, completing required notifications, activating and deactivating the Emergency Response Organization, and maintaining an appropriate state of emergency preparedness. The Health Physics Supervisor is the plant coordinator for the ERP/RCP and has overall responsibility for ensuring the plans and EPIPs are developed, maintained, and distributed in accordance with applicable requirements. The Health Physics Supervisor is responsible for ensuring that the EPIPs contain all material necessary to ensure proper Plan implementation, including:

- Material required by applicable regulations, such as 10 CFR 40.31 and 29 CFR 1910.120(q), and the facility license;
- Appropriate material suggested by USNRC Regulatory Guide 3.67; and
- Material necessary to ensure employees can effectively discharge their emergency response responsibilities and restore safe conditions.

Plant policies establish requirements for procedure creation and revision to ensure that appropriate directions are provided and the EPIPs are reviewed and approved by responsible managers and distributed as necessary to provide access during emergency conditions.

All EPIPs are reviewed and approved by the Health Physics Supervisor and Environmental/Regulatory Affairs Manager. The plans are also reviewed and approved by the Plant Manager before being sent to the local ESDA Coordinator and IEMA for comments. Comments are accepted for a period of not less than 60 days. Following any revisions needed to address comments from State and local agencies, comments received from these agencies within the designated comment period are sent with the Plans to the NRC.

The ERP, RCP, and EPIPs will be reviewed by the Health Physics Supervisor annually and whenever warranted by other changes, such as changes in plant layout or processes, local population distribution, public facilities or government services. Plan and procedure changes will be made as necessary to ensure their ongoing effectiveness.

7.2. Training

The overall objective for all training related to the ERP/RCP is to ensure that affected personnel can safely and effectively discharge their responsibilities to facilitate a return to non-emergency conditions. The affected personnel include those who hold ERO responsibilities, those who do not hold ERO responsibilities, and those who are responsible for developing and maintaining the plan. Requirements for training of plant staff and affected offsite emergency response personnel are established in Section J of the ERP and in one or more EPIPs. The EPIPs address the following:

- Training objectives;
- Training topics;
- Training frequency and schedules;
- Training duration;

- Content and format of lesson plans; and
- Successful completion requirements.

7.3. Drills and Exercises

Requirements for conducting drills and exercises, including purpose, frequency, and objectives, are provided in the EPIPs. Drills and exercises are conducted on a periodic basis to test the adequacy of the plan and procedures, the effectiveness of the responding personnel, the utility and functionality of the equipment and supplies provided, and the effectiveness of the communications systems and protocols.

Each drill or exercise will use a preplanned scenario that is based on actual facility hazards and will demonstrate one or more objectives as established in the EPIPs. Depending on the complexity of the drill or exercise, the scenario will be prepared by one or more persons knowledgeable of the affected plant processes, locations, and hazards. The scenario will include, or make reference to, acceptable response actions as established in plant procedures and other plant documents, applicable regulations and guidance documents, industry safety standards, or other references. Disclosure of ~~T~~the scenarios for evaluated drills and exercises will ~~not~~ be disclosed only on a need-to-know basis ~~to most of the participants~~ prior to the event. Measures will be implemented to make the scenario as realistic as is practical. Provisions will be made to maintain site security while allowing access for offsite emergency vehicles, if required by the scenario. The objectives and scenario for the annual Site Area Emergency drill will be submitted for NRC review at least sixty (60) days before the exercise.

Drills and exercises will be evaluated by one or more observers at each location where emergency response actions occur. At least one independent outside observer who is familiar with the plans, and non-participating observers from the community and off-site response organizations, will be invited to critique the annual Site Area Emergency drill. Prior to the drill or exercise, the observers will be informed of the scenario and the acceptable response to each event. The observers will be able to critique the effectiveness of the drill by comparing the scenario and objectives to the actual drill proceedings. Criteria for acceptable performance may be provided in plant procedures, performance checklists, industry guides, or other appropriate formats.

Drills and exercises will be conducted as follows:

a. Site Area Emergency/Emergency Rescue - Annually

b. UF_6 Release/Evacuation/Accountability - Quarterly

Critiques will be accepted from the observers for a period of at least seven (7) days following the drill. These critiques from the various observers will be combined to form a composite analysis of the effectiveness of the exercise. Each area of deficiency will be addressed within one month following the exercise. The appropriate department manager will have the responsibility for correcting deficiencies and must ensure that the deficiencies are corrected in a timely manner.

7.4. Emergency Plan Audit Program

The plant Quality Assurance Program includes provisions to ensure that the Emergency Response Plan~~r~~ogram is audited on an annual basis to ensure the program is being adequately maintained. The scope of the audits includes the plan and EPIPs, the training program, emergency response facilities, equipment, and supplies, and records associated with the plant's interface with offsite emergency response organizations. The audits will be performed by one or more individuals who are familiar with the plant hazards and processes, and industry emergency preparedness requirements and guidance and who do not bear direct responsibility for developing or implementing the Emergency Response Program.

Any issues identified by the audit that require corrective actions will be assigned to the responsible manager, entered into the plant's corrective action program, assigned a completion date, and tracked to completion.

7.5. Maintenance and Inventory of Emergency Equipment, Instrumentation, and Supplies

7.5.1 Instrumentation and Supplies

The EPIPs specify locations where dedicated emergency equipment is stored and ready for immediate use under emergency conditions that may arise. The EPIPs also establish requirements for performing periodic inventories of this equipment and, where applicable, tests to ensure the equipment is operable. The dedicated equipment includes:

- Communications equipment, including telephones, warning lights and sirens, radios, and automated community alert systems;
- Emergency lighting and ventilation equipment;
- Radiological monitoring equipment, including radiation and contamination monitors and air samplers;
- Protective clothing and respiratory protection equipment;
- Assorted tools and UF6 cylinder patching equipment;
- First aid equipment; and
- Fire fighting equipment.

Inventories and, where applicable, operability tests, for designated emergency equipment are performed ~~at least quarterly~~ in accordance schedules established in the EPIPs. Included are tests of communications with:

- Local emergency response organizations, including local ESDA coordinator, hospitals, and fire departments;
- IEMA contact numbers;
- Law enforcement agencies;
- NRCOC contact numbers; and
- EPA contact numbers.

The Plant maintains emergency equipment as follows:

Supplies	Inspection Frequency	Responsibility
Health Physics Transportation Kit	Annually*	Health Physics
Hospital Kit	Quarterly	Health Physics
UF_6 Cylinder Patch Kit	Monthly*	Safety
Protective Safety Equipment Cabinet by hoist well	Monthly*	Safety
UF_6 Emergency Release Cabinet (Tools And Material)	Annually*	Safety
Distillation Emergency Cabinet/Ore Storage	Monthly*	Safety
Control Room Safety Cabinet	Monthly*	Safety

*Or whenever the seal is broken.

The individual performing the inventory and operability tests will take action to document and correct any deficiencies noted. When deficiencies cannot be corrected promptly, the appropriate manager will be notified and repair or purchase of replacement equipment will be expedited.

7.5.2 Equipment Tests

Equipment tests are performed in accordance with the following schedule:

Equipment	Frequency	Responsibility
Emergency Services Dedicated Number	Monthly	Production Department
Onsite Radios	Quarterly	Safety Department
Offsite Radios	Quarterly	Mgr., Environmental/ Regulatory Affairs
~~Release~~—Onsite Sirens (Disaster and FMB Evacuation Sirens)	Monthly	Production Department
Community Alert System	Monthly	Production Department
Offsite Sirens	Quarterly	Production Department
Control Room and South Stairwell Emergency	Monthly	Production Department

Blowers		
FM Building Red Lights	Monthly	Production Department

7.6. Offsite Emergency Response Organizations

The Regulatory Affairs Manager will coordinate emergency preparedness activities with responsible State and local emergency response authorities. This coordination will include provision of current plans, notification checklists, and preplanned PARs to those authorities. The Regulatory Affairs Manager is also responsible for ensuring that those portions of the ERP that are related to non-radioactive hazardous materials are coordinated with the local Community Action Committee.

The Regulatory Affairs Manager is also responsible for ensuring that letters of agreement with offsite emergency response organizations are reviewed at least once each year and renewed at least once every four years.

8.0 Records and Reports

8.1. Records of Emergency Events

Emergency Plan Implementing Procedures establish requirements for completing required reports and completing and retaining records of emergency events. The required records for Alerts and Site Area Emergencies include records of:

- Emergency event classification, including any upgrades, downgrades, and termination;
- Notification of offsite authorities regarding emergency classification, conditions, and protective action recommendations;
- Employee evacuation and accountability;
- ERO staffing;
- Chronological listings of events, including plant conditions, emergency response team activities, injuries, and mitigating actions;
- Assessments of plant and offsite conditions, including radiological conditions and status of any hazardous chemicals, both during and after the emergency;
- Assessments of personnel exposure to radiological and hazardous materials;
- Offsite organization support requested and received;
- Analyses of incident causes, personnel and equipment involved, and extent of damage; and
- Results of incident critiques and actions to prevent recurrence.

The ERO Officers are responsible for ensuring that their subordinates in the ERO complete the required records. The ERO Officers review all records submitted by ERO members to ensure the records provide a complete and accurate description of the events, assessments, and corrective actions. Completed records are retained in accordance with normal plant policies.

An incident report will be completed for each declared emergency. Each incident report will be reviewed by the appropriate department manager(s). Additionally, in the event of a "Site Area Emergency" a formal investigation will be conducted, and a report will be prepared to document the incident.

8.2. Records of Preparedness Assurance

The EPIPs establish requirements for records of measures instituted to ensure that the facility is fully prepared to address emergency conditions. The required records include records of:

- Emergency Response Plan and EPIP creation, revision, and termination;
- Employee and offsite emergency responder training, including training objectives, lesson plans, attendance, and successful training completion;
- Locations of dedicated emergency supplies and equipment and results of periodic inventories, surveillances, calibrations, and operability tests;
- Agreements with offsite agencies and organizations and revisions to those agreements; and
- Notifications to affected site personnel and offsite response organizations regarding changes to the plans and procedures.

8.3. Record Completion and Retention

The Incident Commander and Crisis Manager are responsible for ensuring that all records required by the EPIPs are properly completed, reviewed, and turned over to the plant Document Control section for retention. Plant Document Control procedures establish requirements for record storage and retention in accordance with applicable regulatory requirements, including the requirements of 10 CFR 20 and the guidance provided in USNRC Regulatory Guide 3.67. Because records of emergency events involving releases of hazardous materials may affect planning and execution of decommissioning activities, records documenting the location and magnitude of releases of radioactive or other hazardous materials are retained with plant decommissioning-related records until the NRC license has been terminated.

9.0 Recovery

9.1. Execution of Recovery Operations

Following termination of the emergency event, the plant will enter the Recovery phase. At the discretion of the Incident Commander, in consultation with the Crisis Manager, all or part of the ERO may remain activated, on a continuous basis or other schedule, to complete recovery activities. However, recovery activities may be completed by personnel both within and external to the ERO. Key positions in the Recovery Organization include the following:

- The Plant Manager, who will provide overall management direction for recovery operations and maintain ongoing communications with offsite authorities. The Recovery actions directed by the Plant Manager include assessment of current plant status, including system integrity and control of hazardous materials, planning and execution of necessary repairs and remediation activities needed to protect both on- and off-site health and safety.
- The Manager, Regulatory Affairs, who will manage efforts to ensure maintenance of compliance with applicable regulatory requirements, conduct radiological and environmental monitoring and decontamination, determine personnel exposures to hazardous and radioactive materials, and ensure maintenance of the plant security program;
- The Manager, Engineering and Maintenance, who will oversee efforts to assess and restore the integrity and operability of plant systems in a manner that maintains capabilities to control radioactive and other hazardous materials;
- The Plant Controller, who will oversee efforts to acquire all required materials, equipment, and logistical support requiring expenditure of company funds; and
- The Manager, Quality Assurance, who will oversee audits of recovery activities to ensure they are conducted in accordance with applicable Quality Assurance Program requirements.

Each of these managers will be assisted by responsible members of the plant staff as necessary to discharge their responsibilities. The plant staff may be augmented by corporate or outsourced technical and administrative personnel as necessary to facilitate restoration of safe conditions and resumption of production operations.

9.2. Reentry and Restoration

Following termination of significant offsite releases and the emergency condition, a more deliberate approach may be applied to reentry and restoration activities. Visual, chemical, and radiological monitoring activities will be performed as necessary to identify any ongoing minor (non-emergency) releases and to identify any areas affected by residual chemical or radioactive contamination. Based on the results of these monitoring activities, any ongoing minor releases, spills and other hazards will be appropriately marked, controlled, or contained before routine reentry of operating and maintenance personnel is allowed. Reentry into areas affected by hazardous chemical or radioactive releases will be authorized in accordance with plant safety and health physics procedures. Visual and engineering assessments of plant systems will be implemented in accordance with plant

maintenance, operating, and engineering procedures to determine the need for system repairs, modifications and functional testing prior to resuming production operations.

Recovery activities will be conducted in accordance with plant health physics procedures, augmented as necessary to address any emergent conditions resulting from the emergency condition. All employee exposures will be controlled in accordance with the ALARA Program to ensure doses remain below regulatory limits and ALARA. If engineering controls do not provide sufficient protection against airborne hazardous and radioactive materials, respiratory protection will be provided and used as necessary in accordance with the Respiratory Protection Program.

Potentially contaminated areas and property (vehicles, etc.) will be surveyed for surface contamination. Items found to be contaminated above the NRC Fuel Cycle Facility release limit will be decontaminated before release from the site or disposed of as radioactive waste.

During recovery operations, the Plant Manager and his staff will provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion.

The Plant Manager and his staff will ensure that, in the affected area(s) of the facility: (1) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and (2) All emergency equipment is cleaned and fit for its intended use before operations are resumed.

Before resuming normal operations, the Plant Manager or his designee will notify the EPA Regional Administrator, and appropriate State and local authorities, that the facility is in compliance with applicable environmental regulations.

Within 15 days after any emergency event involving the offsite release of hazardous materials, the Plant Manager or his designee will submit a written report on the incident to the EPA Regional Administrator.

The report will include:

(1) Name, address, and telephone number of the facility owner:
(2) Name, address, and telephone number of the facility;
(3) Date, time, and type of incident (e.g., fire, explosion)
(4) Name and quantity of material(s) involved;
(5) The extent of injuries, if any;
(6) An assessment of actual or potential hazards to human health or the environment, where applicable; and
(7) Estimated quantity and disposition of recovered material that resulted from the incident.

9.3. Records of Recovery Activities

Each employee is responsible for completing records of work activities in accordance with plant procedures. Assigned supervisors and managers complete required reviews to ensure the records provide a complete and accurate description of recovery activities and to evaluate the impact of the recorded activity. The Document Control Organization has overall responsibility for ensuring proper storage and retention of recovery-related records.