

Specialty Materials
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July 01, 2004

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U.S. Nuclear Regulatory Commission
Director, Office of Nuclear Material Safety & Safeguards
Attention: Document Control Desk
Mail Stop T-8A33, Two White Flint N, 11545 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: Distribution of Revisions To Honeywell's Metropolis Works Emergency
Response Plan/ Radiological Response Plan

License Number: SUB-526
Docket No.: 04003392

Dear Sir or Madam:

This letter is to document the distribution of the recent revisions to Honeywell's Metropolis Works Emergency Response Plan/ Radiological Response Plan. Enclosed are the following section revisions that replace the current sections of the plan in your control.

- ERP Supporting Agencies Section B "MUTUAL AID"
- RCP 2.0 Engineered Provisions For Abnormal Operations
- RCP 3.0 Emergency Classifications and Notifications
- RCP 5.0 Radiological Contingency Measures
- RCP 7.0 Maintaining Emergency Response Capability


In addition, enhancements were made to the emergency plan implementing procedures.

- EPIP-002 Emergency Classification and Notifications
- EPIP-008 Maintaining Emergency Preparedness

These changes have been reviewed and approved through the appropriate plant processes and do not reduce the effectiveness of the plan. These changes are to be distributed for implementation July 1, 2004.

If you have any questions regarding this issue, please do not hesitate to contact Mr. Michael Ginzl, Health Physics Supervisor, at 618-524-6349 or Mr. Darren Mays, HS&Regulatory Affairs Manager, at 618-524-66396.

Sincerely,



Rory J. O'Kane
Plant Manager

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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. 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 1.3 mile radius of the plant. These PARs are communicated to local emergency response officials. The Crisis Manager is responsible for ordering the sounding of two near-site sirens, which are located on licensee-owned property along route 45 across from the plant site.

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.

Instructions for sheltering in place are provided to affected members of the public within one mile of the plant by periodic distribution of emergency preparedness information. This pre-distributed information may be augmented during emergencies by real-time instructions provided by the automated telephone warning system, 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; SF ₆ & 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
CO ₂	12,000	FMB
MgOH	5,000	Ore Stg., Ore Prep South Pad
NaOH	7,800	Tank Farm
UF ₆	1,130,000	FMB, UF ₆ Cyl. Stg. Pad
U ₃ O ₈	20,000,000	Samp. Plant, Samp. Plant Stg. Pads, Ore Prep Stg. Pads, Ore Prep
UF ₄	550,000	FMB, Ore Storage
BMFF	1,400,000	FMB, BMFF Bldg.

TABLE 2 – MSDS PROVIDED TO LOCAL AGENCIES

Ammonia	Sulfur
Ammonium Sulfate	Sulfuric Acid
Antimony Pentafluoride	Sulfur Hexafluoride
Bed Material/Filter Fines	Uranium Hexafluoride
Calcium Hydroxide	Uranium Oxide
Calcium Nitrate	Uranium Tetrafluoride
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	

2.0 ENGINEERED PROVISIONS FOR ABNORMAL OPERATIONS

2.1. Criteria for Accommodation of Abnormal Operations

2.1.1. Process Systems

The UF₆ 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 UF₆ 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 UF₆ distillation process is designed to provide containment of UF₆ 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 UF₆ 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 UF₆ 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 UF₆ comply with the provisions of ANSI N14.1. The UF₆ 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 UF₆ 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 UF₆ before each disconnect from the cylinder or process piping.

Each product UF₆ cylinder is filled, liquid phase, in one of four (4) fill positions. The UF₆ continuous sampling system is normally used to obtain a UF₆ 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 UF₆ cylinder handling crane, the UF₆ cylinder handling fork truck, rupture discs, relief valves, critical vessels, UF₆ product cylinders, the UF₆ cylinder scales, UF₆ 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.

2.2.4. Quality Assurance

The primary responsibility for auditing the routine safe operation of process equipment is delegated to the employee performing the job and his immediate supervisor. Plant Reliability personnel provide additional effective controls for assuring continued safe operation of process equipment. The primary function of this group is to: perform failure analyses of process equipment; plan and schedule performance testing of process vessels, equipment, and instrumentation; and perform non-destructive testing of critical process equipment to detect any deterioration from normal safe operation.

In addition, the Quality Assurance Program has been developed to provide for verification of controls in the areas of design, procurement, operation, modification, and maintenance of the facility. The Quality Assurance Program provides that: selected activities are verified as being correctly performed; that QA functions are performed independently of the individual or group directly responsible for the performance of the activity; and that the QA organization has sufficient authority and organization freedom to identify quality-related problems. The QA Program also ensures solutions are recommended, implemented, and verified to be effective. Verification may be via audit, investigation, or surveillance or by other means necessary to verify compliance with approved plant policies, programs, or procedures.

The Quality Assurance Manager is responsible for performing investigations of significant events to determine the root cause and prevent recurrence. Documentation of Quality Assurance activities is forwarded to responsible plant management for information and further action as deemed necessary.

2.3. Accident Prevention and Mitigation – Multi-Chemical Hazards

The hazards associated with operation of the Metropolis Works have been thoroughly analyzed in the Metropolis Works Risk Management Plan. Risk assessments associated with the Metropolis Plant indicate that accidents involving releases of UF_6 constitute the most significant hazard to public health and safety resulting from plant operations. Therefore, the content of this Emergency Response Plan emphasizes hazards and controls associated with UF_6 . However, the nature of the processes used at the Metropolis plant requires that a number of hazardous chemicals be used and stored in significant quantities. Incidents that affect the safe containment of any one of these materials could affect the plant staff's ability to respond effectively to emergency conditions. The Metropolis Plant maintains a wide range of systems and maintains a wide range of administrative controls to reduce the likelihood of accidents involving the release of hazardous materials and the risks associated with multi-chemical release scenarios. These systems and controls are directed toward preventing releases of significant quantities of hazardous materials under normal operating conditions and mitigating the effects of such releases under emergency conditions. A brief summary of the hazardous chemicals and related systems and controls follows:

Anhydrous Hydrofluoric Acid:

- Dump tank and emergency scrubber for relief valves on HF storage
- HF Mitigation Spray Tower System with three control stations
- HF Mitigation Spray Ring for Vaporizers
- Automatic shut-offs on HF tank car unloading valves

- Nuclear level indicators of HF storage closes automatic valves
- Foundation improvements to improve earthquake resistance at HF storage
- Risk assessment by outside expert
- Use of improved training and checklists for HF storage
- Fence-line halide monitors and alarms
- Periodic inspection and/or replacement of unloading hoses
- Monthly audit of unloading operations by area foreman
- Pipeline color coding and marking

Ammonia:

- Excess flow valves on ammonia storage and tank cars
- Foundation improvements to improve earthquake resistance at HF storage
- Use of improved training and checklists for HF storage
- Periodic inspection and/or replacement of unloading hoses
- Monthly audit of unloading operations by area foreman
- Pipeline color coding and marking

IF₅/SbF₅ Area:

- Manually-operated remote shutdown station for IF5 process
- HF monitors and automatic shutdown for IF5 area
- Remotely-operated shut-off valve for SbF5 packaging
- New scrubber to reduce both fugitive and release emissions
- Use of improved training and checklists

Liquid Fluorine Storage:

- Mounting trailers on load cells to eliminate trailer movement
- Remote shut-off switches in the fluorine products area
- Use of improved training and checklists
- Barriers to prevent incidents involving vehicles

Gaseous Fluorine Plants:

- Scrubbers for HF vaporizer relief valves
- Cell maintenance booths scrubber to reduce fugitive emissions
- High pressure alarms on HF vaporizers
- Level control on fluorine cells
- Use of improved training and checklists

LPG:

- Excess flow valves
- Deluge system
- Safety flares
- Use of improved training and checklists
- Relief valves
- On-site quantity control system

UF₆:

- Smoke detectors and cameras in distillation areas
- Automatic shut-of valves at cylinder fill spots, remotely-operated from Control Room
- Lower fill limits for still feed tanks
- Cylinder buggies to reduce handling of hot UF₆ cylinders
- Dump and surge tanks for containment of pressure relief
- Automatic sampling system
- Standby power system for critical equipment
- General mechanical integrity program
- Standard operating procedures to minimize emissions
- Use of improved training and checklists

In addition to these systems and administrative controls associated with hazardous materials, the Metropolis plant has initiated significant upgrades to the Plant Security Program to address emergent threats. These upgrades provide enhanced protection against incidents involving unauthorized intrusion or sabotage. Current efforts include the following:

- Vehicle speed control at the plant entrance
- Outer checkpoint
- Vehicle searches prior to plant entry (may be suspended for authorized emergency vehicles)
- Personal search and ID check prior to entry
- Random plant patrols
- Background check for all badged personnel

The details of the program are documented in the Site Security Plan.

2.4. Equipment Maintenance

All process equipment and instrumentation installed on the plant site is entered into a computerized maintenance management system. Preventive maintenance is performed on equipment that meets any one of the following criteria:

- All fired and unfired pressure vessels as required by the State of Illinois Office of the Fire Marshal, Division of Boiler and Pressure Vessel Safety;
- All process atmospheric storage tanks;
- Equipment identified by regulatory agencies as critical to the safe operation of the processes;
- Equipment identified by reliability assessment or operational experience as critical to the economic operation of the processes.

Equipment preventive maintenance (PM), inspection, and testing frequencies are maintained by the maintenance management system. Procedures for PMs and inspections are also stored, scheduled, and maintained by the system. Maintenance Planning and Reliability personnel are responsible for reviewing and maintaining the PM data used by the system.

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 $\text{UO}_2\text{F}_2/\text{m}^3$ 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 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 EIPs.

Typical Response Actions – for a “Plant Emergency” involving the release of UF₆:

- Initiate EIPs 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 UF₆, 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 EIPs 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
- 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 UF₆, 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)
- 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 UF₆ 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 UF₆. 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 $\times 0.336 = \text{HF concentration}$).

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/m³ 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/m³. This level is considered dangerous. Above 26 mg/m³, HF would cause irritation and possible health effects; however, sheltering inside a dwelling would reduce the concentration to about 13 mg/m³ and result in an intake of 4.6 mg. This intake of HF would not be 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 value (TLV) of 2.5 mg/m³.

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 emergency services (911) and the 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 Crisis Manager is responsible for directing the sounding of two near-site sirens, which provide a shelter in place warning for local residents. The sirens are located on licensee-owned property across from the site along Route 45.

The sirens are augmented by broadcast radio announcements and 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 updated on a quarterly basis.

Table 3.1, Metropolis Plant Emergency Action Levels

Emergency Classification	Event Description	Examples
<div>Site Area Emergency</div>	<p>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</p> <p>OR</p>	<p>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.</p>
	<p>Significant offsite release of other radioactive or hazardous materials that may require offsite response</p> <p>OR</p>	<p>A significant, unplanned offsite release of radioactive or hazardous process chemicals, such as HF, Ammonia, Fluorine, IF5, SbF5, etc., that may affect individuals offsite</p>
	<p>Natural disasters or civil disturbances that threaten the operation of safety systems.</p> <p>OR</p>	<p>Tornado sighted approaching or within the fence</p> <p>Flood waters rising within process buildings</p> <p>High winds, lightning strike, or earthquake causing major damage to process buildings</p> <p>Intrusion by hostile forces within the fence.</p>
	<p>Other events that result in major damage to safety systems</p> <p>OR</p>	<p>Explosion or uncontrolled fire damaging safety-related systems.</p>
	<p>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.</p>	

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	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	A significant, unplanned release or spill of hazardous process chemicals, such as HF, IF5, SbF5, Ammonia, Fluorine, etc., that is not expected to affect individuals offsite
	Natural 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 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 OR	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.	

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 OR	A hazardous material release (e.g., UF ₆ , IF ₅ , SbF ₅ , Ammonia, Fluorine, etc.) that cannot be controlled almost immediately. This may involve a visible cloud outside the FMB. For a UF ₆ 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.	

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 UF₆ 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

Following an event that results in declaration of an emergency, the Emergency Response Organization focuses on a combination of activities necessary to restore the plant to a safe condition and to protect both the plant staff and the public. Experience indicates the entire plant can be shut down immediately, such as during a major power outage, with no release of hazardous materials. The entire plant will be shut down during a "Site Area Emergency." The decision to shut down processes or the entire plant during other emergency events is the responsibility of the Lead Foreperson during off-shifts and weekends and the Crisis Manager during day shift. This decision will be based on the best information available at that time. This individual has the necessary information and authority to determine which processes must be shut down to restore safe conditions.

Procedures provided in the plant's Standard Operating Procedure Manuals, including Abnormal Operating Procedures (AOPs) for specific units, provide instructions for emergency shutdowns, isolating services to plant structures, and actions upon loss of the primary electrical power supply. These procedures are developed and revised in accordance with the MTW Management of Change Process. All actions necessary for systematic securing of all operating units and activation of standby power normally require approximately three (3) hours. Since the flow of all raw materials can be stopped immediately without adverse effects on plant or public safety, the major emphasis during an emergency shutdown is the provision of steam to vessels and lines containing UF₆. This prevents UF₆ blockage of lines and minimizes the potential of a UF₆ release when the production process resumes operations.

Some of the mitigating actions required by this plan are identified in Section 3.0 and in Emergency Plan Implementing Procedures. A summary of installed accident mitigation systems is provided in Section 2 of the RCP. The combination of the operating instructions provided in the Standard Operating Procedure Manuals, the mitigating actions as described in the ERP/RCP and detailed in the EIPs, and other actions undertaken by the Emergency Response Organization, are sufficient to ensure restoration of safe conditions.

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

- Major Chemical Spill or UF₆ 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 UF₆ 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.

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. EIPs 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.

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, 40 CFR 264 and 355, 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.

The ERP/RCP and EPIPs are developed, reviewed, and approved in accordance with Plant Policy PT-1, Process Modification Procedure, as described in the MTW NRC License. This policy ensures that appropriate directions are provided and the ERP/RCP and EPIPs are reviewed and approved by responsible managers and distributed as necessary to provide access during emergency conditions. The Management of Change Process also ensures that training is provided as needed prior to implementation of new or revised procedures.

All EPIPs are reviewed and approved by the Health Physics Supervisor and 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 the scenarios for evaluated drills and exercises will be on a need-to-know basis 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 Program is audited on an annual basis to ensure the program is being adequately maintained. The scope of the audits includes the plan and EIPs, 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 EIPs specify locations where dedicated emergency equipment is stored and ready for immediate use under emergency conditions that may arise. The EIPs 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 in accordance schedules established in the EIPs. 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:

	Inspection	
--	-------------------	--

Supplies	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
Onsite Sirens (Disaster and FMB Evacuation Sirens)	Monthly	Production Department
Community Alert System	Monthly	Production Department
Offsite Sirens	Monthly	Mgr., Environmental/Regulatory Affairs
Control Room and South Stairwell Emergency Blowers	Monthly	Production Department
FM Building Red Lights	Monthly	Production Department

In addition to monthly operability tests, the Offsite Emergency Siren System will be subject to an annual routine maintenance by the manufacturer's or distributor's authorized representative. All required repair activities also will be conducted by the manufacturer's or distributor's authorized representative.

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 responsible for ensuring compliance with the reporting requirements of the Emergency Planning and Community Right to Know Act. These requirements include:

- Provision of required MSDS (or a list of required MSDS) to the State Emergency Response Commission (SERC), Local Emergency Planning Commission (LEPC), and affected fire department(s); and
- Provision of an annual chemical inventory report to the SERC, LEPC, and affected fire department(s) in accordance with 40 CFR 370.

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.

Emergency Classification and Notifications

1. Purpose and Scope

This procedure provides the Incident Commander and Crisis Manager a systematic process for properly classifying emergency conditions and making the required onsite and offsite notifications. This procedure also addresses requirements for making Protective Action Recommendations (PARs) and upgrading, downgrading, and terminating the emergency declaration.

2. Discussion

The Metropolis Works Emergency Response Plan establishes requirements for declaring and classifying emergencies, completing required onsite and offsite communications, and terminating the emergency situation in a manner that protects both employee and public health and safety. Three levels of emergency exist, in ascending order of severity, as follows:

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

Alert – 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.

NOTE: An Alert or Plant Emergency may require offsite support for onsite protective actions, such as fire-fighting or medical support.

Site Area Emergency – 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.

The Incident Commander bears responsibility for properly classifying emergencies. Although other members of the Emergency Response Organization may advise the Incident Commander, the responsibility to determine the emergency classification cannot be delegated.

The Crisis Manager bears responsibility for determining Protective Action Recommendations (PARs) and ensuring completion of notifications to offsite authorities (e.g., Massac County Emergency Services, Illinois Emergency Management Agency (IEMA), NRC Operations Center (NRCOC), and National Response Center). This responsibility can be delegated to an individual who is knowledgeable of the event, the Emergency Response Plan, and plant operations and hazards. However, the responsibility for determining the Protective Action Recommendations provided to offsite emergency response authorities cannot be delegated.

Certain conditions that result in releases of hazardous wastes may result in activation of the RCRA (Resource Conservation and Recovery Act) Contingency Plan rather than, or in addition to, the Emergency Response Plan.

3. Precautions and Limitations

- 3.1. This procedure must be used simultaneously with other facility documents and procedures, such as the Metropolis Works Emergency Response Plan and Emergency Plan Implementing Procedures, to ensure effective classification and control of emergency conditions.
- 3.2. At the initiation of emergency response activities, the Lead Foreperson assumes both Incident Commander and Crisis Manager responsibilities. When the Crisis Manager position is staffed, the Incident Commander relinquishes the Crisis Manager responsibilities. However, it is imperative that the Incident Commander provide all information needed by the Crisis Manager, including the time of the initial emergency classification, any changes to that classification, and the status of offsite notifications, so the Crisis Manager can complete the required offsite notifications in a timely manner. Local emergency response officials must be notified within 15 minutes of an Alert or Site Area Emergency declaration.

4. Prerequisites

None

5. Procedure

The Incident Commander will perform the following, recording information, as required, on Attachment 2:

- 5.1. Following recognition or notification of a possible emergency condition, initiate all immediate actions needed to ensure the safety of plant employees and the public.
- 5.2. IF warranted by the nature of the emergency condition, THEN initiate employee evacuation and accountability procedures in accordance with EPIP-006.
- 5.3. Determine the proper emergency classification in accordance with Attachment 1 to this procedure.
- 5.4. IF the situation meets any of the emergency classification criteria provided in Attachment 1, THEN record the proper emergency classification on Attachment 2.

NOTE: The following steps may be completed by either the Incident Commander or Crisis Manager, or their designees. However, it is imperative that the Incident Commander and Crisis Manager communicate clearly regarding the turnover and status of their responsibilities.

- 5.5. Perform emergency notifications as follows, recording information on Attachment 2. IF at any time the emergency classification changes to either a more or less severe classification, THEN return to Step 5.3 and repeat any previously-completed notifications, providing updated information.

NOTE: When the Incident Commander and Crisis Manager positions are being filled by two persons, it is acceptable to maintain two separate Attachment 2 forms, one for recording emergency classification by the Incident Commander and one for recording completion of notifications by the Crisis Manager.

- 5.5.1. IF the emergency has been classified as an Alert or Site Area Emergency, THEN activate the plant disaster siren and inform plant personnel of the emergency condition by making three announcements on the plant paging system.
- 5.5.2. IF the emergency has been classified as a Site Area Emergency AND the Emergency Response Organization has NOT been activated, THEN direct the Control Room Operator to activate the Emergency Response Organization in accordance with EPIP-004.
- 5.5.3. IF the emergency has been classified as a Plant Emergency or an Alert AND activation of all or part of the Emergency Response Organization is necessary to provide an effective response, THEN direct the Control Room Operator to activate the desired portions of the Emergency Response Organization in accordance with EPIP-004.

NOTE: The initial notification to local Emergency Services (911) and the Illinois Emergency Management Agency (IEMA) of a Site Area Emergency must include Protective Action Recommendations and the affected area. The pre-planned Protective Action Recommendations are to shelter in place all members of the public within a 1.3 mile radius of the plant.

- 5.5.4. IF the emergency has been classified as an Alert or Site Area Emergency, THEN immediately (within 15 minutes of emergency classification) notify local Emergency Services (911), providing the information listed in Attachment 3.
- 5.5.5. IF Protective Action Recommendations are to be issued (required for Site Area Emergency), THEN perform the following:

- 5.5.5.1. Direct Security personnel at the Central Alarm Station to activate the offsite emergency sirens in accordance with Attachment 5 to this procedure or the pre-printed instructions provided.
- 5.5.5.2. Notify the designated radio stations and request that they broadcast Message Number 1, "Release."
- 5.5.5.3. Notify the Community Alert System and request that they broadcast Message Number 1, "Release."
- 5.5.5.4. IF at any time it is determined that the local community was alerted inappropriately, THEN contact the local radio stations and Community Alert System and request that they broadcast Message Number 2, "False Alarm."
- 5.5.6. IF the emergency has been classified as an Alert or Site Area Emergency, THEN notify the local ESDA Coordinator.
- 5.5.7. IF the emergency has been classified as an Alert or Site Area Emergency, THEN notify the Illinois Emergency Management Agency (within one hour of the emergency declaration), providing the information listed in Attachment 3.
- 5.5.8. IF the emergency has been classified as an Alert or Site Area Emergency, THEN immediately (within one hour of the emergency declaration) notify the USNRC Operations Center, providing the information listed in Attachment 3.
- 5.5.9. IF requested by the NRC, THEN assign an individual to maintain open communications with the NRCOC.

NOTE: It may be necessary to implement both the Emergency Response Plan and the RCRA Contingency Plan simultaneously.

- 5.6. IF the situation involves a possible uncontrolled spill or release of hazardous wastes, THEN refer to Attachment 4 to determine if the RCRA Contingency Plan must be implemented.
 - 5.6.1. IF the situation involves BOTH an area and a condition listed in Attachment 4, THEN implement the RCRA Contingency Plan.
 - 5.6.2. IF the situation does NOT involve BOTH an area and a condition listed in Attachment 4, THEN DO NOT implement the RCRA Contingency Plan.
- 5.7. Notify Honeywell Headquarters in accordance with Honeywell Event Reporting Procedures.

NOTE: When a Site Area Emergency is declared, the USNRC is likely to establish ongoing communications, via telephone, with the Crisis Manager. The

USNRC will solicit information regarding the status of the plant and offsite conditions and will provide input regarding the termination of the Protective Action Recommendations. The decision to terminate PARs may be based on recommendations from Health Physics, Safety, Environmental, and management personnel, based on results of environmental monitoring and/or professional judgment regarding the status of contaminants in the affected areas.

- 5.8. When conditions no longer require protective actions by members of the public, THEN record the termination of Protective Action Recommendations and notify the following, recording completion on Attachment 2:

- 5.8.1. Local Emergency Services (911).
- 5.8.2. Local radio broadcasters, requesting that they broadcast Message Number 4, "All Clear."
- 5.8.3. The Community Warning System, requesting that they broadcast Message Number 4, "All Clear."
- 5.8.4. Illinois Emergency Management Agency
- 5.8.5. NRC Operations Center

NOTE: The decision to terminate the emergency condition is based on the criteria provided in Attachment 1. This decision rests with the Incident Commander, with input from the Crisis Manager. The USNRC also may provide input regarding the termination of the emergency condition.

- 5.9. WHEN the conditions no longer meet the criteria for classification as an emergency, terminate the emergency condition, recording information on Attachment 2, as follows:
- 5.9.1. Inform plant personnel of the termination of emergency conditions and any required actions by making three announcements on the plant paging system.
 - 5.9.2. IF the emergency was classified as an Alert or Site Area Emergency, THEN notify local Emergency Services (911), providing the information listed in Attachment 3.
 - 5.9.3. IF the emergency was classified as an Alert or Site Area Emergency, THEN notify the Illinois Emergency Management Agency within one hour, providing the information listed in Attachment 3.
 - 5.9.4. IF the emergency was classified as an Alert or Site Area Emergency, THEN notify the NRCOC as soon as is practical and within one hour of the emergency condition termination, providing the information listed in Attachment 3.

5.9.5. Notify Honeywell Headquarters in accordance with Honeywell Event Reporting Procedures.

5.10. Conduct Recovery Operations in accordance with the requirements of the Emergency Response Plan and Radiological Contingency Plan.

6. Records and Reports

6.1. Following cessation of emergency operations, review, sign and date completed Attachment 2 forms.

6.2. Forward completed forms for retention in accordance with plant policies.

7. References

7.1. 10 CFR 40, Application for Specific Licenses

7.2. 40 CFR 264, Standards For Owners And Operators Of Hazardous Waste Treatment, Storage, And Disposal Facilities

7.3. 29 CFR 1910.120(q), Emergency Response To Hazardous Substance Releases

7.4. 40 CFR 355, Emergency Planning and Notification

7.5. NRC Regulatory Guide 3.67, Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities

7.6. NRC Information Notice 93-60, Reporting Fuel Cycle and Materials Events to the NRC Operations Center

7.7. NRC Information Notice 93-60, Supplement 1, Reporting Fuel Cycle and Materials Events to the NRC Operations Center

7.8. NRC Information Notice 98-08, Information Likely To Be Requested If An Emergency Is Declared

7.9. Metropolis Works Emergency Response Plan

7.10. Metropolis Works Radiological Contingency Plan

7.11. Metropolis Works RCRA Contingency Plan

7.12. Metropolis Works Risk Management Plan

Attachment 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	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	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	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.
	Other events that result in major damage to safety systems OR	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.	

Attachment 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	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).
	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, SbF5, Ammonia, Fluorine, etc., that is not expected to affect individuals offsite.
	Natural 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), lightning strike, 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.
	Other 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
	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.	

Attachment 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 OR	<p>A hazardous material release (e.g., UF₆, IF₅, SbF₅, 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.</p> <p>Minor fires that cannot be immediately extinguished (e.g., within approximately 15 minutes)</p> <p>Personnel injuries requiring offsite medical assistance</p> <p>Loss or primary electrical supply</p> <p>Hazardous weather (e.g., high winds, lightning, hail, ice, or snow), that inhibits safe plant operation)</p> <p>Minor releases of toxic gases that cannot be stopped almost immediately (e.g., within approximately 15 minutes)</p>
	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.	

Attachment 2 - Emergency Classification and Notification Checklist**NOTE: Refer to procedure text for complete instructions and conditions.**

Proc. Step #	Activity	Date	Time	Initial
Refer to procedure text for complete instructions and conditions. Mark any steps not required by applicable steps of the procedure as "NA."				
Emergency Plan Initiation				
5.2	Sound disaster alarm, initiate evacuation and accountability			
5.3-5.4	Make initial emergency classification: (check one)			
	<input type="checkbox"/> Plant Emergency <input type="checkbox"/> Alert <input type="checkbox"/> Site Area Emergency			
5.5.1	Sound disaster alarm (Alert or Site Area Emergency) and announce emergency classification via paging system (primary) or radio (backup)			
For Alert Classification, perform the following, then proceed to Step 5.6:				
5.5.3	Initiate partial or full Emergency Response Organization activation, if needed			
5.5.4	Notify local Emergency Services via 911 (preferred) or dedicated line or offsite radio (within 15 minutes). Provide information on Attachment 3, as available.	1 st		
		2 nd		
		3 rd		
		4 th		
5.5.6	Notify the Local ESDA Coordinator at 618-524-2002 (W) or 618-524-2918 (H). Provide information on Attachment 3, as available.			
5.5.7	Notify the Illinois Emergency Management Agency via telephone at 217-782-7860 (within 1 hour). Provide information on Attachment 3, as available.	1 st		
		2 nd		
		3 rd		
		4 th		
5.5.8	Notify NRC Operations Center via telephone at 301-816-5100 (within 1 hour). Provide information on Attachment 3, as available.	1 st		
		2 nd		
		3 rd		
		4 th		
For Site Area Emergency Classification, perform the following, then proceed to Step 5.6:				
5.5.2	Initiate Emergency Response Organization activation			
5.5.4	Notify local Emergency Services via 911 (preferred) or dedicated line or offsite radio (within 15 minutes). Provide information on Attachment 3, as available.	1 st		
		2 nd		
		3 rd		
		4 th		

Implementing Procedure

Metropolis Works

EPIP - 002

Rev. 6/14/04

Proc. Step #	Activity	Date	Time	Initial
5.5.5.1	Notify Security personnel at Central Alarm Station to activate the offsite emergency sirens.			
5.5.5.2	Request that local radio stations play Message #1, "Release": WKYQ at 270-444-6397 (24 hours), WMOK at 618-524-9209 (0800-1500 weekdays only) and WDDD at 618-997-8121.			
5.5.5.3	Activate the Community Alert telephone alert system to broadcast Message #1, "Release."			
5.5.6	Notify the Local ESDA Coordinator at 618-524-2002 (W) or 618-524-2918 (H). Provide information on Attachment 3, as available.			
5.5.7	Notify the Illinois Emergency Management Agency via telephone at 217-782-7860 (within 1 hour). Provide information on Attachment 3, as available.	1 st		
		2 nd		
		3 rd		
		4 th		
5.5.8	Notify NRC Operations Center via telephone at 301-816-5100 (within 1 hour). Provide information on Attachment 3, as available.	1 st		
		2 nd		
		3 rd		
		4 th		
Follow-up activities				
5.6	RCRA Contingency Plan activated, if needed			
5.7	Notify Honeywell Headquarters in accordance with Honeywell Event Reporting Procedures.			
Emergency Classification Escalation/De-escalation (record notifications above)				
5.5	Follow-up emergency classification: (check one)			
	<input type="checkbox"/> Plant Emergency <input type="checkbox"/> Alert <input type="checkbox"/> Site Area Emergency			
5.5	Follow-up emergency classification: (check one)			
	<input type="checkbox"/> Plant Emergency <input type="checkbox"/> Alert <input type="checkbox"/> Site Area Emergency			
5.5	Follow-up emergency classification: (check one)			
	<input type="checkbox"/> Plant Emergency <input type="checkbox"/> Alert <input type="checkbox"/> Site Area Emergency			
Protective Action Recommendation Termination				
5.8	Time Protective Action Recommendations terminated.			
5.8.1	Notify local Emergency Services via dedicated line (preferred) or 911 or offsite radio			

Proc. Step #	Activity	Date	Time	Initial
5.8.2	Request that local radio stations play Message #4, "All Clear": WKYQ at 270-444-6397 (24 hours), WMOK at 618-524-9209 (0800-1500 weekdays only) and WDDD at 618-997-8121			
5.8.3	Activate the Community Alert telephone system to broadcast Message #4, "All Clear."			
5.8.4	Notify the Illinois Emergency Management Agency via telephone at 217-782-7860			
5.8.5	Notify NRC Operations Center via telephone at 301-816-5100			
Emergency Plan Deactivation				
5.9	Time emergency condition terminated.			
5.9.1	Notify plant employees via plant paging system (preferred) or radios			
5.9.2	Notify local Emergency Services via dedicated line (preferred) or dialing 911 or offsite radio (15 minutes)			
5.9.3	Notify the Illinois Emergency Management Agency via telephone at 217-782-7860 (1 hour)			
5.9.4	Notify NRC Operations Center via telephone at 301-816-5100 (1 hour)			
5.9.5	Notify Honeywell Headquarters in accordance with Honeywell Event Reporting Procedures.			

Mark any steps that are not required as "NA"

Signatures:

	Date	Time	Initial
Incident Commander:			
Crisis Manager:			

Attachment 3 – Guidelines for Content of Emergency Notifications

The following information must be provided when making emergency notifications to offsite emergency response authorities and when making notification of termination of emergency conditions:

- Facility identification
- Name of person reporting
- Classification of emergency
- Description of event and facility conditions
- For any emergency involving offsite releases of hazardous chemicals, include the following:
 - The identity of the chemical released
 - An indication of whether the chemical is an extremely hazardous substance (HF, ammonia, fluorine, LPG, UF₆, IF₅, or SbF₅)
 - An estimate of the quantity released to the environment
 - The time and duration of the release
 - The medium or media into which the release occurred
 - Known or anticipated acute or chronic health risks associated with the emergency and advice regarding medical attention to exposed individuals (refer to MSDS)
 - Proper precautions to take
 - The name and telephone number of persons to contact for further information (dedicated line or Crisis Manager number)
 - Status and magnitude of any radioactive or hazardous material releases
- Status and nature of any injuries
- Recommended protective actions for members of the public, including affected area (**Protective Action Recommendations are required for the initial notification of a Site Area Emergency**)
- Any offsite support requested

In addition to the required information, the Incident Commander/Crisis Manager must be prepared to answer questions posed by offsite authorities, particularly from the NRCOC. Typical questions include the following:

- Type of facility and operation involved
- Chemical or physical process involved
- Chemical and physical form of material involved
- Point in process where event occurred
- Safety significance of event
- Current and possible future releases
- Likely health effects/consequences to exposed personnel both on and off site
- Safety systems and safeguards affected

- Corrective actions being taken
- Status of state and local authorities' actions
- Status of public/media information

Example Emergency Declaration or Upgrade/Downgrade Message:

This is **Name** at the Honeywell Metropolis Works in Metropolis, Illinois. We have declared a(n) **Emergency Classification at Time** due to **Describe Problem**. Current conditions are **Describe Conditions, Including Any Injuries, Hazardous Material Releases, and Wind Speed And Direction**.

IF offsite assistance is required, THEN deliver the following:

We are requesting offsite support for **Describe Support, Such As Ambulance, Firefighting, or Law Enforcement**.

IF Protective Action Recommendations are to be instituted (required for Site Area Emergency), THEN also deliver the following:

Protective Action Recommendations are **Shelter in Place Throughout A 1.3 Mile Radius Surrounding The Plant**. The public is being notified via offsite sirens, broadcast radio messages, and the offsite telephone notification system.

Example Protective Action Recommendation Termination Message:

This is **Name** at the Honeywell Metropolis Works in Metropolis, Illinois. We have terminated the previously-declared **Protective Action Recommendations at Time** based on our evaluation of offsite conditions. **Describe The Nature And Results Of The Evaluation**. Current conditions are **Describe Conditions, Including Any Injuries And Hazardous Material Releases**. This decision has been made following discussions with affected State and local officials and the USNRC. The public is being notified via broadcast radio messages and the offsite telephone notification system.

Example Emergency Termination Message:

This is **Name** at the Honeywell Metropolis Works in Metropolis, Illinois. We have terminated the previously-declared **Emergency Classification at Time**. Current conditions are **Describe Conditions, Including Any Injuries And Hazardous Material Releases**.

IF Protective Action Recommendations are being terminated concurrently with the termination of the emergency condition, THEN refer to the Protective Action Recommendation termination message above.

Attachment 4 – Conditions Requiring Activation of the RCRA Contingency Plan**1. Areas Affected**

The potential areas where hazardous waste release can occur are:

- EPF Area – Waste storage tanks U-801, U-804, U-807 and U-915.
- F₂ Plant, UF₆ Area, Roadways, F₂ Products, SF₆.
- Laboratory Waste Storage.
- Wastewater Treatment Plant.
- Ponds B, C, D or E.

2. Initiating Conditions

The RCRA Contingency Plan will be implemented in the following situations:

1. Fire and/or Explosion Involving Hazardous Waste.
 - a. A fire which could cause the release of toxic fumes from hazardous waste.
 - b. The fire spreads and could possibly ignite hazardous waste at other locations on site or could cause heat-induced reactions.
 - c. Use of water or water and chemical fire suppressant could result in hazardous waste contaminated runoff.
 - d. An explosion involving hazardous waste has occurred or has a potential to occur.
 - e. An imminent danger exists that an explosion could ignite other hazardous waste at the facility.
 - f. An imminent danger exists that an explosion could result in release of toxic material from hazardous waste.
2. Spills or Material Release Involving Hazardous Waste.
 - a. The spill could result in release of flammable liquids or vapors, thus causing a fire or gas explosion hazard.
 - b. The spill could cause the dangerous release of toxic liquids or fumes.
 - c. The spill can be contained on site, but the potential exists for groundwater contamination.
 - d. The spill cannot be contained on site, resulting in off-site soil contamination and/or ground or surface water pollution.

Attachment 5 – Offsite Emergency Siren Activation

As directed by the Incident Commander or Crisis Manager, perform the following:

1. Request a telephone number at which the individual ordering system activation can be reached.
2. Repeat back the directive to the individual ordering system activation.
3. Click on the Emergency System screen to activate.
4. Click on "CHEMICAL RELEASE."
5. When the "About to Sound" message appears, click "OK."
6. Listen for siren activation.
7. Call back to individual who ordered system activation and report system status (i.e., either activated or not functioning).
8. Record siren activation and ensuing emergency events and actions in logbook.

Maintaining Emergency Preparedness**1. Purpose and Scope**

This procedure provides instructions for undertaking those activities that are required to maintain an adequate level of emergency preparedness at the Metropolis Plant. Affected activities include:

- Development and distribution of plans and procedures
- Coordination with offsite authorities;
- Training for plant employees;
- Training and orientation for offsite emergency response personnel;
- Audits;
- Drills and exercises; and
- Maintenance of emergency equipment and supplies.

2. Discussion

The Metropolis Works Emergency Response Plan incorporates emergency preparedness and response requirements established in the Metropolis Plant NRC License and various regulations, including 10 CFR 40.31(j), 29 CFR 1910.120(q), and 40 CFR 264 and 355. Additional detailed guidance is provided in NRC Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities." Consistent with these requirements and guidance, certain measures are necessary to ensure that an adequate level of emergency preparedness is maintained. These measures include:

- Preparation and implementation of emergency plans, procedures, and support relationships with offsite response organizations;
- Training for employees, including those who prepare and maintain the plans and procedures
- Training and orientation for offsite response organizations;
- Inventory, maintenance and operational testing of emergency supplies and equipment, including communications equipment that may be used under emergency conditions;
- Planning, conduct and assessment of drills and exercises; and
- Program audits.

The Manager, Regulatory Affairs bears overall responsibility for developing effective plans and procedures for responding to emergency conditions at the Metropolis plant.

3. Precautions and Limitations

None.

4. Prerequisites

Specific training and qualification requirements established in the Emergency Response Plan and Section 5 of this procedure apply to individuals performing audits of the Emergency Response Program and to those developing and implementing the Emergency Response Plan and procedures. Ensure these training and qualification requirements are satisfied prior to undertaking these activities.

5. Procedure

5.1. Written Plans and Procedures

5.1.1. The Health Physics Supervisor will coordinate efforts to develop and maintain the Emergency Response Plan and Emergency Plan Implementing Procedures (EPIPs) to ensure they contain all material necessary to ensure effective emergency response actions, including:

- Material required by applicable regulations, such as 10 CFR 40.31, 29 CFR 1910.120(q), 40 CFR 264 and 355, and the facility license;
- Appropriate material suggested by USNRC Regulatory Guide 3.67 and any other identified regulatory guidance and industry consensus documents;
- Material identified as a result of previous audits and critiques of drills, exercises, and emergency response activities; and
- Any additional material necessary to ensure employees can effectively respond to emergency conditions and restore the plant to normal operating status.

5.1.2. The Health Physics Supervisor will review the Emergency Response Plan and EPIPs as follows:

- At least once each year;
- Whenever warranted by other conditions, such as changes in plant processes, local population distribution, or offsite support capabilities; and
- As needed based on the results of audits and critiques of drills, exercises, and emergencies.

5.1.3. The Health Physics Supervisor will initiate plan and procedure changes as necessary to ensure to their ongoing effectiveness.

5.1.4. The Manager, Regulatory Affairs will review and approve all EPIPs and revisions to the EPIPs and the Plan.

5.1.5. New or revised Plans and EPIPs shall be reviewed and approved in accordance with the MTW Management of Change process.

5.1.6. The Health Physics Supervisor assures proper distribution and maintenance of current Plans and EPIPs. This will include:

- Maintenance of a distribution list showing all current holders or locations of controlled copies of the Plan and EIPs.
- Documented distribution of new and revised Plans and EIPs to all controlled copy holders or locations.
- Documentation, by signature or initial and date, of receipt of new and revised Plans by all off site controlled copy holders. For copies of the Plan or EIPs assigned to a specific on-site location rather than an individual, the Health Physics Supervisor will assign the appropriate owner of the controlled copy to be responsible for maintaining these copies.
- Documented audit of selected on-site controlled copies of the Plan and EIPs after a revision to ensure they are being maintained in accordance with these requirements.

5.1.7. The Health Physics Supervisor will oversee maintenance of a current Emergency Response Telephone Directory for all emergency response officers and offsite support organizations. The Safety Supervisor will oversee maintenance of a current list of emergency radio holders.

5.1.7.1. Copies of the Emergency Response Telephone Directory and Emergency Radio Listing will be maintained with each on-site controlled copy of the EIPs and at the designated Control Points.

5.1.7.2. The Emergency Response Telephone Directory and Emergency Radio Listing shall be verified and updated as needed at least once each calendar quarter.

5.1.8. The Plant Manager will review and approve all revisions to the Plan.

5.2. Coordination with Offsite Response Organizations

5.2.1. Following the Plant Manager's review and approval, the Plan will be transmitted to the local Emergency Services and Disaster Agency (ESDA) Coordinator and Illinois Emergency Management Agency (IEMA).

5.2.2. Comments received from the local ESDA Coordinator and IEMA within the assigned comment period will be sent with the Plan to the NRC.

5.2.3. The Manager, Regulatory Affairs is responsible for:

- Ensuring that any revisions to the plan are distributed to offsite emergency response organizations identified as plan-holders.
- Ensuring that pre-planned PARs are discussed at least once each year with affected offsite response organizations.

- Ensuring that letters of agreement with offsite emergency response organizations are developed, reviewed at least once each year, revised as necessary, and renewed at least once every four years.
- Coordinating with the local Community Action Committee for those portions of the ERP related to classification of emergencies involving non-radioactive hazardous materials.
- Ensuring compliance with the reporting requirements of the Emergency Planning and Community Right to Know Act. These requirements include:
 - Provision of required MSDS (or a list of required MSDS) to the State Emergency Response Commission (SERC), Local Emergency Planning Commission (LEPC), and affected fire department(s); and
 - Provision of an annual chemical inventory report to the SERC, LEPC, and affected fire department(s) in accordance with 40 CFR 370.

5.3. Training

5.3.1. Training for personnel who do not hold Emergency Response Organization (ERO) responsibilities may be limited to actions necessary to recognize alarms and warnings, obey commands and announcements, and report to assigned areas for accountability and further instructions.

5.3.2. Emergency Response Organization Initial Training

- 5.3.2.1. Emergency Response Training will be provided to all individuals prior to assignment to a position in the ERO and annually thereafter.
- 5.3.2.2. Training may be presented by any means determined to be appropriate and effective, depending on the subject and audience.
- 5.3.2.3. Acceptable training methods include required reading, computer-based training, classroom training, and practical exercises. Participation in offsite industry meetings and drills and exercises may fulfill some training needs.
- 5.3.2.4. To the extent appropriate, as dictated by the complexity of the material presented, mastery of the subject matter may be demonstrated by classroom interaction, written examinations, and/or practical demonstrations.
- 5.3.2.5. For training courses requiring a practical demonstration or written examination, successful completion of the course will be demonstrated by achieving a score of not less than 80% on the written examination or practical demonstration. Failure to achieve a passing score requires remediation in accordance with Plant Policies procedures or elimination from ERO responsibilities.
- 5.3.2.6. Training for onsite personnel holding ERO positions will include the following topics, to the degree 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.

5.3.2.7. 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 refresher training of 24-hours.

5.3.2.8. The initial 24-hours of training includes the following requirements of 29 CFR 1910.120(q)(6)(iii):

- 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; and
- Understand how to operate air monitoring equipment.

5.3.2.9. Each team, with the Team Leader, will be trained in fire safety, spill control, personnel rescue, and emergency control procedures to ensure safe and efficient team operation.

5.3.2.10. Training on response to hazardous material releases will be provided for personnel plant-wide through "B" Council Safety Meetings or other venues, as appropriate, to ensure the effectiveness of the program.

5.3.2.11. The Health Physics Staff will provide appropriate training for radiological monitoring.

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5.3.2.12. Training on the use of respiratory protection equipment is conducted in accordance with the plant's Respiratory Protection Program.

5.3.2.13. Medical, Occupational Health, and Environmental support and training will be provided by the Corporate Staff as needed.

5.3.3. Refresher Training/Retraining

5.3.3.1. Refresher training will be provided annually and will emphasize those items listed above in addition to the following material:

- Be able to function within an assigned role in the on-site emergency response organizational structure;
- Know how to implement the MTW 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 Cardiopulmonary Resuscitation (CPR); and
- A review of critique information from recent drills, exercises, and emergency plan events.

5.3.3.2. First Aid personnel will be trained annually in Cardiopulmonary Resuscitation (CPR) and applicable First Aid certification.

5.3.3.3. Periodic first aid training will be provided through the Plant Occupational Nurse.

5.3.3.4. Retraining will be provided as necessary to address changes to the Plan, EIPs, and plant processes affecting emergency response.

5.3.4. Training for Personnel Who Maintain the Plan

5.3.4.1. Training for personnel who prepare and maintain the Emergency Response Plan and EIPs will include the following topics:

- Regulatory and license requirements and guidance applicable to the Plan and EIPs;
- Any management commitments related to the Plan and EIPs;
- Results of recent plan and procedure audits and drill and exercise critiques related to plan and EPIP content and effectiveness; and
- Industry events related to emergency preparedness and Plan and procedure content and execution.

5.3.5. Training and Orientation for Offsite Response Emergency Personnel

- 5.3.5.1. The plant will offer 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. The training and orientation may be presented using any appropriate method, including 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.
- 5.3.5.2. The content of the training and orientation provided to offsite emergency response personnel will be sufficient to allow them to effectively discharge their responsibilities during an emergency at the site.
- 5.3.5.3. To the extent appropriate, the training and orientation will address issues such as site layout and processes, site hazards, personnel monitoring requirements, and exposure and contamination control.

5.4. Drills and Exercises

- 5.4.1. Drills and exercises will be conducted on a periodic basis to test the adequacy, functionality, and effectiveness of the plan and procedures, the ERO, the equipment and supplies, and the communications systems and protocols.
- 5.4.2. Each drill or exercise will use a preplanned scenario that is based on actual facility hazards and will demonstrate one or more objectives as listed in Attachment 1 of this procedure. Drills and exercise scenarios will be developed to test:
 - The plant's integrated capability to respond to a radiological accident;
 - The content of selected emergency procedures and methods;
 - Emergency equipment;
 - Communications networks; and
 - The familiarity of emergency response personnel with their assigned duties.
- 5.4.3. Drills and exercises will be planned and conducted such that each of the objectives listed in Attachment 1 of this procedure is demonstrated at the required frequency.
- 5.4.4. Measures will be implemented to make drill and exercise scenarios as realistic as is practical. Sufficient information will be provided to allow the responders to evaluate plant conditions and to take appropriate corrective actions, consistent with the objectives to be tested.

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- 5.4.5. 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.
- 5.4.6. 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 documents, or other references.
- 5.4.7. The scenarios for evaluated drills and exercises will not be disclosed to most of the participants prior to the event.
- 5.4.8. The objectives and scenario for the annual Site Area Emergency exercise will be submitted for NRC review at least sixty (60) days before the exercise.
- 5.4.9. Prior to the drill or exercise, the observers will be informed of the scenario and the acceptable response to each event. Criteria for acceptable performance may be provided in plant procedures, performance checklists, industry guides, or other appropriate formats.
- 5.4.10. Drills and exercises will be controlled and evaluated as follows:
 - 5.4.10.1. Drills and exercises will be controlled and evaluated by one or more observers at each location where emergency response actions are expected to occur.
 - a. An adequate number of controllers and observers will be assigned to ensure that drill and exercise activities can be effectively controlled and evaluated, consistent with the preplanned scenario and objectives.
 - b. Controllers and evaluators will be provided with sufficient communications methods and equipment to ensure proper control and evaluation of emergency response activities.
 - 5.4.10.2. At least one independent outside observer who is familiar with the Plans and procedures will critique each annual drill.
 - 5.4.10.3. Non-participating observers from the community and off-site response organizations will be invited to observe and evaluate the Site Area Emergency drill.
 - 5.4.10.4. All observers will be informed of the objectives and scenario prior to the drill. The observers will critique the effectiveness of the drill by comparing the scenario and objectives to the actual drill proceedings.
 - 5.4.10.5. The critiques from the various observers will be combined to form a composite analysis of the effectiveness of the exercise.
 - 5.4.10.6. Corrective action for each deficiency will be identified within one month following the exercise. The appropriate department manager will ensure the identified deficiencies are corrected in a timely manner.

5.4.10.7. Records of drill critiques and actual emergency response debriefs may be maintained on Attachment 9 or similar forms.

5.5. Emergency Plan Audit Program

5.5.1. The plant Quality Assurance Program will incorporate provisions to ensure that the plan is audited on an annual basis to ensure the program is being adequately maintained.

5.5.2. The scope of QA audits will include:

- The Emergency Response Plan and EIPs;
- The training program;
- Emergency response facilities, equipment, and supplies; and
- Records associated with the plant's interface with offsite emergency response organizations.

5.5.3. The audits will be performed by one or more individuals who:

- Are familiar with the plant hazards and processes;
- Are familiar with industry emergency preparedness requirements and guidance; and
- Do not bear direct responsibility for developing or implementing the Emergency Response Program.

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

5.5.5. Subsequent audits will verify the ongoing effectiveness of previous corrective actions.

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

NOTE: In addition to the equipment listed in Attachments 2 – 7, the plant maintains an inventory of radiological monitoring instruments. These instruments are inventoried and operationally tested in accordance with Health Physics Department procedures.

5.6.1. Dedicated emergency equipment and supplies are provided in specified locations as listed in Attachments 2 - 7 of this procedure.

5.6.2. Dedicated emergency equipment and supplies will be inventoried, operationally tested, and calibrated on a periodic basis as established in Attachments 2 - 7.

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- 5.6.3. The Manager, Regulatory Affairs will direct the Security Force to test the Offsite Emergency Siren System once per month in accordance with Attachment 10 of this procedure. The Offsite Emergency Siren System will be tested at approximately 10:00 a.m. on the first Tuesday of every month.
- 5.6.4. The Offsite Emergency Siren System will be maintained and repaired only by an authorized representative of the manufacturer or distributor. Routine maintenance will be performed at least once per year per manufacturer's recommendations.
- 5.6.5. Post-maintenance testing of the Offsite Emergency Siren System will be performed as authorized by the Manager, Regulatory Affairs, following any maintenance that may affect system operability.
- 5.6.6. Except for repairs to the Offsite Emergency Siren System, the individual performing the inventory and operability tests (where applicable) will, to the extent practical, correct any deficiencies noted. IF any deficiencies cannot be immediately corrected, THEN report the deficiencies to the responsible supervisor or manager.
- 5.6.7. When deficiencies cannot be corrected promptly, the appropriate manager will be notified and repair or purchase of replacement equipment will be expedited.
- 5.6.8. IF any inadvertent activation of a public warning system (e.g., Offsite Emergency Siren System, Radio Station Warnings, Community Alert Telephone Warning System) should occur, THEN notify:
 - 5.6.8.1. The local radio stations and Community Alert System and request that they broadcast Message Number 2, "False Alarm."
 - 5.6.8.2. Local emergency services (911).
 - 5.6.8.3. The Manager, Regulatory Affairs.
 - 5.6.8.4. The local ESDA Director.

6. Records and Reports

- 6.1. Records of Emergency Response Plan and EPIP development and revisions will be maintained for at least three years with plant Health Physics records.
- 6.2. Records of ERO training and qualification activities, including activities related to off-site response organizations, will be maintained in accordance with Training Organization procedures. This will include objectives, lesson plans, handouts, and completion records.
- 6.3. Records of emergency drills and exercises, including scenarios, critique findings, and corrective actions, will be maintained for at least three years with Health Physics Department records.

- 6.4. Records of critiques of emergency response activities, including cause analyses, timelines, action items, and completion records, will be maintained for at least three years with Health Physics records.
 - 6.5. Records of emergency preparedness program audits, including checklists, findings, and corrective actions, will be maintained in accordance with QA Department procedures.
 - 6.6. Records of emergency equipment and supply inventories, operational tests, and calibrations will be maintained for at least one year by the organizations performing the activity.
 - 6.7. Records of health physics instrument calibration activities will be maintained in accordance with Health Physics policies.
 - 6.8. Records of Offsite Emergency Siren tests will be maintained in the Security Log. Records of siren maintenance and repair, performed by the manufacturer's or distributor's authorized representative, will be maintained by the Manager, Regulatory Affairs or his designee.
7. References
- 7.1. 10 CFR 40, Application for Specific Licenses
 - 7.2. 40 CFR 264, Standards For Owners And Operators Of Hazardous Waste Treatment, Storage, And Disposal Facilities
 - 7.3. 29 CFR 1910.120(q), Emergency Response To Hazardous Substance Releases
 - 7.4. Emergency Planning and Community Right to Know Act of 1986
 - 7.5. 40 CFR 355, Emergency Planning and Notification
 - 7.6. 40 CFR 370, Emergency Planning and Community Right-to-Know Programs; Amendments to Hazardous Chemical Reporting Thresholds, Streamlining Requirements
 - 7.7. NRC Regulatory Guide 3.67, Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities
 - 7.8. NRC Inspection Procedure 82302, Review of Exercise Objectives and Scenarios for Power Reactors
 - 7.9. NRC Information Notice 87-54, Emergency Response Exercises
 - 7.10. NRC Regulatory Guide 8.15, Acceptable Programs for Respiratory Protection
 - 7.11. Metropolis Works Emergency Response Plan
 - 7.12. Metropolis Works Radiological Contingency Plan

ATTACHMENT 1 – DRILL AND EXERCISE OBJECTIVES

Objective Number	Objective
Group 1 – Emergency Condition Recognition and Notification	
1.1	Based on conditions presented, employee recognizes abnormal conditions.
1.2	Based on conditions presented, employee completes proper notification of supervisory personnel.
1.3	Based on conditions presented, employee initiates proper immediate actions for emergency condition.
Group 2 – Emergency Classification and Notifications	
2.1	Properly classify the emergency.
2.2	Complete all required notifications to onsite personnel (e.g., alarms and evacuation announcements).
2.3	Complete notification of onsite ERO personnel (normal dayshift). (Annual, except when 2.4 is demonstrated)
2.4	Complete notification of onsite ERO personnel (off-normal hours).
2.5	Complete notifications of offsite authorities within the prescribed time limitations.
2.6	Based on changes in conditions presented, properly upgrade or downgrade emergency classification.
2.7	Based on upgraded or downgraded emergency classification, repeat previously-completed notifications of offsite authorities within the prescribed time limitations.
2.8	Provide appropriate Protective Action Recommendations to local authorities.
2.9	Complete Emergency Classification and notification checklist to reflect emergency classification and notification activities.
2.10	Maintain effective communications with offsite authorities and media.
2.11	Develop, review, approve and issue press release(s) accurately describing conditions and protective and corrective actions.
2.12	Recognize need for and request offsite emergency response support.
2.13	Demonstrate effective communication with Corporate resources for plume tracking.
2.14	Incident Commander and Crisis Manager confer and agree on termination of emergency condition.
2.15	Following termination of emergency classification, complete notifications to onsite and offsite emergency response personnel and authorities.
Group 3 – Emergency Response Organization (ERO) Activities	
3.1	Activate the ERO using the plant paging system.
3.2	Activate the ERO using the automatic call-out system.
3.3	Activate the ERO using manual call-out methods.
3.4	Complete staffing of the primary ERO locations.
3.5	Recognize ERO uninhabitable conditions and transfer ERO to alternate ERO location.
3.6	ERO maintains accurate record of ERT dispatch from and return to the Control Point.
3.7	ERO Officers relieve Incident Commander of supplemental ERO responsibilities.

Objective Number	Objective
3.8	ERO members retrieve required equipment and supplies from storage locations and performed required operability tests.
3.9	ERO Officers demonstrate effective control of the ERO staff.
3.10	ERO members discharge assigned responsibilities.
3.11	Demonstrate effective provision of information to Corporate personnel for plume tracking and effective use of plume tracking information provided by Corporate support personnel.
3.12	Control Room Isolation is properly implemented in response to hazardous material releases.
3.13	ERO members establish decontamination line.
3.14	ERO members complete and route required records.
3.15	ERO members restore equipment to proper storage locations.
Group 4 – Evacuation and Accountability	
4.1	Complete proper activation of evacuation alarms and announcements.
4.2	Personnel follow instructions and evacuate by prescribed routes to assigned locations.
4.3	Complete recording and reporting of site census.
Group 5 – Emergency Response Team Activities	
5.1	ERT assembles, retrieves required equipment and supplies from storage locations, and performed required operability tests.
5.2	Emergency Response Officer demonstrates effective control of ERT.
5.3	Safety, Health Physics, and Environmental personnel provide proper support to ERT.
5.4	ERT performs injured employee rescue and first aid operations.
5.5	ERT performs fire suppression operations.
5.6	ERT performs HazMat control operations.
5.7	ERT coordinates with offsite emergency responders.
5.8	Health Physics provides radiological control support to local hospital.
5.9	Facility medical personnel provide support to ERT for injured personnel.
Group 6 – Facility Safety and Security	
6.1	Personnel receive and respond to sabotage/bomb threat.
6.2	Security personnel maintain control of facility access under emergency conditions.
6.3	Security maintains appropriate control during emergency vehicle access and egress.
6.4	Security maintains proper liaison with offsite response organizations.
6.5	Security personnel respond to sabotage (bomb or civil disturbance) threat.
6.6	Security personnel respond to halide monitor alarms.
6.7	Demonstrate proper plant search for a bomb.
6.8	Demonstrate proper response when a suspected bomb is located in the plant.
6.9	Personnel complete required records and forms for sabotage threats.

Objective Number	Objective
Group 7 – Radiological Control Activities	
7.1	Personnel demonstrate proper self-monitoring techniques.
7.2	Personnel respond properly to skin or clothing contamination.
7.3	Personnel obey posted boundaries and warnings.
7.4	Health Physics personnel perform appropriate area monitoring.
7.5	Health Physics personnel provide appropriate warnings to affected personnel.
7.6	Health Physics personnel perform appropriate surveys and sample collection onsite to assess extent of environmental contamination.
7.7	Health Physics personnel perform appropriate surveys and sample collection offsite to assess extent of environmental contamination.
7.8	Health Physics personnel provide effective contamination control support to local hospital.
7.9	Personnel demonstrate proper disposal of radioactive waste materials.
Group 8 – Other Health and Safety Activities	
8.1	Demonstrate proper assessment of hazards resulting from chemical spills or releases.
8.2	Demonstrate proper assessment of industrial safety hazards resulting from emergency condition.
8.3	Implement appropriate safety precautions based on hazards assessment.
8.4	Demonstrate proper use of protective clothing and equipment under emergency conditions.
8.5	Environmental/safety personnel perform appropriate onsite monitoring to assess extent of environmental contamination.
8.6	Establish decontamination line and demonstrate proper decontamination techniques.
8.7	Environmental/Safety personnel perform appropriate offsite monitoring to assess extent of environmental contamination.
Group 9 – Recordkeeping	
9.1	Demonstrate proper completion of records of ERO activities.
9.2	Demonstrate effective review of records of emergency activities.
9.3	Demonstrate proper collection and turnover of records .

- Objectives in **boldface** type to be demonstrated at least once per calendar year.
- Objectives in regular type to be demonstrated at least once every six years.

ATTACHMENT 2 – EMERGENCY EQUIPMENT AND SUPPLY INVENTORY AND MAINTENANCE

Operability tests for designated emergency equipment are performed in accordance with the following schedules:

Equipment	Frequency	Responsibility
ESDA Dedicated Number	Monthly	Production Department
Onsite Radios	Quarterly	Safety Department
Offsite Radios	Quarterly	Mgr., Environmental/ Regulatory Affairs
Release Sirens	Monthly	Mgr., Environmental/ Regulatory Affairs
Community Alert System	Monthly	Production Department
Control Room and South Stairwell Emergency Blowers	Monthly	Health Physics
FM Building Red Lights	Monthly	Health Physics

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.

ATTACHMENT 3 - EMERGENCY RESPONSE VEHICLE EQUIPMENT INVENTORY

Personal Protective Equipment	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
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:	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
First Aid/Bloodborne Pathogens Kit	1			
Oxygen Therapy Unit	1 unit			
Backboards (Full body and half)	1 each			

Emergency Response Tools:	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
14" Pipe Wrench	2			
#430 Channel Locks	1			
9/16" - 1 1/4" Combination Wrench	1 set			
10" and 12" Adjustable Wrench	1 each			
6" and 8" Long Standard Blade Screwdriver	1 each			
1 1/2 lb. Ball Pin Hammer	1			
Blade Scraper	1			

Miscellaneous:	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
Flashlights	6			
-Dry Chemical Fire Extinguishers	2			
-CO ₂ Fire Extinguishers	2			
Extension Ladder	1			
Decontamination Equipment (Pools)	3			

Inventory Completed by: _____

Date: _____

Reviewed by: _____

Date: _____

ATTACHMENT 4 - DISTILLATION/ORE STORAGE CABINET SAFETY EQUIPMENT INVENTORY

DISTILLATION/ORE STORAGE CABINET SAFETY EQUIPMENT	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
Chemical Coats	18 each			
Chemical Pants	18 pair			
Chemical Boots	16 pair			
Chemical Gloves	18 pair			
Gas Masks With Canisters*	6 each			
MSA "Dual Purpose" Air Packs	4 each			
Medium Air Mask Face Pieces (Spare)	4 each			
Air Mask Face Pieces (Spare) (Large)	2 each			
Air Mask Face Piece (Spare) (Small)	1			
Spare Air Cylinders	4 each			
Megaphone	1			
Megaphone Batteries	1 set			
Flashlights	6			
Flashlight Batteries	12			
Oxygen Therapy Units	2 each			
Orange Vest	1			
Tool Bags	2			
Blanket	1			
Nitrile Gloves (Large)	1 box			
Nitrile Gloves (X-Lg.)	1 box			
Radio Holders	2			
Loud-mouth speaker	1			

One (1) Bag marked "Bolt-Up Tool"	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
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			

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10" Adjustable Wrench	1			
12" Adjustable Wrench	1			

One (1) Bag market "Misc. Tools"	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
6" Long Standard Blade Screwdriver	1			
8" Long Standard Blade Screwdriver	1			
1 1/2 lb. Ball Pin Hammer	1			
Blade Scraper	1			
Linoleum Knife	1			
14" Pipe Wrench	1			
18" Pipe Wrench	1			
Pinch Bar, 1" Wide Blade, 5/8" stock x 16" long	1			
#430 Channel Lock	1			

Inventory Completed by: _____

Date: _____

Reviewed by: _____

Date: _____

ATTACHMENT 5 - UF₆ EMERGENCY KIT EQUIPMENT

UF ₆ EMERGENCY KIT (1 of 4)	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
Acid Resistant Jacket (XL)	2			
Acid Resistant Pants (XL)	2			
Chemical Gloves Prs.	2			
Chemical Boots X-Ig. Pr.	1			
Chemical Boots Giant PR.	1			
Hardhat with Faceshield	2			
*Canister Gas Masks - Canister Date: _____	2			
MSA Respirators	2			
Lif-O-Gen Oxygen Unit	1			
1½" Box-end Wrench	1			

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

UF ₆ EMERGENCY KIT 2 of 4	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
5 lb. CO ₂ Fire Extinguishers	2			
¾" X 12' Welded Chain	2			
¾" 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	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
Patch for UF ₆ Cylinder	2			

UF ₆ EMERGENCY KIT 4 of 4	Correct Quantity	Quantity Present	Condition (Sat/Unsat)	Initial
Patch for UF ₆ Cylinder	2			

Inventory Completed by: _____

Date: _____

Reviewed by: _____

Date: _____

ATTACHMENT 6 – TOTAL ENCAPSULATED SUIT INVENTORY LIST

Suit Number	Date Checked	Location	Condition	Initials
1				
2				
3				
4				
5				
6				

NOTES: _____

Inventory Completed by: _____

Date: _____

Reviewed by: _____

Date: _____

ATTACHMENT 7 –SCBA INVENTORY LIST

<u>Mask#</u> _____ :			
	Date Checked	Condition (Sat/Unsat)	Initials
Check Gaskets			
Check Clarity of Lens			
Check whether rubber is hard or distorted			
Check exhalation valve			
Check whether plastic bag is O.K.			
<u>SCBA#</u> _____ :			
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: _____

Inventory Completed by: _____

Date: _____

Reviewed by: _____

Date: _____

ATTACHMENT 8 – 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.

ATTACHMENT 9 – INCIDENT/DRILL DEBRIEF

INCIDENT/DRILL DEBRIEF		
Event Type: (Check if drill <input type="checkbox"/>)		Date/Time:
Event Description:		
Emergency Classification and Response		
Emergency Declared? (Y/N)	Highest Emergency Classification?	Offsite Notifications? (Y/N)
Offsite Support to Site? (Type)	Protective Action Recommendations? (Y/N)	ERO Activated? (Y/N)
Personnel Health and Safety Issues		
Affected Personnel:		
Personnel Symptoms:		
Personnel transported Offsite? If so, to which hospital(s)? Were transported personnel potentially contaminated?		
Emergency Response Activities		
Immediate and Continuing Actions Taken:		

INCIDENT/DRILL DEBRIEF

Perceived Strengths in Response:

Needs for Improvement:

Immediate Actions Completed:

INCIDENT/DRILL DEBRIEF

Corrective Actions	Work Order / PO#--Person Responsible	Date Assigned*
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

Additional Comments:

****Be sure to include relevant timelines to the event and actions.**

* Enter all actions that cannot be completed immediately into management action tracking system.

Completed by: _____

Date: _____

Reviewed by: _____
(Plant Manager)

Date: _____

Attachment 10 – Offsite Emergency Siren Tests

As directed by the Manager, Regulatory Affairs for a routine or special test, perform the following:

1. Repeat back the directive to ensure system activation is authorized.
2. Click on the Emergency System screen to activate.
3. Click on "MONTHLY TEST – STEADY 60 SEC.
4. At the "About to Sound" warning, press "OK."
5. Listen for siren activation.
6. Report system status to the Manager, Regulatory Affairs (i.e., either activated or not functioning).
7. Record siren activation and status (i.e., either activated or not functioning) in Security Log.