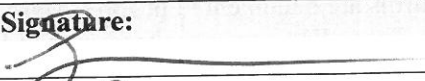
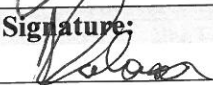



## Region II Hurricane Sandy Response Generic HASP

<b>Area Command Approval:</b> Eric Mosher	<b>Signature:</b> 	<b>Date:</b> 10/29/2012
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<b>HASP Prepared by:</b> Michael Ferriola, OSC	<b>Signature:</b> 	<b>Date:</b> 10/29/2012
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<b>HASP Reviewed/Edited by:</b> Cris D'Onofrio, OSC	<b>Signature:</b> 	<b>Date:</b> 10/31/12
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### A. SITE INFORMATION: ROLES AND RESPONSIBILITIES

<b>Site Name:</b> HURRICANE SANDY
<b>Site Address:</b> New Jersey/New York, Specific Sites Addresses TBD
<b>Date of Activities:</b> 10/29/2012
<b>Site Description Including History:</b> Major flooding, loss of power and infrastructure damage resulting from Hurricane Sandy
<b>Scope of Work:</b> Assess impacted areas for oil and HAZMAT spills/contamination potential, Orphan container collection, Household Hazardous Waste (HHW) collection/removal, spill mitigation and assist with POTW and DW facility assessments.

Site Roles/Responsibilities			
Site Role/Responsibility:	Employer:	Name:	Title:
ESF 10	U.S. EPA		IC/HSO
Technical Assistance	Weston Solutions (RST)		Environmental Scientist
Response and Removal activities	ERRS		Removal Manager

### B. SITE TASKS AND DESCRIPTIONS

Identify the individual tasks or activities that are required to complete the scope of work. A JHA (Section C) must be completed for each task listed below.

Site Tasks and Descriptions		
Task Number:	Task Titles:	Task Descriptions:
1	Emergency Response Teams	Respond, assess, and/or removal of property/structures impacted by oil and HAZMAT
2	Shoreline Debris/Container Assessment/ Removal	Assess/Contain/Collect/Remove Orphan Oil and HAZMAT Containers and/or HAZMAT/Oil spills
3	HHW Collection/Removal	HHW Collection/Staging/Collection
4	Publicly Owned Treatment Works (POTW) & Drinking Water Sampling Teams	Sampling support to assessments for POTW's and DW installations in impacted area
5	Air Operation's	Over flights for visual assessment and photo-documentation.

### C. EVALUATION AND HAZARD CONTROL

Site hazards and controls are documented in Job Hazard Analysis (JHA) for each task identified in the site work plan. These JHAs are attached to the HASP (see Attachment #1).

Job Hazard Analysis (JHA)			
JHA Number	Name of Task	Location Where Task Is Performed	
1	Emergency Response Teams	Throughout impacted area	
<b>Task Description:</b> Entering Non-Industrial buildings to assess oil or HAZMAT releases.			
<b>Step 1:</b> Determine whether structure is sound		<b>Step 3:</b> Assess for oil and HAZMAT	
<b>Step 2:</b> Enter and find lower levels		<b>Step 4:</b> Document and make recommendations	
<b>Estimated Duration of Task:</b> 1 hour			
<b>Date JHA Conducted:</b> 10/29/12		<b>Date(s) JHA Updated:</b> 10/31/2012	
Biological Hazards			
Name of Biological Hazard	Characteristics	Concentration	Exposure Potential During Task
Raw Sewage	Infectious/pathogenic/	N/A	High <input checked="" type="checkbox"/> Medium <input checked="" type="checkbox"/> Low <input type="checkbox"/> Unknown <input type="checkbox"/>
Chemical Hazards			
Chemical Name or Type	Characteristics (Circle Applicable)	State/Concentration (Circle Applicable)	Exposure Potential During Task
Fuel Oil	Flammable/ignitable Corrosive	Gas/vapor Solid	High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/> Unknown <input type="checkbox"/>
Household Hazardous Waste	Poison/acutely toxic Air-/water-reactive Carcinogenic Explosive/shock Sensitive/ Volatile	Liquid	
Chemical Evaluation Sheets or MSDSs are located in Appendix A for known chemical hazards.			
Physical Hazards			
Type of Physical Hazard			Exposure Potential During Task
Overhead, Slip, trip & fall, Puncture, Cut, Splash, Heat stress, Structural integrity, Electrocution, and Traffic			High <input checked="" type="checkbox"/> Medium <input checked="" type="checkbox"/> Low <input type="checkbox"/> Unknown <input type="checkbox"/>
Ionizing radiation, Sunburn			High <input checked="" type="checkbox"/> Medium <input checked="" type="checkbox"/> Low <input type="checkbox"/> Unknown <input type="checkbox"/>
Confined space (hazards associated with PRCS entries will be addressed in a separate document)			High <input checked="" type="checkbox"/> Medium <input checked="" type="checkbox"/> Low <input type="checkbox"/> Unknown <input type="checkbox"/>
Hypothermia			High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>
Control Measures			
<b>Engineering Controls:</b> (list engineering controls necessary for this task) Assess structures for structural integrity from the outside prior to entry; when in doubt, do not enter. Try to find external visual/entry points that may be used to evaluate potential contamination instead of entering building. Ventilate prior to entry where feasible.			
<b>Work Practices:</b> (describe those work practices specific to this task) Avoid contact with potential contamination. Assess containers from a distance; upgrade PPE/air monitoring prior to approaching compromised and/or unusual containers. For Industrial Buildings/when HAZMAT is expected – conduct air monitoring sweep in Level B prior to conducting a full assessment. Upgrade/Down grade based on readings/action levels per response protocols. Wash hands frequently.			
<b>PPE:</b> (list PPE necessary for this task) Hard hat, steel toe/shank boots, safety glasses, high visibility vest. Note: Have Saranex available for use.			
Workers/Site Role	PPE Level	Modifications Allowed	
Facility/Property Assessment	Level D	Saranex and rubber boots Upgrade PPE if contamination present.	
Crew Size	Equipment Required	Other	
TBD	TBD	N/A	



JHA			
JHA Number	Name of Task	Location Where Task Is Performed	
2	Shoreline Debris/Container Assessment/Collection	Throughout impacted area	
<b>Task Description:</b> Shoreline and debris assessment to determine if oil or HAZMAT has been or has the potential to be release(d)			
<b>Step 1:</b> Assess the scene for potential hazards (i.e. fast water, overhead dead timber, traffic, etc.).		<b>Step 3:</b> Document and make recommendations	
<b>Step 2:</b> Assess shoreline/debris pile for oil and HAZMAT			
<b>Estimated Duration of Task:</b> 1-4 hours			
<b>Date JHA Conducted:</b> 10/29/12		<b>Date(s) JHA Updated:</b> 10/31/2012	
Biological Hazards			
Name of Biological Hazard	Characteristics	Concentration	Exposure Potential During Task
Raw Sewage	Infectious/pathogenic/	N/A	High <b>Medium X</b> Low Unknown
Ticks, mosquitoes, bees, Poison ivy/oak, poison sumac	Infectious/pathogenic/ anaphylactic/irritant	N/A	High Medium <b>Low X</b> Unknown
Chemical Hazards			
Chemical Name or Type	Characteristics (Circle Applicable)	State/Concentration (Circle Applicable)	Exposure Potential During Task
Fuel Oil	Flammable/ignitable	Gas/vapor	<b>High X</b> Medium Low Unknown
Household Hazardous Waste	Corrosive Poison/acutely toxic Air-/water-reactive Carcinogenic Explosive/shock Sensitive Volatile	Solid Liquid	
Chemical Evaluation Sheets or MSDSs are located in Appendix A for known chemical hazards.			
Physical Hazards			
Type of Physical Hazard			Exposure Potential During Task
Overhead, Slip, trip & fall, Puncture, Cut, Fast water, Splash, Heat stress, Electrocutation, and Traffic			High <b>Medium X</b> Low Unknown
Ionizing radiation, Sunburn			High <b>Medium X</b> Low Unknown
Stream and River flooding, coastal storm surge flooding			<b>High X</b> Medium X Low Unknown
Hypothermia			High Medium <b>Low X</b> Unknown
Control Measures			
<b>Engineering Controls:</b> Assess potential hazards by scoping out your route. Use access points that are free of physical hazards. Avoid walking in potentially contaminated water. Avoid downed power lines.			
<b>Work Practices:</b> Avoid unstable overhanging trees/branches/structures; remove prior to working in close proximity. Wear PFD within 10' of shoreline. Do not to exceed boat weight capacities. Evaluate HAZMAT containers from a distance; upgrade PPE/air monitoring prior to approaching compromised and/or unusual containers. Wash hands frequently.			
<b>PPE:</b> Hard hat, steel toe/shank boots/waders, safety glasses, high visibility vest. Note: Have Saranex and PFD available for use. Have personal flotation device (PFD) available.			
Workers/Site Role	PPE Level	Modifications Allowed	
Shoreline Assessment	Level D	Saranex, rubber boots and waders. Upgrade PPE if HAZMAT containers broken/breached.	
Crew Size	Equipment Required	Other	
TBD	TBD	N/A	

JHA			
JHA Number	Name of Task	Location Where Task Is Performed	
3	HHW	Throughout impacted area	
<b>Task Description:</b> Setup and maintenance of HHW Collection Areas. This task does not include all sampling, hazcatting and HAZMAT container handling operations; see additional JHAs for these specific activities.			
<b>Step 1:</b> Develop work plan		<b>Step 3:</b> Conduct Collection/Segregation Activities	
<b>Step 2:</b> Layout HHW Collection Pad		<b>Step 4:</b> Document and inventory collected containers	
<b>Estimated Duration of Task:</b> 1-4 hours			
<b>Date JHA Conducted:</b> 10/29/12		<b>Date(s) JHA Updated:</b> 10/31/2012	
Biological Hazards			
Name of Biological Hazard	Characteristics	Concentration	Exposure Potential During Task
Raw sewage	Infectious/pathogenic	N/A	Low X
Chemical Hazards			
Chemical Name or Type	Characteristics (Circle Applicable)	State/Concentration (Circle Applicable)	Exposure Potential During Task
Misc Household Chemicals	Flammable/ignitable Corrosive Poison/acutely toxic Air-/water-reactive Carcinogenic Explosive/shock Sensitive Volatile	Gas/vapor Solid Liquid	High Medium X Low Unknown
Chemical Evaluation Sheets or MSDSs are located in Appendix A for known chemical hazards.			
Physical Hazards			
Type of Physical Hazard			Exposure Potential During Task
Overhead, Slip, trip & fall, Cut, and Equipment/Vehicle Traffic			High X Medium Low Unknown
Ionizing radiation, Sunburn			High Medium Low X Unknown
Hypothermia			High Medium Low X Unknown
Control Measures			
<b>Engineering Controls:</b> (list engineering controls necessary for this task) Plastic ground cover/containment for different areas; segregation of non-compatible chemicals.			
<b>Work Practices:</b> (describe those work practices specific to this task) Proper lifting techniques; make visual contact with equipment operators before approaching/passing. Do not handle HAZMAT containers without appropriate PPE.			
<b>PPE:</b> (list PPE necessary for this task) Steel toe boots, safety glasses, high visibility vest and hearing protection.			
Workers/Site Role	PPE Level	Modifications Allowed	
Assessment, Set-up of HW collection center	Level D	Saranex, rubber boot covers, neoprene and leather gloves as needed.	
Crew Size	Equipment Required	Other	
TBD	TBD	N/A	



JHA			
JHA Number	Name of Task	Location Where Task Is Performed	
4	POTW and DW Sampling Support	Throughout impacted area	
<b>Task Description:</b> Assessment of damage to POTW and DW facilities.			
<b>Step 1:</b> Assess the scene for potential hazards (i.e. fast water, chlorine/chemical, traffic, etc.).		<b>Step 3:</b> Document and make recommendations	
<b>Step 2:</b> Assess POTW/DW facility			
<b>Estimated Duration of Task:</b> 1-4 hours			
<b>Date JHA Conducted:</b> 10/29/12		<b>Date(s) JHA Updated:</b> 10/31/12	
Biological Hazards			
Name of Biological Hazard	Characteristics	Concentration	Exposure Potential During Task
Raw Sewage	Infectious/pathogenic/	N/A	High <b>Medium X</b> Low Unknown
Ticks, mosquitoes, and bees	Infectious/pathogenic/ anaphylactic	N/A	High Medium <b>Low X</b> Unknown
Chemical Hazards			
Chemical Name or Type	Characteristics (Circle Applicable)	State/Concentration (Circle Applicable)	Exposure Potential During Task
Fuel Oil	Flammable/ignitable	Gas/vapor	High <b>Medium X</b> Low Unknown
Chlorine	Corrosive Poison/acutely toxic Air-/water-reactive Carcinogenic Explosive/shock Sensitive Volatile	Solid Liquid	
Chemical Evaluation Sheets or MSDSs are located in Appendix A for known chemical hazards.			
Physical Hazards			
Type of Physical Hazard	Exposure Potential During Task		
Overhead, Slip, trip & fall, Puncture, Cut, Fast Water, Splash, Heat Stress, Electrocution, and Traffic	High <b>Medium X</b> Low Unknown		
Ionizing radiation, Sunburn	High Medium <b>Low X</b> Unknown		
Hypothermia	High Medium <b>Low X</b> Unknown		
Control Measures			
<b>Engineering Controls:</b> (list engineering controls necessary for this task) Assure proper lighting is in place or utilize portable lighting. If possible, ventilate buildings prior to entering.			
<b>Work Practices:</b> (describe those work practices specific to this task) Assess structures from the outside for structural integrity – if in doubt, do not enter. Avoid walking in and contact with potentially contaminated water. Give wide berth to downed power lines. Avoid walking in contaminated water. Conduct air monitoring for %LEL, O2, organic vapors and CO; retreat if action levels are exceeded. Wash hands frequently.			
<b>PPE:</b> (list PPE necessary for this task) Hard hat, steel toe/shank boots, safety glasses, high visibility vest. Note: Have Saranex, rubber boot covers and surgical gloves available for use especially when sampling.			
Workers/Site Role	PPE Level	Modifications Allowed	
Facility Assessment, Water Sampling	Level D	Saranex, rubber boot covers neoprene surgical gloves.	
Crew Size	Equipment Required	Other	
TBD	TBD	N/A	

JHA			
JHA Number	Name of Task	Location Where Task Is Performed	
5	Air Operations	Throughout impacted area	
<b>Task Description:</b> Aerial assessment of impacted area.			
<b>Step 1:</b> Develop flight plan		<b>Step 3:</b> Conduct aerial reconnaissance	
<b>Step 2:</b> Conduct pre-flight briefing		<b>Step 4:</b> Document and make recommendations	
<b>Estimated Duration of Task:</b> 1-4 hours			
<b>Date JHA Conducted:</b> 8/30/11		<b>Date(s) JHA Updated:</b> 10/31/12	
Biological Hazards			
Name of Biological Hazard	Characteristics	Concentration	Exposure Potential During Task
Chemical Hazards			
Chemical Name or Type	Characteristics (Circle Applicable)	State/Concentration (Circle Applicable)	Exposure Potential During Task
Aviation fuel	Flammable/ignitable Corrosive Poison/acutely toxic Air-/water-reactive Carcinogenic Explosive/shock Sensitive Volatile	Gas/vapor Solid Liquid	High Medium X Low X Unknown
Chemical Evaluation Sheets or MSDSs are located in Appendix A for known chemical hazards.			
Physical Hazards			
Type of Physical Hazard			Exposure Potential During Task
Overhead, Slip, Trip & Fall, Cut, Rotor Blades, Noise and Traffic			High Medium X Low Unknown
Ionizing radiation, Sunburn			High Medium Low X Unknown
Hypothermia			High Medium Low X Unknown
Control Measures			
<b>Engineering Controls:</b> (list engineering controls necessary for this task) Tie down aircraft when not in use.			
<b>Work Practices:</b> (describe those work practices specific to this task) Follow Crew Chief/Pilot instructions.			
<b>PPE:</b> (list PPE necessary for this task) Steel toe boots, safety glasses, high visibility vest and hearing protection.			
Workers/Site Role	PPE Level	Modifications Allowed	
Facility Assessment	Level D	Floation Device if flight over water expected.	
Crew Size	Equipment Required	Other	
TBD	TBD	N/A	



## D. PERSONAL PROTECTIVE EQUIPMENT (PPE)

The designated levels of personal protection for the applicable tasks and work areas are based on an evaluation of potential hazards identified through JHAs. Also use EPA's "Guidelines to Ensembles for Specific Activities/Tasks" and "Chemical-Level Upgrades" from the PPE Chapter of the EPA Emergency Responder H&S Manual (Attachment 3).

Designated Levels of Personal Protection			
Task Number:	Work Area (e.g., EZ, CRZ, other):	Job Function:	Level of Protection:
1	Impacted area	ER Assessment/Removal	A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/>
2	Impacted area	Assessment/Removal	A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/>
3	Impacted area	Removal	A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/>
4	Impacted area	Assessment	A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/>
5	Impacted area	Air Opns	A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/>

Specific levels of PPE, including criteria for upgrading and downgrading levels of protection, are provided below.

Levels of PPE	
Level of Protection:	Specific Equipment (e.g., Clothing Materials, Respirator Type, Cartridges):
D	Hard hat, safety glasses, steel toe boots
D (modified)	Use rubber over boots, Saranex, work gloves/chemical gloves, goggles, PFD's, Waders, etc. as appropriate
C	Same as above plus Air Purifying Respirator with multi-use/P100 cartridges.
B	Saranax or Tychem F, rubber boot covers, neoprene inner/outer gloves, SCBA, hard hat and steel toe boots.
<b>Criteria for Upgrading or Downgrading Levels of Protection:</b>	
Based on air monitoring results. See "Section H. Environmental and Personal Monitoring" for contaminant action levels.	

## E. SITE CONTROL

Work Practices and Control Measures
<b>Procedures for Restricting Access to the exclusion zones (EZ) and contamination reduction zones (CRZ):</b>
Tape off HAZMAT zones when found and restrict access – preferably red for hot zone and yellow for CRZ
<b>Work Shift Schedules:</b>
0700 to 1900
<b>Other Safe Work Practices:</b>
Avoid stray animals

### Buddy System

The buddy system will be maintained on a line-of-sight basis.

### Communications

AT&T is currently reporting network outages in New York City and Upstate NY and spotty cell phone coverage throughout the impact area. Assessment teams must travel with satellite phones or other communications backup until this situation improves.

### Procedures for Satellite Phone Use

To make a call using a satellite phone:

- Dial "00" + 1 + Area Code + Number (you are calling)
- Hit "OK" button at "Call?" prompt.

**Note:** Since cell networks are not functioning properly, problems may be encountered when dialing from a satellite phone to a cell phone (it may go straight to voicemail). If that occurs, dial the REOC or other working landline. When calling satellite phone to satellite phone, the receiver

must acknowledge the call by hitting the "OK" button in order to receive the call. Calls from an EPA cell or EPA hard line to a satellite phone will not work as this is an international call; EPA phones are blocked from making international calls.

Communications Equipment		
Communications Equipment:	Location:	Channels and Phone Numbers:
REOC	Edison, NJ	(732) 906-6850
Satellite Phones Required	All Areas Where Cell Coverage Is Not Dependable.	See comms plan in IAP.

[Insert site map(s) showing site location, site layout including work zones, topography, and site size.]

## F. EMERGENCY RESPONSE PLAN

### Emergency Response Procedures

Emergency Response Procedures
<b>Fire/Explosion Response Procedures:</b>
Identify prior to starting work, test cell phones to ensure service, and identify evacuation routes and rally points. Evacuate building/site, muster at the car if safe, and activate fire and emergency medical system (EMS)
<b>Personnel Injury in EZ or CRZ Response Procedures:</b>
Decontaminate PPE and remove individual from area, activate (EMS), , remove PPE and provide first aid while waiting for EMS to arrive. Provide appropriate notifications.
<b>Personnel Injury in Clean Zone Response Procedures:</b>
Activate (EMS), provide first aid while waiting for EMS to arrive. Provide appropriate notifications.
<b>Additional Emergency Response Procedures:</b>
Identify sound structures (e.g. police or fire station) in which to shelter during severe weather.
<b>Procedures for Response Critique and Follow-up:</b>
Conduct hot wash with all responding agencies.

### Emergency Equipment/Facilities and Emergency Contact Information

List emergency equipment to be maintained in the operational area or on site along with emergency contact and alerting information.

Safety Equipment		
Equipment:	Number of Items:	Location On Site:
MultiRae five gas meter	TBD	In vehicles such that they are available for use
Personal Floatation Device	TBD	In vehicles such that they are available for use
GPS Units	TBD	In vehicles such that they are available for use
Satellite Phone	TBD	In vehicles such that they are available for use
Air Horn	Minimum 1	In vehicles such that they are available for use

Emergency Contact Information	
Emergency Assistance Organization:	Telephone Number:
Emergency Medical System (EMS)	911 (TBD)
<b>List specific numbers in your operational area.</b>	

Methods for Emergency Alerting
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<b>Emergency Equipment:</b>	<b>Alerting Noise:</b>	<b>Meaning:</b>
Air horn	Continuous blast	Evacuate

[Insert map showing evacuation routes, safe distances, and places of refuge.]

[Insert map to hospital]

See IAP for Hospital Listings in your operational area. ***Working hospitals must be identified in each area of operation. All assessment teams must carry contact information and directions to hospitals in their operational areas.***

## G. Decontamination Procedures

### Personnel (Level A, B, C) Decontamination Procedures:

The following eight steps constitute the decontamination process for response personnel:

1. Personnel exiting the hot zone shall place monitoring equipment, hand tools and other equipment in the drop off area. A recovery drum and/or table shall be set in place so all tools and equipment can be put aside for further decontamination.
2. Personnel returning from the CZ shall then be washed down with the appropriate solution, as determined by the Material Safety Data Sheet, while wearing all personal protective equipment. All water used in this step shall be contained in a recovery drum or decontamination pool while this process is carried out and treated as hazardous waste at the completion of the decontamination process.
3. After emergency response personnel are completely washed down, decontamination personnel shall assist with the removal of protective clothing being sure to remove the outer layers first and rolling the outer layers down and away from the individual. The inner layer of gloves should be the last item of PPE removed. The protective clothing shall be placed in a recovery drum or approved bag and labeled accordingly.
4. After removing protective clothing, personnel being decontaminated shall remove their self-contained breathing apparatus or respirators. The breathing apparatus shall be placed on a tarp for further decontamination.
5. Upon removing the personal protective equipment, the emergency response personnel shall be assessed with appropriate instrumentation and remove any clothing that may have become contaminated. The clothing shall be placed in recovery drums or approved bags and labeled accordingly.
6. Personnel shall shower thoroughly if it has been determined that personal protective equipment has failed to protect the user.
7. Personnel and persons that were in the hot zone and warm zone shall receive a post-entry medical evaluation by a qualified individual.

If it is determined that emergency response personnel or persons involved with the incident need further medical attention, transportation shall be arranged by the On-Scene Incident Commander.

### Sampling Equipment Decontamination Procedures:

Decontamination of equipment shall be performed by using portable wash tubs, sprayers, and disposable scrub brushes. Any equipment that cannot be thoroughly decontaminated along with the contents from the wash tub shall be considered hazardous and shall be stored and disposed of appropriately.

#### *Monitoring Equipment*

If monitoring equipment becomes contaminated, it may require special cleaning techniques. Methods for decontamination shall be obtained from the equipment's manufacturer.

#### *Hand Tools*

Hand tools shall be cleaned as appropriate by chemical or physical means. At the end of the incident, if the hand tools cannot be decontaminated, they shall be disposed of as hazardous waste.

### Decontamination Waste Disposal Procedures:

Decontamination Waste shall be segregated, characterized and disposed of with similar appropriate waste streams generated by the response.

#### Typical Decontamination Equipment:

Plastic Sheeting	Table, chairs and tent (if possible)
Kiddie swimming pools	5 gal. pails and scrub brushes
Pump (hand or electric)	Water sprayer
Decontamination solution (determined in MSDS)	Sorbent materials (towels, boom, kitty litter)



## H. ENVIRONMENTAL AND PERSONAL MONITORING

Specify the environmental and personal monitoring activities for the site. Also, list the direct-reading instruments calibration/maintenance, and contaminant action levels to be used. For guidelines on chemical specific action levels and associated ensembles, use EPA's "Guidelines to Ensembles for Specific Activities & Tasks" and the associated "Chemical-Level Upgrades" found in the PPE Chapter of the EPA H&S Manual (Attachment 3).

Direct-Reading Instruments		
Instrument Type:	Brand and Model Number:	Contaminants Measured:
Five Gas Meter	MultiRae	LEL, Chlorine, Oxygen, PID, Ammonia
Five Gas Meter	MultiRae	LEL, Oxygen, PID, CO, H2S
Gamma detector	Ludlum 19	Gamma radiation

Contaminant Action Levels		
Contaminant:	Level:	
LEL	10% or above	Evacuate the scene. Reassess the situation
Oxygen	19.5% or below	Evacuate and upgrade to a minimum of Level B
PID	Continuous readings approaching 5 ppm above background.	Upgrade to Level C and wear an organic vapor (OV) cartridge/air purifying respirator (APR). Investigate source. <b>Over 5 ppm sustained from uncharacterized sources requires Level B PPE.</b>
Chlorine	.25 ppm APR 5 ppm SCBA	Upgrade to Level C and wear a chlorine (CL) cartridge/air purifying respirator (APR). Upgrade to SCBA if second action level is reached. Investigate source
Carbon Monoxide	25 ppm APR 200 ppm SCBA	Upgrade to Level C and wear a Carbon Monoxide (CM) cartridge/air purifying respirator (APR). Upgrade to SCBA if second action level is reached. Investigate source
Hydrogen Sulfide	5 ppm APR 100 ppm SCBA	Upgrade to Level C and wear a Hydrogen Sulfide (HS) cartridge/air purifying respirator (APR). Verify Maximum Use Concentration of specific cartridge used. Upgrade to SCBA if MUC or second action level is reached. Investigate source.
Ammonia	13 ppm APR 300 ppm SCBA	Upgrade to Level C and wear a Ammonia (AM) cartridge/air purifying respirator (APR). Verify Maximum Use Concentration of specific cartridge used. Upgrade to SCBA if MUC or second action level is reached. Investigate source.
Gamma Radiation	1 mR/hr (1000 uR/hr)	Turn-back level, consult with Region 2 Health Physicists

Personal Monitoring Procedures	
<b>Personal Monitoring Instruments and Procedures:</b>	
BP cuff, thermometer, and stethoscope monitor vital signs and follow EPA's Physical Stress Chapter guidelines	
<b>Monitoring Instrument Maintenance and Calibration Methods:</b>	
Per manufacturer's recommendations	
<b>Storage of Monitoring Records:</b>	
Keep records in a secure location	

## I. PERMIT-REQUIRED CONFINED SPACE (PRCS) ENTRY PROCEDURES (IF APPLICABLE—See Attachment #2)

Permit-Required Confined Spaces (To be completed when PRCS is required)		
Type of PRCS:	Location On Site:	Comments:



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**L. MEDICAL SURVEILLANCE**

**Medical Requirements:** Site personnel must be in a Medical Surveillance Program in accordance with 29 CFR 1910 and 29 CFR 1926. A medical examination must have been completed within a 12-month period prior to on-site activity and repeated annually.

**Episodic Examinations**

Following any accidental or suspected uncontrolled exposure to site contaminants, employees should be scheduled for a special medical examination. In the event of such suspected exposure, an injury report must be completed and sent to the Safety Officer within 24 hours.

**Fit Test Requirements:** Personnel entering any area requiring the use or potential use of any respirator must have had a quantitative fit test with a fit factor of 1,000, administered in accordance with OSHA 29 CFR 1910.134 or ANSI within the last 12 months.

For additional information see EPA's Medical Surveillance Program chapter for medical surveillance requirements.

**M. EMPLOYEE EMERGENCY NOTIFICATION PROCEDURES**

Emergency notification procedures that do not already exist in the emergency response Incident Action Plan or in the HASP are provided below.

Emergency Notification Procedures		
Employer:	Contacts:	Telephone Numbers:



**ATTACHMENT #1**  
**Site JHAs**

See above

# ATTACHMENT #2

## Confined Space Entry Permit

Date and Time Issued: \_\_\_\_\_ Date and Time Expires: \_\_\_\_\_  
Job site/Space I.D.: \_\_\_\_\_ Job Supervisor: \_\_\_\_\_  
Equipment to be worked on: \_\_\_\_\_ Work to be performed: \_\_\_\_\_

Stand-by personnel: \_\_\_\_\_

1. Atmospheric Checks: Time \_\_\_\_\_  
Oxygen \_\_\_\_\_ %  
Explosive \_\_\_\_\_ % L.F.L.  
Toxic \_\_\_\_\_ PPM

2. Tester's signature: \_\_\_\_\_

3. Source isolation (No Entry): N/A Yes No  
Pumps or lines blinded, ( ) ( ) ( )  
disconnected, or blocked ( ) ( ) ( )

4. Ventilation Modification: N/A Yes No  
Mechanical ( ) ( ) ( )  
Natural Ventilation only ( ) ( ) ( )

5. Atmospheric check after isolation and Ventilation:

Oxygen \_\_\_\_\_ % > 19.5 %  
Explosive \_\_\_\_\_ % L.F.L. < 10 %  
Toxic \_\_\_\_\_ PPM < 10 PPM H(2)S

Time \_\_\_\_\_ Testers signature: \_\_\_\_\_

6. Communication procedures: \_\_\_\_\_

7. Rescue procedures: \_\_\_\_\_

8. Entry, standby, and back up persons: Yes No  
Successfully completed required training? ( ) ( )  
Is it current? ( ) ( )

9. Equipment: N/A Yes No  
Direct reading gas monitor tested: ( ) ( ) ( )  
Safety harnesses and lifelines  
for entry and standby persons: ( ) ( ) ( )  
Hoisting equipment: ( ) ( ) ( )  
Powered communications: ( ) ( ) ( )  
  
SCBA's for entry and standby  
Persons: ( ) ( ) ( )  
Protective Clothing: ( ) ( ) ( )  
All electric equipment listed  
Class I, Division I, Group D  
and Non-sparking tools: ( ) ( ) ( )

10. Periodic atmospheric tests:



Oxygen	_____ %	Time	_____	Oxygen	_____ %	Time	_____
Oxygen	_____ %	Time	_____	Oxygen	_____ %	Time	_____
Explosive	_____ %	Time	_____	Explosive	_____ %	Time	_____
Explosive	_____ %	Time	_____	Explosive	_____ %	Time	_____
Toxic	_____ %	Time	_____	Toxic	_____ %	Time	_____
Toxic	_____ %	Time	_____	Toxic	_____ %	Time	_____

We have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Permit Prepared By:  
 (Supervisor) \_\_\_\_\_  
 Approved By: (Unit  
 Supervisor) \_\_\_\_\_  
 Reviewed By (Cs Operations Personnel):

\_\_\_\_\_/\_\_\_\_\_  
 (printed name) (signature)

This permit to be kept at job site. Return job site copy to Safety Office following job completion.

## ATTACHMENT 3

Guidelines to Ensembles for Specific Activities/Tasks

&

Suggested Ensembles/Monitors per Chemical  
(Chemical-Level Up-Grades)





## GUIDELINES TO ENSEMBLES FOR SPECIFIC ACTIVITIES/TASKS WHERE CHEMICAL EXPOSURE IS POSSIBLE

### IMPORTANT: READ FOOTNOTES AND ASSUMPTIONS/JUSTIFICATIONS PRIOR TO USING TABLE

#### Notes:

1. This table is for use by trained environmental professionals only. To use this table:
  - a. Scan the activity description to find activities (bolded) that most closely matches those you plan to engage in.
  - b. Review Hazard/Conditions section to make sure the hazards of the planned activity match those listed. Note the Required Work Practices and be ready to follow them.
  - c. For those activities most likely to be conducted as part the response, select Targeted Minimum PPE (Personal Protective Equipment).
  - d. Necessary equipment needs to be available and used unless other information becomes available which necessitates an upgrade or allows a downgrade in the protection level. The work area must be continuously re-evaluated to ensure workers have the proper safety equipment.
  - e. When working in hazardous environments, workers must always be aware of their surroundings. In addition to this Table, workers entering these environments need to use “common sense” prior to proceeding.
2. These ensembles focus on chemical protection and may not be adequate for all hazards. This Table can be used as a starting point but does not circumvent proper evaluation by an industrial hygienist in appropriate situations. See Table 2 for more specific chemical agents.
3. Suits, gloves, boots listed in the Minimum PPE column will not be appropriate for all activities, hazards and conditions. The listings should be used as a guide only. Confirm PPE compatibility with specific chemical contaminants.
4. A comprehensive Task Hazard Analysis must be performed prior to final selection of ensembles/PPE material types.
5. Hardhat (Class A or C), safety glasses/other eye protection are typically required but may not be specified here. In noisy environments (above 85dB) hearing protection is required. In areas where there is traffic, heavy machinery, or other hazards involving worker visibility problems a Class 2 High Visibility Vest must be worn. Activities requiring vests include natural disaster responses, demolitions, and excavations.
5. PPE makes and models referenced in these tables are only suggestions. Other comparable, adequate makes and models may be used.





Activity Description	Hazards/Conditions	Targeted Minimum PPE
<p><b>Emergency Response and/or Initial Entry/Assessment – Low Hazard Expected (Sites/Facilities):</b></p> <ul style="list-style-type: none"> <li>• Air and Radiation Monitoring Sweep</li> <li>• Visual Assessment</li> <li>• Note Taking</li> <li>• Photo-documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Suspected low hazard based on site history/visual evidence.</li> <li>• No CBRN suspected.</li> <li>• No visible/suspected vapors.</li> <li>• No potential for IDLH atmosphere.</li> <li>• Unknown physical hazards.</li> <li>• Some site background information.</li> <li>• No intrusive work expected.</li> <li>• Low potential for chemical splash/contact (based on expected tasks/known conditions).</li> <li>• <b>Required Work Practice:</b> Immediate PPE Change-out (i.e. gloves, etc.) upon contact with chemicals.</li> <li>• <b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Level B</b> (Downgrade/upgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O<sub>2</sub> per HASP/ SOSGs)</p> <p><b>Respirator:</b> Scott or MSA Full Face</p> <p><b>Suit Type:</b> Tychem CPF-3 (with boot, hood)/ChemTape</p> <p><b>Inner Glove:</b> Nitrile (6 mil min recommended)</p> <p><b>Outer Glove:</b> Neoprene, Nitrile, (28 mil min recommended)</p> <p><b>Outer Steel Toe Boot:</b> Tingley HazProof Model 82330 or Steel Toe Boot Cover: Latex HazMaster Booty and rely on suit boot material for permeation protection.</p> <p><b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECEN:</b> Dry or soap &amp; water</p>
<p><b>Emergency Response and/or Initial Entry/Assessment of Unknown – Potential Moderate Hazard (Sites/Facilities):</b></p> <ul style="list-style-type: none"> <li>• Air and Radiation Monitoring Sweep</li> <li>• Visual Assessment</li> <li>• Note Taking</li> <li>• Photo-documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Possible high hazard chemicals based on site history/visual evidence (spills, corrosion, industrial practices, etc.).</li> <li>• No CBRN suspected.</li> <li>• No visible/suspected vapors.</li> <li>• No reasonable potential for IDLH atmosphere.</li> <li>• Unknown physical hazards.</li> <li>• Little/ no site background information.</li> <li>• No intrusive work expected.</li> <li>• Low potential for chemical splash/contact.</li> <li>• <b>Required Work Practice:</b> Immediate PPE Change-out (i.e. gloves, etc.) upon contact with chemicals.</li> <li>• <b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Level B</b> (Downgrade/upgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O<sub>2</sub> per HASP/ SOSGs)</p> <p><b>Respirator:</b> Scott or MSA Full Face</p> <p><b>Suit Type:</b> Tychem Responder (with boot, hood)/ChemTape</p> <p><b>Inner Glove:</b> Nitrile (6 mil min recommended)</p> <p><b>Outer Glove:</b> Neoprene, Nitrile, (28 mil min recommended)</p> <p><b>Outer Steel Toe Boot:</b> Tingley HazProof Model 82330 or Steel Toe Boot Cover: Latex HazMaster Booty and rely on suit boot material for permeation protection.</p> <p><b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECEN:</b> Dry or soap &amp; water</p>



Activity Description	Hazards/Conditions	Targeted Minimum PPE
<p><b>Emergency Response and/or Initial Entry/Assessment of Unknown - Suspected High Hazard (Sites/Facilities):</b></p> <ul style="list-style-type: none"> <li>• Air and Radiation Monitoring Sweep</li> <li>• Visual Assessment</li> <li>• Note Taking</li> <li>• Photo-documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for high hazard chemicals/IDLH based on site history/visual evidence (visible/expected reactions, spills, vapors, fumes, smoke, known releases, etc.).</li> <li>• No CBRN suspected.</li> <li>• Potential for chemical reactions.</li> <li>• Unknown physical hazards.</li> <li>• Little/ no site background information or information suggesting high hazard.</li> <li>• Intrusive work possible.</li> <li>• Potential for chemical splash/contact.</li> <li>• <b>Required Work Practice:</b> Immediate PPE Change-out (i.e. gloves, etc.) upon contact with chemicals.</li> <li>• <b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Level A</b> (Downgrade/upgrade (Trelleborg, etc.) based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O<sub>2</sub> per HASP/ SOSGs)</p> <p><b>Respirator: Scott or MSA Full Face</b></p> <p><b>Suit Type:</b> Encapsulating <sup>I</sup>Tychem Responder/Responder CSM (with boot, hood, gloves)/ChemTape</p> <p><b>Inner Glove:</b> <sup>II</sup>Nitrile (6 mil min recommended)</p> <p><b>Outer Glove:</b> <sup>II</sup>Neoprene, Nitrile, (28 mil min recommended)</p> <p><b>Outer Steel Toe/Steel Shank Boot:</b> <sup>IV</sup>Tingley HazProof Model 82330 and rely on suit boot material for permeation protection. (ASTM F-2413/ANSI Z41)</p> <p><b>DECON:</b> Dry or soap &amp; water: water source for emergency DECON; other DECON agents on hand.</p>
<p><b>Drum/Tank Sampling</b></p> <ul style="list-style-type: none"> <li>• Container opening</li> <li>• Continuous air monitoring</li> <li>• Product sampling</li> </ul>	<ul style="list-style-type: none"> <li>• Unknown chemicals.</li> <li>• No CBRN.</li> <li>• Potential splash hazard.</li> <li>• Physical hazard controls in place.</li> <li>• Assumes no initial hazardous atmosphere.</li> <li>• Ensure availability of water source for emergency DECON/shower/eyewash.</li> <li>• <b>Required Work Practice:</b> Immediate PPE Change-out (i.e. gloves, etc.) upon contact with chemicals.</li> <li>• <b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Level B</b> (Upgrade/Downgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O<sub>2</sub> per HASP/ SOSGs)</p> <p><b>Respirator: Scott or MSA Full Face</b></p> <p><b>Suit Type:</b> <sup>I</sup>Tychem Responder (with boot, hood)/ChemTape</p> <p><b>Inner Glove:</b> <sup>II</sup>Nitrile, Neoprene, Viton, PVC</p> <p><b>Outer Glove:</b> <sup>II</sup>Heavy Duty Butyl, Nitrile,</p> <p><b>Other:</b> ANSI Approved Splash Shield</p> <p><b>Outer Steel Toe Boot:</b> <sup>IV</sup>Tingley HazProof Model 82330 or</p> <p><b>Steel Toe Boot Cover:</b> <sup>V</sup>Latex HazMaster Booty and rely on suit boot material for permeation protection.</p> <p><b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECON:</b> Dry DECON or soap and water; water source for emergency DECON and eyewash suggested.</p>





Activity Description	Hazards/Conditions	Targeted Minimum PPE
<p><b>Hazardous Categorization Testing (HAZCAT)</b></p> <ul style="list-style-type: none"> <li>Opening sample containers in controlled environment</li> <li>Working with small sample quantities in well ventilated area</li> <li>Conducting HAZCAT testing with appropriate lab equipment</li> </ul>	<ul style="list-style-type: none"> <li>Assumes known chemical classes and site situation/background.</li> <li>No CBRN suspected.</li> <li>Assumes immediate suit removal if contaminated and frequent glove changes.</li> <li><b>Required Work Practice:</b> Immediate PPE Change-out (i.e. gloves, etc.) upon contact with chemicals.</li> <li><b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Level B</b> (Upgrade/Downgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O<sub>2</sub> per HASP/ SOSGs)</p> <p><b>Respirator: Scott or MSA Full Face</b></p> <p><b>Suit Type:</b> <sup>I</sup>Tychem CPF4 (with hood, boot)</p> <p><b>Inner Glove:</b> <sup>II</sup>Nitrile</p> <p><b>Outer Glove:</b> <sup>II</sup>Viton or 4-H (use surgie over the 4-H for dexterity)</p> <p><b>Outer Steel Toe Boot:</b> <sup>IV</sup>Tingley HazProof Model 82330 or</p> <p><b>Steel Toe Boot Cover:</b> <sup>V</sup>Latex HazMaster Booty and rely on suit boot material for permeation protection.</p> <p><b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECON:</b> Dry or soap and water; water source for emergency DECON and eyewash suggested</p>
<p><b>Oil Spill Response/Recovery Operations – Fresh Product:</b></p> <ul style="list-style-type: none"> <li>Recovery operations (vac truck, skimmers, boom deployment where direct contact expected)</li> <li>Product sampling</li> <li>Continuous air monitoring at/near source of spill</li> </ul>	<ul style="list-style-type: none"> <li>Crude oil/diesel/kerosene/gasoline spill.</li> <li>Assumes fresh/ongoing spill, close proximity to source.</li> <li>Assumes early phase while evaporation of light organics, benzene/other aromatics is still occurring (24-48 hours or if spill is on-going).</li> <li>Assumes down-wind location.</li> <li>Continuous air monitoring required for for %LEL, Organics, %O<sub>2</sub> (and H<sub>2</sub>S as necessary for sour crude).</li> <li><b>Required Work Practice:</b> Immediate PPE Change-out (i.e. gloves, etc.) upon contact with chemicals.</li> <li><b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Modified Level C:</b> 1/2 face respirator w/safety glasses/goggles as needed for splash protection. Downgrade as appropriate based on air monitoring.</p> <p><b>Respirator: Scott or MSA ½ Face</b></p> <p><b>Respirator Cartridge:</b> <sup>III</sup> Multi-Phase Cartridge (Scott 642 Multi-purpose; MSA with/GME P-100 or equivalent).</p> <p><b>Suit Type:</b> <sup>I</sup>Tychem CPF4 w/boot [jet fuel use Tychem BR]</p> <p><b>Inner Glove:</b> <sup>II</sup>Neoprene (for protection at DECON line only, not for prolonged contact)</p> <p><b>Outer Glove:</b> <sup>II</sup>Viton-Butyl Rubber (assumes potential for direct contact with fresh material – based on benzene/aromatic constituents) SEE NEXT ROW FOR WEATHERED PRODUCT.</p> <p><b>Outer Steel Toe Boot:</b> <sup>IV</sup>Tingley HazProof Model 82330 or</p> <p><b>Steel Toe Boot Cover:</b> <sup>V</sup>Latex HazMaster Booty and rely on suit boot material for permeation protection.</p> <p><b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECON:</b> Dry DECON/ Soap and water as feasible</p>



Activity Description	Hazards/Conditions	Targeted Minimum PPE
<p><b>Oil Spill Response Assessment/Recovery – Weathered Product</b></p> <ul style="list-style-type: none"> <li>• Shoreline clean-up assessment (SCAT)</li> <li>• Environmental sampling/weathered product sampling</li> <li>• Recovery Operations for weathered material</li> <li>• Assessment via boat/on or near water – use appropriate flotation device with ensemble.</li> </ul>	<ul style="list-style-type: none"> <li>• Crude oil/diesel/kerosene/gasoline spill.</li> <li>• Assumes weathered oil (over 24-48 hours, depending on spilled material and ambient temperatures).</li> <li>• Assumes operations are remote from source of spill.</li> <li>• Assumes no other potential for airborne aromatics/benzene/flammable vapors.</li> </ul>	<p><b>Modified Level D</b> (Upgrade/Downgrade based on potential for contact and air monitoring with FID/PID, LEL/O<sub>2</sub> Meter.</p> <p><b>If contact with material suspected, use following:</b></p> <p><b>Suit Type:</b> <sup>I</sup>Tychem F w/boot [jet fuel-Tychem BR] (Tychem SL may be an option for weathered crude/diesel – see manufacturer’s information)</p> <p><b>Inner Glove:</b> <sup>II</sup>Nitrile</p> <p><b>Outer Glove:</b> <sup>II</sup>Nitrile (Best Nitrile-solv 727)</p> <p><b>Outer Boot Cover:</b> <sup>V</sup>Latex HazMaster Booty</p> <p><b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECON:</b> Dry DECON/Soap and water as feasible</p>
<p><b>Demolition/Excavation Operations:</b></p> <ul style="list-style-type: none"> <li>• Heavy equipment operation</li> <li>• Excavation/Trenching</li> <li>• Continuous air monitoring when soil is disturbed or demolition activities conducted.</li> <li>• Fuel Oil underground tank removal.</li> <li>• Drum Excavation activities EXCLUDED.</li> </ul>	<ul style="list-style-type: none"> <li>• Demolition activities generating potentially hazardous particulates (asbestos, lead, silica, etc.).</li> <li>• Excavation activities that could expose soil contaminated with low levels of known hazardous chemicals to the surrounding area /in the trench/excavation.</li> <li>• No potential for IDLH atmosphere.</li> <li>• Site background information available.</li> <li>• Known physical hazards.</li> <li>• Workers will have minimal/ no contact with contaminants (i.e. operators in a cab, inspectors/ observers at a safe distance).</li> <li>• Continuous air monitoring required in trench for %LEL, Toxics, and %O<sub>2</sub> when workers are in trench and for particulate when activities generating particulate are conducted.</li> <li>• <b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Modified Level C:</b> 1/2 face respirator w/safety glasses. Downgrade or upgrade as appropriate based on air monitoring.</p> <p><b>Respirator:</b> Scott or MSA ½ Face</p> <p><b>Respirator Cartridge:</b> <sup>III</sup> Multi-Phase Cartridge (Scott 642 Multi-purpose P-100; MSA with/GME P-100 or equivalent).</p> <p><b>Suit Type:</b> <sup>I</sup>Proshield Next Gen</p> <p><b>Inner Glove:</b> NA</p> <p><b>Outer Glove:</b> Leather</p> <p><b>Outer Steel Toe Boot:</b> NA</p> <p><b>Steel Toe Boot Cover:</b> <sup>V</sup>Latex HazMaster Booty (if chemical in soil is possible)</p> <p><b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECON:</b> Dry DECON/ Soap and water as feasible</p>





Activity Description	Hazards/Conditions	Targeted Minimum PPE
<p><b>Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) - Orphan Container Recovery:</b></p> <ul style="list-style-type: none"> <li>• Routine hand collection/pick-up of small containers from debris piles/lines</li> <li>• Land based operations - conducted on foot</li> </ul> <p><b>Note:</b> Physical Hazards may necessitate PPE modifications.</p>	<ul style="list-style-type: none"> <li>• Unknown materials – confident identification based on visual observations.</li> <li>• <b>Required Work practice:</b> re-evaluate prior to moving suspicious containers. Air monitoring and PPE upgrade may be required.</li> <li>• <b>Required Work Practice:</b> Immediate PPE Change-out (i.e. gloves, etc.) upon contact with chemicals.</li> <li>• <b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Modified Level D:</b> Upgrade/downgrade based on suspicious containers (not easily identified visually) and air monitoring with PID/FID, radiation detector, LEL/O<sub>2</sub> per HASP/ SOSGs</p> <p><b>Suit Type:</b> <sup>1</sup>Tychem CPF-3 w/boot  <b>Inner Glove:</b> <sup>11</sup>Nitrile  <b>Outer Glove:</b> <sup>11</sup>Nitrile (Best Nitri-solv 727) or Leather  <b>Outer Boot Cover:</b> <sup>V</sup>Latex HazMaster Booty  <b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECON:</b> Dry DECON/Soap and water as feasible</p>
<p><b>Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) - Orphan Container Recovery:</b></p> <ul style="list-style-type: none"> <li>• Routine Drum recovery from debris lines/piles/ other – conducted on land</li> </ul> <p><b>Note:</b> Physical Hazards may necessitate PPE modifications.</p>	<ul style="list-style-type: none"> <li>• Unknown materials – confident identification based on visual observations.</li> <li>• <b>Required Work practice:</b> re-evaluate prior to moving suspicious containers. Air monitoring and PPE upgrade may be required.</li> <li>• <b>Required Work Practice:</b> Immediate PPE Change-out (i.e. gloves, etc.) upon contact with chemicals.</li> <li>• <b>Required Work Practice:</b> Must follow standard air monitoring protocol.</li> </ul>	<p><b>Modified Level D:</b> Upgrade/downgrade based on suspicious containers (not easily identified visually) and air monitoring with PID/FID, radiation detector, LEL/O<sub>2</sub> per HASP/ SOSGs</p> <p><b>Suit Type:</b> <sup>1</sup>Tychem CPF-3 w/boot  <b>Inner Glove:</b> <sup>11</sup>Nitrile  <b>Outer Glove:</b> <sup>11</sup>Nitrile (Best Nitri-solv 727) or Leather  <b>Outer Boot Cover</b> <sup>V</sup>Latex HazMaster Booty  <b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECON:</b> Dry DECON/Soap and water as feasible</p>
<p><b>Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) – Flood water sampling:</b></p> <ul style="list-style-type: none"> <li>• Water Sampling of flood waters where potential for contact with hands/feet is high</li> </ul> <p><b>Note:</b> Physical Hazards may necessitate PPE modifications.</p>	<ul style="list-style-type: none"> <li>• Unknown contaminants</li> <li>• Potential for pathogens suspected</li> <li>• Low potential for acute exposure to hazardous chemicals</li> <li>• Assumes open air/well ventilated areas</li> </ul> <p><b>Required Work Practice:</b> Monitor all poorly ventilated areas in appropriate PPE/Respiratory Protection for organic vapors (PID &amp; FID), %LEL/flammable atmospheres, H<sub>2</sub>S prior to entry</p>	<p><b>Modified Level D:</b> Upgrade based on more information as it becomes available.</p> <p><b>Suit Type:</b> <sup>1</sup>Proshield Next Gen  <b>Inner Glove:</b> <sup>11</sup>Nitrile  <b>Outer Glove:</b> <sup>11</sup>Nitrile (Best Nitri-solv 727)  <b>Outer Boot:</b> Waders (butyl, neoprene) as needed.  <b>Steel Toe/Steel Shank Boots:</b> ASTM F-2413/ANSI Z41</p> <p><b>DECON:</b> Dry DECON/Soap and water as feasible</p>



Activity Description	Hazards/Conditions	Targeted Minimum PPE
<p><b>Environmental Sampling (Low Concentration Water/Soil/Perimeter Air):</b></p> <ul style="list-style-type: none"> <li>• Multi-media Sampling</li> <li>• Documentation (written/photo)</li> <li>• Inspection of clean-up operations</li> </ul>	<ul style="list-style-type: none"> <li>• Known Chemical Contaminants.</li> <li>• Airborne concentrations well below PELs.</li> <li>• Minimal chance of skin exposure to chemicals.</li> <li>• Insects possible.</li> </ul>	<p>Level D: Upgrade based on more information as it becomes available.</p> <p>Suit Type: <sup>1</sup>Proshield 1 (if ticks, etc. maybe a problem)</p> <p>Inner Glove: <sup>ii</sup>Nitrile</p> <p>Outer Glove: NA</p> <p>Outer Boot: NA</p> <p>Steel Toe Boots: ASTM F-2413/ANSI Z41</p> <p>DECON: NA</p>

- <sup>i</sup> Tychem and Proshield suits can be purchased from Safeware: 800-331-6707, <http://www.safewareinc.com>, (see also LSS, <http://www.labsafety.com>, Dupont: 1-800-931-3456, [http://www2.dupont.com/Personal\\_Protection/en\\_US/index.html](http://www2.dupont.com/Personal_Protection/en_US/index.html) )
- <sup>ii</sup> Nitrile Inner/Outer Gloves; Viton; Butyl Rubber; 4-H (polymeric) can be purchased from Safeware: 800-331-6707, <http://www.safewareinc.com> ; Airgas: 1-866-718-0685, <http://www.airgas.com> (see also North Safety, <http://www.northsafety.com>); Best Gloves, <http://www.bestglove.com> ; Lab Safety Supply (LSS), <http://www.labsafety.com>; Airbill, <http://www.airbill.com>
- <sup>iii</sup> Multi-Phase Cartridge (Scott 642 Multi-purpose; MSA with/GME P-100 or equivalent) can be purchased from LSS: 1-800-356-0673, <http://www.labsafety.com> (see also Safeware, <http://www.safewareinc.com>; Scott Safety, <http://www.scotthealthsafety.com/>; MSA, <http://www.msanet.com/>)
- <sup>iv</sup> Tingley HazProof Overboots or similar can be purchased from LSS: 1-800-356-0673, <http://www.labsafety.com>; National Safety, Inc.: 1-800-213-7092, <http://www.nationalsafetyinc.com>
- <sup>v</sup> Latex Hazmaster Booties, Nuke Boot or similar can be purchased from Safeware: 800-331-6707, <http://www.safewareinc.com>; Airbill: 1-215-632-2000, <http://www.airbill.com>; (see also Airgas, <http://www.airgas.com>; LSS, <http://www.labsafety.com>)





### Suggested Ensemble/Monitor Per Chemical

**IMPORTANT: READ FOOTNOTES AND ASSUMPTIONS/JUSTIFICATIONS PRIOR TO USING TABLE (see below/attached).** The chemicals listed represent classes that are more likely to be encountered in the field. Information in this table is provided as a reference only. Other chemicals in these classes not on this table should be researched before entering an environment that has the potential for exposure.

Compound	CAS. No.	Monitor	Detector Range ppm (unless listed otherwise)	Response Factor	Listed Exposure Limit (ppmv)	Exposure Limit Type	Action Level (ppmv)	IDLH (ppmv)	Level C <sup>II</sup> (ppmv)	Cartridge MSA	Cartridge Scott	Level B/A <sup>I</sup> (ppmv)	TYCHEM LEVEL C SUIT	TYCHEM LEVEL A/B SUIT	Gloves + Ansell - Chem	Other Compatible Materials	Boots +	
Acetone	67-64-1	MultiRae-PID-10.6eV	0.2-2000	1.1	500	=TLV-TWA	250	2500	250	GME 815182	642 MPC	1000	CPF-3	RESPONDER	Tek	Butyl	Tingley	
[(CH <sub>3</sub> ) <sub>2</sub> CO]		MicroFID	1-50000	2.7	250	=REL-TWA							Other Suits	Other Suits	Best - Butyl	SilverShield /4H	HazProof Model 82330	
		TVA-FID	1-10,000	0.9 **	1000	=REL-TWA		(10% LEL)						TK				
		Dräger CMS	40-500	1														
		Dräger Acetone 40/a	40-800	1														
		Dräger Acetone 100/b	100-12,000	1														
Ammonia (NH <sub>3</sub> )	7664-41-7	MultiRae-PID-10.6eV	2-2000	9.7	25	=TLV-TWA	13	300	13	GME 815182	642 MPC	300	CPF-4	RESPONDER	Ansell - Chem Tek	Nitrile	Tingley	
		MultiRAE Sensor	1-50	1	25	=REL-TWA							Other Suits	Other Suits	Best - Butyl	SilverShield /4H (liq)	HazProof Model 82330	
		Dräger CMS	100-2000	1	50	=REL-TWA							SL (liq.)	CSM				
		Dräger Tube 5/a	5-700	1									CPF-3 (liq.)	TK				
		Dräger CMS	2-50	1														
		Dräger CMS	10-150	1														
		SPM	2.6-75	1														
		Dräger Tube 2/a	2-30	1														
		Dräger Tube 5/b	2.5-100	1														
		Dräger Tube 0.5/a	0.05-10 Vol %	1														
Butadiene (1,3) [CH <sub>2</sub> =CHCH=CH <sub>2</sub> ]	106-99-0	MultiRae-PID-10.6eV	0.2-2000	0.85	1	=TLV-TWA	0.5	2000	0.5	GME 815182	642 MPC	50	CPF-3	RESPONDER	Best - Nitril-Solve	Viton	Tingley	
		TVA-FID	1-10,000	0.75 **	0.2(LFC)	=REL-TWA							Other Suits	Other Suits		SilverShield /4H	HazProof	
		MicroFID	1-50000	2.7	1	=REL-TWA		(10% LEL)					CPF-4	CSM		Nitrile	Model 82330	
		Dräger Chloroprene 5/a	1-60	1									SL	TK		Butyl		
		Dräger CMS	1-25	1														
Carbon Disulfide (CS <sub>2</sub> )	75-15-0	MultiRae-PID	0.2-2000	1.2	1	=TLV-TWA	0.5	500	0.5	GME 815182	642 MPC	50	CPF-4	RESPONDER	Ansell - Barrier	Polyvinyl Alcohol (PVA)	Tingley	
		Dräger 3/a	3-95	1	1	=REL-TWA							Other Suits	Other Suits	Best - Viton	SilverShield /4H	HazProof Model 82330	
		Dräger 30/a	32-3,200	1	20	=REL-TWA							BR	CSM		Viton		
Chlorine (Cl <sub>2</sub> )	7785-50-5	MultiRAE Sensor	0.1-10	1	0.5	=TLV-TWA	0.25	10	0.25	GME 815182	642 MPC	10	CPF-3	RESPONDER	Ansell - Barrier	Butyl	Tingley	
		Dräger 0.3/b	0.3-10	1	0.5	=REL-STEL							Other Suits	Other Suits	Best - nitril-solve	SilverShield /4H	HazProof Model 82330	
		Dräger 0.2/a	0.2-30	1	1	=REL-C							SL	TK				
		Dräger 50/a	50-500	1									CPF-4	TK				
		Dräger CMS	0.2-10	1									BR					
		SPM	0.05-1.5	1														
Dichloromethane (CH <sub>2</sub> Cl <sub>2</sub> )	75-09-2	MicroFID	0.7-50000	1.4	50	=TLV-TWA	13	2300					BR	RESPONDER	Ansell - PVA	SilverShield /4H	Tingley	
		TVA-FID	1-10,000	1.1 **	LFC	=REL-TWA							Other Suits	Other Suits			HazProof	
		Dräger Tube Methylene Chloride 100/a	10-2,000	1	25	=REL-TWA												
		Dräger CMS	20-400	1														
Diesel Fuel (C <sub>12</sub> H <sub>24</sub> )	68334-30-5	MultiRae-PID-10.6eV	0.2-2000	0.9	100 mg/m <sup>3</sup> IFV	=TLV-TWA	50 mg/m <sup>3</sup>	NL	50 mg/m <sup>3</sup>	GME P-100	642 MPC P-100	2500 mg/m <sup>3</sup>	Tychem-F	RESPONDER	Best - nitril-solve	Viton	Tingley	
		MicroFID	0.5-50000	~1	NL	=REL-TWA							Other Suits	Other Suits		SilverShield /4H	HazProof	
		Dräger Tube Diesel Fuel	25-200 mg/m <sup>3</sup>	1	NL	=REL-TWA							BR	CSM		Nitrile	Model 82330	
Diesel ppm to mg/m <sup>3</sup> multiply by 9.24		Dräger Tube Hydrocarbons 100/a	100-2,500	1		skin							TK			Neoprene		

Suggested Ensemble/Monitor Per Chemical

Guidelines for PPE Ensemble Selection – Posted April 2011

**IMPORTANT: READ FOOTNOTES AND ASSUMPTIONS/JUSTIFICATIONS PRIOR TO USING TABLE (see below/attached).** Chemicals on this table were selected because they represent the more common types of chemicals in their class. The chemicals listed represent classes that are more likely to be encountered in the field. Information in this table is provided as a reference only. Other chemicals in these classes not on this table should be researched before entering an environment that has the potential for exposure.

Compound	CAS No.	Monitor	Detector Range (ppm unless otherwise)	Response Factor	Listed Exposure Limit (ppmv)	Exposure Limit Type	Action Level (ppmv)	IDLH (ppmv)	Level C* (ppmv)	Cartridge MSA	Cartridge Score	Level B/A" (ppmv)	TYCHEM LEVEL C SUIT	TYCHEM LEVEL A/B SUIT	Gloves + Barrier	Other Compatible Materials	Boots +
Dithylamine	109-89-7	MultiRae-PID-10.6eV	0.2-2000	1.0	5	=TLV-TWA	3	200	3	GME 815182	642 MPC	200	CPF-3	RESPONDER	Best - Hustler		Tingley
[C <sub>2</sub> H <sub>5</sub> NH]		TVA-FID	1-10,000	NL	10	=REL-TWA							Other Suits	RESPONDER	Ansell - Barrier		HazProof
		Trethylamine 5/a	5-50	1	25	=PEL-TWA skin								Tychem-F	CSM		
Ethyl acetate	141-76-6	MultiRae-PID-10.6eV	1-2000	4.6	400	=TLV-TWA	200	2000	200	GME 815182	642 MPC	1000	CPF-3	RESPONDER	Ansell - Barrier	Buyl	Tingley
		TVA-FID	1-10,000	0.8+++	400	=REL-TWA	(10%)							Other Suits	RESPONDER	Best - Buyl	SilverShield /4H
[CH <sub>3</sub> COOC <sub>2</sub> H <sub>5</sub> ]		Draeger Tube 200/a	200-3,000	0.90	400	=PEL-TWA		LEL					Tychem-F	CSM	Ansell-Chem Tek		Model 82330
														BR	TK		
Ethylene Oxide	75-21-8	MultiRae-PID-10.6eV	2-2000	13	1	=TLV-TWA	0.5	800	0.5	GMEO-SSW	NL	50	CPF-4	RESPONDER	Best - Buyl	Buyl	Tingley
		TVA-FID	1-10,000	1.3+++	0.1	=REL-TWA					Canister			Other Suits	Other Suits	Ansell - Barrier	SilverShield /4H
Gasoline	86290-81-05	Draeger Tube 1/a (5)	1-15	1	1	=PEL-TWA							BR	TK			Model 82330
		Draeger Tube 25/a	25-500	1													
m.v. 72 (approx.)		MultiRae-PID-10.6eV	0.2-2000	0.9	300	=TLV-TWA	150	NL	150	GME 815182	642 MPC	1000	CPF-3	RESPONDER	Best - nitr- solve	Vilon	Tingley
		MicroFID	0.5-50000	-1	NL	=REL-TWA								Other Suits	Other Suits	Ansell - PVA	SilverShield /4H
n-Hexane	110-54-3	Petroleum Hydrocarbons 10/a	10-300	1	NL	=PEL-TWA							BR	CSM		Nitrile	Model 82330
		Petroleum Hydrocarbons 100/a	100-2,500	1													Nitrile
(C <sub>6</sub> H <sub>6</sub> )		Draeger CMS	20-500	1												Neoprene	
		Draeger Tube 100/a	100-3,000	1										Tychem-F	TK		PVA
Hydrogen Chloride	7647-01-0	MultiRae-PID-10.6eV	1-2000	4.3	50	=TLV-TWA	25	1100	see Level B			25	CPF-3	RESPONDER	Best - nitr- solve	Vilon	Tingley
		MicroFID	0.8-50000	1.6	50	=REL-TWA	(10%)							Other Suits	Other Suits	Ansell - Sol-Vex	SilverShield /4H
(HCl) gas		TVA-FID	1-10,000	0.42+++	500	=PEL-TWA skin		LEL									
		Draeger Tube 100/a	50-3,000	1										CPF-4	TK		
Hydrogen Cyanide	74-90-8	Draeger CMS	1-25	1	2	=TLV-C	1	50	1	GME 815182	642 MPC	50	CPF-3	RESPONDER	Best - Neoprene	Nitrile	Tingley
		MultiRae Sensor	1-100	1	4.7	=TLV-C	3	50	see Level B				3	BR	RESPONDER	Ansell - Sol-Vex	SilverShield /4H
(AC, HCN) gas		Draeger CMS	2.0-50	1	4.7	=REL-STEL											
		SPM	1-1-30	1	10	=PEL-TWA skin								CPF-4	CSM		Neoprene

Suggested Ensemble/Monitor Per Chemical

IMPORTANT: READ FOOTNOTES AND ASSUMPTIONS/JUSTIFICATIONS PRIOR TO USING TABLE (see below/attached).  
 Chemicals on this table were selected because they represent the more common types of chemicals in their class. The chemicals listed represent classes that are more likely to be encountered in the field.  
 Information in this table is provided as a reference only. Other chemicals in these classes not on this table should be researched before entering an environment that has the potential for exposure.

Compound	CAS No.	Monitor	Detector Range ppm (unless listed otherwise)	Response Factor	Exposure Limit (ppmv)	Exposure Limit Type	Action Level <sup>1</sup> (ppmv)	IDLH (ppmv)	Level C <sup>2</sup> (ppmv)	Cartridge MISA	Cartridge Scott	Level B/A <sup>3</sup> (ppmv)	TYCHEM LEVEL C SUIT	TYCHEM LEVEL A/B SUIT	Gloves + Ansell - Sol- Vex	Other Compatible Materials	Boots +
Mercury	7939-97-6	Jerome Meter	3-999 ug/m <sup>3</sup>	1	25 ug/m <sup>3</sup>	=TLV-TWA	13 ug/m <sup>3</sup>	10,000 ug/m <sup>3</sup>	13 ug/m <sup>3</sup>	Mersorb 815185	642 HGCL	2500 ug/m <sup>3</sup>	CPF-3	RESPONDER	SilverShield /4H	PVC Nat. Rubber (Latex)	Tingley HazProof
(Hg)		Mercury Inst. Tracker	0.1-2000 ug/m <sup>3</sup>	1	100 ug/m <sup>3</sup>	=PEL-C							SL	CSM		Nitrile	Model 82330
		Ohio Lunex	0.002-20 ug/m <sup>3</sup>	1	100 ug/m <sup>3</sup>	=PEL-C							Tychem-F	TK		Neoprene	
		Draeger Tube Mercury Vapor 0.1lb	50-2000 ug/m <sup>3</sup>	1		skin							BR				
		Nippon EMP	1-5000 ug/m <sup>3</sup>	1					see Level B				CPF-4		Ansell - Barrier		Tingley
Methanol (CH <sub>3</sub> OH)	67-56-1	TVA-FID	4-10,000	3.8 ++	200	=TLV-TWA	100	6000				100	CPF-4	RESPONDER	Best - Butyl Ansell-Chem Tek	Butyl	HazProof Model 82330
		MicroFID	10-50000	24	200	=REL-TWA							Other Suits	Other Suits	Best - Butyl		
		Draeger Tube Alcohol 25/a	25-5,000	1	200	=PEL-TWA							SL	TK			
		Draeger Tube Alcohol 100/a	100-3,000	1									Other Suits	Other Suits	Ansell-Chem Tek		
		Draeger CMS	20-500	1									Other Suits	Other Suits			
Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )	7664-93-9	SPM	0.026-75	1	0.2 mg/m <sup>3</sup>	=TLV-TWA	0.1 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	GME P-100	642 MPC P- 100	15 mg/m <sup>3</sup>	CPF-3	RESPONDER	Ansell - Barrier	Viton	Tingley
		Draeger Tube 1/a (9)	1-5 mg/m <sup>3</sup>	1	1 mg/m <sup>3</sup>	=REL-TWA							Other Suits	Other Suits	Best - Butyl	Neoprene	HazProof
Sulfuric Acid ppm to mg/m <sup>3</sup> multiply by 4.09					1 mg/m <sup>3</sup>	=PEL-TWA							SL	TK	Ansell-Chem Tek	SilverShield /4H	Model 82330
Tetrachloroethylene (C <sub>2</sub> Cl <sub>4</sub> )	127-18-4	MultiRae-PID-10.6eV	0.1-2000	0.57	25	=TLV-TWA	13	150	see Level B				Tychem-F	RESPONDER	Ansell - nitri- solve	Viton	Tingley
		TVA-FID	1-10,000	0.97 ++	LFC	=REL-TWA							Other Suits	Other Suits	Ansell - Barrier	SilverShield /4H	HazProof
		MicroFID	2-50000	2.9	100	=PEL-TWA							Tychem-F	Other Suits	Ansell - Barrier	CPE	Model 82330
		Draeger Tube 2/a	2-300	1									BR	TK			
		Draeger Tube 0.1/a	0.1-4	1									CPF-4				
		Draeger Tube 10/b	10-500	1									Other Suits	Other Suits			
		Draeger CMS	5.0-150	1									Tychem-F	CSM			
Toluene [C <sub>7</sub> H <sub>8</sub> CH <sub>3</sub> ]	108-88-3	MultiRae-PID-10.6eV	0.1-2000	0.50	20	=TLV-TWA	10	500	10	GME 815182	642 MPC	500	CPF-3	RESPONDER	Ansell - PVA	Viton	Tingley
		TVA-FID	1-10,000	0.34 ++	100	=REL-TWA							Other Suits	Other Suits	Best - Viton	SilverShield /4H	HazProof
		MicroFID	0.5-50000	0.9	200	=PEL-TWA							Tychem-F	Other Suits	Ansell - Barrier		Model 82330
		Draeger Tube 5/b	5-300	1									BR	TK			
		Draeger Tube 50/a	50-400	1									CPF-4				
		Draeger Tube 100/a	100-1,800	1									Other Suits	Other Suits			
		Draeger CMS	10-300	1									Tychem-F	CSM			

Legend:  
 IDLH = Immediately Dangerous to Life and Health (NIOSH)  
 TLV = Threshold Limit Value (ACGIH)  
 REL = Recommended Exposure Limit (NIOSH)  
 PEL = Permissible Exposure Limit (OSHA)  
 TWA = Time Weighted Average (Typically 8 hour workday and 40 hour work week)  
 STEL = Short Term Exposure Limit (15 minute time weighted average)  
 IFV = Measured as inhalable fraction and vapor (total hydrocarbons)  
 LFC = Lowest Feasible Concentration. Value listed is the Limit of Quantitation.  
 C = Ceiling (should not be exceeded during any part of the workday)  
 M = Must perform response factor calculation prior to comparing using this Action Level. The action level is 1/2 the PEL or TLV, whichever is lower.  
 \* = Value shown is Manufacturer Maximum Use Concentration (MUC) for the Level C cartridges (full face APR). In the absence of an MUC the value will be 50 times the Action Level or the IDLH whatever is lower.  
 \*\* = Value shown is Manufacturer Maximum Use Concentration (MUC) for the Level B outerwear is worn when conditions indicate decreased levels of skin protection are in concert with higher level respiratory & eye protection requirements.  
 Level A should be worn when the highest level of respiratory, skin & eye protection is needed. Level B outerwear is worn when conditions indicate decreased levels of skin protection are in concert with higher level respiratory & eye protection requirements.  
 Protection selected based on type and measured concentration of chemical and its toxicity to the substance in air; splashes of liquids; or other direct contact with the material due to the work being done.  
 \*\*\* = Level C = Full Face Air Purifying Respirator. PAPR/Cannister may give higher conc. that Level C may be used.  
 SPM = Single Point Monitor (ChemCassette) - Honeywell  
 PVA = Polyvinyl Alcohol - A water soluble polymer with extremely good resistance to certain chemicals but it CANNOT be used around water (including sweat).  
 NL = Not Listed  
 ACGIH 2008 Guide to Occupational Exposure Values used for Exposure Limits  
 + = Suits/boots/gloves must have all seams taped with ChemTape or equivalent where seams exist.  
 ++ = Suits/boots/gloves must have all seams taped with ChemTape or equivalent where seams exist.  
 +++ = Suits/boots/gloves must have all seams taped with ChemTape or equivalent where seams exist.  
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#### **Attachment 4**

1. ICS 215A-ORM
2. ICS-215A ORM SAFETY ANALYSIS AID
3. INCIDENT ACTION PLAN SAFETY ANALYSIS (ICS FORM 215A-ORM)



### INCIDENT ACTION PLAN SAFETY ANALYSIS

1. Incident Name: \_\_\_\_\_

2. Date/Time Prepared: \_\_\_\_\_

4. Work Assignments

3 DIVISION/  
GROUP/  
OTHER  
LOCATION

7. ORM	S E V E R I T Y	P R O B A B I L I T Y	E X P O S U R E	G A R	Gar Scale										8. Prepared by (Name/Position)	
					1	2	3	4	5	Risk	20-39	40-59	60-79	80-100		
					Slight	Minimal	Significant	Major	Catastrophic		Slight	Possible	Substantial	High	Very High	
					Remote	Unlikely	50/50	>50	Very Likely		Green	Amber	Red	Red	Red	
					Below Avg	Above Avg	Above Avg	Great	N/A		Possibly Acceptable	Attention Needed	Correction Required	Immediate Correction	Discontinue/Stop	

ICS Form 215A  
ORM

Operational Risk  
Management Key

Scale  
Severity  
Probability  
Exposure



6. CONTROLS

**INCIDENT ACTION PLAN SAFETY ANALYSIS**

1. Incident Name:

2. Date/Time Prepared:

3. DIVISION/  
GROUP/  
OTHER  
LOCATION

4. Work Assignments

8. Prepared by (Name/Position)

Comments:  
\*\*NF = Not Followed    ! = Significant Hazards

ICS Form 215A  
ORM





# ICS-215A ORM SAFETY ANALYSIS AID

## HAZARDS:

Physical	Chemical/Biological	Human
• Slipping	• Explosion	• Crew Fatigue
• Tripping	• Flammable	• Violence
• Fall	• Air Reactive	• Poor Lifting
• Overhead	• Water Reactive	• Repetition
• Heat Stress	• Chem Reactive	• Excessive Force
• Cold Stress	• Alpha Rad	• Poor posture
• Electrical	• Beta Rad	• Awkward motion
• Blunt Objects	• Gamma Rad	• Poor hygiene
• Sharp Objects	• X Rad	• Illness
• Noise	• Bio-weapon	• Alcohol/Drugs
• Vehicle	• Chem-weapon	• Over crowding
• Fire	• Irritant	• Poor comms
• Sun/UV Glare	• Asphyxiant	• Noise interference
• Sun Burn	• Oxidizer	• Smoking
• Moving Pinch Points	• Carcinogen	• Driving
• Unguarded Machinery	• Corrosive	<b>Animal/Plant</b>
• Lightning	• Cryogenic	• Bites/Stings
• Drowning	• Toxic	• Poison
• Engulfment	• Biomed/pathogen	• Thorns/burrs
• Limited Egress/Access	• Particulates	• Swarms
	• Fumes (weld etc.)	• Disease
	• O <sub>2</sub> Deficiency	• Feces/Coliforms

## CONTROLS:

Types of Engineering Controls:

• Barriers	• Shields	• Dams
• Capping	• Covering	• Fencing
• Terminating	• Shutting	• Blocking
• Chocks	• Enclosures	• Diversers

• Flanging	• Guarding	• Substitution
• Anchoring	• Ventilation	• Blowing
• Scaffolding	• Grounding	• Substitution
• Bonding	• Insulation	• Lighting
• Locks, Tags	• Kill-switches	• Shut-off valves
• Taglines	• Circuit Breakers	• Process change
• Plugging, patching	• Sealing	• Absorbers

Types of Administrative Controls:

• Reduced work duration	• Worker rotation	• Safety plans
• Training	• Safety briefs	• Relief personnel
• Maintenance	• Drinking fluids	• Work/rest periods
• Good housekeeping	• Roving security	• Signs
• Warning lights	• Alarms	• Break areas
• Pre-inspections	• Field checks	• Buddy system
• Line of sight comms	• Comms schedule	• Equipt staging
• Load shifting	• Hazard marking	• Placarding
• Labeling	• Hand signals	• Safety observers
• Fendering	• Work plans	• Replenish fluids
• Handcarts/trolleys	• Fire extinguishers	• Drum bulking
• Eye Wash Station	• Hand washers	• Showers

Types of Personal Protective Equipment Controls:

• Hard hats	• Steel-toed shoes	• Safety glasses
• Safety goggles	• Face shields	• Hearing Protection
• Life jacket	• Fall arrests	• SCBA
• APRs	• Chemical suits	• Flash suits
• Fire resistant suits	• Work gloves	• Chemical gloves
• Sun glasses	• Sun-block	• Life rings
• Eye wash stations	• Night vision	• Thermal protection
• Dry/wet suits	• Hand warmers	• Wind breaker coat
• Knee pads	• Over garments	• Coveralls
• Booties	• Cooling vests	• Chap lip protection
• Hats for warming	• Gloves (warmth)	• Clothing (warmth)



## INCIDENT ACTION PLAN SAFETY ANALYSIS (ICS FORM 215A-ORM)

**Purpose:** The purpose of this National Response Team Worker Safety & Health Subcommittee form is to supplement an organization's operational risk management policy for a response site safety analysis during a National Response Framework incident. This worksheet can be used to aid the Safety Officer in completing an operational risk assessment to prioritize hazards and develop appropriate controls.

**Preparation:** During the Incident Action Planning (IAP) cycle, the Safety Officer works with the Planning and Operations Section Chiefs (OSC) while preparing for the tactics meeting to complete the IAP Safety Analysis. This sheet mirrors the ICS 215 form. Work assignments/operational tasks are listed along with associated hazards. Controls are developed for safeguarding responders. Risk calculations are made while considering the hazards and the controls that are established. The Incident Commander should be alerted to all safety hazards that receive Amber or Red GAR ratings.

**Distribution:** The Operational Risk Management 215A Worksheet is attached to the Incident Site Safety Plan.

**Instructions: Use as a Planning and as an Assessment Tool**

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) and time prepared.
3	Division/Group	Enter the Branch, Division or Group title in abbreviated form.
4	Work Assignment	List the work assignment for each Branch, Division or Group.
5	Hazards	<b>Enter the Hazards on Page 1.</b> Using the IAP Safety Analysis Aid (Enclosure 1(B)), list the type of hazards likely to be encountered for the work assignment/operational task. Place a check mark in the box below the hazard if it applies.
6	Controls	<b>Enter Controls on Page 2.</b> Using the IAP Safety Analysis Aid (Enclosure 1(B)), list the type of controls likely to be used for addressing the hazards listed. Place a check mark in the box below the control.
7	Risk/GAR	<b>Evaluate each operation while considering the existing hazards and the controls that are implemented.</b> Using the "Key" below, assign a number from 1 to 5 based on the exposure and 1 to 4 based on the severity (see definitions below). Multiply all numbers together to get a total. Enter this number into the total column. GAR means Green, Amber, Red. Using the GAR scale on the bottom of the sheet, assign a color, risk level or action phrase in this block.
8	Prepared by	Enter the name of the person who completed this worksheet.
9	ICS 204/Safety Messages	Develop safety messages for the 204 by providing details on the controls to be implemented. A separate sheet can be used to develop a comprehensive safety message.

