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NEVADA NNATIONAL SECURITY SITE (NNSS) INITIAL RESPONSE GUIDE (IRG)

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EMERGENCY MANAGEMENT ISSUES
SPECIAL INTEREST GROUP

PURPOSE

- Single Response Manual
- Familiar Product
- Observable Indicators
- Sharing Information

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EMERGENCY MANAGEMENT ISSUES SPECIAL INTEREST GROUP

SECTIONS

- Yellow – Facilities
- Orange – Guides
- Green – Emergency Action Level Results

continued next slide

SECTIONS (continued)

- White – Known Inventory
- Blue/Red – Water/Heat Reactivity
- Dark Blue – Pyrophoric/Criticality Tables
- Purple – Operational Emergency Not Requiring Classification

PROCESS OVERVIEW

- Identify Material
  - Material Lists
  - Observable Indicators
- Refer to Emergency Action Levels if necessary
- Refer to guides
- Other sections provide additional information

PROCESS BREAKDOWN

- Identify Material
  - Material Lists, listed by
    - Chemical Abstract Services Registry Number
    - Chemical Name
    - Emergency Action Level Number

TABLE 2-9. LIST OF MATERIALS BY CASRN

HWSU Chemicals sorted by CASRN

CASRN	Chemical Name	EAL No.	Guide No.
75-44-5	Phosgene	1076	125
75-69-4	Trichlorofluoromethane	2810	153
76-44-8	Heptachlor	2761C	151
77-78-1	Dimethyl sulfate	1595	156

TABLE 2-10. LIST OF MATERIALS BY NAME

HWSU Chemicals sorted by Chemical Name

Chemical Name	CASRN	EAL No.	Guide No.
Methyl isobutyl ketone	108-10-1	1245	127
Nitropropane	79-46-9	2608	129
Pentachlorophenol (Heat Reactive)	87-86-5	3155	154
Phosgene	75-44-5	1076	125

TABLE 2-11. LIST OF MATERIALS BY EAL NUMBER

HWSU Chemicals sorted by EAL No.

EAL No.	Chemical Name	CASRN	Guide No.
1076	Phosgene	75-44-5	125
1173	Ethyl acetate	141-78-6	129
1198	Formaldehyde	50-00-0	132
1230	Methanol	67-56-1	131

PROCESS BREAKDOWN

- Observable Indicators

TABLE 2-7. OBSERVABLE INDICATORS

Category	Observable Indicator	EAL No.	Guide No.
Odor	Alcoholic	1230	131
	Almond	1680	157
	Amine (Ammonia)	1547	153
	Pungent (freshly mowed hay)	1076	125
Color	Colorless liquid	1076	125
	Silver liquid	2809	172
	Silver to white lustrous solid	1400	138
	Yellow to red solid, powder, flakes, or cakes	2862	151
Event	Liquid spill from 55-gal or 85-gal drum	1076	125
	Solid spill from 55-gal or 85-gal drum	1561	151
Physiological Effects	Frostbite, Chest Pain, Cough, Breathing Difficulty, Irritation to Throat, and Irritation to Eyes	1076	125
	Hyper-pigmentation of Skin, Dermatitis, Irritation to Respiratory System,	1558	152
	Irritation to Eyes, Irritation to Skin, Irritation to Throat, Eye Burns, and Skin Burns	1790	157
	Narcosis (Sleepy), Cough, Dizziness, Irritation to Throat, Headache	2074	153P
OENRC	Not Highlighted in Green or event not listed above	OENRC Tables	

TABLE 2-8. LABELS / PLACARDS

If this label/placard is identified, use EAL No. 1076 Guide No. 125.

If these labels/placards are identified, use EAL No. 1245 Guide No. 127.

If these labels/placards are identified, use EAL No. 1779 Guide No. 153.

PROCESS BREAKDOWN

- Refer to Emergency Action Levels if necessary
  - Tables separated into Spill, Fire, and Explosion

PAR Map NSB Location #: 4, See Figure 6-1 Onsite Facility Table 2-1
Lat / Long: NXX.XX.XXX W.XXX.XX.XXX

TABLE 7-1. SPILL

			Single Container			Bounding Source Term		
EAL No.	Guide No.	Chemical Name	Class	PA/PAR Dist. (km)	PAT (MIN)	Class	PA/PAR Dist. (km)	PAT (MIN)
1076-S	125	Phosgene (Known Inventory)	GE	2.3	92	GE	12.7	513

PAR Map NSB Location #: 4, See Figure 6-1 Onsite Facility Table 2-1
Lat / Long: NXX.XX.XXX W.XXX.XX.XXX

TABLE 7-2. FIRE

			Single Container			Bounding Source Term		
EAL No.	Guide No.	Chemical Name	Class	PA/PAR Dist. (km)	PAT (MIN)	Class	PA/PAR Dist. (km)	PAT (MIN)
1076-F	125	Phosgene (Known Inventory)	Alert	0.1	4	GE	15.5	626

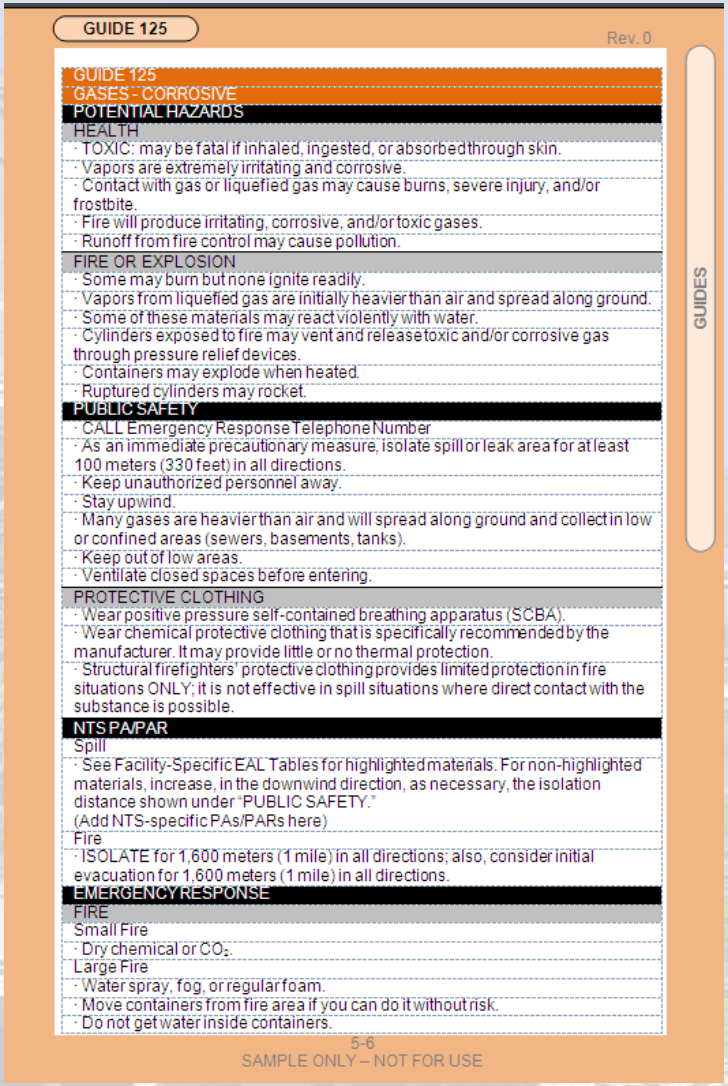
PAR Map NSB Location #: 4, See Figure 6-1 Onsite Facility Table 2-1
Lat / Long: NXX.XX.XXX W.XXX.XX.XXX

TABLE 7-3. EXPLOSION

			Single Container			Bounding Source Term		
EAL No.	Guide No.	Chemical Name	Class	PA/PAR Dist. (km)	PAT (MIN)	Class	PA/PAR Dist. (km)	PAT (MIN)
1076-E	125	Phosgene (Known Inventory)	GE	2.12	85	GE	14.2	573

PROCESS BREAKDOWN

- Refer to Guides
  - Guides, support material type rather than specific material
  - Example: Phosgene is a Corrosive Gas



GUIDE 125

Rev. 0

GUIDE 125
GASES - CORROSIVE

POTENTIAL HAZARDS

HEALTH
- TOXIC: may be fatal if inhaled, ingested, or absorbed through skin.
- Vapors are extremely irritating and corrosive.
- Contact with gas or liquefied gas may cause burns, severe injury, and/or frostbite.
- Fire will produce irritating, corrosive, and/or toxic gases.
- Runoff from fire control may cause pollution.

FIRE OR EXPLOSION
- Some may burn but none ignite readily.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Some of these materials may react violently with water.
- Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

PUBLIC SAFETY
- CALL Emergency Response Telephone Number
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING
- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

NTS PA/PAR

Spill
- See Facility-Specific EAL Tables for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY."

(Add NTS-specific PAs/PARs here)

Fire
- ISOLATE for 1,600 meters (1 mile) in all directions; also, consider initial evacuation for 1,600 meters (1 mile) in all directions.

EMERGENCY RESPONSE

FIRE

Small Fire
- Dry chemical or CO_2.

Large Fire
- Water spray, fog, or regular foam.
- Move containers from fire area if you can do it without risk.
- Do not get water inside containers.

5-6

SAMPLE ONLY – NOT FOR USE

GUIDES

PROCESS BREAKDOWN

- Known Inventory

TABLE 11-1. KNOWN INVENTORY CHEMICALS

EAL No.	Guide No.	Chemical Name	Location	Container	Class	PA/PAR Dist. (km)	PAT (MIN)
1076-S	125	Phosgene	HWSU	1 drum	GE	2.3	92
				2-3 drums	GE	7.23	292
				4-7 drums	GE	12.7	513
1076-F	125	Phosgene	HWSU	1 drum	Alert	0.1	4
				2-3 drums	GE	9.15	369
				4-7 drums	GE	15.5	626
1076-E	125	Phosgene	HWSU	1 drum	GE	2.12	85
				2-3 drums	GE	3.12	126
				4-7 drums	GE	14.2	573

PROCESS BREAKDOWN

- Water Reactivity

TABLE 12-1. WATER REACTIVE CHEMICALS

EAL No.	Guide No.	Name of Material	TIH Gas(es) Produced
1680	157	Potassium cyanide	Hydrogen cyanide

- Heat Reactivity

TABLE 13-1. HEAT REACTIVE CHEMICALS

EAL No.	Guide No.	Name of Material	TIH Gas(es) Produced
3155	154	Pentachlorophenol	Hydrochloric acid

- Pyrophoric/Criticality

TABLE 14-1. RADIOACTIVE PYROPHORIC METALS

EAL No.	Guide No.	Material	Melting Temperature	Precautions	Extinguishing Agent	Appearance
2979	162	Uranium (^{238}U, ^{235}U, ^{234}U, and ^{233}U)	Approximately 1,132°C or 2,070°F	• Criticality potential occurs with mass weights of 700 g ^{235}U or 500 g ^{233}U or greater. • Once ignited, massive pieces of U metal burn relatively slowly with very little visible flame unless coated with oil or other substances. • Smaller pieces of U metal are readily ignitable and may combust at a lower temperature.	Primary: Technical grade, Prilled-30 magnesium oxide Secondary: MET-L-X sodium-based dry chemical	

PROCESS BREAKDOWN

- Operational Emergency Not Requiring Classification
  - Tables listed by Health and Safety, Environment, Security and Safeguards, Transportation, and Biological Events

TABLE 15-1. HEALTH AND SAFETY EVENTS

Event Type	EAL	Indicators	Initial Protective Actions
Radiological	HS-1	The discovery of legacy radioactive contamination from DOE/NNSA operations that may have caused, is causing, or may reasonably be expected to cause uncontrolled personnel exposures exceeding PAC.	• Evacuate the immediate area to 100 m (330 ft). • Control access to the area. NOTE: PAC is 1 rem.

IMPLEMENTATION PLAN

- Phase 1 – Finalize IRG
- Phase 2 – Modify plans, procedures, and checklists
- Phase 3 – Control document process
- Phase 4 – Train staff
- Phase 5 – Verify implementation

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EMERGENCY MANAGEMENT ISSUES
SPECIAL INTEREST GROUP

QUESTIONS ?

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