

TA 21



Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

MAR 6 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Benito Garcia, Bureau Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street, Bldg. A
P. O. Box 26110
Santa Fe, New Mexico 87505

Dear Mr. Garcia:

Subject: Technical Area (TA) 21, Los Alamos National Laboratory (LANL) -
Information and Timeline Concerning Abandoned Gas Cylinders

The purpose of this letter is to confirm discussions between our respective staffs on February 12, 1997, and to submit a timeline of events regarding the discovery, management, and actions underway to dispose of potentially hazardous gases found during Decommission and Demolition (D&D) activities involving TA-21, Buildings 3 and 4 North. We have also enclosed a spreadsheet listing of all the compressed gas cylinders and lecture bottles (gas cylinders) found and currently being managed at TA-21, Building 5. After you have completed your review of this information, we would again appreciate meeting with the New Mexico Environment Department to discuss this matter.

The enclosed timeline briefly describes the discovery and management of chemicals when Buildings 3 and 4 North at TA-21 were vacated. It also describes the handling of the gas cylinders as discussed during the meeting on February 12, 1997.

The process of vacating Building 4 North started in late 1993. Building 3 North followed in 1994 until May of 1995. When occupants of these buildings were relocated, the materials they no longer required were managed by the assigned Waste Management Coordinators.

In late 1995, during TA-21's transition from an active research facility to facility operations for purposes of D&D, the LANL Facility Management Group discovered abandoned hazardous materials not previously associated with known activities, or specific research projects, and in spaces not previously inspected or, in some instances,



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known to exist. To assure proper management of these materials, the Facility Manager (FM) assumed ownership of these chemical materials. Following internal LANL published guidance on management of orphaned/abandoned waste, these wastes were managed in a series of Satellite Accumulation Areas (SAA) in TA-21, Buildings 3 and 4, as work progressed. The current SAA was established in TA-21, Building 5 South, a secure and vacant space, because it is the closest area to the locations where the abandoned materials were located.

On August 19, 1996, gas cylinders containing acutely hazardous materials were identified at TA-21. Since this added a new potential for risk, activities were immediately suspended to allow the opportunity for the CFM-ESH Team to address health and safety issues associated with managing these materials. Specific concerns were raised about the highly toxic nature of the gases and the integrity of the cylinders. The FM immediately notified the LANL Emergency Management and Response Office about these concerns. On August 21, 1996, a meeting was held to address:

- How to manage and secure the area;
- Safety and industrial hygiene issues for handling the cylinders; and,
- Disposal procedures.

The major concerns of the FM were:

- How to ensure the safety of site personnel and the public;
- How to ensure physical security of the satellite storage area;
- How to keep any potential exposures to acutely toxic gases as low as possible;
- How to safely analyze cylinders with unknown contents;
- How to ensure the cylinders were handled as little as possible to reduce the risk of exposure to acutely toxic gases; and,
- How to properly, quickly, and efficiently dispose of these materials.

As was discussed in the February 12 meeting, for a period of approximately six months, LANL has been managing the gas cylinders in an SAA pending completion of sampling and analysis to determine disposal options available and requirements to transport the material to the disposal facility selected. The timeline presented summarizes the discovery of the gas cylinders and actions taken by LANL to manage these wastes appropriately.

Benito Garcia

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If you should have any questions or need additional information concerning any of the activities described, please feel free to contact me at (505) 667-5105, or Jody Plum of my staff at (505) 665-5042.

Sincerely,



G. Thomas Todd
Area Manager
Los Alamos Area Office

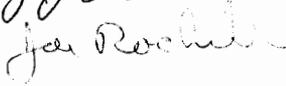
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Enclosures

cc w/enclosures:

John Tymkowych
Program Manager, Compliance
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street, Bldg. A
P. O. Box 26110
Santa Fe, New Mexico 87505





Dennis J. Erickson
Director
ESH-DO, LANL



Chronological Sequence of Events:

1993 to August 19, 1996

Materials that were no longer required as personnel relocated were managed by the assigned Waste Management Coordinators (WMC). Upon discovery, orphaned wastes were managed in parallel with the management of process waste.

August 19, 1996

Chemistry Facilities Manager (CFM) Staff identified gas cylinders with acutely hazardous and unknown contents. Work was temporarily suspended to address Environment, Safety and Health (ES&H) concerns. The work area was immediately secured by lock, posted with a restricted access signs, and doors sealed closed with tape. Entry to this area was and continues to be strictly restricted - requiring authorization from the Facility Manager (FM). Only four keys exist to open the door locks.

August 21, 1996

Personnel from Laboratory Organizations and U. S. Department of Energy (DOE) met with the CFM staff to discuss TA-21's gas cylinders. The purpose of this meeting was to assess if the gas cylinders posed an imminent and substantial threat and to develop a plan to mitigate any hazards.

End of August 1996:

- Hazardous Materials Response Team (HAZMAT) personnel placed cylinders with unknown contents into a sealed overpack with an inert nitrogen blanket. Four cylinders containing osmium compounds were packed in the same fashion but in a separate overpack. For safety reasons, a decision was made to store the overpacks outside because of the unknown and acutely toxic nature of the cylinder contents.
- HAZMAT inventoried, inspected, and segregated the cylinders and lecture bottles per U. S. Department of Transportation (DOT) hazard class into labeled containers. HAZMAT returned the area to the operational unit.

September 1996:

- To ensure proper handling of the gas cylinders, CFM personnel attended ESH-13 training on gas cylinders and arranged for training of several team members in the use of Self-Contained Breathing Apparatus (SCBA). SCBA was a safety requirement that was initially included in the work plan because of the toxicity of some of the gases and on the advice of the HAZMAT Team. This requirement was later relaxed when the work plan was finalized and the procedures were developed for the analysis. The SCBA training took until the end of October to complete.

- Met with HAZMAT personnel to discuss Health and Safety for the unpacking and staging of the 37 unknown gas cylinders pending analyses. A Special Work Permit was developed as a result of this meeting.
- CFM personnel met with ESH-17 (Air Quality Group) personnel to discuss any reporting requirements, by federal, state, or local authorities, if a gas cylinder was discovered to be leaking.
- Initiated investigation and resolution of any DOT shipping requirements for non-DOT approved cylinders.
- Arranged for funding to conduct the analysis of the unknowns.
- CFM personnel researched Material Safety Data Sheets (MSDS) for the known gas cylinders. They obtained MSDSs for 73 of the 118 known cylinders. MSDSs were required to accompany the waste profile and are needed for disposal. The missing MSDSs were for unique gases or gases that LANL personnel synthesized. This delayed the plans to do one total waste profile and disposal in order to hold down the final cost of disposal. (Contracting for disposal of these gases in several batches would have increased the cost exponentially.)

October 1996:

- A laboratory with outside access and an operational fume hood was located at TA-21.
- CST-9 conducted analysis with a portable Induced Coupled Plasma Mass Spectrophotometer (ICP), as soon as their current assignment allowed relocation of the equipment.
- Continued to investigate and resolve any DOT shipping requirements for non-DOT approved cylinders.

November 1996:

- Relocated the portable ICP unit to TA-21. It was discovered that its vacuum pump needed replacement and a new one was ordered. It took several weeks to expedite the order, receive, and install it in the instrument.
- Analysis started after Thanksgiving.
- Continued to investigate and resolve any DOT shipping requirements for non-DOT approved cylinders.

December 1996

- Analysis continued through the month of December with each gas cylinder taking approximately 2-3 days. The variety of cylinder connections and the time required to

interpret the data hindered progress.

- Continued to investigate and resolve any DOT shipping requirements for non-DOT approved cylinders.
- Continued to locate the MSDSs for the last few remaining cylinders.

January 1997

- Finished the analysis of the last unknown gas cylinders. More than half of the unknown cylinders were empty.
- Several cylinders needed to be reanalyzed because of inconclusive results from the first analysis.
- The empty gas cylinders were placed into a container in the SAA labeled "empty" pending disposal.
- FM hired a researcher to develop the MSDSs for several containers of unique gases that are not available commercially and for which no MSDSs are available.
- Continued to investigate and resolve any DOT shipping requirements for non-DOT approved cylinders.

February 1997

- Met with NMED to discuss the gas cylinders that had been abandoned and the continued management of these wastes.
- Waste Profile Forms and Chemical Waste Disposal Requests have been submitted to Waste Services for disposal of the gas cylinders
- Arrangements are presently being made to transport at least some of the cylinders off-site by a subcontractor.

bar code	WPF	Container Information			Waste Information						Description	CAS#	msds	Tag#	HAZCLASS	COMMENT
		type	vol.	unit	tare wt	unit	vol.	unit	weight	unit						
2027631	25487	11	0.25	L	3	P	0.25	L	136	g	Air	0(none)	X	U-25		
2039465	25487	11	0.5	L	5	P	0.5	L	227	g	Hydrogen Iodide	10034-85-2	X	93	Corrosive	
2039499	25487	11	0.5	L	5	P	0.5	L	227	g	Hydrogen Bromide	10035-10-6	X	16	Corrosive	
2039498	25487	11	0.5	L	6	P	0.5	L	272	g	Hydrogen Bromide	10035-10-6	X	59	Corrosive	
2039476	25487	11	0.5	L	6	P	0.5	L	272	g	Nitrogen dioxide	10102-44-0	X	44		
2039570	25487	11	0.5	L	6	P	0.5	L	272	g	Boron trichloride	10294-34-5	X	48	Poison	
2039463	25487	11	0.5	L	5	P	0.5	L	227	g	Boron trichloride	10294-34-5	X	51	Poison	
2044710	25487	11	0.75	L	6	P	0.75	L	272	g	Nitrogen Oxide	10544-72-6	X	U-9		
2039464	25487	11	0.5	L	4	P	0.5	L	182	g	Butadiene	106-99-0	X	70	Flammable	
2039594	25487	11	1	L	4	P	1	L	182	g	Hexafluoropropylene	116-15-4	X	88	Poison	
2039595	25487	11	0.5	L	3	P	0.5	L	136	g	Hexafluoropropylene	116-15-4	X	92	Poison	
2044714	25487	11	0.25	L	3	P	0.25	L	136	g	Carbon dioxide	124-38-9	X	U-23		
2039593	25487	11	8	L	25	P	8	L	1135	g	Hydrogen	1333-74-0	X	U-31		Com.
2039480	25487	11	0.75	L	8	P	0.75	L	363	g	Cesium fluoride	13400-13-0	X	67	Poison	
2039602	25487	11	0.5	L	6	P	0.5	L	272	g	Cesium fluoride	13400-13-0	X	121	Poison	
2039637	25487	11	0.03	L	3	P	0.03	L	136	g	Cesium fluoride	13400-13-0	X	135	Poison	
2039448	25487	11	0.5	L	5	P	0.5	L	227	g	Nickel Carbonyl	13463-39-3	X	91	Poison	
2039642	25487	11	0.5	L	3	P	0.5	L	136	g	Iodotrifluoromethane	2314-97-8	X	101	Poison	
2039597	25487	11	0.25	L	4	P	0.25	L	182	g	Nitrosyl Chloride	2696-2-6	X	107	Poison	
2039483	25487	11	0.75	L	7	P	0.75	L	318	g	Sulfuryl Fluoride	2699-79-8	X	2		
2039452	25487	11	0.5	L	4	P	0.5	L	182	g	Trifluoronitrosomethane	334-99-6	X	58		
2039469	25487	11	0.75	L	3	P	0.75	L	136	g	Carbonyl fluoride	353-50-4	X	36	Poison	
2039576	25487	11	0.75	L	7	P	0.75	L	100	G	Carbonyl fluoride	353-50-4	X	38	Poison	100g net
2039468	25487	11	0.75	L	7	P	0.75	L	318	g	Carbonyl fluoride	353-50-4	X	61	Poison	
2039600	25487	11	0.5	L	5	P	0.5	L	227	g	Carbonyl fluoride	353-50-4	X	110	Poison	
2044713	25487	11	0.75	L	5	P	0.75	L	227	g	Carbonyl fluoride	353-50-4	X	U-10	Poison	
2039454	25487	11	0.5	L	5	P	0.5	L	227	g	Pentafluoroethane	354-33-6	X	31		
2039453	25487	11	0.5	L	5	P	0.5	L	227	g	Trifluoroethylene	359-11-5	X	57		
2039492	25487	11	0.75	L	6	P	0.75	L	272	g	Oxalyl fluoride	359-40-0	X	43		
2039488	25487	11	0.75	L	5	P	0.75	L	227	g	Trifluoromethylhypofluorite	373-91-1	X	60	Corrosive	
2039649	25487	11	0.25	L	4	P	0.25	L	182	g	Trifluoromethylhypofluorite	373-91-1	X	118	Corrosive	
2039611	25487	11	1	L	10	P	1	L	454	g	Trifluoromethylhypofluorite	373-91-1	X	130	Corrosive	
2039446	25487	11	1	L	5	P	1	L	227	g	Cyanogen gas	460-19-5	X	90	Flammable	
2039598	25487	11	0.25	L	3	P	0.25	L	136	g	Carbonyl sulfide	463-58-1	X	108	Poison	
2039581	25487	11	0.5	L	6	P	0.5	L	272	g	Cyanogen chloride	506-77-4	X	72	Poison	
2039447	25487	11	1	L	8	P	1	L	363	g	Cyanogen chloride	506-77-4	X	89	Poison	
2039588	25487	11	0.5	L	5	P	0.5	L	227	g	Cyanogen chloride	506-77-4	X	100	Poison	
2039509	25487	11	0.5	L	5	P	0.5	L	227	g	Sulfur pentafluoride	5714-22-7	X	47		
2039491	25487	11	0.75	L	7	P	0.75	L	318	g	Disulfur Decafluoride	5717-22-7	X	6	Poison	
2039506	25487	11	0.75	L	7	P	0.75	L	318	g	Disulfur Decafluoride	5717-22-7	X	12	Poison	
2039573	25487	11	0.5	L	5	P	0.5	L	227	g	Cis-2-butene	590-18-1	X	66		Need more info
2039603	25487	11	0.75	L	10	P	0.75	L	454	g	Dimethyl Selenide	593-79-3	X	122		
2039645	25487	11	0.5	L	3	P	0.5	L	136	g	Bromotrifluoroethylene	598-73-2	X	103	Flammable	
2039605	25487	11	0.5	L	7	P	0.5	L	318	g	Hexafluoroacetone	684-16-2	X	124		
2039648	25487	11	0.5	L	2	P	0.5	L	91	g	Hexafluorobutylene-2	692-50-2	X	104		Need more info (benzene)
2039654	25487	11	0.5	L	2	P	0.5	L	91	g	Hexafluorobutylene-2	692-50-2	X	105		Need more info

2039572	25487	11	0.5	L	5	P	0.5	L	227	g	Hexafluoroisobutene	697-11-0	X	13	Poison	
2039451	25487	11	0.5	L	4	P	0.5	L	182	g	Hexafluoroisobutene	697-11-0	X	64	Poison	
2039604	25487	11	0.25	L	3	P	0.25	L	136	g	Methyl Mercaptan	74-93-1	X	123	Poison	
2039616	25487	11	3	L	10	P	3	L	454	g	Cesium metal	7440-46-2	X	143		Need more info
2039614	25487	11	0.25	L	4	P	0.25	L	182	g	Sulfur Trioxide	7446-11-9	X	141	Corrosive	
2039466	25487	11	0.5	L	5	P	0.5	L	227	g	Cyclopropane	75-19-4	X	49	Flammable	
2039802	25487	11	0.25	L	5	P	0.25	L	227	g	Fluoroform	75-46-7	X	U-24		
2039470	25487	11	0.75	L	5	P	0.75	L	227	g	Bromotrifluoromethane	75-63-8	X	41		
2039471	25487	11	0.75	L	5	P	0.75	L	227	g	Bromotrifluoromethane	75-63-8	X	42		
2039459	25487	11	0.5	L	4	P	0.5	L	182	g	Bromotrifluoromethane	75-63-8	X	62		
2039591	25487	11	10	L	30	P	10	L	1362	g	Chlorotrifluoromethane	75-72-9	X	U-29		Com.
2039592	25487	11	10	L	30	P	10	L	1362	g	Chlorotrifluoromethane	75-72-9	X	U-30		Com.
2039652	25487	11	0.025	L	2	P	0.01	L	10	g	Titanium Tetrachloride	7550-45-0	X	117	Corrosive	10ml liquid
2039458	25487	11	0.5	L	5	P	0.5	L	227	g	Hexafluorethane	76-16-4	X	52		Need more info
2039658	25487	11	0.5	L	5	P	0.5	L	227	g	Chlorine Oxytrifluoride	7616-94-6	X	120		
2039578	25487	11	0.5	L	3	P	0.5	L	136	g	Perchlorofluoride	7616-94-6	X	77	Poison	
2039585	25487	11	0.5	L	4	P	0.5	L	182	g	Boron trifluoride	7637-07-2	X	85	Poison	
2039599	25487	11	0.25	L	5	P	0.25	L	227	g	Boron trifluoride	7637-07-2	X	109	Poison	
2039623	25487	11	4	L	10	P	4	L	454	g	Boron trifluoride	7637-07-2	X	154	Poison	comm.
2044718	25487	11	0.75	L	4	P	0.75	L	182	g	Boron trifluoride	7637-07-2	X	U-18	Poison	
2039590	25487	11	0.5	L	6	P	0.5	L	272	g	Hydrogen Chloride	7647-01-0	X	9	Corrosive	
2039587	25487	11	0.5	L	5	P	0.5	L	227	g	Hydrogen Chloride	7647-01-0	X	45	Corrosive	
2039589	25487	11	0.5	L	6	P	0.5	L	272	g	Hydrogen Chloride	7647-01-0	X	99	Corrosive	
2039615	25487	11	0.025	L	2	P	0.025	L	91	g	Antimony pentachloride	7647-18-9	X	142	Poison	
2039472	25487	11	0.5	L	7	P	0.5	L	318	g	Phosphorus pentafluoride	7647-19-0	X	30	Poison	
2039460	25487	11	0.5	L	3	P	0.5	L	136	g	Phosphorus pentafluoride	7647-19-0	X	55	Poison	
2039584	25487	11	0.5	L	5	P	0.5	L	227	g	Phosphorus pentafluoride	7647-19-0	X	84	Poison	
2039512	25487	11	0.5	L	3	P	0.5	L	136	g	Hydrogen Fluoride	7664-39-3	X	14	Poison	
2039643	25487	11	2	L	15	P	2	L	681	g	Hydrogen Fluoride	7664-39-3	X	133	Poison	
2039625	25487	11	8	L	25	P	8	L	1135	g	Hydrogen Fluoride	7664-39-3	X	152	Poison	comm.
2039612	25487	11	0.025	L	2	P	0.01	L	10	G	Thionyl chloride	7719-09-7	X	131	Poison	10ml liquid
2039630	25487	11	0.25	L	1.5	P	0.25	L	68	g	Fluorine	7782-41-4	X	115	Poison	
2039608	25487	11	1	L	10	P	1	L	454	g	Chlorine	7782-50-5	X	127	Poison	
2039461	25487	11	0.5	L	5	P	0.5	L	227	g	Hydrogen sulfide	7783-06-4	X	53		
2044712	25487	11	0.25	L	5	P	0.25	L	227	g	Selenium hydride	7783-07-5	X	U-13		
2039493	25487	11	0.5	L	7	P	0.5	L	318	g	Arsenic pentafluoride	7783-36-3	X	7	Poison	
2039494	25487	11	0.5	L	6	P	0.5	L	272	g	Arsenic Pentafluoride	7783-36-3	X	10	Poison	
2039574	25487	11	0.5	L	5	P	0.5	L	227	g	Arsenic pentafluoride	7783-36-3	X	54	Poison	
2039462	25487	11	0.5	L	7	P	0.5	L	318	g	Arsenic pentafluoride	7783-36-3	X	74	Poison	
2039624	25487	11	6	L	15	P	6	L	681	g	Oxygen difluoride	7783-41-7	X	153	Poison	comm.
2039647	25487	11	0.5	L	8	P	0.5	L	363	g	Nitrogen Trifluoride	7783-54-2	X	151	Poison	
2039575	25487	11	0.5	L	5	P	0.5	L	227	g	Phosphorus trifluoride	7783-55-3	X	11	Poison	
2039467	25487	11	0.75	L	10	P	0.75	L	454	g	Phosphorus trifluoride	7783-55-3	X	48	Poison	
2039482	25487	11	0.5	L	5	P	0.5	L	227	g	Phosphorus trifluoride	7783-55-3	X	73	Poison	
2039586	25487	11	0.5	L	3	P	0.5	L	136	g	Phosphorus Trifluoride	7783-55-3	X	98	Poison	
2039510	25487	11	0.5	L	5	P	0.5	L	227	g	Germanium tetrafluoride	7783-58-6	X	32		
2039474	25487	11	0.5	L	5	P	0.5	L	227	g	Sulfur Tetrafluoride	7783-60-0	X	37	Poison	
2039606	25487	11	0.5	L	4	P	0.5	L	182	g	Sulfur Tetrafluoride	7783-60-0	X	125	Poison	

2039607	25487	11	0.75	L	6	P	0.75	L	272	g	Sulfur Tetrafluoride	7783-60-0	X	126	Poison	
2039489	25487	11	0.5	L	6	P	0.5	L	272	g	Silicon Fluoride	7783-61-1	X	68	Corrosive	
2039610	25487	11	1	L	10	P	1	L	454	g	Silicon Fluoride	7783-61-1	X	129	Corrosive	
2039507	25487	11	0.5	L	4	P	0.5	L	182	g	Antimony pentafluoride	7783-70-2	X	97	Poison	
2039657	25487	11	0.5	L	4	P	0.5	L	182	g	Antimony pentafluoride	7783-70-2	X	106	Poison	
2039508	25487	11	0.5	L	6	P	0.5	L	500	G	Molybdenum Hexafluoride	7783-77-9	X	35	Poison	500g net, type A cylinder
2039505	25487	11	0.5	L	7	P	0.5	L	318	g	Molybdenum Hexafluoride	7783-77-9	X	94	Poison	
2039655	25487	11	0.025	L	3	P	0.025	L	136	g	Molybdenum Hexafluoride	7783-77-9	X	116	Poison	
2039641	25487	11	0.5	L	8	P	0.5	L	363	g	Molybdenum Hexafluoride	7783-77-9	X	149	Poison	
2039583	25487	11	0.5	L	6	P	0.5	L	272	g	Selenium Hexafluoride	7783-79-1	X	86	Poison	
2039497	25487	11	0.5	L	7	P	0.5	L	318	g	Tellurium Hexafluoride	7783-80-4	X	5	Poison	
2039582	25487	11	0.5	L	6	P	0.5	L	454	G	Tellurium Hexafluoride	7783-80-4	X	81	Poison	1# net
2039513	25487	11	0.5	L	4	P	0.5	L	182	g	Tungsten Hexafluoride	7783-82-6	X	71	Corrosive	
2039650	25487	11	0.5	L	6	P	0.5	L	272	g	Tungsten Hexafluoride	7783-82-6	X	150	Corrosive	
2039580	25487	11	0.5	L	6	P	0.5	L	100	G	Arsenic trifluoride	7784-35-2	X	80	Poison	100g net
2039501	25487	11	0.5	L	7	P	0.5	L	318	g	Bromine trifluoride	7787-71-5	X	1	Corrosive	
2039477	25487	11	0.5	L	6	P	0.5	L	272	g	Bromine trifluoride	7787-71-5	X	69	Corrosive	
2039495	25487	11	0.5	L	6	P	0.5	L	272	g	Bromine trifluoride	7787-71-5	X	76	Corrosive	
2039479	25487	11	0.5	L	6	P	0.5	L	272	g	Bromine trifluoride	7787-71-5	X	96	Corrosive	
2039656	25487	11	0.5	L	6	P	0.5	L	272	g	Potassium fluoride	7789-23-3	X	139	Poison	
2039511	25487	11	0.5	L	3	P	0.5	L	136	g	Bromine pentafluoride	7789-30-2	X	34	Poison	
2039504	25487	11	0.5	L	3	P	0.5	L	136	g	Bromine pentafluoride	7789-30-2	X	79	Poison	
2039609	25487	11	0.25	L	3	P	0.25	L	136	g	Bromine pentafluoride	7789-30-2	X	128	Poison	
2039473	25487	11	0.75	L	5	P	0.75	L	227	g	Chlorine monofluoride	7790-89-8	X	40		
2039640	25487	11	1	L	10	P	1	L	454	g	Chlorine trifluoride	7790-91-2	X	132	Poison	
2039621	25487	11	4	L	11	P	4	L	2270	G	Chlorine trifluoride	7790-91-2	X	145	Poison	5# net, comm.
2039622	25487	11	4	L	10	P	4	L	454	g	Chlorine trifluoride	7790-91-2	X	147	Poison	comm.
2039628	25487	11	4	L	15	P	4	L	681	g	Chlorine trifluoride	7790-91-2	X	157	Poison	
2044711	25487	11	0.25	L	3	P	0.25	L	136	g	Silane	7803-62-5	X	U-2		
2039651	25487	11	0.5	L	4	P	0.5	L	182	g	Chlorotrifluoroethylene	79-38-9	X	102	Poison	
2039457	25487	11	0.5	L	5	P	0.5	L	227	g	Chlorotrifluoroethylene	79-38-9	X	50	Poison	
bar code	WPF	Container Information				Waste Information					Description	CAS#	msds	Tag#	HAZCLASS	COMMENTS
		type	vol.	unit	tare wt	unit	vol.	unit	weight	unit						
2039571	25487	11	0.75	L	7	P	0.75	L	318	g	Bis(trifluoromethyl)disulfide	372-64-6	X	33	Poison	
2039455		11	0.5	L	4	P	0.5	L	182	g	Cyanopentafluoroethane	422-04-8	need	63		Need more info
2039456		11	0.5	L	6	P	0.5	L	272	g	Cyanotrifluoromethane	need	need	56		Need more info
2039636		11	0.05	L	2	P	0.05	L	91	g	Trifluoramine oxide	13847-65-9	need	113		Radioactive tape
2039617		11	1	L	15	P	1	L	681	g	Potassium hexafluoronickelate	14881-07-3	need	134	Poison	
2039646		11	0.25	L	3	P	0.25	L	136	g	Chlorine trifluoro oxide (ClF3O)	30708-80-6	need	119	Oxidizer	
2039514		11	0.75	L	8	P	0.75	L	363	g	Sulfur monochloro pentaflu	13780-57-9	need	95	Poison	
2039618		11	0.025	L	2	P	0.005	L	3	G	NaCl & ClF3	need	need	136	Poison	5ml powder
2039496		11	0.5	L	4	P	0.5	L	182	g	Phosphorus Oxyfluoride	82867-95-6	need	78	Poison	
2039613		11	0.5	L	5	P	0.5	L	227	g	Phosphoryl trifluoride	13478-20-1	need	140	Poison	
2039633		11	0.5	L	6	P	0.5	L	272	g	Sulfur Oxytetrafluoride	13709-54-1	need	114	Poison	
2039490		11	0.75	L	6	P	0.75	L	272	g	Sulfurmonochloropentafluoride	13780-57-9	need	82		
2039577		11	0.5	L	6	P	0.5	L	272	g	Trifluoroacetyl fluoride	354-34-7	need	75	Poison	
2039596		11	0.5	L	3	P	0.5	L	136	g	Trifluoroacetyl chloride	354-32-5	Info	87	Poison	
2039600		11	0.5	L	5	P	0.5	L	227	g	3-Trifluoropropyne	661-54-1		4		

2044719		11	0.5	L	4	P	0.5	L	182	g	BF3 (+ 9	7637-07-2	XX	U-17		(7783-61-1
2039659		11	0.25	L	3	P	0.25	L	136	g	BrF5 (+ UN2)			137		Need more info
2039579		11	0.5	L	5	P	0.5	L	50	G	Carbonyl chlorofluoride	353-49-1		83		50g net, Need info
2044716		11	0.75	L	6	P	0.75	L	272	g	CHF3 (or CF4)	75-46-7	XX	U-20		(75-73-0)
2039639		11	0.25	L	4	P	0.25	L	182	g	Chlorine trifluoro oxide (ClF3O)	30708-80-6	need	112		check spelling
2039798		11	2	L	12	P	2	L	545	g	NF3 (or NF5)	7783-54-2	X	U-33	(or 13706-13-3)	rad sticker on cylinder, DOT
2039619		11	1	L	12	P	1	L	545	g	Sample cylinder			138		
2039620		11	0.025	L	1	P	0.025	L	45	g	Sample cylinder			144		
2039799		11	0.1	L	2	P	0.1	L	91	g	see data			U-21		
2039800		11	0.5	L	5	P	0.5	L	227	g	see data			U-22		
2039475		11	0.75	L	7	P	0.75	L	318	g	Sulfur dichlorodifluoride			39		
2039503		11	0.5	L	4	P	0.5	L	182	g	Thionyl fluoride			3		
2039478		11	0.5	L	4	P	0.5	L	182	g	Thionyl fluoride			8		
2044715		11	0.75	L	6	P	0.75	L	272	g	Trifluoro acetyl fluoride			U-26		
2039450		11	0.5	L	5	P	0.5	L	227	g	Trifluoroacetonitrile	353-85-5		65		
2039601	25487	11	1	L	10	P	1	L	454	g	Nitryl fluoride (FNO2)	10022-50-1	info	111	Poison	
2039662	rad	11	12	L	35	P	12	L	1589	g	Deuterated Methane	74-82-8	X	155	Radioactive?	See if Gene Maroz wants?
2065130	25487	11	0.75	L	4	P	0.75	L	182	g	tetrachlorodifluoroethane	76-12-0	X	U-34		Where is it?
2044717	rad	11	2	L	20	P	2	L	908	g	Uranium hexafluoride	7783-81-5	X	U-11	Radioactive	radioactive
2039782		11		L		P					unknown, unlabeled cylinder			U-3	empty	
2039775		11	1	L	8	P					unknown, unlabeled cylinder			U-4	empty	
2039774		11	0.05	L	2	P					unknown, unlabeled cylinder			U-5	empty	
2039786		11	1	L	11	P					unknown, unlabeled cylinder			U-6	empty	
2039776		11	1	L	7	P					unknown, unlabeled cylinder			U-7	empty	
2039785		11	0.75	L	3	P					unknown, unlabeled cylinder			U-8	empty	
2039781		11	0.75	L	3	P					unknown, unlabeled cylinder			U-12	empty	
2039779		11	0.5	L	3	P					unknown, unlabeled cylinder			U-14	empty	
2039780		11	0.5	L	3	P					unknown, unlabeled cylinder			U-15	empty	
2039778		11	0.5	L	2	P					unknown, unlabeled cylinder			U-16	empty	
2039777		11	0.5	L	3	P					unknown, unlabeled cylinder			U-19	empty	
2039784		11	0.5	L	3	P					unknown, unlabeled cylinder			U-27	empty	
2039787		11	1	L	7	P					unknown, unlabeled cylinder			U-28	empty	
2039627	25539	11	0.75	L	5	P	0.75	L	227	g	Oxygen isotopic	need	need	156	empty	O-18 gas
2039801		11	1	L	10	P					unknown, unlabeled cylinder			U-32	empty	
2039671											Hydrogen chloride					
2039670											Chlorine					
2039660											Oxygen difluoride					
2039631											CMF (1237)					
2039667											Ammonia					
2039664											Carbon dioxide					
2039688											Hydrogen fluoride					
2039629											Carbon dioxide					
2039665											Hydrogen fluoride					
2039666											Bromine pentafluoride					
2039669											Chlorine					
2039672											Chlorine (UN1017)					
2039673											CO, CO2, & H mixture					
2039653		11	0.5	L	4	P				g	15N2	need	need	146	Unknown	

2039752		11	0.75	L	~7	P	0.75	L			osmium tetrafluoride/hexafluoride				
		11	0.75	L	~7	P	0.75	L			osmium tetrafluoride/hexafluoride				
		11	0.75	L	~7	P	0.75	L			osmium tetrafluoride/hexafluoride				
		11	0.75	L	~7	P	0.75	L			osmium tetrafluoride/hexafluoride				
		11	0.75	L	~7	P	0.75	L			osmium tetrafluoride/hexafluoride				