UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F.K. Federal Building, Boston, MA 02203

MEMORANDUM

DATE: July 11, 1997 (Revised March 8, 1999)

SUBJ: RCRA CEI Inspection at the University of Bhutan-Papua

FROM: Kenneth Doll, Environmental Protection Specialist
RCRA Compliance Unit

TO: File

I. General Information

A. Facility Name:
University of Bhutan-Papua

B. RCRA Contact(s):

Hazardous Waste Coordinator
Director, Environmental Health & Safety

C. Date of Inspection: 1997

E. Purpose of Inspection: CEI

F. Personnel Participating in Inspection:

U.S. EPA - Ken Doll
State - Leslie Neilsen

II. RCRA Reporting/Information Requirements

A. Facility I.D. Nos.: three different numbers
B. Type of Operation: Large Generator, VSQG and SQG
C. Notification of Operation: 8/15/80 (revised on 12/8/95 for waste oil burning, 8/10/92 and 8/21/88.)

III. Facility Description

The University of Bhutan-Papua Campus includes a College of Engineering and College of Life

Sciences and Agriculture. The University has a student population of approximately 12,500. The University operates a variety of both research and teaching laboratories on campus as well as printing, maintenance and other service related facilities. The laboratories and service facilities generate hazardous waste and are located in at least ten separate buildings at the University.

The less-than-ninety day hazardous waste storage/accumulation area is located in a fenced area near Glen Hall which is located east of the main campus near the Transportation Building. The Environmental Health and Safety Office for the University is located inside Glen Hall.

IV. General Observations

At approximately 9:30 a.m., Ken Doll of EPA's RCRA Compliance Unit and Leslie Neilsen of the State Hazardous Waste Compliance Section arrived at Glen Hall located at the western end of the University of Bhutan campus in Papua, New Hampshire. We entered the facility and met with the Director of the University's Environmental Health and Safety Office. We identified ourselves and stated the purpose of our inspection. Ken Doll stated that EPA would be the lead Agency for this inspection. The Director stated that the State recently inspected the University last summer. Mr. Doll acknowledged the state inspection and informed the Director that EPA's inspection would be a full compliance inspection that would involve inspecting all the areas at the University where hazardous waste activities are conducted. Mr. Neilsen stated that he was assisting EPA for this inspection because of his familiarity with the University and was also observing how the Agency conducts their inspections. We told the Director that we would conduct an in-brief to explain how the inspection would proceed and answer any questions he may have. The Director stated that Edwin Nosecone was the individual responsible for the day-to-day management of hazardous waste on campus. The Director stated that he would page Mr. Nosecone and led us to a small office area.

Mr. Nosecone did not respond to the page and we began the in-brief with the Director. We told the Director that we would conduct a walk-through of all the areas on campus that generated hazardous waste, inspect the hazardous waste storage area and review the facility records. We asked the Director to identify the areas on campus that generated hazardous waste and asked if he could provide us with a map of the campus prior to inspecting. The Director returned with a photocopy of a map of the campus and identified approximately ten buildings where hazardous wastes were generated. The Director also provided us with a brief history of the University. After the in-brief, we began our inspection at the Hazardous Waste Storage Area located outside Glen Hall. Mr. Nosecone arrived as we were preparing to go outside and we provided a quick recap of our discussion for Mr. Nosecone then went outside to begin our inspection.

The first area inspected at Glen Hall was the immediate area outside the locked Hazardous Waste Storage Area. We observed several large storage containers outside the locked area. We inspected a large gray roll-off container that was approximately eight feet by twenty feet. The roll-off was affixed with a sign that read: "Danger Asbestos Cancer and Lung Disease Hazard," "Authorized Personal Only," "Respirators and Protective Clothing are required in this Area," and "Warning Do Not Breathe Asbestos Fiber."

We observed a second storage container that was filled with fluorescent lights and measured approximately eight feet wide by twenty feet long. We asked Mr. Nosecone what this roll-off was used for. Mr. Nosecone stated that this container was used to collect and store incoming fluorescent lights for processing.

We observed a third roll-off container that was also approximately eight feet wide by twenty feet long. We asked Mr. Nosecone what this container was used for. According to Mr. Nosecone, this roll-off was used to store the outgoing fluorescent lights after processing.

We observed numerous piles of fluorescent lights stored outside the locked Hazardous Waste Storage Area. The first pile was located approximately twenty feet southeast of the Hazardous Waste Storage Area. This pile consisted of approximately twenty (20) assorted cardboard boxes that were stored outside, damaged from precipitation and contained hundreds of assorted fluorescent lights. We observed broken lights along the perimeter of this pile, however, we could not determine the exact number of lamps that were broken. We asked Mr. Nosecone what this area was used for. Mr. Nosecone stated that this pile contained numerous odd-sized fluorescent tubes that he described as two-foot, four-foot, eight-foot, half oval and double twin tubes. He explained that these tubes were stored at this area because the incoming storage bin was filled to capacity. We asked Mr. Nosecone why these lights were not packed and shipped off-site. Mr. Nosecone stated that he did not have the time to sort and package the lamps for off-site shipment. He stated that the Environmental Health and Safety Office had advertised for a work study student to do this work, but did not receive any interested applicants. We asked Mr. Nosecone how many people were involved with the management of hazardous waste from his office. Mr. Nosecone stated that he was the only individual responsible for the management of hazardous waste at the University. According to Mr. Nosecone, the University buys approximately 114,000 linear feet of fluorescent lamps per year.

We observed another pile of fluorescent lights that was approximately fifteen feet west of the first pile and approximately ten feet south of the Hazardous Waste Storage Area. This pile had approximately fifteen (15) boxes that were filled with fluorescent lights. These boxes were also damaged by precipitation. We asked Mr. Nosecone to describe this area. Mr. Nosecone stated that the area was another collection area used to accumulate eight foot fluorescent lights.

We walked towards the less-than-ninety-day storage area and observed two additional boxes of fluorescent lamps stored approximately ten feet east from the middle of the chain-link fence surrounding the Hazardous Waste Storage Area about. We observed another large pile containing several hundred smaller-sized lights that were piled approximately two feet north of the locked entrance to the hazardous waste storage area. After documenting the information for the fluorescent lights, Mr. Nosecone unlocked the gate to the Hazardous Waste Storage Area so that we could inspect this location.

We entered the Hazardous Waste Storage Area and observed several buildings within the fenced area. We asked Mr. Nosecone to explain what these buildings were. Mr. Nosecone stated that this area consisted of three separate buildings used to receive, process and store hazardous wastes for off-site disposal. The building on the north side of this area is a receiving building. The

building on the west side of this area is a hazardous waste/mixed radioactive waste storage building. The third building located along the fenceline and south of the hazardous waste/mixed radioactive waste building is the flammable waste building.

We inspected the open area inside the chain link fence first. We documented two (2) 55-gallon containers that were used to accumulate waste. The first container was used to collect waste antifreeze according to Mr. Nosecone. The second container held waste oil and was marked "used oil for recycle". We observed a pallet in the outside area that stored waste batteries for recycle. None of these containers were stored in a manner to protect them from the elements. The first building we inspected was the Hazardous Waste Storage Area. According to Mr. Nosecone, he personally collected all the waste generated on campus and brought the wastes back to this area. Mr. Nosecone stated that he processed the wastes in a receiving building located in this area and transferred this waste from the receiving building to the Flammable Building or the Hazardous Waste Storage Building. The following wastes were documented:

Hazardous Waste Storage Area - Hazardous/Mixed Radioactive Waste Building
Bulk Container Storage

[**Note:** *The ID#'s listed in the tables below were created by EPA to reference each container. University of Bhutan-Papua logs found multiple containers listed for the same log number. Additionally, the date of accumulation indicated on the tables below represents the date of accumulation recorded in the inventory log. It was determined that these dates do not necessarily reflect the actual date of accumulation hazardous waste containers commenced storage. These discrepancies are noted in the comments section. A separate table was also developed to clearly document this problem.*]

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-1.	None	55-gallon	D002	Yes	6/20/97	Yes	Black plastic container used to bulk acids. Marked 10% HCL.
BN-2.	None	55-gallon	D018, F002, F003, F005	Yes	No	Yes	10% organic solvents, water Hazardous waste profile U32955 (bulking drum for small containers).
BN-3.	None	55-gallon	NA	Yes	No	Yes	Marked as non-hazardous phenol/NaOH (pH 10-11)
BN-4.	None	55-gallon	NA	Yes	No	Yes	Marked as non-hazardous formaldehyde and water

A review of the inventory log photocopied after the date of the last manifested hazardous waste shipment determined that the date of accumulation identified for the containers above did not reflect the date of the oldest container of hazardous waste placed into these drum. The inventory listed had the words "bulk" written next to those containers that were bulked. For example, the black plastic container identified above as "BN-1" was marked with a June 20, 1997 date of accumulation. A review of the inventory logs determined that one container that accumulated 10% hydrochloric acid wash was in storage since 4/17/97 and bulked in this container.

Hazardous Waste Storage Area - Hazardous/Mixed Radioactive Waste Building Rack Storage

In addition to the four containers identified above, the Hazardous/Mixed Radioactive Waste Building stored numerous small containers of hazardous wastes on metal shelves prior to bulking or labpacking. The shelves were self-contained and did not prevent hazardous wastes from leaking onto containers stored directly underneath or adjacent to these shelves. The containers were tightly packed against one another such that the container labeling was not visible and could not be read to determine what types of waste were stored on each shelf or the length of time these containers were stored. We noted that some containers observed in storage were not identified on the inventory log maintained by Mr. Nosecone. A separate table was developed and is included as an attachment to this report to document incompatibility problems. We did not document all the containers stored at this area because of safety concerns from the handling of dozens of small containers and the lack of space to conduct an adequate inventory. In lieu of an exhaustive waste inventory, we documented the BN log number for several containers from each shelf to cross check for waste compatibility.

The following waste storage/shelving configuration was noted for the rack storage area:

1	6	11
2	7	12
3	8	13
4	9	14
5	10	15

Hazardous Waste Storage (by Shelf)

ID#	Shelf	BN ID#	Size	Waste Code	Mark/ Label	Date	Comments
BN-5.	1	N/A	N/A	N/A	N/A	N/A	This shelf accumulated mixed radioactive waste

ID#	Shelf	BN ID#	Size	Waste Code	Mark/ Label	Date	Comments
BN-6.	2	380	~½-gal	P105	Yes	10/23/96	Number 380 was not listed on our copy of the inventory log.
BN-7.	2	755	~2-liter	P087	Yes	6/11/97	Osmium tetraoxide debris
BN-8.	3	380	~½-gal	P105	Yes	10/23/96	Number 380 was not listed on our copy of the inventory log.
BN-9.	3	755	~2-liter	P087	Yes	6/11/97	Osmium tetraoxide debris
BN-10.	3	685	~2.5-liter	D002, P077	Yes	5/20/97	Water, HCL, P-nitroaniline (pH <2.0)
BN-11.	3	689	4-liter	F003, D001	Yes	5/20/97	Organics and acetone
BN-12.	4	662	~20-liter	D002	Yes	4/17/97	Spent 10% HCL wash
BN-13.	4	835	~0.5-liter	D001	Yes	7/2/97	0.1 M sodium nitrite solution
BN-14.	4	742	~0.25-liter	D001, D002	Yes	6/9/97	Ethanol and potassium hydroxide
BN-15.	4	795	~1-liter	D001, D002	Yes	6/26/97	Glacial acetic acid
BN-16.	4	706	NR	D001, D002, F003	Yes	5/22/97	Waste acetone, acidic
BN-17.	5	782	~2.5-liter	D002	Yes	6/23/97	Wastewater with EDTA, sulfanilamide, phosphoric acid and potassium nitrate (pH 1.5)
BN-18.	5	766	NR	D002, D007	Yes	6/19/97	Water, 10% nitric acid and 10% chromic acid

ID#	Shelf	BN ID#	Size	Waste Code	Mark/ Label	Date	Comments
BN-19.	5	777	~2.5-liter	D002	Yes	6/19/97	Wastewater with ascorbic acid, NaOH, antimony tartrate (pH 1.5)
BN-20.	5	720	~4-liter	D001, D002, F003	Yes	5/27/97	Acidic acetone (pH 1.5)
BN-21.	6	None	NR	D008	Yes	7/1/97	Lead ethyl hexanate, Parson- elem, D008, R. Planalp. This container was not found on the inventory log.
BN-22.	6	851	~0.5-liter	None	Yes	7/7/97	Sodium sulfite
BN-23.	7	695	~0.5-liter	D001	Yes	5/20/97	1% potassium permanganate (aqueous)
BN-24.	7	832	~2.5-liter	D001	Yes	7/2/97	Potassium persulfate solution
BN-25.	7	756	~4-liter	D001, P087	Yes	6/11/97	Water, ethanol glutaralde-hyde, osmium tetraoxide
BN-26.	7	852	~0.5-liter	D009	Yes	7/7/97	Mercuric iodide
BN-27.	7	749	~500-ml	D003	Yes	6/11/97	2,4,6 trinitrophenol solution (picric acid)
BN-28.	7	700	~1-liter	D003	Yes	5/20/97	Tin (IV) chloride
BN-29.	7	NR	~500-ml	NR	NR	NR	Hydrogen peroxide
BN-30.	8	812	~1-liter	P087	Yes	Yes	Osmium tetraoxide contaminated material

ID#	Shelf	BN ID#	Size	Waste Code	Mark/ Label	Date	Comments
BN-31.	8	785	Bag	D009	Yes	6/24/97	Mercury contaminated debris. (Two containers were noted with ID# 785. Only one container was listed on the inventory)
BN-32.	8	785	Bag	D009	Yes	6/24/97	Mercury contaminated debris. (Two containers were noted with ID# 785. Only one container was listed on the inventory)
BN-33.	8	816	~2-liter	D022, NH11	Yes	6/30/97	Water, chloroform, phenol, isoamyl alcohol, paraform-aldehyde
BN-34.	8	764	~1-liter	D001, F003	Yes	6/18/97	3-Aminotrimethoxy-silane and acetone
BN-35.	8	760	NR	P087	Yes	6/18/97	Osmium contaminated debris
BN-36.	8	836	~2.5-liter	D002	Yes	7/2/97	Ammonia solution (2 bottles)
BN-37.	8	NR	~4-liter	NR	Yes	NR	Toluene-based radwaste
BN-38.	9	686	NR	D002	Yes	5/20/97	Water, sodium hydroxide and ammonia hydroxide
BN-39.	9	676	~4-liter	None	Yes	5/19/97	Ferric chloride with copper
BN-40.	9	None	~1-liter	NR	NR	NR	Aqueous lithium hydroxide

ID#	Shelf	BN ID#	Size	Waste Code	Mark/ Label	Date	Comments
BN-41.	12	849	~2.5-liter	D002, D007, D009	Yes	4/15/97	The date identified from the inventory log was 7/7/97. A cross check of the date on the bottle and the recorded inventory found that the container dates did not match.
BN-42.	12	849	~2.5-liter	D002, D007, D009	Yes	4/15/97	The date identified from the inventory log was 7/7/97. A cross check of the date on the bottle and the recorded inventory found that the container dates did not match.
BN-43.	12	856	NR	D007	Yes	7/7/97	Wastewater with chromium
BN-44.	12	840	~4-liter	D008, D005, D011	Yes	7/2/97	Aqueous silver, barium and lead.
BN-45.	12	840	~4-liter	D008, D005, D011	Yes	7/2/97	Aqueous silver, barium and lead.
BN-46.	13	701	NR	D011	Yes	4/20/97	Silver chloride solution. The inventory log indicates a 5/20/97 date which is not consistent with the date marked on the container label.

ID#	Shelf	BN ID#	Size	Waste Code	Mark/ Label	Date	Comments
BN-47.	13	701	NR	D011	Yes	4/20/97	Silver chloride solution. The inventory log indicates a 5/20/97 date which is not consistent with the date marked on the container label.
BN-48.	13	701	NR	D011	Yes	4/20/97	Silver chloride solution. The inventory log indicates a 5/20/97 date which is not consistent with the date marked on the container label.
BN-49.	13	701	NR	D011	Yes	4/30/97	Silver chloride solution. The inventory log indicates a 5/20/97 date which is not consistent with the date marked on the container label.
BN-50.	13	696	~2.5-liter	D002, D011	Yes	5/20/97	Water, HCL, HNO_3, silver chloride, trace 1-hexane
BN-51.	13	831	~0.5-liter	D005	Yes	7/2/97	Barium chloride solution
BN-52.	14	702	NR	D002, D009, D007	Yes	4/15/97	Wastewater, pH 1, HCL, mercury >260 mg/kg, tin, iron, chromium. Inventory log identifies a 7/2/97 date which is different from the container label.

ID#	Shelf	BN ID#	Size	Waste Code	Mark/ Label	Date	Comments
BN-53.	14	702	NR	D002, D009, D007	Yes	4/15/97	Wastewater, pH 1, HCL, mercury >260 mg/kg, tin, iron, chromium. Inventory log identifies a 7/2/97 date which is different from the container label.
BN-54.	14	702	NR	D002, D009, D007	Yes	4/15/97	Wastewater, pH 1, HCL, mercury >260 mg/kg, tin, iron, chromium. Inventory log identifies a 7/2/97 date which is different from the container label.
BN-55.	14	702	NR	D002, D009, D007	Yes	4/16/97	Wastewater, pH 1, HCL, mercury >260 mg/kg, tin, iron, chromium. Inventory log identifies a 7/2/97 date which is different from the container label.
BN-56.	14	734	~4-liter	D002	Yes	5/27/97	Wastewater with glycerol, glycidol and perchoric acid
BN-57.	15	821	~0.5-liter	D002	Yes	7/2/97	95% sulfuric acid
BN-58.	15	821	~0.5-liter	D002	Yes	7/2/97	95% sulfuric acid
BN-59.	15	821	~0.5-liter	D002	Yes	7/2/97	95% sulfuric acid

ID#	Shelf	BN ID#	Size	Waste Code	Mark/ Label	Date	Comments
BN-60.	15	857	NR	D002	Yes	7/7/97	Wastewater with zinc, copper, HCL and HNO_3. The container date was marked 5/7/97 and did not correspond to the inventory log.
BN-61.	15	838	~2.5-liter	D002	Yes	7/2/97	Aqueous nitric acid
BN-62.	15	834	~4-liter	D002	Yes	7/2/97	.01 M HNO_3
BN-63.	15	837	~1-liter	D002	Yes	7/2/97	1 M acetic acid
BN-64.	NR	NR	~1-liter	D001, D002	Yes	12/5/95	11/95 "start date" was also marked on this container. Contains 205-ml of ethanol and 90-ml of 60% potassium hydroxide.
BN-65.	NR	NR	~1-liter	D001, D002	Yes	12/5/95	2/24/95 "start date" marked on this container. Contains "Pole's extraction isopropyl alcohol..."

On July 10, 1997 we reinspected this area after determining that the containers received at this facility were not immediately processed and were not recorded in the inventory log on the date of receipt. The following additional containers were noted:

ID#	Log ID#	Size	EPA Code	Actual Container Date	Inventory Log Date	Comments
BN-66.	761	~0.5L	D004	6/11/97	6/18/97	Arsenic contaminated debris
BN-67.	765	~1-liter	D006, D007, D011	6/13/97	6/19/97	Wastewater (pH-3) with cadmium, chromium and silver

ID#	Log ID#	Size	EPA Code	Actual Container Date	Inventory Log Date	Comments
BN-68.	788	~20-liter	D002	6/17/97	6/24/97	Spent 10% HCL wash
BN-69.	808	NR	U122	6/27/97	6/26/97	Formaldehyde solution
BN-70.	808	NR	U122	3/31/97	6/26/97	Formaldehyde solution
BN-71.	829	NR	D001	3/3/97	7/2/97	Cyclohexane and napthalene
BN-72.	833	~1-liter	D001	2/21/97	7/2/97	Inventory log indicates “ethanol”, container label is marked “cobalt nitrate”
BN-73.	849	~2.5-liter	D002, D007, D009	4/15/97	7/7/97	Noted in previous table
BN-74.	846	NR	F003, F005	6/6/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine
BN-75.	846	NR	F003, F005	6/6/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine
BN-76.	846	NR	F003, F005	6/6/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine
BN-77.	846	NR	F003, F005	6/16/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine

ID#	Log ID#	Size	EPA Code	Actual Container Date	Inventory Log Date	Comments
BN-78.	846	NR	F003, F005	6/16/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine
BN-79.	846	NR	F003, F005	6/20/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine
BN-80.	846	NR	F003, F005	5/7/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine
BN-81.	846	NR	F003, F005	5/1/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine
BN-82.	846	NR	F003, F005	4/21/97	7/3/97	Water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol, diethanol-amine
BN-83.	857	NR	D002	5/7/97	7/7/97	Wastewater with zinc, copper, HCL and HNO_3

We walked to the Flammable Waste Storage Building next. This area accumulated thirteen containers we identified from Flammable Building (FB) 1-13. We also observed mixed radioactive wastes stored in the area. This waste was stored in the southeast corner of the building on pallets that were stacked two and three pallets high. The following containers were identified:

Flammable Waste Building

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-84.	FB-1	55-gallon	N/A	Yes	N/A	Yes	Radioactive waste containing C-14 tritium
BN-85.	FB-2	55-gallon	F003, F005, D018	Yes	6/10/97 6/23/97	Yes	This container was a centralized accumulation accumulation. The ninety day clock started on the first accumulation date (6/10/96)
BN-86.	FB-3	~5-gallon	None	No	No	Yes	The words “stench material” were written on this container.
BN-87.	FB-4	NR	None	Yes	None	Yes	Container was a turpentine/ mineral spirits mixture from the Art Department, Room A301.
BN-88.	FB-5	~5-gallon	NH01	Yes	5/28/97	Yes	Used oil
BN-89.	FB-6	~5-gallon	F002, D021	Yes	6/25/97	Yes	Halogenated Organics
BN-90.	FB-7 #789	~5-gallon	D001, F003	Yes	6/25/97	Yes	Hexanes, ether, acetone and ethylacetate
BN-91.	FB-8 #789	~5-gallon	D001, F003	Yes	None	Yes	No date, inventory log identifies a 6/25/97 date for ID# 789 but does not indicate how many containers are assigned this number
BN-92.	FB-9 #270	~5-gallon	D001	Yes	7/1/97	Yes	Ethanol
BN-93.	FB-10	~5-gallon	NH01	Yes	5/28/97	Yes	Used oil for recycle
BN-94.	FB-11	NR	D001	Yes	6/10/97	Yes	Marine program

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-95.	FB-12	55-gallon	D001, F002, F003, F005	Yes	2/14/97	Yes	Halogenated waste solvent
BN-96.	FB-13	55-gallon	D001, D006, D008	Yes	4/7/97	Yes	Waste paint related material

At approximately 12:15 p.m., we stopped for lunch. We returned to the facility at approximately 1:00 p.m. and resumed our inspection of the Hazardous Waste Storage Area and inspected the hazardous waste receiving building. We observed numerous containers stored along the floor, in carts, on shelves and in boxes. Mr. Nosecone stated that all the wastes from the University were collected by him throughout the campus and brought to this area where he would classify the material, bulk it or prepare the waste containers for storage. We asked Mr. Nosecone how he knew when waste containers needed to be picked up at the various labs. Mr. Nosecone stated that all the professors had his number and that he received a telephone call directly or had a message on his voice message. We asked Mr. Nosecone if he maintained some type of tracking system to document these calls. Mr. Nosecone stated that he had no formal tracking system other than some notations on his calendar reminding him to pick up waste. We asked Mr. Nosecone how long it took from receiving a telephone call to making the waste pickup. Mr. Nosecone stated that he was usually there by the following day depending on his calendar. We documented the following containers in the receiving area:

Hazardous Waste Storage Area - Receiving Building

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-97.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-98.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-99.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-100.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-101.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-102.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-103.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-104.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-105.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-106.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-107.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation with the words “Dirty hg” written on it.

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-108.	None	NR	None	No	None	Yes	Bottle of mercury with no marking, labeling or date of accumulation.
BN-109.	None	~1-gallon	None	No	None	Yes	Tile adhesive
BN-110.	None	~5-gallon	None	No	None	Yes	Acrylic Primer/Sealer-stainkiller
BN-111.	819	~4-Liter	NH11	Yes	Yes	Yes	Water, phenol, hypochlorite
BN-112.	768	~1-Liter	NH11	Yes	Yes	Yes	Spent formaldehyde for bulking
BN-113.	None	~1-gallon	D022 F022	Yes	6/1/97	Yes	Chemical Formulas "CH_2Cl_2, DCl_3, $CHCl_3$" were written on containers. Container not found on inventory log.
BN-114.	815	~1-gallon	NH11	Yes	6/30/97	Yes	Aqueous Formaldehyde
BN-115.	808	~1-gallon	U122	Yes	3/31/97	Yes	37% Formaldehyde (Greater than ninety day storage)
BN-116.	808	~1-pint	U122	Yes	6/27/97	Yes	Formaldehyde (This container was also marked as 808)
BN-117.	815	~1-pint	NH11	Yes	None	Yes	Spent formaldehyde solution
BN-118.	815	~1-pint	NH11	Yes	6/30/97	Yes	Spent formaldehyde solution

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-119.	842	~1-gallon	D001, F003, F005, D018, D022	Yes	No	Yes	Organic waste containing chloroform, toluene, beBNene, acetone and toluene.
BN-120.	857	~1-gallon	No	Yes	5/7/97	Yes	Label marked as methylene chloride and toluene. Inventory log marked as wastewater with zinc, copper, hydrochloric acid and nitric acid.
BN-121.	803	~1-pint	U080	Yes	6/27/97	Yes	Methylene chloride
BN-122.	487	Plastic Bag	None	No	9/3/96	Yes	Plastic bag containing mercury debris.
BN-123.	None	55-gallon	D001, F003, F005, D018	Yes	6/23/97	Yes	55-gallon drum used to bulk non-halogenated wastes. The inventory log indicated “bulk” next to containers that were bulked. The date on this container did not reflect the oldest date of the waste added to this drum.
BN-124.	843	~1-gallon	D001, F003, F005	Yes	7/3/97	Yes	Acetone, toluene, ethyl acetate, petroleum ether alcohols

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-125.	842	~1 gallon	D001, F003, F002, F005, D018, D022	Yes	7/3/97	Yes	Container of chloroform, toluene, beBNene, acetone, methylene chloride (Stored inside a cardboard container with #843 above).
BN-126.	842	~1 gallon	D001, F003, F002, F005, D018, D022	Yes	7/3/97	Yes	Container of chloroform, toluene, beBNene, acetone, methylene chloride (Stored inside a cardboard container with #843 above).
BN-127.	842	~1 gallon	D001, F003, F002, F005, D018, D022	Yes	7/3/97	Yes	Containers of chloroform, toluene, beBNene, acetone, methylene chloride (Stored inside a cardboard container with #843 above).
BN-128.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 6/6/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-129.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 6/6/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.
BN-130.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 6/6/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-131.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 6/16/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.
BN-132.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 6/16/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-133.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 4/21/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.
BN-134.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 5/1/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-135.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 5/7/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.
BN-136.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 6/20/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-137.	846	~1-gallon	F003 F005	Yes	7/3/97	Yes	Cardboard boxes were used to store ten containers. The outside of the box was dated 7/3/97. The container inside this box was dated 7/3/97. The waste contained water, methanol, toluene, vinyl beBNyl chloride, acetone, ethanol and diethanolamine.
BN-138.	783	~10-gallon	NH11	Yes	6/23/97	Yes	Waste formalin
BN-139.	None	Open Box	D009	No	No	No	Cardboard box accumulating spent fluorescent lightbulbs.
BN-140.	None	Open Box	D009	No	No	No	Cardboard box accumulating spent fluorescent lightbulbs.
BN-141.	788	~10-gallon	D002	Yes	6/17/97	Yes	Spent hydrochloric acid wash
BN-142.	None	Assorted Batteries	None	No	None	Yes	Collection area for batteries. Ni-cads and Gel-cells observed.
BN-143.	None	NR	None	No	6/1/97	Yes	One container marked "Halogenated waste"
BN-144.	487	NR	D009	Yes	9/3/96	Yes	Mercury waste

We inspected this accumulation for emergency equipment. The receiving area was equipped with a telephone, eyewash station, ventilation system and spill control equipment. According to

Mr. Nosecone, only three keys exist on campus to this area. These keys are assigned to himself, the Director and one other person.

Our inspection of the fenced in area found at least six plastic bags that were not marked or otherwise labeled and stored just inside the locked gate area. We asked Mr. Nosecone to identify the content of these bags and Mr. Nosecone stated that the material was paint related waste generated from routine maintenance and painting conducted at the University. We asked Mr. Nosecone if this waste was hazardous for lead or any other constituents. Mr. Nosecone stated that he did not know but was managing this waste as a lead contaminated hazardous waste as a precaution. We told Mr. Nosecone that these bags need to be marked, labeled and otherwise managed in accordance with the regulations. The following bags were observed:

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-145.	None	Plastic bag	None	None	None	Yes	Plastic bag containing waste considered lead contaminated.
BN-146.	None	Plastic bag	None	None	None	Yes	Plastic bag containing waste considered lead contaminated.
BN-147.	None	Plastic bag	None	None	None	Yes	Plastic bag containing waste considered lead contaminated.
BN-148.	None	Plastic bag	None	None	None	Yes	Plastic bag containing waste considered lead contaminated.
BN-149.	None	Plastic bag	None	None	None	Yes	Plastic bag containing waste considered lead contaminated.
BN-150.	None	Plastic bag	None	None	None	Yes	Plastic bag containing waste considered lead contaminated.

We walked to the *Carpenter Shop* next. We inspected this area and observed solvents stored in coffee cans in the rear of the shop. We asked Butch Hobson, an employee at this area, what the material in the paints can was. Mr. Hobson stated that these cans contained paint thinners. We asked what was done with the solvents. Mr. Hobson stated that they mostly added solvent to the cans. We asked him what happened to the paint solids. He stated that the paint solids were disposed in the trash when they dried out. We observed floor drains in the shop and asked the Carpenter Shop Manager how many drains were in this area. He stated that the shop had four or

five drains. We walked to the *Printing and Mail Services Building* next. The following containers were observed:

Printing and Mail Service Building

ID#	Log ID#	Size	Waste Code	Mark/ Label	Date	Closed	Comments
BN-151.	None	~15 gallon	None	None	None	Yes	1st Floor entrance, written sign marked "Hazardous Waste Do Not Take When Picking Up Developer"
BN-152.	None	~15 gallon	None	None	None	Yes	1st Floor entrance, written sign marked "Hazardous Waste Do Not Take When Picking Up Developer"
BN-153.	None	~15 gallon	None	None	None	Yes	1st Floor entrance, written sign marked "Hazardous Waste Do Not Take When Picking Up Developer"
BN-154.	None	~15 gallon	None	None	None	Yes	2nd Floor Dark Room - Spent fixer.

During our inspection of the print shop area, we observed ink trays on the press machines and asked one of the employees how these machines were cleaned. According to this employee, the presses were wiped down with solvent-soaked rags which were collected, laundered and reused. We asked how the ink trays were cleaned and how the waste inks were handled. According to this employee, the ink trays were cleaned with solvent that was collected and evaporated. The dried inks were disposed into the trash. These solvent wash used was Color Wash #1 and Color Wash #2 (Material Safety Data Sheets were photocopied). The employee at this area identified Color Wash #2 as the solvent rinse collected from the trays that was evaporated. Color Wash #2 had a flashpoint of 104°F.

We walked to the second floor of this building and observed a Viking Plate Processor that was used as part of the graphic arts process. The waste collected from this unit consisted of water, beBNyl alcohol, sodium butylnapthalenesulfonate and ammonium sulfite. We asked

Mr. Nosecone how this waste was handled. Mr. Nosecone stated that this material was discharged to the local POTW and stated that the POTW requires approval for all the materials that the University discharges to the sewer system.

We inspected the second floor Dark Room next and documented several containers accumulating photochemical wastes (noted in the Table above). The last room we inspected on the second floor had a 15-gallon container that contained a cleaning solution and was used as a dip tank to clean metal racks. We asked the employee at this area what the cleaning chemical was. According to the employee, this container held some type of bleach solution. We asked for the MSDS for this material. We reviewed the MSDS and determined that the container actually stored a mixture of chromic sulfuric acid. Mr. Nosecone stated that he was not aware of this material and informed the employee that he would be back to find a suitable replacement. We asked the employee what was done with the contents of this container when it was no longer useable. This employee stated that the solution has not been replaced to date and stated that he generally adds liquid to the solution since some of the material is lost due to evaporation or is picked up on the metal rack during the cleaning process. He stated that the racks are rinsed in the sink located next to this container after they have been dipped in the cleaning solution. We walked to the Vehicle Maintenance Building next.

We entered the *Vehicle Maintenance Building* and the Director explained that this facility conducted repair and maintenance work on the University's automotive fleet. The Director also stated that vehicles were washed at this location. We observed two (2) 275-gallon tanks and asked the Director if these tanks were used to accumulate waste oil. The Director stated the waste oil was stored in these tank and stated that he notified EPA of the waste oil activities and has a state permit to burn the waste oil on-site. The Director stated that an independent company is also contracted to periodically remove waste oils when needed. We walked through this area and observed one (1) Safety-Kleen® solvent parts washer in-use and one (1) 55-gallon container that accumulated waste antifreeze. No other wastes or containers were observed in this area at the time of inspection. We inspected a long drainage drench located in this area for evidence of chemical spillage. The Director stated that these trenches were used to transfer the water from the vehicle washing activities to an oil/water separator located in a buried vault outside the facility. We asked the Director where this separator discharged to. The Director stated that the separator was connected to the POTW.

We concluded the inspection for the day at approximately 3:45 p.m. We resumed our inspection at approximately 8:30 the following morning and began with the *Lego Building*. The following containers were observed in this building:

Lego Building

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-155.	G-201	~4-liter	Yes	Yes	N/A	No	Open container marked “non-halogenated organic waste
BN-156.	G-201	~4-liter	Yes	Yes	6/3/97	No	Open container marked “copper nitrates, copper acetyl, acetate”
BN-157.	G-201	~4-liter	Yes	Yes	6/16/97	No	Open container marked “acetic anhydride, H_2S0_4, & MnO_4”
BN-158.	G-205	~1-liter	N/A	N/A	N/A	N/A	Severely corroded container of H_2So_4
BN-159.	G-207	~4-liter	No	Yes	No	No	Unknown waste
BN-160.	G-207	~4-liter	No	Yes	No	No	Unknown waste
BN-161.	G-209	~1-liter	Yes	No	N/A	No	Hazardous Waste Storage Hood: Glass container marked “mercury waste”
BN-162.	G-209	~200-ml	Yes	No	No	No	Hazardous Waste Storage Hood: “unknown Kodak #1”
BN-163.	G-209	~200-ml	Yes	No	No	No	Hazardous Waste Storage Hood: “DMF with cork”
BN-164.	G-209	~1-liter	Yes	No	N/A	No	Hazardous Waste Storage Hood: “pyridine”

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-165.	G-209	~200-ml	Yes	No	N/A	No	Hazardous Waste Storage Hood: "M-toluene, acid, thionyl chloride, DMF/water"
BN-166.	G-209	~1-quart	No	No	N/A	No	Hazardous Waste Storage Hood: Unknown material
BN-167.	G-209	~1-quart	No	No	N/A	No	Hazardous Waste Storage Hood: "amonical solution"
BN-168.	G-209	~1-quart	No	No	N/A	No	No markings
BN-169.	G-209	~4-liter	Yes	Yes	N/A	No	Container marked with "H_2O + $CHCl_3$"
BN-170.	G-210	~4-liter	Yes	Yes	N/A	No	Solid sodium under kerosene
BN-171.	G-210	~4-liter	Yes	Yes	N/A	No	Solid sodium under xylene
BN-172.	G-210/ 211	NR	Yes	No	10/10/96	No	Waste fixer solution with an open cap and about ½ pint in bottom
BN-173.	G-210/ 211	~500-ml	Yes	Yes	No	No	Container stored in fume hood with the words "organic solid wastes." Generator identified as Room 208. Number 546 also written on container.
BN-174.	G-210/ 211	~1-liter	Yes	Yes	No	No	Container marked as Hazardous Waste and Unknown waste.

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-175.	G-210/ 211	~500-ml	Yes	Yes	No	No	Container marked as Hazardous Waste and “Solid Waste” from Room 204.
BN-176.	G-210/ 211	~1-liter	Yes	Yes	None	No	Container marked as Hazardous Waste “Solid Waste” from Room 208.
BN-177.	G-210/ 211	~500-ml	Yes	Yes	None	No	Container marked as Hazardous Waste “Solid waste” from Room 203.
BN-178.	G-212, Fume Hood #4	~3-liter	No	Yes	N/A	No	Solid material with no labeling
BN-179.	G-145	~4-liter	No	Yes	None	No	Container marked “from stock room”
BN-180.	G-202/ 203	~500-ml	Yes	Yes	N/A	No	Container marked as Hazardous Waste “Solid waste” and “Unknowns.”
BN-181.	G-202/ 203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-182.	G-202/ 203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-183.	G-202/ 203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-184.	G-202/ 203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-185.	G-202/203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-186.	G-202/203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-187.	G-202/203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-188.	G-202/203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-189.	G-202/203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-190.	G-202/203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns”
BN-191.	G-202/203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns” with open top
BN-192.	G-202/203	NR	Yes	Yes	N/A	No	Container marked as Hazardous Waste and “Unknowns” with open top
BN-193.	G-236	NR	Yes	Yes	N/A	No	Opened container of sulfuric acid, alcohols, methylene chloride, 4-amino-phenol

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-194.	G-236	~½ gal	Yes	Yes	N/A	No	Hexane with trace amount of boron. Hazardous waste label not affixed, placed on top of container.
BN-195.	G-236	~1-liter	Yes	No	N/A	No	Open container of carbon tetrachloride
BN-196.	G-217	~½-gal	Yes	No	No	No	Container was marked as mercury waste and identified Room G-236 as the generation area.
BN-197.	G-217	~4-liter	Yes	Yes	N/A	No	Container marked "$HgCl+H_2O$"
BN-198.	G-217	~4-liter	No	No	N/A	No	No labeling on container.
BN-199.	G-217 Fume Hood	~4-liter	Yes	Yes	N/A	No	Container with a loose cap marked "inorganic waste Co^{++}, Cu^{++}"
BN-200.	G-233	~1 gal	Yes	Yes	N/A	No	Marked as "CH_3OH H_2O CH_2Cl_2"
BN-201.	G-233 Fume Hood #3	~100-ml	Yes	No	N/A	No	Marked as "mercury /silver waste"
BN-202.	G-233 Fume Hood #3	NR	No	No	No	No	Unmarked container, could not determine whether the material was a waste or product.

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-203.	G-233 Fume Hood #3	NR	No	No	No	No	Unmarked container, could not determine whether the material was a waste or product.
BN-204.	G-233 Fume Hood #3	NR	No	No	No	No	Unmarked container, could not determine whether the material was a waste or product.
BN-205.	G-233 Fume Hood #3	NR	No	No	No	No	Unmarked container, could not determine whether the material was a waste or product.
BN-206.	G-233 Fume Hood #2	~½-gal	Yes	No	N/A	No	One container of methylene chloride
BN-207.	G-220 /221	~½-gal	Yes	Yes	7/1/97	No	Waste toluene
BN-208.	G-220 /221	~½-gal	Yes	Yes	7/2/97	No	Waste dichloromethane
BN-209.	G-240	~2-liter	No	Yes	N/A	No	No description of waste on container
BN-210.	G-252/ 253	~2-liter	Yes	Yes	3/1/93	No	Container marked "H_2O, KOH, amines, generator Mikey"
BN-211.	G-252/ 253	~2-liter	Yes	Yes	3/1/93	No	Container marked "H_2O, KOH, amines, generator Mikey"
BN-212.	G-252/ 253	~1-liter	Yes	Yes	N/A	No	No contents marked on this container
BN-213.	240	500-ml	Yes	Yes	N/A	No	Bottle marked "unknown"

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-214.	239	~1-gal	No	No	N/A	No	Dark liquid in sulfuric acid container
BN-215.	233	NR	Yes	No	N/A	No	Small container marked "Thermo-meter Hg Waste"
BN-216.	252	~½-gal	No	Yes	N/A	No	Open container with unknown white powder. No contents were identified.
BN-217.	203 Fume Hood #2	~1-gal	No	Yes	N/A	No	Unknown liquid stored in a container with an open funnel.
BN-218.	204A	NR	N/A	N/A	N/A	N/A	Leaking sodium hydroxide container with crystallized material 1-2 inches around the outside of the container. Material inside this container is product.
BN-219.	204A	NR	N/A	N/A	N/A	N/A	Leaking container stored lithium under oil.
BN-220.	209	~1-gal	Yes	Yes	6/30/97	No	Full container of NaOH dated 6/30/97
BN-221.	209, Fume Hood #4	~1-gal	Yes	Yes	6/1/97	No	"Acidic waste"
BN-222.	209, Fume Hood #4	~1-gal	Yes	Yes	7/1/97	No	"organic waste" containing "$CS_{2,}$ toluene, $CHCl_3$, acetone, Etoh, MeOH"

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-223.	209, Fume Hood #3	~1-gal	Yes	Yes	6/23/97	No	"H_2PO_4, Acidic"
BN-224.	209, Fume Hood #3	~½-gal	Yes	Yes	7/1/97	No	"Solid Waste"
BN-225.	209, Fume Hood #3	~1-qt	Yes	No	7/7/97	No	"Solid Waste"
BN-226.	211/212	Plastic Bag	Yes	No	6/15/97	No	Contained Hg thermometer
BN-227.	109/110	~1.5-gal	Yes	Yes	6/15/97	No	"Solid Waste"
BN-228.	109/110	~1.5-gal	Yes	No	7/1/97	No	"Solid Waste" silica, alumina (rest of label was unreadable).
BN-229.	109/110	~500-ml	Yes	Yes	6/25/97	No	"Pd Waste"
BN-230.	109/110	~1-gal	Yes	Yes	7/1/97	No	"Acetone, hexane, butane, ether"
BN-231.	150	NR	Yes	Yes	7/9/91	No	"Ethanol, methanol, dichloromethyl acetone"
BN-232.	150, Fume Hood #3	~1-gal	Yes	No	N/A	No	Open funnel containing water, methanol, ethanol, vinyl beBNyl chloride, acetone
BN-233.	149	~1-liter	Yes	Yes	N/A	No	The hazardous waste label was obliterated. Only the word "hexane" could be read.

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-234.	G-118	NR	Yes	Yes	4/2/97	D011	Used fixer
BN-235.	G-132/133	NR	Yes	Yes	4/7/97	No	The contents were not identified
BN-236.	G-132/133	~½-gal	Yes	No	N/A	No	"Waste NaOH" written on this container.
BN-237.	G-132/133	~1.5-gal	Yes	No	2/18/97	No	Container marked "$Cu(NO_3)_2$, $NaNO_3$, HOAC"
BN-238.	G-132/133	~1.5-gal	Yes	No	2/18/97	No	Container marked "$Cu(NO_3)_2$, $NaNO_3$, HOAC"
BN-239.	G-132/133	~1.5-gal	Yes	Yes	4/28/97	No	Container marked "Ommonium Vanadomolybdate + PO_4"
BN-240.	G-132/133	~1-quart	Yes	Yes	N/A	No	Container marked "solid waste" and "$Cu(Acac)_2$
BN-241.	G-132/133	~½-gal	Yes	Yes	N/A	No	Container marked "$CU(NH_3)_4(aq)^{2+}$ $Cu(SO_4)$ (aq)"
BN-242.	G-132/133	~5-gal	Yes	Yes	N/A	No	Container marked "Ammonium Vanadomolybdate"
BN-243.	G-132	~4-liter	Yes	No	N/A	No	Container marked "solubility waste"
BN-244.	G-132	~500-ml	Yes	No	N/A	No	Container marked "heavy metal waste" and was open

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-245.	G-115/ 114 Fume Hood #1	~1-gal	Yes	No	N/A	No	Container marked "waste" and "Do Not Remove"
BN-246.	G-106 Fume Hood #2	~1-gal	Yes	Yes	N/A	No	Open container marked "Monomers, H_2O, acetone, styrene, MA, MMA, PMA, VA"

After we inspected the Lego building, we stopped for lunch at approximately 1:00 p.m. and resumed our inspection at 2:00 p.m. We walked to the Hindenburg Building next. The Director stated that the Hindenburg Building was the newest facility on campus which he had personally been involved with during the design stages to incorporate environmental health and safety concerns.

The following area and containers were noted at this facility:

Hindenburg Building

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-247.	G-51	NR	Yes	No	N/A	No	Container marked simply as "WASTE" with no contents identified.
BN-248.	G-40, Fume Hood #3	~1-quart	Yes	No	N/A	No	Container marked "$CHCl_3$ Waste"
BN-249.	G-40, Fume Hood #3	~1-quart	Yes	No	N/A	No	Container marked "chloroform iso-amyl alcohol waste"
BN-250.	G-40, Fume Hood #3	~1-quart	Yes	No	No	No	Container marked "DOP waste"
BN-251.	132	~4-liter	Yes	No	N/A	No	Container marked "waste fixer"

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-252.	132	~500-ml	Yes	No	N/A	No	Container marked "waste fixer"
BN-253.	135, Fume Hood #2	NR	Yes	No	N/A	No	Paraformaldehyde Waste
BN-254.	133	~1-gal	Yes	No	N/A	No	Waste "Coo Blue Stain" contains 25% propanol, 10% acetic acid. Recycled on-site
BN-255.	133	~1-gal	Yes	No	N/A	No	"Waste Destain" (same as Coo Blue Stain) contains 25% propanol, 10% acetic acid. Recycled on-site
BN-256.	133	~1-quart	Yes	No	N/A	No	"Waste Destain" (same as Coo Blue Stain) contains 25% propanol, 10% acetic acid. Recycled on-site
BN-257.	125	~1-gal	Yes	Yes	7/3/97	No	"HPLC solvent MeOH, ethyl acetate, acetone"
BN-258.	123, Fume Hood #2	NR	Yes	No	N/A	No	Container marked "Waste." Contained plant material and chloroform per professor.
BN-259.	123, Fume Hood #2	NR	Yes	No	N/A	No	Container marked "Waste." Contained plant material and chloroform per professor.

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-260.	124, Fume Hood #2	~½-gal	Yes	No	N/A	No	Container marked “waste phenol/ choroform/isoamyl”
BN-261.	132, Fume Hood #2	~1-quart	Yes	No	N/A	No	Container marked “phenol/chloroform waste”
BN-262.	134	~1-quart	No	No	No	No	Unknown container
BN-263.	134	~1-gal	No	No	No	No	Unknown container
BN-264.	138	~250-ml	No	Yes	N/A	No	Container of unknown hazardous waste
BN-265.	138	~250-ml	No	Yes	N/A	No	Container of unknown hazardous waste
BN-266.	144	~4-liter	Yes	Yes	N/A	No	Container marked “EtOH”
BN-267.	144	~250-ml	Yes	Yes	N/A	No	Container marked “EtOH”
BN-268.	152	~4-liter	Yes	No	N/A	No	Container marked “waste fixer”
BN-269.	152	~4-liter	Yes	No	N/A	No	Container marked “waste fixer”
BN-270.	153	~100-ml	Yes	Yes	N/A	No	Container marked “Hexane waste”
BN-271.	153	~100-ml	Yes	No	N/A	No	Container marked “toluene, xylene waste”
BN-272.	235	~2-liter	Yes	No	N/A	No	Waste container marked “ether”
BN-273.	235	~500-ml	Yes	No	N/A	No	Waste container marked “phenol/ chloroform”

ID#	Room #	Size	Marked	HW Label	Date	Waste Code	Comments
BN-274.	251	~15-gal	Yes	Yes	N/A	No	Open container marked “waste fixer”
BN-275.	253, Fume Hood #2	~1-gal	Yes	No	N/A	No	Container marked “phenol/chloroform waste”
BN-276.	253, Fume Hood #2	~½- gal	Yes	No	N/A	No	“chloro rm waste”
BN-277.	253, Fume Hood #2	~½-gal	Yes	No	N/A	No	Container marked “WESCO DYNE”
BN-278.	253, Fume Hood #2	~½- pint	Yes	No	N/A	No	Container marked “Sequencer Waste”

We went to the Bourse Building next. The following containers were observed at this facility:

Bourse Building

ID#	Room#	Size	Marked	HW Label	Date	Waste Code	Comments
BN-279.	403/ 404	1-gal	Yes	No	N/A	No	Container marked potassium cyanide.
BN-280.	NR	250-ml	Yes	No	N/A	No	Container marked “propanol/heptane”
BN-281.	NR	250-ml	Yes	No	N/A	No	Container marked “propanol/acid”

We entered Room 506 and observed a fume hood that was affixed with a sign which read: “Clean & Organize - Mikey to pick up waste.” The fume hood contained approximately two dozen assorted containers that were not marked or otherwise labeled. We asked Mr. Nosecone what these containers were. Mr. Nosecone stated that he did not know and that he had not been contacted by the professor for this area. We left the facility at approximately 4:45 p.m. and returned the following morning at approximately 8:38 a.m. We inspected the Arts Building first. The following containers were observed at this area:

Arts Center

ID#	Room	Size	Marked	HW Label	Date	Waste Code	Comments
BN-282.	A-107	~30-gal	Yes	Yes	N/A	D011	Open container marked "used fixer" and "D011"
BN-283.	A-303	~250-ml	No	No	No	No	Open glass container with liquids found in trash receptacle. The liquids were either turpentine or mineral spirits based on the smell.
BN-284.	A-303	~250-ml	No	No	No	No	Open glass container with liquids found in trash receptacle. The liquids were either turpentine or mineral spirits based on the smell.
BN-285.	A-303	~250-ml	No	No	No	No	Open glass container with liquids found in trash receptacle. The liquids were either turpentine or mineral spirits based on the smell.
BN-286.	A-303	~250-ml	No	No	No	No	Open glass container with liquids found in trash receptacle. The liquids were either turpentine or mineral spirits based on the smell. Some of the solvents had spilled from this container onto the debris in the trash can.
BN-287.	A-303	~5-gal	Yes	Yes	Yes	D001	Open 5-gallon "jerry" can marked "waste thinner & turpentine"
BN-288.	Dark Room	55-gal	Yes	Yes	N/A	No	Open container marked "waste fixer"

After documenting the containers of solvents which were disposed to the trash, we walked to the dumpster used for this building. Our inspection of this dumpster found two plastic trash bags that were inspected and found to contain municipal trash such as paper, coffee cups, etc.

We went to Hell Hall next (also referred to as the Earth, Ocean and Science Building). The following containers were observed and documented:

Hell Hall

ID#	Room#	Size	Marked	HW Label	Date	Waste Code	Comments
BN-289.	421	NR	Yes	No	N/A	No	Container marked as "non-hazardous" which stored 95% water with trace dyes, ethanol and xylene.
BN-290.	342	~1-quart	Yes	No	N/A	No	Mason jar marked as "waste ethanol & H_20"
BN-291.	342	~1-quart	Yes	No	N/A	No	Mason jar marked as "waste ethanol & H_20"
BN-292.	342	~1-quart	Yes	No	N/A	No	Mason jar marked as "waste tartaric acid, Etoh, ether"
BN-293.	342	~½-gal	Yes	No	N/A	No	Container marked "Aqueous Waste" and "Salicylate reagent isocyanurate reagent tartaric acid, ammonia"
BN-294.	342	~1-gal	Yes	No	N/A	No	Container marked "waste acetone"
BN-295.	Computer Research Lab	~1-gal	Yes	No	N/A	No	Container marked "Toner waste"

ID#	Room#	Size	Marked	HW Label	Date	Waste Code	Comments
BN-296.	345, Fume Hood #15	~1-gal	Yes	No	No	No	Container marked "Hg Waste" and treated on-site. No notification to EPA or waste analysis to document proper treatment. Waste generated in Room 379.
BN-297.	345, Fume Hood #15	~1-gal	Yes	No	No	No	Container marked "Poison Hg Waste" and treated on-site. Container was open. No notification to EPA or waste analysis to document proper treatment. Waste generated in Room 379.
BN-298.	345, Fume Hood #15	~200-ml	No	No	No	No	Container used to accumulate filtrate from the mercury treatment process
BN-299.	345, Fume Hood #15	~200-ml	No	No	No	No	Container used to accumulate filtrate from the mercury treatment process
BN-300.	373	~500-ml	No	No	N/A	No	Container accumulating mercury wastes from Technicon Auto-Analyzer II.
BN-301.	424	~4-liter	Yes	Yes	N/A	No	Container marked "H_2So_4"
BN-302.	424	~4-liter	Yes	Yes	N/A	No	Container marked "$MeCl_2$"
BN-303.	381	~4-liter	Yes	Yes	N/A	No	Container marked "HCl"

ID#	Room#	Size	Marked	HW Label	Date	Waste Code	Comments
BN-304.	381	~4-liter	Yes	Yes	N/A	No	Container marked "HCl"
BN-305.	381	~4-liter	Yes	No	N/A	No	Container marked "phosphoric acid waste glass"
BN-306.	103	~4-liter	Yes	Yes	N/A	No	Open container marked "aluminum sulfate"
BN-307.	103	~4-liter	Yes	Yes	N/A	No	Open container marked "NaOH"
BN-308.	103	~4-liter	Yes	Yes	N/A	No	Open container marked "Hydro..." the rest of the label was illegible.

During our inspection of Hell Hall we spoke with the woman that conducted on-site treatment of mercury contaminated waste generated from Room 379. According to this individual, mercury contaminated waste was brought from her lab and stored inside a fume hood located in Room 345. We asked this individual what kind of treatment was conducted. This person photocopied a test procedure that was entitled *L. Reagents for Mercury Precipitation*. We asked this person if she tested the filtrate to determine when the mercury was removed below the 0.2 ppm regulatory limit. This individual stated that she did not and poured the filtrate down the drain as outlined by the test procedure. Mr. Nosecone stated that he was unaware that this activity was occurring at this area and instructed this individual not to conduct anymore waste treatment, collect the mercury wastewaters and to contact him to remove the containers as needed.

We went to *Monty Hall* next. The psychology labs were located at this area. We inspected the laboratories at this area and observed no deficiencies at the time of our inspection. A majority of the containers observed contained raw product. We went to *Study Hall* next. The following containers were documented:

Study Hall

ID#	Room#	Size	Marked	HW Label	Date	Waste Code	Comments
BN-309.	21	~1-gal	Yes	No	N/A	No	Container marked "acetone (90% waste from chl extraction)"
BN-310.	21	~1-quart	Yes	No	N/A	No	Container marked "Dispose of Waste," "Acid Dichromate" and "Danger Carcinogens"
BN-311.	23	~½ -gal	Yes	No	2/21/97	No	Container marked "Chemical Waste" "$AgCl_2$, $AgNO_3$, K_2CrO_4"
BN-312.	206A	~1-gal	Yes	No	N/A	No	Container marked "PO_4 Analysis Need Haz. Waste Stick."
BN-313.	206A	~5-gal	Yes	No	N/A	No	Container marked "Cadmium Processing Waste"
BN-314.	206A	~½ -gal	Yes	No	N/A	No	Container marked "NH_4 Analysis Waste" and "Need Haz. Waste Sticker"
BN-315.	206A	~1-quart	Yes	Yes	N/A	No	Container marked "Phosphate Waste Analysis"
BN-316.	206A	~1-quart	Yes	No	N/A	No	Container marked "NH_4 Analysis Waste"
BN-317.	228	~1-pint	Yes	No	N/A	No	Container marked "methanol waste"
BN-318.	228	~1-quart	Yes	No	N/A	No	Container marked "waste methanol"

ID#	Room#	Size	Marked	HW Label	Date	Waste Code	Comments
BN-319.	NR	~4-liter	Yes	Yes	N/A	No	Container marked "Ag Chloride-Ag Nitrate"
BN-320.	NR	~4-liter	No	Yes	N/A	No	No information provided on label.
BN-321.	NR	~4-liter	No	Yes	N/A	No	No information provided on label.
BN-322.	NR	~4-liter	No	Yes	N/A	No	No information provided on label.
BN-323.	NR	~4-liter	No	Yes	N/A	No	No information provided on label.

We inspected the *Greenhouse* area next. The *Greenhouse* used pesticides and other agricultural formulations as part of its research and development activities. We inspected the Hazardous Waste Storage Area at this location and observed no wastes in storage. After we inspected this area, we went to lunch at approximately 12:25 p.m. and returned to the University at approximately 1:00 p.m. to conduct the record review (discussed below).

V. Record Review:

Inspection Records

The inspection records for the hazardous waste area were discontinued in 1993 based upon our review of the records maintained at the facility. Mr. Nosecone stated that he conducts daily inspections but does not record them.

Inventory Records

We reviewed the waste inventory log maintained for the Hazardous Waste Storage Area and maintained by Mr. Nosecone. On the first day of our inspection we recorded the log numbers assigned to each container and photocopied the inventory log for use as a reference. The inventory logs were photocopied from the date of the last manifested shipment. On the first day of our inspection, we determined that all the containers in storage were not recorded on these inventory logs. We observed and documented one container dated on 6/1/97, and identified as "halogenated waste," one container marked as xylene waste with no date of accumulation and one undated 1-pt container marked as a hazardous waste as some of the containers that had been received and stored at this location with no corresponding log number. We told Mr. Nosecone that, with the exception of the halogenated waste, we had no way of determining the length of time the other containers were kept in storage. Other containers area noted in the Tables above.

On the third day of our inspection, we revisited the Hazardous Waste Storage Area and the Waste Receiving Area to compare the data written on the inventory logs with the information written on the outside of each container. Our review determined that the information recorded on the inventory log for each container did not match the information recorded on the labels of each containers in all instances. We asked Mr. Nosecone if the dates marked on the inventory logs reflected the dates when these containers were brought to this area and the ninety day clock began.

Mr. Nosecone stated that the dates listed on the inventory logs indicated the dates he made the entry into the record and not necessarily the actual date that the containers were received at this location. We found numerous containers in storage with marked dates of accumulation that conflicted with the recorded date of accumulation identified in the inventory logs.

Hazardous Waste Training Records

We asked for records for all employees that are required to received hazardous waste training. The Director stated that Mr. Nosecone was the only individual responsible for managing hazardous waste at the facility. Mr. Nosecone stated that he received RCRA training from a consulting firm approximately three weeks prior to our inspection. No documentation of this training was observed at the time of inspection. Mr. Nosecone also stated that he took the IHMM (Institute of Hazardous Materials Management) exam to become a certified Hazardous Material Manager. The results of this exam were not known at the time of inspection. A review of Mr. Nosecone's training found documentation of RCRA training in 1990 and 1992. The majority of training documentation involved hazardous materials and OSHA training. Our inspection of the facility found three locations were operated as centralized storage areas for hazardous wastes generated in different laboratories. No documentation of RCRA training was found for those individuals responsible for these managing the three centralized areas or the individuals from the rooms identified on each container.

Hazardous Waste Contingency Plan

The hazardous waste contingency plan was not available at the time of inspection. The Director stated that he had developed a hazardous waste contingency plan but could not locate this document. He provided us with his SARA Title III Emergency Response Plan. This document did not identify the hazardous waste storage area located at Glen Hall. A copy of this plan was mailed to EPA in 1998.

Waste Analysis Plan

BN treated characteristic mercury wastes on-site and did not submit notification of this activity to EPA and did not analyze the waste after treatment to confirm that the characteristic for mercury had been properly treated and eliminated prior to discharge to the municipal sewer.

Manifests

No manifest discrepancies were noted.

Land Disposal Restrictions

Land Disposal Restriction notices were provided. No discrepancies were noted.

VI. Closing Conference:

We held a closing conference with the Director to outline our preliminary findings. We told the Director that we identify all our potential concerns so that the University could investigate and address these problems as quickly as possible. Ken Doll explained that the lag time between EPA's inspection, resulting inspection report and legal review could be substantial since the University was not the only inspection or activity he was involved with. We outlined the following specific issues:

1. **Fluorescent Lights:** We identified our concern about the management of fluorescent lights by the University. Specifically, we stated that we were concerned about the large stockpile of materials, the failure to remove the lights in a timely manner and the breakage of some of the lamps stored in the outside piles. We stated that the lights contain small amounts of mercury that could pose potential problems at the site if the University's management practices were not improved.

2. **Incompatible Wastes:** We identified the storage of small containers on metal racks at the Hazardous/Mixed Radioactive Waste Storage Building as a problem area. We stated that the chemicals did not appear to be segregated by compatibility and told the Director that the shelving was not self-contained to prevent chemical leaks or spillage from incompatible waste containers that were stored on shelves below the wastes. We also stated that these containers were stored such that the labels were not visible for these containers

3. **Inspection Records:** We identified the lack of any documentation of inspections as a significant problem area. Mr. Nosecone stated the he inspected daily but did not record these inspection.

4. **Inventory Records:** We identified the discrepancies between the inventory logs and the actual containers observed in storage.

5. **Satellite Accumulation:** We identified the lack of waste codes, the use of chemical formulae and the use of the terms “unknown waste” and “solid wastes” as problem areas for the satellite accumulation containers. We stated that we were concerned that neither we nor the Director or Mr. Nosecone could identify the nature of these wastes during the inspection. We also stated that the labeling on many containers did not provide any useful information to emergency responders in the event a chemical emergency should occur at these areas. We told the Director that we were concerned about the lack of awareness of satellite accumulation requirements displayed by some of the professors we spoke to during the inspection. We told the Director that we were concerned when some professors identified Mr. Nosecone as the person responsible for properly

identifying and labeling the hazardous waste generated at their labs, and did not accept responsibility for assuring that wastes were properly marked and labeled.

6. **Open Containers:** We identified open containers of hazardous waste in satellite accumulation areas as a problem.

7. **Paint Chips:** We identified the plastic bags used to store paint chips and related waste as a problem. Specifically, we told the Director that the Mr. Nosecone, in lieu of affirmative testing, chose to treat this waste as a lead contaminated hazardous waste. We stated that these bags should have been properly marked, labeled and stored in accordance with the RCRA regulations once this decision was made.

8. **Marking and Labeling of Satellite Accumulation Containers:** We told the Director that we believed that there were many containers stored at the laboratories that contained hazardous wastes based on the fact that the contents stored in these containers were not consistent with the virgin material identified on the label and appeared to be some type of waste. We stated that the absence of laboratory personnel at many of these areas prevented us from conclusively identifying the nature of these materials.

9. **Centralized Storage:** We told the Director that we observed several laboratory rooms used to collect hazardous wastes generated at other locations. We told the Director that any centralized collection area had to be operated in accordance with the less-than-ninety-day hazardous waste requirements.

10. **Fixer:** We told the Director that the waste fixer storage area located in the Printing and Mail Services building had to be managed as a less-than-ninety-day storage area since it was not stored where this waste was initially generated and accumulated.

11. **Hazardous Waste Training:** We told the Director that we did not see evidence of training of other employees that might handle hazardous waste at the facility. The Director stated that Mr. Nosecone was the only individual responsible for the management of hazardous waste at the University. We told the Director that we only found documentation of two instances of RCRA training for Mr. Nosecone and no record of training for himself, as the primary emergency coordinator. The Director stated that Mr. Nosecone recently had taken a test to become a certified Hazardous Materials Manager and asked us what constituted adequate training for himself in light of the fact that he is an instructor who administers training in hazardous materials in addition to serving on numerous boards dealing with hazardous materials issues. We told the Director that we did not have an answer to his question and would need to look into this matter.

12. **On-site Treatment of Mercury:** We told the Director that the on-site treatment of mercury wastes was conducted without first submitting a notification of this activity to the Regional Administrator and that BN did not have a complete waste analysis plan to document that the characteristic of mercury was removed from the filtrate.

13. **Contingency Plan:** We told the Director that we would review the contingency plan back at the office. We stated that the plan did not appear to cover the Hazardous Waste Storage Area and seemed to address other areas of the University not covered by the RCRA contingency planning requirements. Mr. Meyer told the Director that he remembered seeing a different plan last summer. The Director stated that he would recheck his files and send the information if he found anything different.

The Director asked us how the facility compared overall. I told the Director that the nature of violations appeared similar to those observed at other universities, and suggested he contact those school for their advice on correcting these types of problems. I also told the Director that I felt he was inadequately staffed to address the scope of the hazardous waste activities on campus. I pointed out the fact that it took two inspectors almost three days to inspect the University and during the course of our inspection we found activities such as on-site treatment of mercury and the use of a chromic sulfuric acid cleaning solution that was unknown to staff from his office. I also mentioned at one of the laboratories we inspected, personnel told us that they had sent a request to Mr. Nosecone to remove discarded chemicals from their area several months prior to our inspection to which Mr. Nosecone stated that he did not have the time. I told the Director that he might want to consider developing some type of guidance for each laboratory to comply with the regulations and also suggested that he visit the U.S. Army Research Laboratory in Natick, Massachusetts to review their environmental program. At this point, I reiterated the fact that the report and determination of Agency action for this inspection would not occur for several months. I told the Director that I provided the above comments to help him with potential compliance problems at the University. I also told the Director to call me with any questions that he may have concerning compliance with RCRA. We concluded our inspection of this facility at approximately 4:42 p.m.