FEB 18 1986

TA03

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EID Dir's Office

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

2 copies

Ms. Denise Fort, Director
New Mexico Environmental Improvement Division
P. O. Box 968
Santa Fe, New Mexico 87504-0968

Dear Ms. Fort:

Enclosed are amended closure plans for the Los Alamos National Laboratory's hazardous waste facilities:

- o TA-3-102 Container Storage Area for Lithium Hydride,
- o TA-22-24 Container Storage for High Explosive Contaminated Wastes, and
- o TA-40-2 Container Storage for High Explosive Contaminated Wastes

These amended closure plans supersede all previously submitted closure plans for these three facilities. These plans were amended to reply to oral comments received from representatives of the New Mexico Environmental Improvement Division (NMEID) during an October 29, 1985 meeting with representatives of the Laboratory. The plans were previously referenced in the Department of Eenergy's (DOE's) response to NMEID's August 26, 1985 Notice of Violation dated September 27, 1985 and contained specific dates for closure activities. By this letter the DOE requests that the public notice process be initiated by your Division for these three closure plans.

It is the intention of the DOE to close these facilities as soon as closure plan approval is received from NMEID. With your cooperation, closure activities can begin late in May of this year.

I would like to again take this opportunity to remind your Division that all correspondence should be directed to Department of Energy, Los Alamos Area Office, Los Alamos, New Mexico 87544 and not to Los Alamos National Laboratory. If you have any questions, please contact Avedon Gallegos of my staff at 667-5288.

Sincerely,

Harold E. Valencia
Area Manager

Enclosures:
As stated:

5011

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FEB 20 1986
HAZARDOUS WASTE SECTION

cc:
A. Tiedman, ADTS, LANL, MS A120
J. Aragon, HSE-DO, LANL, MS P228
T. Gunderson (HSE8-86-72), LANL, MS K490
A. Drypolcher, LANL, MS E518
W. Rhea, EPA, Dallas, TX 75270

R-00114A

# CLOSURE PLAN FOR

# TA-3 BUILDING 102

# CONTAINER STORAGE AREA

# FOR LITHIUM HYDRIDE


Facility ID No.: NM0890010515
Facility Name: Los Alamos National Laboratory
Legal Owner: United States Department of Energy
Address: Los Alamos Area Office
City, State: Los Alamos, New Mexico 87545
Phone: (505)667-5061



SEPTEMBER 1985
Amended December 1985

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## 1.0 INTRODUCTION

A portion of the Los Alamos National Laboratory's Technical Area 3 Building 102 (TA-3-102) is used for the containerized storage of lithium hydride (LIH) waste, which is a reactive waste because it reacts violently with water (D003). The container storage area is operated under a Part A Resource Conservation and Recovery Act (RCRA) Permit; a Part B Permit is not being sought. The container storage area will be closed under interim authority, and then put back into service as a short-term (less than 90 days) storage area. The operation of TA-3-102 for short-term storage will not require a Part B Permit (HWMR-204.B.1.)

This document is the closure plan required by the New Mexico Environmental Improvement Division (NMEID) Hazardous Waste Management Regulations (HWMR) 206.C.2. Closure consists of removing the remaining LIH wastes from the storage area, decontaminating the area, and verifying decontamination. LIH waste will then be brought to the area for short-term storage.

## 2.0 TA-3-102 CONTAINERIZED STORAGE DESCRIPTION

The TA-3-102 container storage area is a 3-m (10 ft)-wide by 3-m (10 ft)-long section of floor space in the northeast corner of Section 118-A, in Building SM-102 (Figure 2-1). Building SM-102 is a major Laboratory machine shop located within the Laboratory's property boundaries. Section 118-A is dedicated to machining LiH. The milling equipment is enclosed in plexiglass boxes, and a dust collection system maintains negative pressure on the boxes during milling operations. The chips collected in the milling boxes and the dust from the collection system are placed in plastic bags, which are placed in drums for storage. The drums are stored on a painted concrete floor. Adjacent walls are sheet rock over cinder block, and the sheet rock is painted with a high gloss enamel. The floor has no cracks or seams and there is a tight finish between the wall and floor.

## 3.0 WASTE DESCRIPTION

LIH is the only hazardous waste that has been stored in TA-3-102. LIH scraps from milling operations may be contaminated with mineral oil, and waste from cleaning equipment and floors may contain saw dust. The wastes are double-bagged in plastic bags, which are sealed and placed in new steel drums of different sizes, including 55-gallon, 30-gallon, 10-gallon, and 5-gallon drums. The different drums are used to segregate the different contaminated and uncontaminated wastes. Ultimately, these wastes are transported to hazardous waste storage at TA-54-Area L, where they are then treated on-site or shipped to a permitted off-site facility for treatment.

The maximum storage capacity at any given time at TA 3-102 is ten 55-gallon drums (73 cu ft) and is limited by administrative controls. The LIH waste on hand at closure is estimated as follows:

| Drum Size | Number | Contents | %Full |
|---|---|---|---|
| 55-gallon | 1 | Mineral Oil Contaminated Chips and Dust | 20 |
| 30-gallon | 2 | LIH Pieces | 50 |
| 20-gallon | 1 | LIH Pieces | 50 |
| 10-gallon | 1 | Chips and Dust | 50 |
| 5-gallon | 3 | Chips and Dust | 50 |

## 4.0 CLOSURE PLANS

### 4.1 Waste Removal

Before removing the waste, Section 118-A will stop all milling operations. The waste drums in the area will be sealed with drum covers and lid rings and moved out of the storage area with a drum hand truck. The drums will be placed along the north wall of Section 118-A of Building 102 at approximately the center of the room. Adequate space exists between milling equipment and the wall to allow a five feet access aisle.

Following closure, the drums will be moved back into the storage area, where they will be available to receive additional wastes. To document less than 90-day storage, and to designate their contents as hazardous waste, the drums will be affixed with dated tags. Inspections will be conducted as required by the existing Laboratory Inspection schedule.

### 4.2 Decontamination

Following removal of the waste, the storage area will be decontaminated. The floor and walls will be vacuumed 3 m (10 ft) in each direction from the corner to remove dust. Following vacuuming, the area supervisor will inspect the area to ensure that there are no visual accumulations of LiH dust or chips.

The dust accumulated by vacuuming will be picked up with a dust pan, then double-bagged in plastic bags and placed in a steel drum. The drum will be stored with the other LiH waste drums and

ultimately the dust will be treated on-site or shipped to a permitted off-site facility for treatment. The vacuum sweeper will be wiped clean inside and out with rags and washed with water. When the inspection fails to show visible evidence of LIH, the floor will be scrubbed and the walls wiped with water. Excess water will be picked up with an industrial vacuum sweeper, and the dirty water from cleaning will be poured into an industrial drain that flows to a Laboratory water treatment plant at TA-50-1. This treated water is discharged from the treatment plant under an NPDES permit. The dirty wash water will be sampled to determine adequate decontamination, as defined in Section 4.3.6. If testing of the wash water indicates that decontamination is incomplete, additional washings with water will be repeated until the area is fully decontaminated. After allowing the floor and walls to dry, the waste drums will be moved back into the storage area with a drum hand truck.

The wastes are handled in double-wrapped plastic bags, so the wastes do not contact the drum handling truck, and therefore the cart does not need to be decontaminated. The rags used for cleaning will be packed in plastic bags, placed in drums, and handled the same as the other LIH wastes. The vacuum used for sweeping will be washed with water.

Workers who move the drummed wastes or clean the area will wear coveralls, rubber gloves, safety glasses, and protective booties over their shoes. Coveralls and booties will be washed at the Laboratory's industrial laundry.

## 4.3 Sampling and Analytical Procedures

### 4.3.1 General Considerations

The following sections define procedures and methods for sampling, analysis, and documentation applicable to closure. Although specific procedures are defined, alternate methods given in Test Methods for Evaluating Solid Wastes, USEPA, SW 846, most current edition (SW 846) may be used if sampling conditions or experience indicate another method is preferable. The following methods are from SW 846.

### 4.3.2 Sampler

The Coliwasa sampler will be used to sample the clean water for background parameters before washing the area, and the wash water after cleaning the area. The simple design makes the sampler easy to use and allows rapid collection of samples, thus minimizing the exposure of the sample collector to potential hazards from the waste. The recommended model of the Coliwasa is shown in Figure 4-1, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system.

### 4.3.3 Cleaning the Sampler

The sampler must be clean before use. The used sampler must be washed with a warm detergent solution (Liquinox or Alconox), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the Coliwasa is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber-reinforced paper towels, the Coliwasa tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross-contamination of samples. Contamination is of particular importance in these samples, because they will be taken for regulatory purposes. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean and protected area.

### 4.3.4 Sampling Procedures

- Assemble the glass Coliwasa sampler according to Figure 4-1.

- Make sure that the Coliwasa sampler is clean.

- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the Coliwasa sampler into the liquid. Lower the sampler at a rate that permits the levels of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth or rag with the other hand.

- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block

while the lower end of the sampler is positioned in the glass container.

- Cap the glass container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain of custody record, as described in Section 4.3.5.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on-site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

- Deliver the sample to the laboratory for analysis.

4.3.5 Sample Handling

After a sample is transferred into the glass container, the container must be tightly capped as quickly as possible to prevent the loss of volatile components and to exclude possible oxidation from the air. The sample should be refrigerated or treated with preservatives, as required for the analysis and defined in SW 846. To split or withdraw an aliquot of a sample, considerable mixing, homogenization, or quartering is required to ensure that representative or identical portions are obtained. When transferring a sample aliquot, open the glass container as briefly as possible.

Each sample must be properly labeled and sealed immediately after collection.

4.3.5.1 Sample Labels

Sample labels (Figure 4-2) are necessary to prevent misidentification of samples. Gummed paper labels or tags are adequate. The label must include at least the following information:

- name of collector
- date and time of collection
- place of collection
- collector's sample number, which uniquely identifies the sample.

4.3.5.2 Sample Seals

Sample seals are used to preserve the integrity of the sample from the time it is collected until it is opened in the laboratory. Gummed paper seals can be used as official sample seals. The paper seal must carry information such as:

- collector's name
- date and time of sampling
- collector's sample number. This number must be identical with the number on the sample label.

The seal must be attached in such a way that it is necessary to break it in order to open the glass sample container. An example of a sample seal is shown in Figure 4-3.

4.3.5.3 Field Log Book

All information pertinent to a field survey or sampling must be recorded in a log book, which must be a bound book, preferably with consecutively numbered pages that are 8 1/2 by 11 inches. Entries in the log book must at least include:

- purpose of sample
- location of sampling and address
- name and address of field contact
- producer of waste and address
- type of process producing waste
- type of waste
- declared waste components and concentrations
- description of sampling point
- date and time of collection
- collector's sample identification number(s)
- sample distribution
- references, such as maps or photographs of the sampling site
- field observations
- any field measurements made, such as pH, flammability, explosibility.

Sampling situations vary widely. No general rule can be given about the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information

so that someone can reconstruct the sampling situation without relying on the collector's memory. The log book must be protected and kept in a safe place.

4.3.5.4 Chain of Custody Record

To establish the documentation necessary to trace sample possession from the time of collection, a completed chain of custody record must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in a court litigation. An example of a chain of custody record is illustrated in Figure 4-4. The record must contain the following minimum information:

- collector's sample number
- signature of collector
- date and time of collection
- place and address of collection
- waste type
- signatures of persons involved in the chain of possession
- inclusive dates of possession.

4.3.5.5 Sample Analysis Request Sheet

The sample analysis request sheet (Figure 4-5) is intended to accompany the sample when it is delivered to the laboratory. The field portion of this form must be completed by the person collecting the sample and should include most of the pertinent in-

formation noted in the log book. The laboratory portion of this form is intended to be completed by the laboratory personnel and to include:

- o name of person receiving the sample
- o laboratory sample number
- o date of sample receipt
- o analyses to be performed.

4.3.5.6 Sample Delivery to the Laboratory

The sample should be delivered to the laboratory for analysis as soon as practicable, usually the same day as the sampling. The sample must be accompanied by the chain of custody record and by a sample analysis request sheet. The sample must be delivered to the person in the laboratory authorized to receive samples.

4.3.5.7 Shipping of Samples

When a sample is shipped to the laboratory, it must be packaged in a proper container to avoid leakage or breakage. Acceptable packing materials include sawdust, crumpled newspapers, vermiculite, polyurethane chips, etc. Other samples that require refrigeration must be packed with reusable plastic packs or cans of frozen gels in molded polyurethene boxes with a sturdy fiberboard protective case. The boxes must be taped closed with masking tape or fiber plastic tape. All packages must be accompanied by

a sample analysis request sheet and chain of custody record. Complete address of the sender and the receiving laboratory must legibly appear on each package.

### 4.3.6 Sampling Parameters

Each sample will be analyzed for pH, cyanides, toxic metals, and organics, as shown in Table 4-1.

A minimum of two background samples will be collected from the clean water before it is used to wash the area. If repeated washings occur, a minimum of two clean water samples will be taken each time to add to the background data base. The background samples will be analyzed for pH, EP toxic metals, organics, and cyanides and compared to the results from the wash water. The statistical methods described in Test Methods for Evaluation of Solid Waste, USEPA SW 846, will be used to determine a significant increase in regulated constituents in the washwater over the clean water. If the comparison indicates no significant increase, then further cleaning need not to be done. If comparison of the analytical results indicates a significant increase, contamination will be assumed and the area will be cleaned until it is confirmed, by testing, that the contamination has been removed.

## 4.4 Rationale for Closure

The only hazardous waste present at TA-3-102 is LIH, which is hazardous because it reacts violently with water. The products of the reaction of water and LIH are hydrogen and lithium hydroxide, neither of which is a listed hazardous waste. Lithium hydroxide can be corrosive but the concentrations resulting from the washing operation will have a pH less than 12.5. Assuming that a 1/8th-inch particle was left undetected in the visual inspection, an explosion would not occur. The weight of the LIH particle is 0.026 grams, which when reacted with water, would yield 0.078 grams of lithium hydroxide (LIOH) and 0.0065 grams (0.00257 SCF) of hydrogen. The heat of reaction would be only 0.1 kcal (0.4 BTU). These levels of reaction product and energy release do not present a hazard during the area washdown. The closure decontamination procedure is the same procedure that has successfully been used regularly to clean the LIH shop area. The reaction of LIH is rapid and complete, and because LIH is reactive with water, washing the minute quantities remaining as dust renders the residue nonhazardous.

Dirty water from the area washdown is analyzed for EP toxic metals and selected toxic hydrocarbon constituents to demonstrate that the area was not inadvertently contaminated with other metals and solvents. The pH analysis ensures that LIH residuals are not in sufficient quantities to be corrosive.

The storage area is within an LIH processing area and will be used in the future for short-term storage of the same material that is currently stored. A more rigorous decontamination procedure will serve no purpose.

## 4.5 Closure Schedule

Upon written approval of the plan by the NMEID, LIH machining in Section 118-A will cease, no further storage of the waste will occur, and closure will commence within 15 days. TA-3-102 will be closed in 1986.

One day is required to move the present waste out of the area. Six weeks are needed to schedule and complete cleaning and analyzing the area. An additional week is allowed to ensure that the area is dry before returning the waste to the storage area. One day is provided to replace the drums in their original location. Total closure time from plan approval to completion will take 51 days.

The owner or operator of the facility will have a copy of this closure plan at the facility until closure is complete and certified. The plan must be amended if any change occurs to affect it, as per [HWMR 206.C.2.c.(2).].

## 4.6 Certification

An independent registered professional engineer and the owner/operator of the facility shall witness the closure and ensure that it follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the container storage area has been closed in accordance with this plan. The letter shall be dated and signed by each party and stamped by the registered engineer, and the original copy submitted by the DOE to the Director of the NMEID; one copy shall be maintained at the Building 102 office and one copy maintained by the HSE-8 Regulatory Compliance Group.

## 4.7 Closure Schedule Summary

| Activity | Duration |
|---|---|
| Discontinue LIH generation and storage | Upon written approval of plan |
| Begin closure operations | Within 15 days of plan approval |
| Remove waste from the area | 1 day |
| Schedule and complete clean-up and analysis | 6 weeks |

| | |
|---|---|
| Allow area to dry | 1 week |
| Replace drums in original location | 1 day |

## 5.0 GENERAL CONSIDERATIONS

### 5.1 Contact Person

Upon approval of this closure plan, the NMEID and LANL will coordinate, in writing, the respective contact person(s) to organize activities and communications between the parties under the plan. The parties will provide timely written notification of any changes in the designation of contact persons during the term of this plan. LANL will provide a minimum of ten days' advance notice to the NMEID, through the NMEID contact person(s), of any construction, sampling, or activities conducted under this closure plan.

### 5.2 Quality Assurance

Effectiveness of the programs contained in this plan is specifically dependent on the proper sampling and analytical methods. LANL will use sampling, quality assurance, quality control, and chain of custody procedures that are consistent with the USEPA Regulations throughout all activities contemplated under this plan. All analytical testing will be performed in a laboratory using appropriate USEPA procedures with QA/QC in conformance with USEPA requirements.

### 5.3 Split Samples

Upon request by authorized representatives of the NMEID, LANL will provide split samples of any samples collected under this plan. If any analysis is made of such samples, a copy of the

results of the analysis shall be furnished promptly to LANL. This includes all relevant technical data generated by the NMEID representatives, their agents, or contractors.

5.4 Facility Access

Upon request, LANL will provide reasonable access to its facility to authorized representatives of the NMEID for the purpose of monitoring, sampling, and observing activities carried out under this plan. NMEID representatives shall comply with established LANL safety and security practices.

5.5 Cooperation

LANL and the EID's representatives will cooperate to the fullest extent possible in the reporting and exchange of data developed under this plan. Copies in LANL's possession of results of all sampling and analyses, and other relevant technical data generated by the parties, or their agents or contractors under this plan, including raw data, field notes, and laboratory bench sheets and reports, will be exchanged as soon as practicable. In the event LANL contracts with a laboratory to perform work and the State of New Mexico requests from the laboratory copies of raw data, field notes, or laboratory bench sheets generated for LANL, LANL shall indicate to the laboratory that it has no objection to the documents being provided to the State of New Mexico.

TABLE 4-1

SAMPLING PARAMETERS

AND METHODS

| EPA Hazardous Waste Number | Metals | EP Toxic Regulated Concentrations | EPA* Analytical Method |
|---|---|---|---|
| D004 | Arsenic | 5.0 mg/l | 6010 |
| D005 | Barium | 100.00 | 6010 |
| D006 | Cadmium | 1.0 | 6010 |
| D007 | Chromium | 5.0 | 6010 |
| D008 | Lead | 5.0 | 6010 |
| D009 | Mercury | 0.2 | 7470 or 7471 |
| D010 | Selenium | 1.0 | 6010 |
| D011 | Silver | 5.0 | 6010 |
| - | Nickel | - | 6010 |
| - | Beryllium | - | 6010 |

<u>Organics</u>

| | |
|---|---|
| GC/MS for volatiles | 8260 |
| GC/MS for semivolatiles | 8270 or 8250 |

<u>Other</u>

| | |
|---|---|
| Cyanide | 9010 |

*Analytical methods may include any applicable methods found in USEPA SW 846.

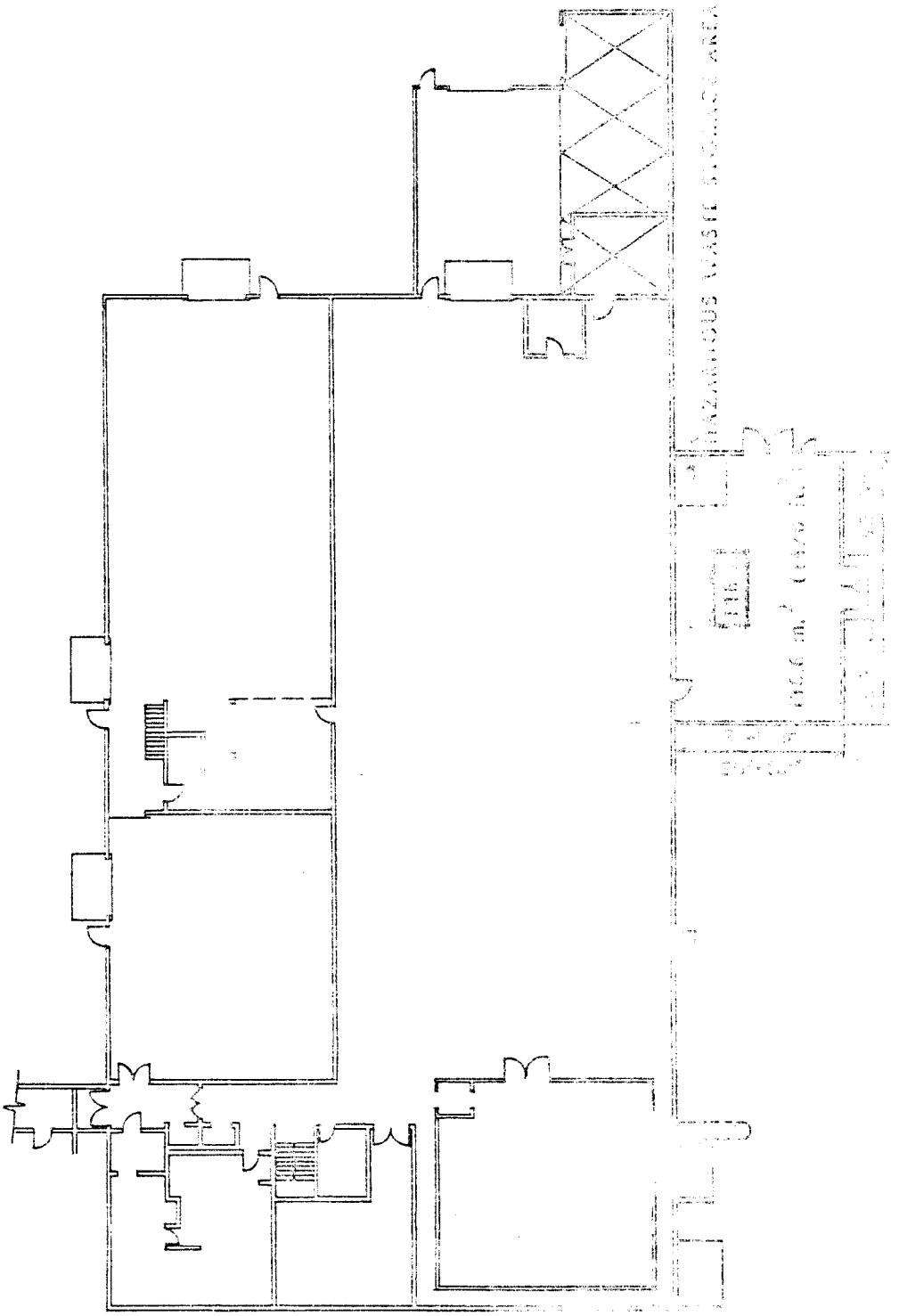

FIGURE 2-1

TA-3 BUILDING 102
FLOOR PLAN

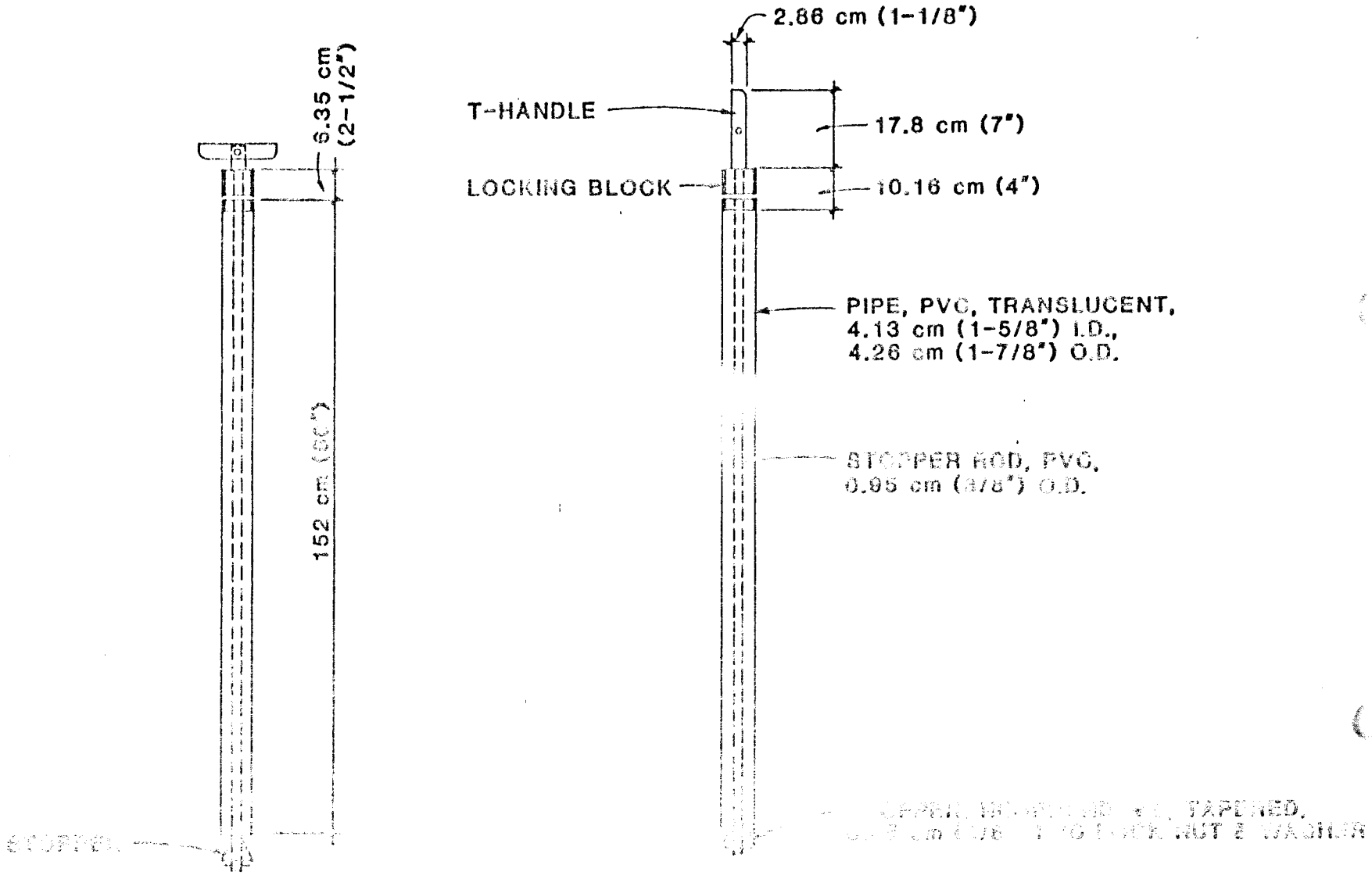
2.86 cm (1-1/8")
T-HANDLE
17.8 cm (7")
LOCKING BLOCK
10.16 cm (4")
PIPE, PVC, TRANSLUCENT,
4.13 cm (1-5/8") I.D.,
4.26 cm (1-7/8") O.D.
6.35 cm
(2-1/2")
152 cm (60")

FIGURE 4-2
EXAMPLES OF SAMPLE LABELS

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled_____

Field Information_____

_____

_____

ALTERNATE SAMPLE LABEL

DATE_____ TIME_____ SAMPLE NO._____ ORIGIN_____

LOCATION SAMPLED

_____

DESCRIPTION

_____

REMARKS

_____

REQUESTED ANALYSIS

_____

SAMPLED BY: (PRINT AND SIGN) LOG REFERENCE

TAG NO.____OF____

_____

FIGURE 4-3
EXAMPLE OF SAMPLE SEAL

---

OFFICIAL SAMPLE SEAL

Collected by_____ Collector's Sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE 4-4
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collectors Sample No.____

Location of Sampling: __Producer __Hauler __Disposal Site

__Other:_____

Company's Name_____Telephone (___)_____

Address_____
number street city state zip

Collector's Name_____Telephone (___)_____
signature

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

_____

Sample Allocation:

1. _____
name of organization

2. _____
name of organization

3. _____
name of organization

Chain of Possession

1. _____ _____ _____
signature title inclusive dates

2. _____ _____ _____
signature title inclusive dates

3. _____ _____ _____
signature title inclusive dates

FIGURE 4-5
HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector_____ Date Sampled_____ Time ____hours

Location of Sampling_____
name of company, disposal site, etc.

Address_____
number street city state zip

Telephone (___)_____ Company Contact_____

| HML NO. (Lab only) | COLLECTOR'S SAMPLE NO. | TYPE OF SAMPLE* | FIELD INFORMATION |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Analysis Requested_____

_____

_____

Special Handling and/or Storage_____

_____

PART II: LABORATORY SECTION

Received by_____Title_____Date_____
Sample Allocation: __HML __LBL __LABL __SFL Other_____
Analysis Required_____

_____

_____

*Indicate whether sample is sludge, soil, ground water, etc. Use back of page for additional information.

# CLOSURE PLAN FOR
# TA-22-24 MAGAZINE
# CONTAINER STORAGE AREA
# FOR
# HIGH EXPLOSIVE CONTAMINATED WASTES


Facility ID No.: NM0890010515
Facility Name: Los Alamos National Laboratory
Legal Owner: United States Department of Energy
City, State: Los Alamos, New Mexico 87545
Phone: (505)667-5061


SEPTEMBER 1985
Amended December 1985

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4-4 Chain of Custody Record

4-5 Hazardous Materials Sample Analysis Request

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4-1 Sampling Parameters and Methods

## 1.0 INTRODUCTION

The Los Alamos National Laboratory's Technical Area 22 Building 24 (TA-22-24) is a magazine used for the storage of high explosives (HE) and explosive-contaminated wastes. HE wastes are hazardous and regulated under New Mexico Environmental Improvement Division's (NMEID) Hazardous Waste Management Regulations (HWMR) because they are reactive (D003) or ignitable (D001). TA-22-24 is a container storage area operated under a Resource Conservation and Recovery Act (RCRA) Part A Permit. A Part B permit is not being sought for this facility. TA-22-24 will be closed under interim authority; following closure, the facility will be put back in service for HE storage and/or short-term (less then 90 days) storage of HE wastes. The operation of TA-22-24 for less than 90-day waste storage does not require a Part B permit (HWMR 204 B.1.).

This document is the closure plan required by HWMR 206 C.2. Closure consists of removing the wastes from and decontaminating the storage area.

## 2.0 TA-22-24 CONTAINERIZED STORAGE DESCRIPTION

TA-22-24 is a concret magazine 2m (6 ft) wide b 2m (6 ft) long by 2.1m (7 ft) high, bunkered with earth on three sides (Figure 2-1). The fourth side has a steel door that opens to the south, and is kept locked except when the magazine is entered. The three bunkered walls have steel shelves approximately 0.6 m (2 ft) deep by 1.2 m (4 ft) wide and 2 m (6 ft) high, on which waste pails are kept. The magazine has a smooth crack-and seam-free concrete floor. Walls are rough concrete.

## 3.0 WASTE DESCRIPTION

HE wastes and HE-contaminated wastes are the only hazardous materials stored at TA-22-24. Wastes consist of small scraps of HE resulting from assembly of test shots, as well as rags, paper, tape, cotton swabs, and other trash items that have contacted HE and are suspected of being contaminated. HE handled at the Laboratory includes HMX (cyclotetramethylenetetramine), RDX (cyclonite), TNT (2,4,6 trinitrotoluene), PETN (pentaerythritol tetranitrate), ammonium nitrate, barium nitrate, TATB (triaminotrinitrobenzene), nitrocellulose, tetryl, nitroguanidine, and various plastic binders. Barium nitrate is also categorized as an EP toxic waste. The wastes are placed in plastic bags, which are placed in 5-gallon plastic pails with tight fitting covers. Pails and plastic bags are not opened in the magazine.

The maximum HE or HE-contaminated waste stored at any given time at TA-22-24 is 250 kg (500 lbs) and is limited by administratively controlled standard operating procedures (SOP). From TA-22-24 waste is taken to burn pads at TA-16 where it is ignited. Wastes containing metal pieces are burned at a permitted detonation site. The detonation site can safely accomodate shrapnel that results from detonation.

No wastes are currently stored at TA-22-24, nor are any wastes expected to be stored there before closure. Although several empty pails remain in the magazine, it is otherwise empty.

The waste storage service provided in the past by TA-22-24 has been replaced by a small magazette located at TA 4-96, which is used for less than 90-day storage.

# 4.0 CLOSURE PLAN

## 4.1 Waste Removal

Currently, TA-22-24 has no wastes in storage and none are expected. If wastes accumulate before closure, those wastes will be moved to the burn pad at TA-16 or to the permitted detonation site. The wastes will be in plastic bags in five-gallon plastic pails, which are never more than half full by SOP. The pails of wastes are manually loaded from the magazine into a pickup truck and taken to the burn pad or detonation site. The pickup trucks used to move HE at the Laboratory are specially equipped to prevent ignition.

The empty pails remaining in TA-22-24 will be removed by hand and taken to other facilities where they will be used for similar purposes, such as the accumulation of volumes of waste for short-term storage or containers for HE. The decontamination practice for equipment suspected of being contaminated with HE is to burn the equipment; however, burning the plastic pails would end their usefulness. Because the pails never directly contact the waste, and because the actual contents of the pails present a greater risk than any residual contamination, simply removing the pails and reusing them is considered adequate handling.

## 4.2 Decontamination

Following the removal of the empty pails, the shelves will be dusted with rags and the floor swept with a broom. The accumulated dust and the rags used to wipe the shelves will be placed

in plastic bags and pails and transferred with appropriate labeling to short-term storage in the magazette at TA-22-96, to be burned with other wastes at TA-16. Following the dusting and sweeping, the area supervisor will inspect TA-22-24 for visible evidence of HE or HE-contaminated material. If any such materials are found, they will be picked up, placed in plastic bags, and handled as was the dust removed from the magazine. Following the inspection verifying that TA-22-24 is free of visible indications of HE or HE-contaminated wastes, the shelves and floor will be washed with a warm Liquinox or Alconox solution in water. The excess water will be picked up with rags and wrung into a plastic bucket. The wash water will be sampled and analyzed to ensure adequate decontamination. Sampling and analytical procedures are defined in Section 4.3. The recovered wash water will be poured into an HE-contaminated water sump at TA-22. This wafer is picked up with a dedicated vacuum truck and hauled to the burn pad area at TA-16, where the water is filtered in sand filters and the residue is burned. Filtered water is discharged under a NPDES permit.

## 4.3 Sampling and Analytical Procedures

### 4.3.1 General Considerations

The following sections define procedures and methods for sampling, analysis, and documentation applicable to closure. Although specific procedures are defined, alternate methods given in Test Methods for Evaluating Solid Wastes, USEPA, SW 846, most

current edition, may be used if sampling conditions or experience indicate another method is preferable. The following methods are from SW 846.

### 4.3.2 Sampler

The Coliwasa sampler will be used to sample the clean water for background parameters before washing the area, and to sample the wash water after cleaning the area. The simple design makes the sampler easy to use and allows the rapid collection of samples, which minimizes chances of exposing the sample collector to potential hazards from the waste. The recommended model of the Coliwasa is shown in Figure 4-1, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system.

### 4.3.3 Cleaning the Sampler

The sampler must be clean before use. The used sampler must be washed with a warm detergent solution (Liquinox or Alconox), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the Coliwasa is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber-reinforced paper towels, the Coliwasa tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross-contamination of samples. Contamination is of particular import-

ance in these samples, because they will be taken for regulatory purposes. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean and protected area.

4.3.4 Sampling Procedures

- Assemble the glass Coliwasa sampler according to Figure 4-1.

- Make sure that the glass Coliwasa sampler is clean.

- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the Coliwasa sampler into the liquid at a rate that permits the levels of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a non-representative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth or rag with the other hand.

- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.

- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain of custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on-site or store the contaminated parts of the sampler in a plastic storage tube or bag for cleaning. Store used rags in plastic bags for disposal.

- Deliver the sample to the laboratory for analysis.

### 4.3.5 Sample Handling

After a sample is transferred into the glass container, the container must be tightly capped as quickly as possible to prevent loss of volatile components and to exclude possible oxidation from the air. The sample should be refrigerated or treated with preservatives, as required for the analysis as defined in SW 846. To split or withdraw an aliquot of a sample, considerable mixing, homogenization, or quartering is required to ensure that representative or identical portions are obtained. When transferring a sample aliquot, open the glass container as briefly as possible.

Each sample must be properly labeled and sealed immediately after collection.

#### 4.3.5.1 Sample Labels

Sample labels (Figure 4-2) are necessary to prevent misidentification of samples. Gummed paper labels or tags are adequate. The label must include at least the following information:

- name of collector
- date and time of collection
- place of collection
- collector's sample number, which uniquely identifies the sample.

#### 4.3.5.2 Sample Seals

Sample seals are used to preserve the integrity of the sample from the time it is collected until it is opened in the laboratory. Gummed paper seals can be used as official sample seals. The paper seal must carry information such as:

- collector's name
- date and time of sampling
- collector's sample number. This number must be identical with the number on the sample label.

The seal must be attached in such a way that it is necessary to break it in order to open the glass sample container. An example of a sample seal is shown in Figure 4-3.

#### 4.3.5.3 Field Log Book

All information pertinent to a field survey or sampling must be recorded in a log book, which must be a bound book, preferably with consecutively numbered pages that are 8 1/2 by 11 in. Entries in the log book must include at least the following:

- purpose of sample
- location of sampling and address
- name and address of field contact
- producer of waste and address
- type of process producing waste
- type of waste
- declared waste components and concentrations
- description of sampling point

- date and time of collection
- collector's sample identification number(s)
- sample distribution
- references, such as maps or photographs of the sampling site
- field observations
- any field measurements made, such as pH, flammability, explosibility, etc.

Because sampling situations vary widely, no general rule can be given about the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory. The log book must be protected and kept in a safe place.

4.3.5.4 Chain of Custody Record

To establish the documentation necessary to trace sample possession from the time of collection, a completed chain of custody record must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in a court litigation. An example of a chain of custody record is illustrated in Figure 4-4. The record must contain the following minimum information:

- collector's sample number
- signature of collector
- date and time of collection

- place and address of collection
- waste type
- signatures of persons involved in the chain of possession
- inclusive dates of possession.

4.3.5.5 Sample Analysis Request Sheet

The sample analysis request sheet (Figure 4-5) is intended to accompany the sample upon delivery to the laboratory. The field portion of this form must be completed by the person collecting the sample and should include most of the pertinent information noted in the log book. The laboratory portion of this form is intended to be completed by the laboratory personnel and to include:

- name of person receiving the sample
- laboratory sample number
- date of sample receipt
- analyses to be performed.

4.3.5.6 Sample Delivery to the Laboratory

The sample should be delivered to the laboratory for analysis as soon as practicable, usually the same day as the sampling. The sample must be accompanied by the chain of custody record and by a sample analysis request sheet. The sample must be delivered to the person in the laboratory authorized to receive samples.

4.3.5.7 Shipping of Samples

When a sample is shipped to the laboratory, it must be packaged in a proper container to avoid leakage or breakage. Acceptable packing materials include sawdust, crumpled newspapers, vermiculite, polyurethane chips, etc. Other samples that require refrigeration must be packed with reusable plastic packs or cans of frozen gels in molded polyurethene boxes with a sturdy fiberboard protective case. The boxes must be taped closed with masking tape or fiber plastic tape. All packages must be accompanied by a sample analysis request sheet and chain of custody record. Complete address of the sender and the receiving laboratory must legibly appear on each package.

4.3.6 Sampling Parameters

Each sample will be analyzed for pH, cyanides, toxic metals, and organics, as shown in Table 4-1.

Background samples will be collected from the clean Liquinox or Alconox-water solution before it is used to wash the area. If repeated washings occur, a minimum of two additional clean wash solution samples will be taken to add to the background data base. The background samples will be analyzed for pH, EP toxic metals, organics, and cyanides, and then compared with the results from the wash water. The statistical methods described in Test Methods for Evaluating Solid Waste USEPA SW 846, will be used to to compare the background sample results to the wash water results. If the comparison indicates no contamination,

further cleaning is not needed; however, if comparison of the analytical results indicates contamination, the area will be cleaned until it is confirmed, by testing, that the contamination has been removed.

## 4.4 Rationale For Closure Plan

The only hazardous waste handled at TA-22-24 are HE and HE-contaminated wastes. These materials are handled in closed containers that are not opened in the magazine, so there is no reason to believe that HE has contaminated the magazine. Dusting the shelves and sweeping the floor are the standard housekeeping procedures used to maintain the cleanliness of the area. Water washing provides an acceptable mechanism within the confines of SW 846 for analysis to demonstrate adequate decontamination. The magazine will be used in the future to store HE, so a more rigorous decontamination procedure will serve no purpose.

The standard procedure for handling suspected contaminated equipment involves a thorough cleaning, followed by burning, which destroys any residual HE. This treatment destroys the equipment and is only done at the end of its useful life. General housekeeping measures are performed to minimize contamination. The closure plan is consistent with these measures, and allows continued use of the magazine for HE storage.

Sampling and analysis for metals and organics are performed to demonstrate that the area has not been contaminated by metals and solvents that are used in other locations at the Laboratory. An analysis for cyanides is conducted to demonstrate that nitrogen based organics have not decomposed to form cyanides, contaminating the area.

## 4.5 Closure Schedule

Upon written approval of the plan from the NMEID, no additional waste will be admitted to the area and closure activities will begin within 90 days. Four weeks are needed to schedule a waste burn, should any wastes have accumulated, and to remove any full pails from the magazine and move them to the appropriate area. Clean-up will take six weeks, including scheduling, cleaning, removal of rags and accumulated dust, and analysis to verify decontamination. Four weeks will be allocated for the supervisor's inspection and further clean-up, if necessary. The total duration of closure will be 98 days, and the year of closure is 1986.

A copy of this closure plan will be maintained by the DOE at the facility until closure is complete. The plan must be amended by the DOE within 60 days if any changes occur to merit it, as per [HWMR 206.C.2.C.(2)].

## 4.6 Certification

An independent registered professional engineer and a representative of the DOE shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the container storage area has been closed in accordance with this plan. The letter shall be dated and signed by each party, and stamped by the registered engineer. The original copy will be submitted by the DOE to the director of the NMEID, with one copy maintained at the TA-22 Group Office and one copy maintained by the HSE-8 Regulatory Compliance Group.

## 4.7 Closure Schedule Summary

| Activity | Duration |
|---|---|
| Terminate acceptance of waste | Upon written approval of plan by the NMEID |
| Begin closure activities | Within 90 days of plan approval |
| Schedule waste burn and move stored wastes to appropriate site. | 4 weeks |
| Schedule and complete clean-up and verification | 6 weeks |

| | |
|---|---|
| Supervisor inspects and recommends possible further clean-up. | 4 weeks |

## 5.0 GENERAL CONSIDERATIONS

### 5.1 Contact Person

Upon approval of this closure plan, the NMEID and LANL will coordinate, in writing, to the respective contact person(s) to organize activities and communications between the parties under the plan. The parties will provide timely written notification of any changes in the designation of contact persons during the term of this plan. LANL will provide a minimum of ten days' advance notice to the NMEID through the NMEID contact person(s), of any construction, sampling, or activities conducted under this closure plan.

### 5.2 Quality Assurance

Effectiveness of the programs contained in this plan is specifically dependent on the proper sampling and analytical methods. LANL will use sampling, quality assurance, quality control, and chain of custody procedures that are consistent with the USEPA Regulations throughout all activities contemplated under this plan. All analytical testing will be performed in a laboratory using appropriate USEPA procedures with QA/QC in conformance with USEPA requirements.

5.3 Split Samples

Upon request by authorized representatives of the NMEID, LANL will provide split samples of any samples collected under to this plan. If any analysis is made of such samples, a copy of the results of the analysis shall be furnished promptly to LANL. This includes all relevant technical data generated by the NMEID representatives, their agents, or contractors.

5.4 Facility Access

Upon request, LANL will provide reasonable access to its facility to authorized representatives of the NMEID for the purpose of monitoring, sampling, and observing activities carried out under this plan. NMEID representatives shall comply with established LANL safety and security practices.

5.5 Cooperation

LANL and the EID's representatives will cooperate to the fullest extent possible in the reporting and exchange of data developed under this plan. Copies in LANL's possession of results of all sampling and analyses, and other relevant technical data generated by the parties, or their agents or contractors, under this plan, including raw data, field notes, and laboratory bench sheets and reports will be exchanged as soon as practicable. In the event LANL contracts with a laboratory to perform work, and the State of New Mexico requests from the laboratory copies of raw data, field notes, or laboratory bench sheets generated for

LANL, under this plan, LANL shall indicate to the laboratory that it has no objection to the documents being provided to the State of New Mexico.

TABLE 4-1

SAMPLING PARAMETERS

AND METHODS

| EPA Hazardous Waste Number | Metals | EP Toxic Regulated Concentrations | EPA* Analytical Method |
|---|---|---|---|
| D004 | Arsenic | 5.0 mg/l | 6010 |
| D005 | Barium | 100.00 | 6010 |
| D006 | Cadmium | 1.0 | 6010 |
| D007 | Chromium | 5.0 | 6010 |
| D008 | Lead | 5.0 | 6010 |
| D009 | Mercury | 0.2 | 7470 or 7471 |
| D010 | Selenium | 1.0 | 6010 |
| D011 | Silver | 5.0 | 6010 |
| - | Nickel | - | 6010 |
| - | Beryllium | - | 6010 |

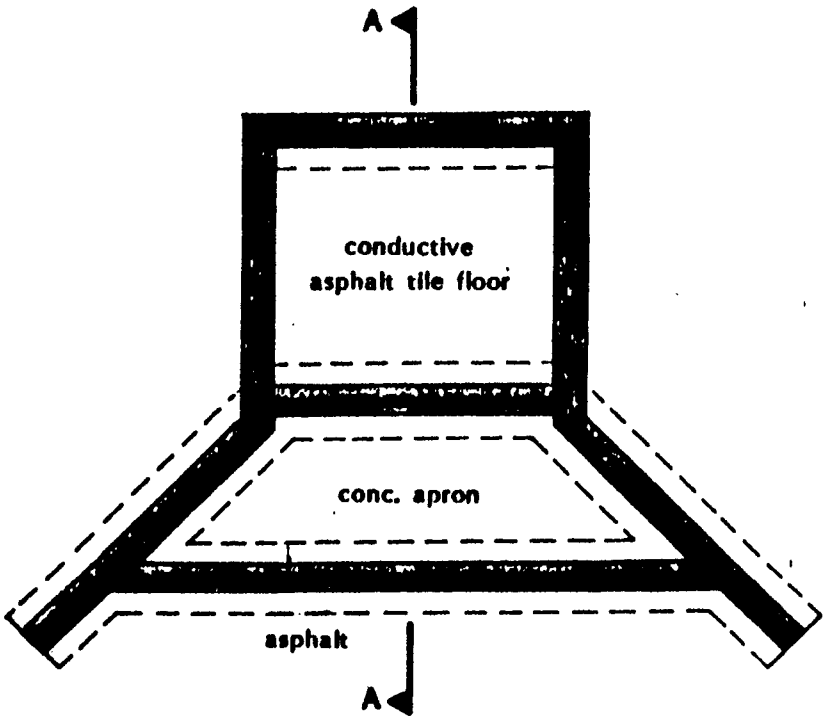
<u>Organics</u>

| | |
|---|---|
| GC/MS for volatiles | 8240 |
| GC/MS for semivolatiles | 8250 |

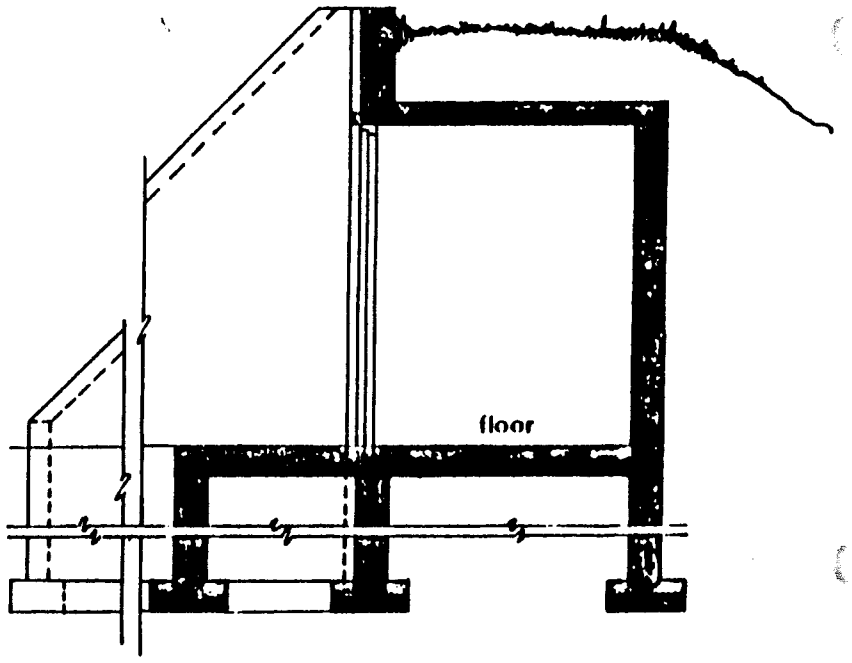
<u>Other</u>

| | |
|---|---|
| Cyanide | 9010 |

*Analytical methods may include any applicable methods found in USEPA SW 846.




PLAN VIEW




SECTION A-A

FIGURE 2-1

TA-22-24 MAGAZINE STORAGE FACILITY

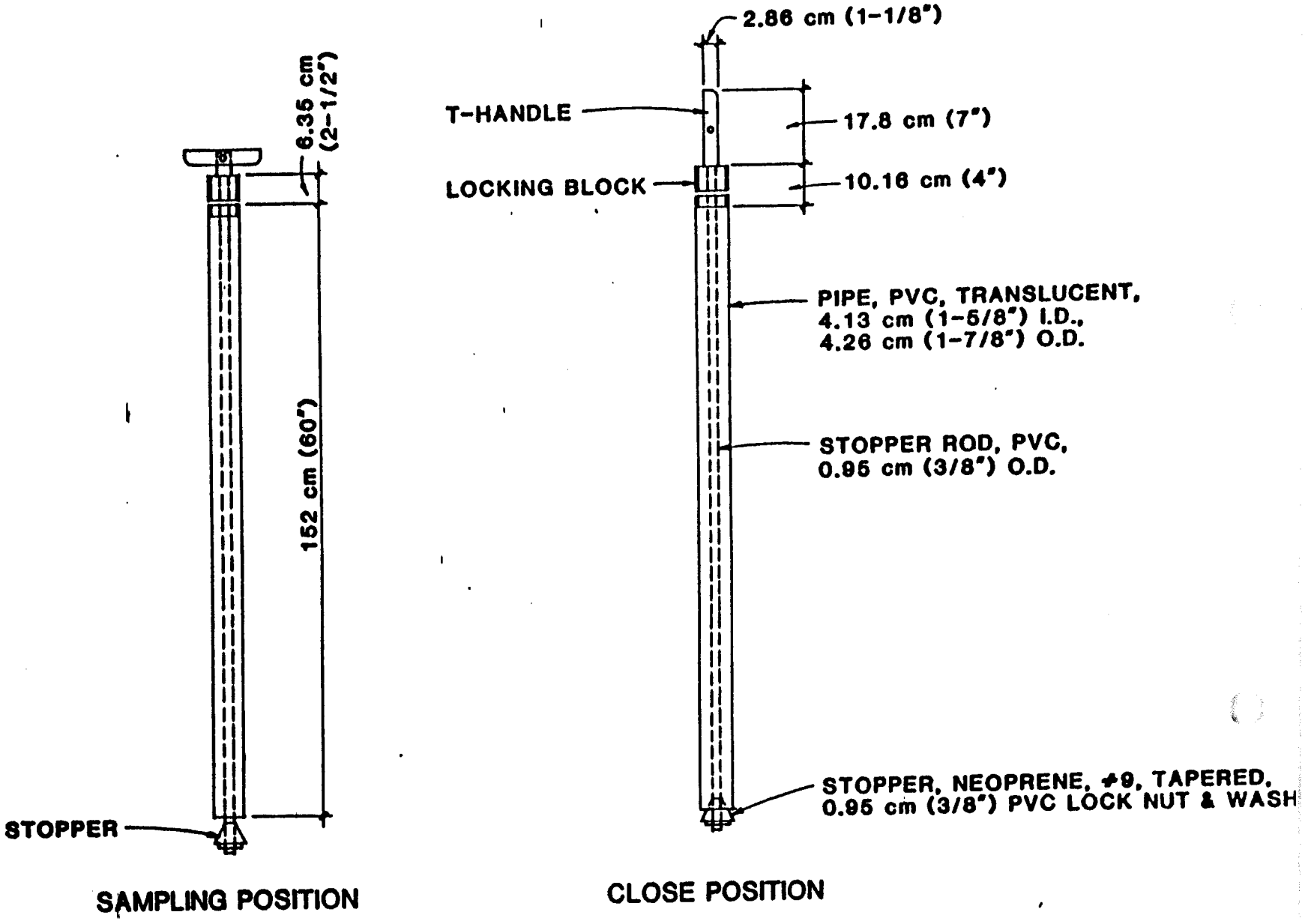



FIGURE 4-1

COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE 4-2
AMPLES OF SAMPLE LABELS

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled_____

Field Information_____

_____

_____

ALTERNATE SAMPLE LABEL

DATE TIME SAMPLE NO. ORIGIN

LOCATION SAMPLED

_____

DESCRIPTION

_____

REMARKS

_____

REQUESTED ANALYSIS

_____

SAMPLED BY: (PRINT AND SIGN) LOG REFERENCE

TAG NO.____OF____

_____

FIGURE 4-3
EXAMPLE OF SAMPLE SEAL

---

OFFICIAL SAMPLE SEAL

Collected by_____ Collector's Sample No.____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE 4-4
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collectors Sample No.____

Location of Sampling: __Producer __Hauler __Disposal Site

__Other:_____

Company's Name_____Telephone (___)_____

Address_____
number street city state zip

Collector's Name_____Telephone (___)_____
signature

Date Sampled_____ Time Sampled_____hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

_____

Sample Allocation:

1. _____
name of organization

2. _____
name of organization

3. _____
name of organization

Chain of Possession

1. _____ _____ _____ _____
signature title Inclusive dates

2. _____ _____ _____ _____
signature title Inclusive dates

3. _____ _____ _____ _____
signature title Inclusive dates

FIGURE 4-5
HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector_____ Date Sampled_____ Time_____hours

Location of Sampling_____
name of company, disposal site, etc.

Address_____
number street city state zip

Telephone (___)_____ Company Contact_____

| HML NO. (Lab only) | COLLECTOR'S SAMPLE NO. | TYPE OF SAMPLE* | FIELD INFORMATION |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Analysis Requested_____

_____

_____

Special Handling and/or Storage_____

_____

PART II: LABORATORY SECTION

Received by_____Title_____Date_____
Sample Allocation: __HML __LBL __LABL __SRL Date_____
Analysis Required_____

_____

_____

*Indicate whether sample is sludge, soil, etc.; **Use back of page for additional information.

# CLOSURE PLAN FOR

# TA-40-2 MAGAZINE

# CONTAINER STORAGE AREA

# FOR

# HIGH EXPLOSIVE CONTAMINATED WASTES


Facility ID No.: NM0890010515
Facility Name: Los Alamos National Laboratory
Legal Owner: United States Department of Energy
Address: Los Alamos Area Office
City, State: Los Alamos, New Mexico 87545
Phone: (505)667-5061



SEPTEMBER 1985
Amended December 1985

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4-1 Sampling Parameters and Methods

## 1.0 INTRODUCTION

The Los Alamos National Laboratory's Technical Area 40 Building 2 (TA-40-2) is a magazine used for the storage of high explosives (HE) and HE-contaminated wastes. HE wastes are hazardous and regulated under New Mexico Hazardous Waste Management Regulations (HWMR) because they are reactive (D003) and ignitable (D001). TA-40-2 is a container storage area operated under a Resource Conservation and Recovery Act (RCRA) Part A permit; a Part B permit is not being sought for this facility. TA-40-2 will be closed under interim authority, then put back into service for HE storage and for short-term (less than 90 days) HE waste storage. The operation of TA-40-2 for less than 90-day waste storage does not require a Part B Permit (HWMR 204 B.1.).

This document is the closure plan required by HWMR 206 C.2. Closure consists of removing the remaining wastes from and decontaminating the storage area. Testing will be conducted to verify adequate decontamination.

206 C.2
closure + post-closure
closure plan - OK
closure performance stds, OK
closure time allowed - OK
certification of closure - notes in plan.
[illegible]

## 2.0 TA-40-2 CONTAINER STORAGE DESCRIPTION

TA-40-2 is a concrete magazine 1.8 m (6 ft) wide by 1.8 m (6 ft) long by 2 m (7 ft) high, bunkered on three sides with earth (Figure 2-1). The fourth side has a steel door that opens to the south, and is locked except when the magazine is entered. The entrance side of the magazine has two concrete wings, which extend out from the magazine and hold back the bunkered earth. A small magazette 0.6 m (2 ft) wide by 0.6 m (2 ft) deep by 1 m (3 ft) high is located in the east wing and is also used for HE waste storage.

Within the magazine, wastes are stored on the bottom shelves against the north wall. TA-40-2 has a smooth crack- and seam-free concrete floor and rough concrete walls. The magazette is constructed of sheet steel set in concrete, and has metal shelves.

## 3.0 WASTE DESCRIPTION

HE wastes and HE-contaminated wastes are the only hazardous wastes stored at TA-40-2. The wastes consist of small scraps of HE resulting from assembly of test shots, as well as rags, paper, tape, cotton swabs, and other trash items that have contacted HE and are suspected of being contaminated. HE handled at the Laboratory includes HMX (cyclotetramethylenetetramine), RDX (cyclonite), TNT (2,4,6 trinitrotoluene), PETN (pentaerythritol tetranitrate), ammonium nitrate, barium nitrate, TATB (triaminotrinitrobenzene), nitrocellulose, tetryl, nitroguanidine, and various plastic binders. Barium nitrate is also categorized as an EP-toxic waste. The wastes are placed in plastic bags, which are placed either in cardboard boxes that are sealed shut, or in 5-gallon plastic pails with tight-fitting covers. Boxes, pails, and plastic bags are not opened in the magazine or the magazette.

The maximum HE or HE-contaminated waste stored here at any one time is 180 kg (400 lbs). The maximum allowed storage is limited by administratively controlled standard operating procedures (SOP), which are based on safety considerations. From TA-40-2, waste is taken to burn pads at TA-16 where it is ignited. Wastes containing metal pieces, chips, and powder are burned at a permitted detonation site.

TA-40-2 is an acti storage site for both HE and HE wastes. HE waste currently in storage consists of a metal tube approximately 1 m (3 ft) long by 1.9 cm (3/4 in) in diameter. The tube is sealed with plastic at both ends and is thought to be contaminated. The maximum HE wastes in storage at the start of closure will not exceed 2 kg (4 lbs).

# 4.0 CLOSURE PLAN

## 4.1 Waste Removal

HE wastes in storage at the start of closure will be taken to either the burn pads at TA-16 or to a permitted detonation site. The wastes are contained in small sealed packages which will be taken out of the magazine or magazette by hand and placed in a pickup truck for delivery to the burn or detonation site. Pickup trucks used to move HE at the Laboratory are specially equipped to prevent ignition.

HE in TA-40-2 that are not wastes, such as empty containers, will not be removed from the magazine. The highest risk to personnel occurs when HE is handled. Removing the non-waste from the magazine will serve no purpose and will expose operating personnel to unnecessary risk.

## 4.2 Decontamination

Following the removal of the HE wastes, if any, the shelves will be dusted and the floor swept with a broom. The accumulated dust and the rags used to wipe the shelves will be placed in plastic bags, affixed with dated tags, and transferred to a short-term storage magazine to be burned with other wastes at TA-16. Following the dusting and sweeping procedure, the area supervisor will inspect the magazine to ensure that all HE wastes have been removed. If any remaining materials are found, they will be put in a plastic bag and placed in short-term storage, to be burned with other HE wastes. Following the inspection verifying that

TA-40-2 is free of HE wastes, the shelf and floors will be washed with a warm Liquinox or Alconox solution in water. The excess water will be picked up with rags and wrung into a plastic bucket. The wash water will be sampled and analyzed to ensure adequate decontamination, as defined in Section 4.3. The recovered dirty water will be poured into an HE-contaminated water sump. This water is picked up with a dedicated vacuum truck and hauled to the burn pad area at TA-16 where it is filtered in sand filters and the residue burned. Filtered water is discharged under an NPDES permit. The facility will be put into short-term (less than 90 days) HE waste storage service following decontamination. At this time, all wastes will be kept in closed containers and affixed with dated tags specifying their contents as hazardous waste.

## 4.3 Sampling and Analytical Procedures

### 4.3.1 General Considerations

The following sections define procedures and methods for sampling analysis and documentation applicable to closure. Although specific procedures are defined, alternate methods given in Test Methods for Evaluating Solid Wastes, USEPA, SW 846, most current edition (SW 846), may be used if sampling conditions or experience indicate that another method is preferable. The following methods are from SW 846.

### 4.3.2 Sampler

The Coliwasa sampler will be used to sample the clean water for background parameters before washing the area, and to sample the wash water after cleaning the area. The simple design makes the sampler easy to use and allows rapid collection of samples, thus minimizing the exposure of the sample collector to potential hazards from the waste. The recommended model of the Coliwasa is shown in Figure 4-1, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system.

### 4.3.3 Cleaning the Sampler

The sampler must be clean before use. The used sampler must be washed with a warm detergent solution (Liquinox or Alconox), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the Coliwasa is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber-reinforced paper towels, the Coliwasa tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross-contamination of samples. Contamination is of particular importance in these samples, because they will be taken for regulatory purposes. Clean samples should be stored in polyethlene plastic tubes or bags in a clean and protected area.

### 4.3.4 Sampling Procedures

- Assemble the glass Coliwasa sampler according to Figure 4-1.
- Make sure that the sampler is clean.
- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.
- Wear necessary protective clothing and gear and observe required sampling precautions.
- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
- Slowly lower the Coliwasa sampler into the liquid at a rate that permits the levels of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a non-representative sample.
- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth or rag with the other hand.

- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.
- Cap the glass container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain of custody record (as described in Section 4.3.5).
- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on-site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.
- Deliver the sample to the laboratory for analysis.

### 4.3.5 Sample Handling

After a sample is transferred into the glass container, the container must be tightly capped as quickly as possible to prevent the loss of volatile components and to avoid possible oxidation from the air. The sample should be refrigerated or treated with preservatives as required for the analysis and defined in SW 846.

To split or withdraw an aliquot of a sample, considerable mixing, homogenization, or quartering is required to ensure that representative or identical portions are obtained. When transfering a sample aliquot, open the glass container as briefly as possible.

Each sample must be properly labeled and sealed immediately after collection.

#### 4.3.5.1 Sample Labels

Sample labels (Figure 4-2) are necessary to prevent misidentification of samples. Gummed paper labels or tags are adequate. The label must include at least the following information:

- name of collector
- date and time of collection
- place of collection
- collector's sample number, which uniquely identifies the sample.

#### 4.3.5.2 Sample Seals

Sample seals are used to preserve the integrity of the sample from the time it is collected until it is opened in the laboratory. Gummed paper seals can be used as official sample seals. The paper seal must carry at least the following information:

- collector's name
- date and time of sampling
- collector's sample number, which must be identical with the number on the sample label.

The seal must be attached in such a way that it is necessary to break it in order to open the glass sample container. An example of a sample seal is shown in Figure 4-3.

4.3.5.3 Field Log Book

All information pertinent to a field survey or sampling must be recorded in a log book, which must be a bound book, preferably with consecutively numbered pages that are 8 1/2 by 11 in. Entries in the log book must include at least the following:

- purpose of sample
- location of sampling and address
- name and address of field contact
- producer of waste and address
- type of process producing waste
- type of waste
- declared waste components and concentrations
- description of sampling point
- date and time of collection
- collector's sample identification number(s)
- sample distribution
- references such as maps or photographs of the sampling site
- field observations
- any field measurements made such as pH, flammability, explosibility.

Because sampling situations vary widely, no general rule can be given about the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory. The log book must be protected and kept in a safe place.

#### 4.3.5.4 Chain of Custody Record

To establish the documentation necessary to trace sample possession from the time of collection, a completed chain of custody record must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in a court litigation. An example of a chain of custody record is illustrated in Figure 4-4. The record must contain the following minimum information:

- collector's sample number
- signature of collector
- date and time of collection
- place and address of collection
- waste type
- signatures of persons involved in the chain of possession
- inclusive dates of possession.

#### 4.3.5.5 Sample Analysis Request Sheet

The sample analysis request sheet (Figure 4-5) is intended to accompany the sample upon delivery to the laboratory. The field portion of this form must be completed by the person collecting the sample and should include most of the pertinent information noted in the log book. The laboratory portion of this form is intended to be completed by the laboratory personnel and should include:

- o name of person receiving the sample
- o laboratory sample number
- o date of sample receipt
- o analyses to be performed.

#### 4.3.5.6 Sample Delivery to the Laboratory

The sample should be delivered to the laboratory for analysis as soon as practicable, usually the same day as the sampling. The sample must be accompanied by the chain of custody record and by a sample analysis request sheet, and the sample must be delivered to the person in the laboratory authorized to receive samples.

#### 4.3.5.7 Shipping of Samples

When a sample is shipped to the laboratory it must be packaged in a proper container to avoid leakage or breakage. Acceptable packing materials include sawdust, crumpled newspapers, vermiculite, polyurethane chips, etc. Other samples that require refrigeration must be packed with reusable plastic packs or cans of

frozen gels in molded polyurethene boxes with a sturdy fiberboard protective case. The boxes must be taped closed with masking tape or fiber plastic tape. All packages must be accompanied by a sample analysis request sheet and chain of custody record. The complete address of the sender and the receiving laboratory must legibly appear on each package.

### 4.3.6 Sampling Parameters

Each sample will be analyzed for pH, cyanides, EP toxic metals, and organics, as shown in Table 4-1. A minimum of two background samples will be collected from the clean Alconox or Liquinox-water solution before it is used to wash the area. If repeated washings occur, a minimum of two clean wash solution samples will be taken each time to add to the background data base. The background samples will be analyzed for pH, EP toxic metals, organics, and cyanides, and then compared with the results from the wash water. The statistical methods described in SW 846 will be used to compare the background sample results to the wash water results. If the comparison indicates no contamination, no further cleaning is needed. If comparison of the analytical results indicates contamination, the area will be cleaned until it is confirmed, by testing, that the contamination has been removed.

## 4.4 Rationale for Closure Plan

The only hazardous wastes handled at TA-40-2 are HE and HE-contaminated wastes. These materials are handled in closed containers, which are not opened in the magazine. There is no reason to believe that HE has contaminated the room. Dusting the shelves and sweeping the floor are the standard housekeeping procedures used to maintain cleanliness of the area. Water washing provides an acceptable mechanism within the confines of SW 846 for analysis to demonstrate adequate decontamination. The magazine will be used in the future to store HE. A more rigorous decontamination procedure will serve no purpose.

The standard procedure for handling suspected HE-contaminated equipment involves a thorough cleaning, followed by burning, to destroy any residual HE. This treatment destroys the equipment and is therefore only done at the end of the equipment's useful life. General housekeeping measures prevent any possible contamination from presenting a hazard to the operating personnel. The closure plan is consistent with these measures and allows continued use of the magazine and shelves for HE storage. Sampling and analysis for metals and organics are performed to demonstrate that the area has not been contaminated by metals and solvents used in other locations at the Laboratory. Analysis for cyanides is conducted to demonstrate that nitrogen-based organics have not decomposed to cyanides, contaminating the area.

## 4.5 Closure Schedule

Upon written approval of the plan by the NMEIB, no additional wastes will be admitted to the area, and closure will begin within 60 days. Four weeks are required to schedule a waste burn at TA-16 or a permitted detonation site, and to remove the wastes from the magazine and transport them to the treatment site. Clean-up will take six weeks, including scheduling, cleaning, removing of the rags and accumulated dust, and performing analyses to verify decontamination. Four weeks will be allocated for the supervisor's inspection and further cleaning. Adequate scheduling times are allowed to ensure that closure activities do not interfere with the safe handling of nonwaste HE. Total duration of closure is 168 days and the year of closure is 1986.

The DOE will keep a copy of the closure plan at the facility until closure is complete, and is responsible for amending the plan if a change occurs to merit it, as per [HWMR 206.C.2.c.(2).].

## 4.6 Closure Certification

The operator of the facility (DOE), as well as an independent registered professional engineer, shall witness the closure and ensure that it follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the container storage area has been closed in accordance with this plan. The letter will be dated and signed by both, and stamped by the registered engineer. The original copy will be

submitted by the DOE to the Director of NMEID, one copy will be maintained at the TA-40 Group Office, and one copy will be maintained by the HSE-8 Regulatory Compliance Group.

## 4.7 Closure Schedule Summary

| Activity | Duration |
|---|---|
| Terminate acceptance of waste | Upon written approval of plan. |
| Begin closure activities | Within 60 days of plan approval. |
| Schedule waste burn and move stored waste to appropriate site | 4 weeks |
| Schedule and complete cleaning of storage area and analysis of samples | 6 weeks |
| Schedule supervisor inspection, further cleaning, and decontamination verification. | 4 weeks |

## 5.0 GENERAL CONSIDERATIONS

### 5.1 Contact Person

Upon approval of this closure plan, the NMEID and LANL will coordinate, in writing, the respective contact person(s) to organize activities and communications between the parties under the plan. The parties will provide timely written notification of any changes in the designation of contact persons during the term of this plan. LANL will provide a minimum of ten days advance notice to the NMEID through the NMEID contact person(s), of any construction, sampling, or activities conducted under this closure plan.

### 5.2 Quality Assurance

Effectiveness of the programs contained in this plan is specifically dependent on the proper sampling and analytical methods. LANL will use sampling, quality assurance, quality control, and chain of custody procedures that are consistent with the SW 846 Regulations throughout all activities contemplated under this plan. All analytical testing will be performed in a laboratory using appropriate analytical procedures, as well as quality assurance and quality control in conformance with SW 846 requirements.

### 5.3 Split Samples

Would split sampling be a requisite for the wash waters + rinses?

Upon request by authorized repr IMEID, LANL will provide split samples of a ader this plan. If any analysis is made or such samples, a copy of the

results of such analysis shall be furnished promptly to LANL. This includes all relevant technical data generated by the NMEID representatives, their agents, or contractors.

5.4 Facility Access

Upon request, LANL will provide reasonable access to its facility to authorized representatives of the NMEID for the purpose of monitoring, sampling, and observing activities carried out under this plan. NMEID representatives shall comply with established LANL safety and security practices.

5.5 Cooperation

LANL and the NMEID's representatives will cooperate to the fullest extent possible in the reporting and exchange of data developed under to this plan. Copies within LANL's possession of results of all sampling and analyses, and other relevant technical data generated by the parties or their agents or contractors under this plan, including raw data, field notes, and laboratory bench sheets and reports will be exchanged as soon as practicable. In the event LANL contracts with a laboratory to perform work, and the NMEID requests from the laboratory copies of raw data, field notes, or laboratory bench sheets generated for LANL, LANL shall indicate to the laboratory that it has no objection to such documents being provided to the State of New Mexico.

TABLE 4-1

SAMPLING PARAMETERS

AND METHODS

| EPA Hazardous Waste Number | Metals | EP Toxic Regulated Concentrations | EPA* Analytical Method |
|---|---|---|---|
| D004 | Arsenic | 5.0 mg/l | 6010 |
| D005 | Barium | 100.00 | 6010 |
| D006 | Cadmium | 1.0 | 6010 |
| D007 | Chromium | 5.0 | 6010 |
| D008 | Lead | 5.0 | 6010 |
| D009 | Mercury | 0.2 | 7470 or 7471 |
| D010 | Selenium | 1.0 | 6010 |
| D011 | Silver | 5.0 | 6010 |
| - | Nickel | - | 6010 |
| - | Beryllium | - | 6010 |
| <u>Organics</u> | | | |
| GC/MS for volatiles | | | 8240 |
| GC/MS for semivolatiles | | | 8250 |
| <u>Other</u> | | | |
| Cyanide | | | 9010 |

*Analytical methods may include any applicable methods found in USEPA SW 846.

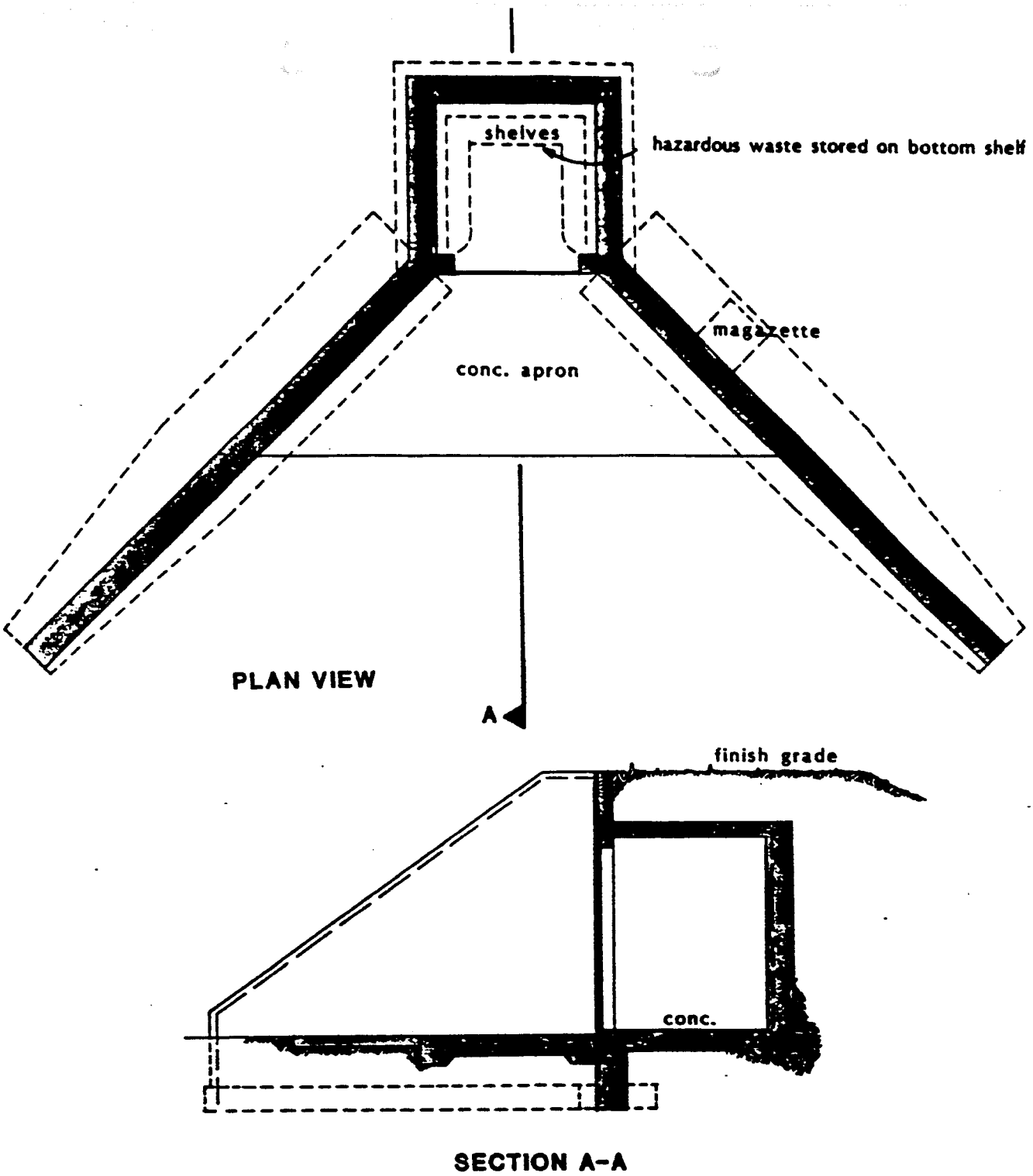


**FIGURE 2-1**

**TA 40-2 MAGAZINE STORAGE FACILITY**

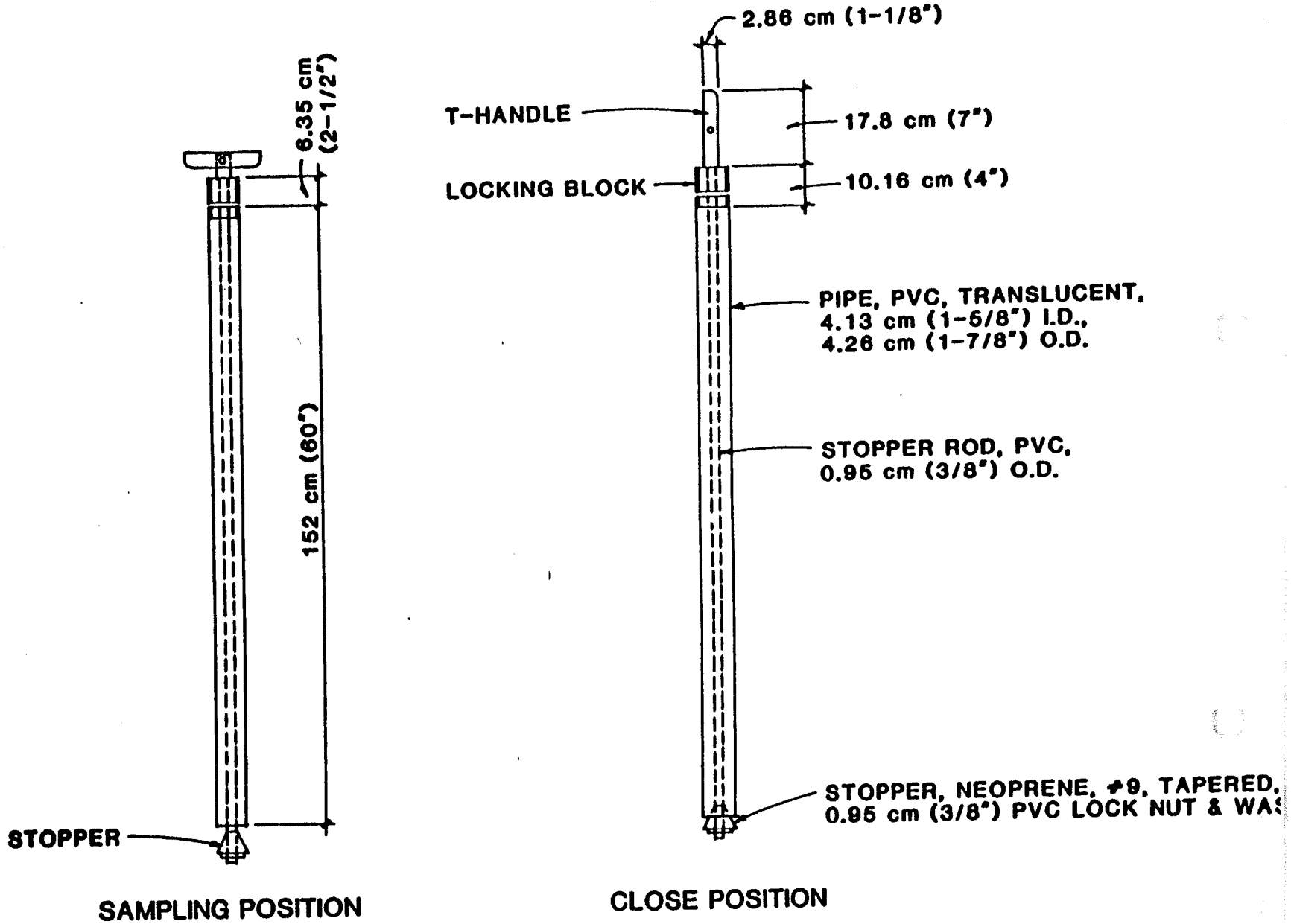


FIGURE 4-1

COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

# EXAMPLES OF SAMPLE LABELS

## OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled_____

Field Information_____

_____

_____

## ALTERNATE SAMPLE LABEL

DATE_____ TIME_____ SAMPLE NO._____ ORIGIN_____

LOCATION SAMPLED

_____

DESCRIPTION

_____

REMARKS

_____

REQUESTED ANALYSIS

_____

SAMPLED BY: (PRINT AND SIGN) LOG REFERENCE

TAG NO.____OF____

_____

EXAMPLE OF SAMPLE SEAL

---

OFFICIAL SAMPLE SEAL

Collected by_____ Collector's Sample No.____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

CHAIN OF CUSTODY RECORD
azardous Materials
Collectors Sample No.____

Location of Sampling: __Producer __Hauler __Disposal Site

__Other:_____

Company's Name_____Telephone (___)_____

Address_____
number street city state zip

Collector's Name_____Telephone (___)_____
signature

Date Sampled_____ Time Sampled_____hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

_____

Sample Allocation:

1. _____
name of organization

2. _____
name of organization

3. _____
name of organization

Chain of Possession

1. _____ _____ _____ _____
signature title inclusive dates

2. _____ _____ _____ _____
signature title inclusive dates

3. _____ _____ _____ _____
signature title inclusive dates

# HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

## PART I: FIELD SECTION

Collector_____ Date Sampled_____ Time_____hours

Location of Sampling_____
name of company, disposal site, etc.

Address_____
number street city state zip

Telephone (___)_____ Company Contact_____

| HML NO. (Lab only) | COLLECTOR'S SAMPLE NO. | TYPE OF SAMPLE* | FIELD INFORMATION |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Analysis Requested_____

_____

_____

Special Handling and/or Storage_____

_____

## PART II: LABORATORY SECTION

Received by_____Title_____Date_____

Sample Allocation: __HML __LBL __LABL __SRL Date_____

Analysis Required_____

_____

_____

*Indicate whether sample is sludge, soil, etc.; **Use back of page for additional information.