Chemical Waste Management, Inc.
Technical Services Division
3760 Yale Way
Fremont, California 94538
415 770 0575

ENTERED

Reference

June 13, 1989

Anthony F. Drypolcher
Los Alamos National Laboratories
P.O. Box 1663 Mail Stop E-518
Los Alamos, New Mexico 87545
(Fax 505-665-3750)

RE: Sampling and Analysis of Labeled Lab Pack Material at CWMI Facilities

Dear Tony,

CWMI has a number of permitted facilities and handles labpack type waste from a wide range of research, development and manufacturing industries. There is no case in which a Waste Analysis Plan (WAP) at a CWMI owned, Part B permitted facility requires sampling of labeled lab pack containers prior to acceptance, treatment and/or disposal.

Permitting agencies have agreed that sampling and analysis would yield no better information than that furnished by the label. In addition, sampling involves additional personnel and environmental exposure risks as well as additional cost. Agencies have not sought to impose the risks and cost of additional sampling where there is not a clear added information benefit.

For more detailed discussion of this issue, CWMI would be pleased to make available the expertise of Jack Kolopanis or Marty Cahill who have worked with a variety of agencies in developing CWMI's WAP's. Jack works out of CWMI's Oak Brook, Illinois office and can be reached at (312) 218-1715. Marty works out of CWMI's Technical Center in Riverdale, Illinois. She can be reached at (312) 841-8360.

Sincerely,
Chemical Waste Management, Inc.

Bill Van Dyke
Technical Services Division

cc: Jack Kolopanis
Marty Cahill

TR

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Exhibit 2A

The Fire Department personnel make regular tours of the Laboratory facilities to detect and discuss hazards associated with individual facilities and are instructed in hazardous material handling and emergency procedures. They are aware of the hazardous waste practices at the Laboratory, and are well equipped to handle any credible emergency situation.

D.2.1.7 Mason & Hanger Protective Force (Pro-Force)
The Pro-Force consists of more than 300 personnel who are responsible for Laboratory security. The security force is provided by Mason & Hanger, Silas Mason, under contract to the Laboratory.

During an emergency, the Pro-Force activities include maintenance of security, direction of traffic within the Laboratory, and control of access to the emergency site. The Pro-Force maintains the necessary equipment to perform these functions such as crowd control equipment, patrol cars, etc.

D.2.1.8 PAWS
PAWS provides a maintenance support force on contract to the Laboratory. This support force is under the Laboratory's direction in an emergency. PAWS conducts inspections of Laboratory equipment, maintains equipment, and participates in emergency cleanup.

D.2.1.9 Los Alamos County Police
In keeping with the principle of handling emergencies internally, the Los Alamos County Police have only a minimal interaction with the Laboratory in an emergency. That interaction is limited to traffic control on DOE roads with public access. The limits of interaction are included in a signed agreement, a copy of which is included as an attachment to this document. There are no agreements with other agencies.

D.2.1.10 WX and M Division Personnel
Personnel in WX and M Divisions are trained to safely handle and dispose of highly reactive materials (High Explosives). Any spill or uncontrolled release of material at the burning grounds (TA-14 and -16) or the detonation pads (TAs 14, 15, 36, and 39) will be cleaned up by personnel from these divisions. The Fire Department may be called to respond if a burn or detonation results in an uncontrolled fire.

New Paragraph D.2.1.11-

D.2.2 Emergency Equipment
A list of emergency equipment for use at the Laboratory and the location of this equipment can be found in Table D-3. The equipment immediately available for use is located at TA-54, Area L, the TA-50 batch treatment system and modular container storage buildings, the TA-50 waste incinerator and Room 117 storage, the TA-16 incinerator, and the TA-60 storage pads.

In addition, PAWS, the Fire Department, and HSE-2 maintain emergency equipment. Major emergency facilities are shown in Figure D-4.

D.2.3 Communications
Effective emergency response at Los Alamos National Laboratory requires an efficient communication system which will integrate all personnel into the emergency response procedure.

There are two central alarm systems (CAS) at the Laboratory; an emergency CAS and a mechanical CAS. The emergency CAS is activated by:

Telephone communication (9-911)

Automatic fire alarms

Manual pull alarms

D.3 NONSUDDEN RELEASES

Nonsudden releases include those incidences which, if uncontrolled, impact the environment over a long period of time. Such incidences include minor leaks of containers, loss of integrity of secondary containment, incomplete treatment, and leachate migration from disposal areas.

D.3.1 Responsibility

Correction of nonsudden release shall be the responsibility of the operating group and can be handled with normal maintenance and management procedures. Correction methods for nonsudden releases that have resulted in environmental contamination shall be coordinated with the New Mexico Environmental Improvement Division (NMEID).

D.3.2 Credible Nonsudden Releases

Not all failures can be predicted. In general, the response to nonsudden release will (1) contain the release, (2) correct the cause of the release, and (3) clean up any release to a level that protects health and the environment.

D.3.3 Nonsudden Release Surveillance

In addition to routine inspection and site-specific sampling and testing, the Laboratory maintains an area-wide environmental monitoring network maintained by HSE-8. Routine monitoring for radiation, radioactive materials, and chemical substances on the Laboratory site helps to fulfill the Laboratory's policy to protect the general public, employees, and the environment.

Monitoring and sampling locations for various types of measurements are organized into three main groups. Regional monitoring stations are located within the five counties surrounding Los Alamos County. They are placed up to 80 kilometers (50 miles) from the Laboratory, and serve to determine background conditions. Perimeter stations are located within approximately four kilometers (2.5 miles) of the Laboratory boundary, and document conditions in residential areas surrounding the Laboratory. On-site stations are within the Laboratory boundary, and most are accessible only to employees during work hours.

The types of routine surveillance conducted at these stations includes radiation measurements and collection of air particulates, waters, soils, sediments, and foodstuffs for subsequent analysis.

Additional samples are collected to gain information about particular events such as major runoff events and nonroutine releases. Data are used for comparison with standards, background radiation levels, and dose calculations.

D.4 SUDDEN RELEASES

This section deals with incidents involving sudden release such as spills, fires, or explosions which pose a significant threat to human health or the environment and includes the release of hazardous materials and hazardous wastes. Hazardous materials are chemical substances that become a regulated waste as the result of the incident and can include hazardous raw materials that are spilled, products of combustion, and products of uncontrolled reactions.

D.4.1 Hazardous Waste Emergency Coordination

LEDO The ~~EPODO~~ is responsible for coordinating all emergency response measures involving sudden releases of hazardous wastes with the exception of the open burning and open detonation units at TA-14, 15, 16, 36, and 39. HE waste handling is the responsibility of M and WX divisions, who have developed Standard Operating Procedures (SOPs) based on safe handling practices designed to eliminate the risk of fire and explosions. Unplanned detonation or combustion of HE renders the HE waste nontoxic. In some cases, residuals contain barium. Cleanup of barium contaminated areas due to unplanned detonations shall be coordinated with the ~~EPODO.~~

LEDO

D.4.2.2 Emergency Notification

Immediately upon discovery of an imminent or actual incident involving hazardous wastes or hazardous materials, the EPODO will be notified first. In the case of fire involving hazardous wastes or hazardous materials, this is superseded by the Laboratory fire alarm system. A fire is reported by dialing 9-911, activation of automatic alarms, or activation of a fire pull box. All fire alarms simultaneously alert the CAS Dispatcher, the Fire Department, and the Mason and Hanger Pro-Force. For fire involving hazardous wastes, hazardous materials, or hazardous waste units, the CAS Dispatcher shall contact the EPODO (Figure D-5). Orange signs on buildings which contain HE are a warning to fire fighters not to approach or enter the building without obtaining information from WX or M Division personnel about the nature and location of HE materials in the building.

During off hours, all incidents involving hazardous wastes or hazardous materials shall be reported to the CAS Dispatcher, who will contact the on-call EPODO.

The EPODO shall proceed to the incident and assess the nature of the problem. On an as-needed basis, the EPODO shall contact response groups directly or instruct the CAS Dispatcher to contact them or contact the HSE-Duty Officer (HSE-DO) who will notify the appropriate HSE groups. Table D-2 shows the assistance available from each emergency response group. The EPODO will use this list as criteria to determine which groups to contact in an emergency.

Each response group maintains an on-call person and/or a call-down procedure to answer emergencies.

Because the initial observer may not be able to recognize the involvement of hazardous materials, the EPODO shall be notified of any incident as described in Section D.4.1. The EPODO shall use whatever means available including the assistance of other response groups, computer data searches, and sampling to determine if a hazardous waste is generated. HSE-5 and HSE-8 have the expertise to determine the nature and extent of contamination, the chemicals involved in the incident, and the characteristics of the hazardous waste.

D.4.2.3 EPODO Actions

Upon notification of an incident, the EPODO shall:

1. Proceed directly to the site;
2. Assess the nature of the incident, and quantities and types of hazardous wastes or hazardous materials involved; and
3. Based on the guidelines in Section D.4.2.1 of the Contingency Plan, determine if implementation of the HWF Emergency Contingency Plan is warranted.

Upon the decision to implement the HWF Emergency Contingency Plan, the EPODO shall perform, in this order, the following actions:

1. Assess the hazards to human health and the environment including both direct and indirect effects such as generation of toxic, irritating, or asphyxiating gases, hazards of runoff of fire water or treatment chemicals. The EPODO will use the guidelines in Section D.4.2.1 to assess the hazards to human health and the environment. If any of the criteria under Section D.4.2.1 are met, evacuation of the immediate area will be initiated.

6. Within 15 days of the incident, submit to the Regional Administrator and Environmental Improvement Division the report described in Section D.10.

D.5 SPECIFIC EMERGENCY RESPONSE PROCEDURES FOR HAZARDOUS WASTE UNITS

The following section summarizes the guidelines for handling emergencies.

D.5.1 Chemical Spills

Hazardous wastes are handled and stored in small containers, lab packs, 55-gal. drums, and dumpster tanks. The individual volumes handled are small. Handling of hazardous materials may involve truckload quantities of material such as solvents, fuels, acids, and bases.

The general steps in handling hazardous wastes are:

Containment including spreading of absorbents or forming of temporary dikes,

Waste pickup and packaging in sound containers, and

Decontamination followed by testing to assure adequate clean-up.

The emergency preparedness procedures related to flammable organic solvent spills call for stabilization of the spilled material with the organic solvent spill kit. Other chemical spills are to be stabilized using the acid and caustic spill kits or by the addition of absorbents such as vermiculite. Personnel protective equipment will be worn during spill control and cleanup. The stabilized material will be treated as hazardous waste. Runoff which might occur from spills outside containment areas during precipitation must be contained and handled as a hazardous waste unless analyzed and found to be nonhazardous. Temporary dikes can be constructed to contain runoff.

D.5.1.1 Spill Control Procedures

Vermiculite or Pell-O-Cell will be used to control all chemical spills except hydrofluoric acid spills. Vermiculite and Pell-O-Cell are compatible with all chemicals except fluorine and hydrofluoric acid. Hydrofluoric acid is generally only handled in very small volumes, in small containers, so that a spill would be limited to a very small volume (less than 1 gallon). A hydrofluoric acid spill will be neutralized by carefully adding calcium hydroxide or other caustic to the spill. After an excess of caustic has been added and the reaction has ceased, the resulting solution will be cleaned up using vermiculite. Vermiculite and caustic are stored at all the TSD units at the Laboratory.

DOT approved drums will be used to collect all spilled material and contaminated absorbent. There are many drums of this type, located at all treatment and storage facilities at the laboratory. For corrosives, the drums will be lined with polyethylene drum liners. The list of emergency equipment (Table D-3) shows the equipment available at each area to be used to control a spill. The ultimate disposition of any contaminated absorbent or waste material will be decided by HSE-7 according to permit conditions and RCRA standards. The material will be temporarily stored at TA-54, Area L.

Decontamination will be accomplished at the spill site. After the spilled material has been absorbed by vermiculite or Pell-O-Cell, the material will be drummed. If the spill occurs on a cemented area, water or an appropriate solvent will be used to clean the area and this liquid will be absorbed onto vermiculite or Pell-O-Cell and drummed.

Other potential chemical exposures will necessitate evacuation if anyone notices any of the following conditions:

- Irritation of the eyes, breathing passages or skin,
- Difficulty in breathing, or
- Nausea, light-headedness, vertigo, or blurred vision.

The affected person will be transferred to the Medical Department and the HSE-5 Group representative will attempt to ascertain what, if any, chemical exposure occurred and what corrective measure is appropriate.

D.5.5 Flood

The U.S. Army Corps of Engineers has documented that Los Alamos National Laboratory's waste management facilities are not located within the 100-year floodplain. This documentation has been included as an attachment to this document.

D.6 EVACUATION

A facility will be evacuated upon the voice command of "evacuate the area," or upon the sounding of the evacuation alarm, or upon the fire alarm.

D.6.1 Evacuation Plan

Emergency situations may warrant the shutdown and evacuation of an area(s) or building(s) in order to protect personnel and property, to anticipate the emergency condition, or to enhance the appropriate response. Table D-8 shows the criteria for evacuation, persons responsible for initiating evacuations, and reentry conditions.

To initiate building evacuation, the evacuation alarm is sounded and/or the public address system is used. The evacuation alarm, which is more suitable for evacuation of the whole facility, is a steady, continuous, audible signal. This alarm cannot be silenced and reset by site personnel. The Fire Alarm Maintenance Section at 667-4027 and the Fire Department Platoon Chief at 667-7026 can silence and reset the alarm.

To evacuate a portion of the building, the public address system is more appropriate. The PA system will notify the occupants of the area to be evacuated, and additionally, will advise personnel in the rest of the facility of the existence of a problem in that specific area.

Upon initiation of an evacuation, either via the PA or evacuation alarm, all personnel are to leave the specified area and go to the muster area, turning off all equipment that could contribute to the hazard if left unattended.

In the event of an evacuation of only a portion of the building, one of the out buildings, or outlying work areas, the Group Leader will designate a control point at the closest and/or the most convenient location. This area will be outside the affected area and will serve as a muster point and provide control of the affected area to prevent further spread of the hazard.

Sweep Team personnel will remain in the area for a visual inspection of all the affected work areas, laboratories, and offices. At least two persons will do the sweep to insure that if an injured person is found or if a single person is fighting a small fire, turning off equipment or activating fire suppression systems, one sweep team member can give assistance while the other reports to the muster area or control point to obtain additional aid.

Allow the reactor mixer to operate unless its operation poses a unique hazard (operation helps remove heat and prevents stratification).

D.6.2.2 TA-50 Waste Incinerator

If a fire or evacuation alarm sounds during the operation of the controlled air incineration process, the operating crew will initiate a process shutdown in accordance with the current operating instructions. Three logic sequences are provided to shut down the process in a safe and orderly manner.

Controlled Shutdown - initiated when there is potential for significant damage to minor process components. This is also the normal shutdown mode at the completion of a run. When controlled shutdown is initiated, feeding of waste to the incinerator is stopped and a programmable set-point generator is activated that directs remote set-point inputs to the temperature controllers, causing a gradual decrease in chamber temperatures. Switches internal to the set-point generator cause an orderly-timed shutdown of process components.

Fast Shutdown - initiated for conditions that could likely result in loss of containment or damage to major process components. Waste feeding is stopped. Following a two-minute timed interval following the last feedi ng of solid waste (immediate, if feeding liquid waste), the upper and lower chamber burners are shut down and the system valves and dampers are positioned so as to maintain a negative pressure in the system while minimizing flow through the system. Snuffing steam is introduced into the lower chamber. The two-minute delay when feeding solid waste allows for the ignition of pyrolitic gases formed immediately after feeding.

Scram Shutdown - initiated at the discretion of an operator. The chain of events are identical to the fast shutdown except that the sequence is not delayed when feeding solid waste. Scram buttons are located at the incinerator and in the control room.

The last two shutdown modes are potentially destructive to the incinerator refractory and are initiated only when the consequences of not shutting down are greater than the consequences to the incinerator during a scram or fast shutdown. It is the responsibility of the operating personnel and the process lead engineer to assess any situation and initiate the proper process shutdown sequence.

D.6.2.3 TA-16 Industrial Incinerator

If a fire or evacuation alarm sounds during the operation of the TA-16 Industrial Incinerator, the operating crew will initiate a process shutdown. The TA-16 Incinerator is equipped with automatic and manual controls for shutdown of burners. Burners may be shut down manually by tripping a single switch. Automatic shutdown of the burners will occur on occurrence of a power failure, limit failure, or flame failure.

D.7 SALVAGE AND CLEANUP

The affected area will be surveyed by appropriate representatives from HSE Groups before salvage, cleanup and return to normal operations. Visual inspections of the affected area will be supplemented by sampling to determine whether cleanup is complete. After determination of any existing hazards from toxic or hazardous gases or fumes, electrical hazards, or other unsafe conditions, personnel or selected teams, equipped with proper breathing apparatus and protective clothing, will reenter the area to perform designated tasks to effect decontamination, repairs, and salvage to allow the return to normal operations. After an emergency, the [redacted] will:

- LEDO

Provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion. Contaminated material will be treated as a hazardous waste and temporarily stored at one of the permitted hazardous waste storage areas at the laboratory. HSE-7 will be responsible for determining the final disposition of the waste. This determination will be made in compliance with the permit and RCRA standards.

Remain at the site to ensure that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed.

Ensure that emergency equipment is cleaned and fit for its intended use before operations are resumed. Equipment will be visually inspected and sampled to determine the type and degree of contamination and appropriate cleanup measures will be used.

Prior to resuming operations, appropriate local authorities will be notified that cleanup procedures are completed and emergency equipment is cleaned and fit for its intended use.

LEDO

Damage assessment and recovery shall be performed within the reporting and investigative requirements of DOE Order 5484.1. The [redacted] has general responsibility for coordinating post-emergency actions, particularly during the time period immediately after the emergency. Such actions include cleanup operations, repair of vital equipment, or interim hazard-removing operations (such as demolition of unstable walls). The services of the affected operational organizations, HSE Division, the PAWS, and other on-site talent will also be utilized to estimate cleanup costs and operational impact. The ~~EPGOO~~ LEDO declares the end of the emergency; an Incident Report is filed out, and the Group Leader and his staff review emergency actions.

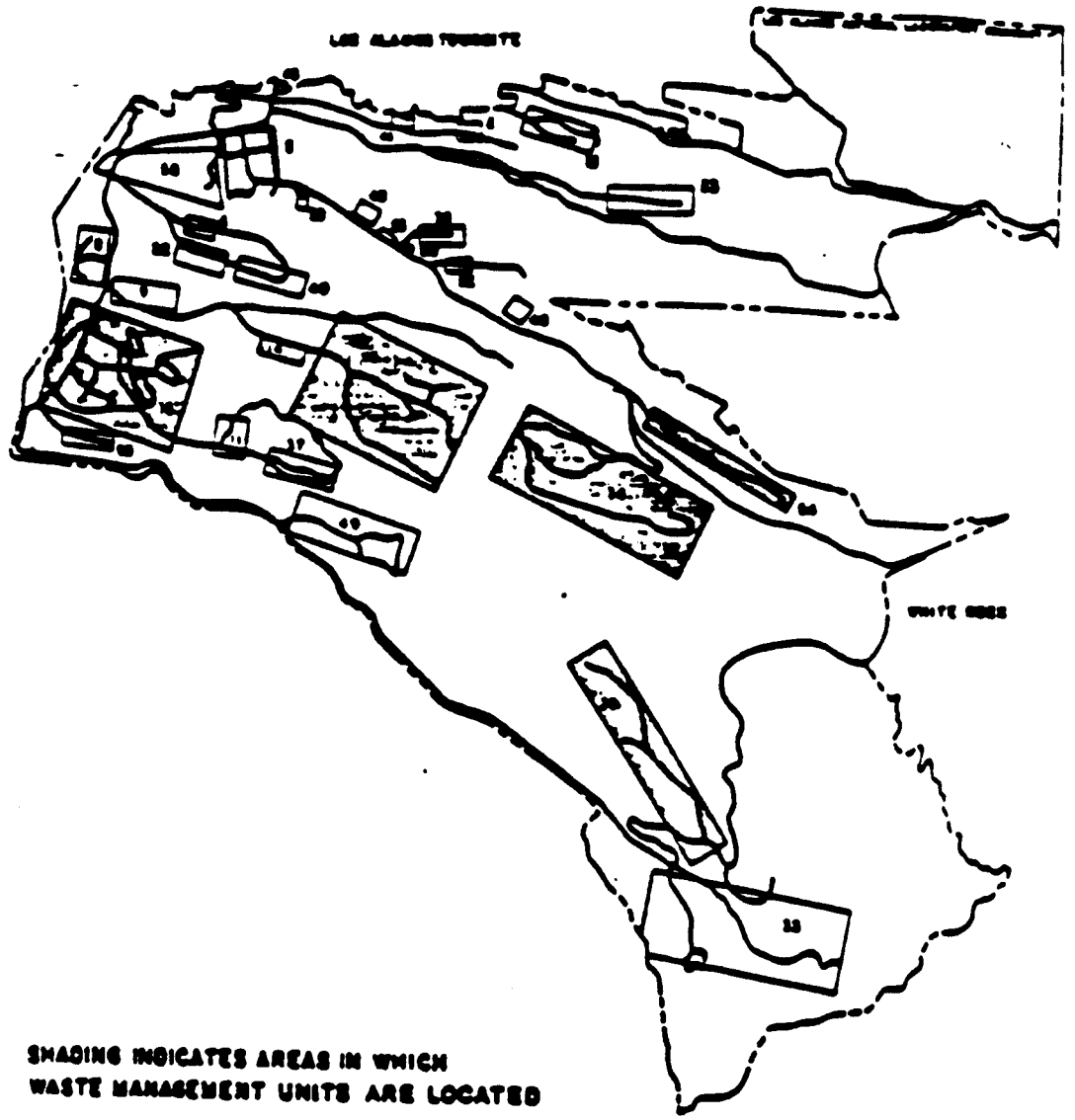
D.8 POST-EMERGENCY ASSESSMENT

When the emergency is over, the causes of the emergency and the effectiveness of the response are investigated, in order that future emergencies may either be prevented, or that the response to them may be more effective. Following each event requiring the implementation of the HWF Contingency Plan, the ~~EPGOO~~ shall meet with representatives of all response functions to determine the adequacy of the response. LEDO

D.9 EMERGENCY RECORDS

The details of any incident that requires implementation of the HWF Emergency Contingency Plan must be noted in that unit's log book. This record must include the time, date, and full description of the incident.

See page 14?



SHADING INDICATES AREAS IN WHICH WASTE MANAGEMENT UNITS ARE LOCATED

Figure D-1

LOS ALAMOS
TECHNICAL AREAS

PREPARED FOR

LOS ALAMOS
NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO

INTERNATIONAL TECHNOLOGY CORPORATION

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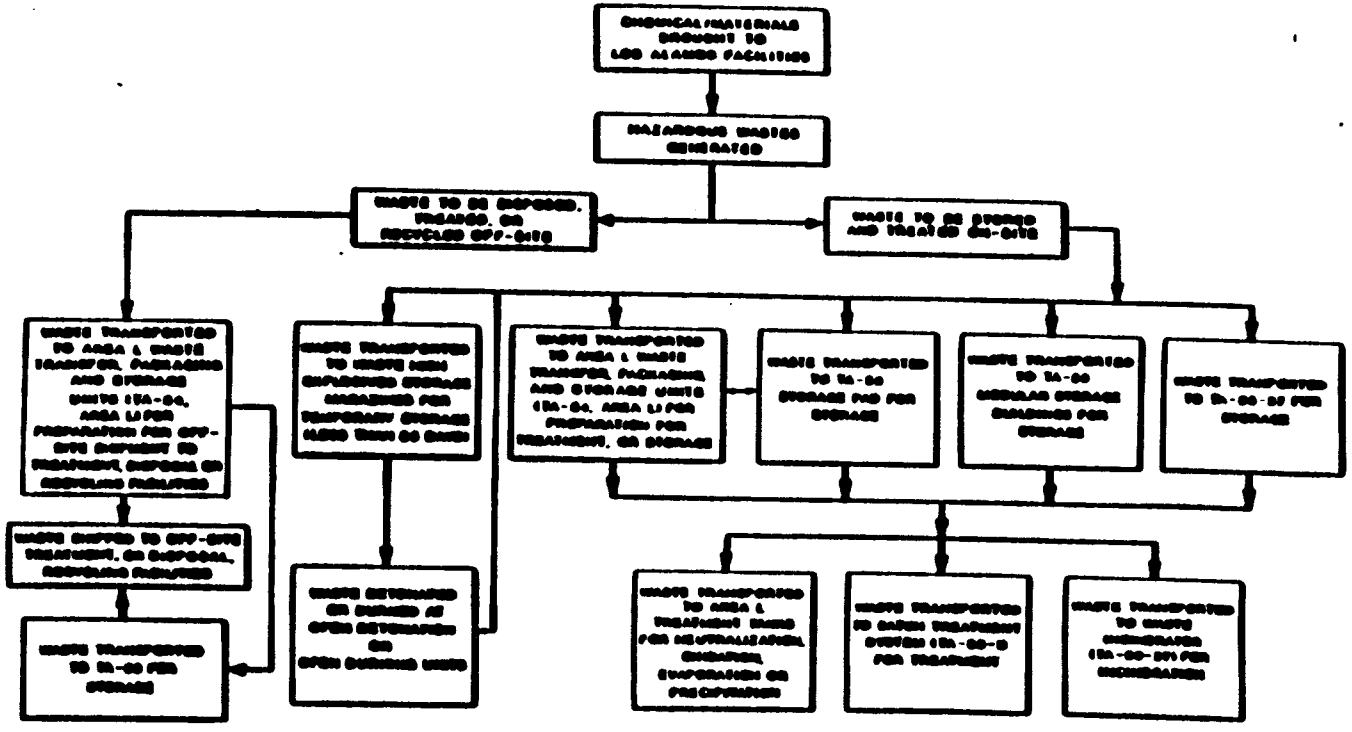

Figure D-3

SCHEMATIC DIAGRAM OF LOS ALAMOS HAZARDOUS WASTE MANAGEMENT ACTIVITIES

PREPARED FOR

LOS ALAMOS NATIONAL LABORATORY

LOS ALAMOS, NEW MEXICO

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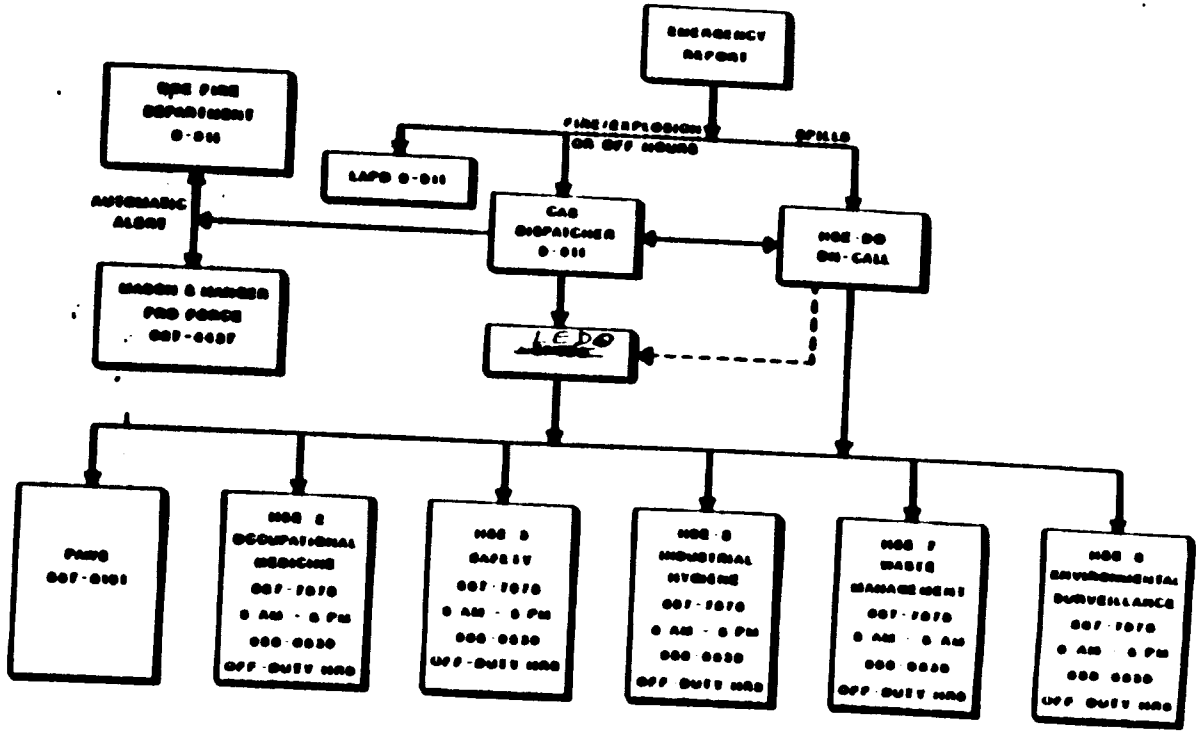

Figure D-5
HAZARDOUS WASTE
EMERGENCY
NOTIFICATION STRUCTURE
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NM0890010515-1

TABLE D-2
HAZARDOUS WASTE EMERGENCY RESPONSE GROUPS

Laboratory Controlled Response Group	Emergency Telephone	Assistance Available
HSE-2 Occupational Medicine	667-7878 (8 am - 5 pm) 988-0539 off-duty hours	Emergency medical treatment
HSE-3 Safety		Reviews and approves fire protection procedures. May assist in process shutdown and evacuation
HSE-5 Industrial Hygiene		Site evaluation - field testing to determine the nature and extent of contamination (nonradiological)
		Specify protective clothing and equipment
		Information services regarding hazards of wastes and treatment for exposure
HSE-7 Waste Management		Hazardous waste cleanup, handling, treatment, and disposal
HSE-8 Environmental Surveillance		Field surveys to determine spread of contamination and adequacy of clean up
		Meterological information
		Geohydrologic support
HSE-9 Health and Environmental Chemistry		Chemical analytical services
Fire Department	9-911	Firefighting personnel and equipment
		Ambulance and parametic service
Mason & Hanger Protective Force (Pro Force)	667-4437	Traffic Control
		Security
Emergency Management Group	667-6211 (8am-5pm) 667-7080 (Off-Duty hours)	24-hour Duty Hazard CEDs On-Scene Command & Control, Required reporting procedures and operations critique

TABLE D-8
EVACUATION DETERMINATION AND REENTRY

Reason for Evacuation	Determination Made By	Reentry Conditions
Fire	Fire or Evacuation Alarm; Group Leader; Alternate; Lead Engineer, Senior Staff Member present, or HWEC	Following survey by the Chief Fire Officer, HSE-1 and/or HSE-5, and R&D Supervision Approval by LEDC
Explosion	Same as above	Same as above plus HSE-3 and survey by HSE-5
Loss of Ventilation	Group Leader, Alternate, Senior Staff Member, Lead Engineer, or Senior Technician	Following survey by HSE-1 and/or HSE-5, and R&D Supervision
Loss of Electric Power	Same as above	Same as above
Extensive Contamination	Same as above or HSE-1 Representative	Same as above
Airborne Contamination	Same as above or Rad Monitor	Same as above
Escape or Release of Toxic or Hazardous Gas or Fumes	Group Leader, Alternate, Senior Staff Member, Lead Engineer, Senior Technician, or HWEC	Same as above plus HSE-5
Bomb Threat	HSE-3 or Protective Force Representative, R&D Section Leader, Alternative, Senior Staff Member or Lead Engineer, LEDC	~~Following determination by~~ HSE-3 ~~or Protective Force Representative and R&D Supervision~~ Following determination by the Hazardous Device Team, and LEDC only.

ATTACHMENT J

INCINERATOR OPERATIONAL SAFETY

J.1 LIMITING CONDITIONS FOR PROCESS OPERATION

J.1.1 Objective

To ensure safety and protection of the environment, the CAI process operations will be conducted within the limits herein, and the following equipment, as appropriate to the activities, must be operating or available before process operations can be conducted.

J.1.2 Process Feed Operation

J.1.2.1 Plant Utilities

Electrical service (normal and auxiliary generator in 10-second standby mode); compressed air (designated and standby compressors); and building fire protection systems (the main water supply is integral to the supply for the wet- and dry-pipe fire sprinkler systems) must be available. Prior to operations in the liquid feed preparation area, the special HALON[R] fire protection system must be available. The process area HEPA filtered ventilation system must be operating.

J.1.2.2 Plant Instrumentation

Prior to liquid waste operations, a survey of the ambient air in the Liquid Feed Preparation Room must be made, and instruments for measuring combustibles and oxygen concentrations must be at hand during preparation of volatile liquids.

J.1.2.3 Personnel

At least two persons must be on hand during any feed preparation operations.

J.1.3 Low-Temperature Check-Out Operations for the CAI

At low temperatures (below 500°F) the following are required:

J.1.3.1 Equipment

In addition to the minimum equipment requirements listed in J.1.2 above, low temperature operations for instrumentation and equipment checkout and calibration require the following:

J.1.3.2 Utilities

Liquid (diesel oil) and/or fuel gas (natural gas) supply systems; auxiliary cooling water system; uninterruptable power supply (UPS); and instrument air supply (designated and standby compressors).

J.1.3.3 Equipment in the CAI

Quench column pumps and sprays; incinerator induced draft (ID blower or automatic crossover to the HEPA filter plenum in building exhaust); process off-gas HEPA filter banks.

J.1.3.4 Instrumentation

All instrument and control panels must be on and operating. Prior approval of the Section Leader for Technical Support must be obtained to disable any safety interlock. If any interlocks are disabled, the front of the instrument chassis must be tagged and the interlock identified. An appropriate entry must be made in the Operations Log Book when any interlock is disabled or restored to operational condition.

J.1.3.5 Personnel

At least two persons must be present during operation of the incinerator. These are a shift supervisor and an additional process engineer.

J.1.4 High-Temperature Operations for the CAI

During incinerator startup for operation at temperatures above 500°F, and in addition to the items listed in J.1.3, the following must be fully functional:

J.1.4.1 Utilities

Auxiliary generator and automatic switchgear (running and ready); primary, secondary, and cooling tower loops and pumps; cooling tower blower(s) (depending on the outside and process scrub system temperatures); and the process steam generator with the pre-ignition interlock satisfied.

J.1.4.2 Equipment in the CAI

Venturi scrubber system; packed-column scrubber system; process liquid filter and recirculation system; off-gas superheater; and induced draft (ID) blower.

J.1.4.3 Instrumentation

All of the process controls and interlocks listed in the Second Edition of the Final Safety Analysis Report must be operable. No interlocks shall be disabled.

J.1.4.4 Personnel

Personnel requirements are the same as for low temperature operations.

J.1.5 Waste Feed Operations

In addition to the above, the following are required for waste feed operations:

J.1.5.1 Utilities

Waste feed will be terminated if the primary electrical supply system is lost. The loss of the primary water supply system initiates a controlled shutdown of the incinerator.

J.1.5.2 Equipment

During incinerator waste feed operations, all equipment specified in the previous sections must be fully operational. Waste feed operations shall cease until any discrepancies are corrected.

The NMEID permit for incineration of RCRA-listed and characteristic wastes specifies minimum operating temperatures, minimum percent oxygen in the secondary chamber, maximum carbon monoxide levels in the off-gas, maximum feed rates, and other parameters for hazardous waste feed operations. These parameters are detailed in Permit Module V for RCRA waste.

J.1.6 Process Off-gas Treatment

The following are required for off-gas treatment:

J.1.6.1 Equipment

Gas stream exit temperature from the quench column not greater than 350°F; gas stream exit temperature from the packed-column scrubber not greater than 180°F; gas stream inlet temperature to the process HEPA filters not greater than 250°F; scrubber solution temperature not greater than 180°F.

J.1.6.2 Personnel

In addition to the shift supervisor and process engineer, operations personnel shall be assigned to each shift as required to meet programmatic goals of the incinerator run plan.

J.1.7 Basis

Basis for limiting conditions for process operations is the 1979 AL/OSD Facility and Process Operational Safety Review and subsequent approval of the Operational Safety Requirements, the Technical Development Facility (TDF) Quality Assurance Manual (which includes requirements for reviews by the TDF experiment safety committee and design committee), and Administrative Requirement 1-8 of the Los Alamos Health and Safety Manual, Chapter 1.

J.2 DESIGN FEATURES

J.2.1 Construction

Except for the office addition, the TDF is constructed of precast, prestressed, pretensioned concrete double-"Tee" sections. The exterior walls are load bearing and are

interior insulated. All sections contain weldments to provide connection of the reinforcing steel between adjacent panels, floors, and roof decks. The interior load bearing walls are of filled concrete block construction. Non-load bearing walls are of metal stud and gypsumboard construction. The building shell is designed to remain as a confinement structure in all but a beyond design basis accident (BDBA).

Building design loads used were in accordance with ANSI Standard A58.1; 1972, and the Uniform Building Code for Earthquake Zone 2, 100 mph wind with a 100 year mean recurrance interval, Exposure B, and roof loads determined for 30 psf snow in addition to the ANSI Standard dead loads.

J.2.2 Fire Protection

The facility is designed for one hour Fire Code resistance with wet pipe sprinklers in all heated areas, except for the chemical storage area and the liquid feed preparation area. Antifreeze and dry pipe systems are installed in unheated areas to meet or exceed DOEM 0552 minimum requirements for "Improved Risk" level of protection.

The CAI process area exhaust duct to the facility main HEPA filter plenum contains a dry pipe water spray cooldown system upstream of the plenum. The plenum contains a mist eliminator/fire screen upstream of the filter banks. The main HEPA filter plenum has a dry pipe sprinkler system and the Bay 2 exhaust HEPA filter plenum contains an antifreeze sprinkler system. The chemical storage area contains a deluge fire sprinkler system and the liquid feed preparation area contains a HALON^{R} 1301 fire protection system.

J.2.3 Ventilation System

Three levels of containment with appropriate ventilation are provided. The four resulting zones are separated from each other by physical barriers and/or pressure gradients. All air exhausted from the process areas of the facility and the waste storage/staging bay is not less than double HEPA filtered before release from the facility stack. The ventilation supply and exhaust blowers are interlocked with the fire alarm system. A fire alarm initiates shutdown of these blowers to reduce the amount of oxygen available to a fire. Likewise, the liquid feed preparation area inlet air supply louvers and the ventilation exhaust blowers are interlocked with the fire alarm and the HALON^{R} system to isolate the room before the fire extinguishing medium is discharged.

J.2.4 Liquid Effluents

Except for the sanitary sewer system, all liquid effluents from the facility and the process are collected in sumps and are transferred through the double-contained and monitored radioactive waste line to the Industrial Waste Treatment Facility.

J.2.5 Utilities

The TDF has a diesel powered auxiliary generator and automatic switchgear which, when on standby mode, will supply electrical power to critical equipment, as well as communications and lighting to critical areas, within 10 seconds of a power failure. In

the running and ready mode used during all incinerator operations, the transfer time is less than one second. A battery powered Uninterruptable Power Supply (UPS) system provides power to the instrumentation and controls if the auxiliary generator and line power are both lost.

Designated and backup air compressors, powered from both the line and auxiliary sources, provide instrument air to the pneumatic process devices. These compressors are backed up by compressed gas (nitrogen) bottles.

J.2.6 Process

The CAI has a number of engineered safeguards:

J.2.6.1 Fire Protection Systems

In addition to the facility wet pipe, antifreeze filled, deluge, and dry pipe sprinkler systems, the process has several engineered fire protection systems:

The liquid feed preparation room has a HALON^R 1301 fire protection system, also initiated by UV detectors, temperature sensors, or manual pull station. The air supply louvers and exhaust blowers are interlocked with the alarm system to isolate the room prior to the HALON^R release.

The chemical storage area deluge sprinkler system is provided with a Fire Department connection for the addition of foam fire suppressant from a tanker truck.

The blowers supplying and exhausting air from the CAI process area and the waste storage/staging area are shut down upon the initiation of a fire alarm, to limit the oxygen available to a fire.

The floor drains in the CAI process and support areas and the sump in the radioactive waste storage area are connected to the facility sump tank in pit in Room 112. This tank discharges to the double contained and instrumented industrial waste water pipe line to the treatment plant at TA-50, Building 1. Fire water from the CAI process and support area sprinkler systems is collected by the floor drains. The radioactive waste storage area fire water is collected in a floor sump and is pumped to the facility sump tank. This floor sump is provided with an overflow drain to one of the chemical storage area sumps in the event that sprinkler flow in this room exceeds the pump capacity. Fire sprinkler water in Bay 2 and the main HEPA filter plenum system flows through floor drains and directly into the industrial waste line to the treatment plant.

There are no floor drains in the bermed liquid feed preparation area. The chemical storage area is provided with sumps of sufficient volume to contain the entire contents of the storage area containers and not less than thirty minutes of the deluge sprinkler system flow.

J.2.6.2 Liquid Blend/Feed System

Except for the transferring of liquids from the shipping containers to the waste feed tanks (which requires hands-on operations), liquid blend/feed station operations are performed from the control panel outside the liquid feed enclosure. Selected controls and

instrument readouts are also located at the incinerator main control panel and the liquid burner station at the incinerator.

J.2.6.3 Incinerator Controls and Interlocks

Incinerator startup and operation are automatically controlled and the systems are interlocked to prevent unsafe operation. Three shutdown modes (controlled, fast, and scram), with automatic and/or manual initiation, are provided to ensure safe shutdown of the process. Both visible and audible alarms are provided for fault indication.

J.2.6.3.1 Pre-Ignition Interlocks

Incinerator startup is prevented if faults are detected in the incinerator negative pressure, burner fuel supplies, and off-gas cleaning and cooling systems.

J.2.6.3.2 Startup Controls

A sequential timer controls air purge, pilot ignition, burner ignition, and flame failure shutdown.

J.2.6.3.3 Temperature Controllers

After startup, the incinerator is brought to temperature manually or automatically by a single station microprocessor-based controller. In the run mode, incinerator temperatures are maintained at set levels by temperature controllers.

J.2.6.3.4 Waste Feed Interruption and Cut-Off Interlocks

During operation, certain fault conditions require that liquid and solid waste feed be interrupted. In the case of solid waste feed, the loading cycle timer is disabled and the ram feeder is placed into standby mode. Liquid waste feed is instantaneously interrupted by closing of a solenoid shutoff valve on the liquid waste feed line.

J.2.6.3.5 Shutdown Controls

The detection of certain faults in the process equipment controls and interlocks will initiate one of three logic sequences (controlled, fast, or scram) provided to shut down the process in a safe and orderly manner, as dictated by the nature and potential consequences of the fault.

J.3 ADMINISTRATIVE CONTROLS

J.3.1 Responsibilities

Ultimate safety of the TDF operations lies with the HSE Division Leader, who appoints personnel to be responsible for the daily operation of the facility. These responsibilities include oversight of all engineering functions associated with maintenance and modifications of the building and with operating, maintaining, and modifying the CAI process.

J.3.2 Training

Training requirements for personnel assigned to the incinerator operations are delineated in Permit Attachment C.

J.3.3 Other Controls

The Technical Support Section maintains an emergency plan that is reviewed annually and updated as changes occur. Each employee assigned to the TDF has a copy of the emergency plan.

J.3.4 Internal Safety Review System

HSE-7 maintains a safety committee and appoints a safety officer to oversee safety functions of the group. The safety committee performs routine safety inspections of all HSE-7 facilities. A representative of HSE-3, Industrial Safety, is an ad hoc member.

J.3.5 Documentation of Operating Procedures

J.3.5.1 Operating Manual

An Operating Manual for the CAI process is maintained at the TDF. This manual is reviewed and updated as required. Each person assigned to TDF operations receives a copy of the manual. Manual contents are as follows:

1. Technical Support Section Organization
2. Operational Safety Requirements (OSRs)
3. Standard Operating Procedures (SOPs)
4. The TDF Emergency Plan
5. Facility Description
6. Facility Operating Instructions (OIs)
7. Process Description
8. Process Operating Instructions (OIs)
9. Utility Operating Instructions (OIs)

J.3.5.2 Standard Operating Procedures

Standard Operating Procedures (SOPs) are in effect for operations in the TDF, as specified in Administrative Requirement 1-3 of the Los Alamos Health and Safety Manual. The Technical Support Section reviews all SOPs at least annually and submits updates and revisions to the HSE Division SOP Committee for review and approval.

J.3.5.3 Special Work Permits

A Special Work Permit (SWP) must be obtained prior to conducting potentially hazardous activities not covered by an SOP. The building manager reviews and approves SWPs. The appropriate disciplines in Facility Engineering (ENG-5), Radiation Safety (HSE-1), Industrial Safety (HSE-3), and Industrial Hygiene (HSE-5) also review the SWPs.

J.3.5.4 Operating Instructions

Operating Instructions (OIs) are the detailed process equipment operating procedures and check lists required to safely start, operate, and shut down the CAI process, utilities, and other mechanical equipment. Members of the section's engineering staff write the OIs, which are then submitted for peer review within the section. The OIs are revised as operational requirements dictate.