

United States Government

Department of Energy
LEHR

memorandum

TO: SALEM ATTIGA

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DOE BOX

[Signature]
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DATE: July 16, 1996
REPLY TO:
ATTN OF: Jim Littlejohn/Oakland Operations Office/ERD

SUBJECT: **CERCLA REMOVAL ACTION**

to: Duncan Austin, DTSC
Hedy Ficklin, U.S. EPA
Steve Hsu, DHS/RHB
Julie McNeal, UC Davis
Susan Timm, CVRWQCB

Attached is the final Action Memorandum for the disposal of approximately fifty five cubic yards of low-level radiological waste from a small on-site trench commonly known as the DOE Box. This Action Memorandum will serve as the decision document for the time critical removal action. The removal must be completed within six months. The clock for determining this six month period began on July 12, 1996, when this memorandum was signed. We greatly appreciate your contribution in reviewing and commenting on earlier drafts.

EPA and other Federal agencies, including DOE, have received substantial criticism for studying sites too long and not moving ahead with response actions. With your continued cooperation and consultation we hope to move forward with additional response actions at LEHR in the near future.

cc: Salem Attiga, SAA
Mike Dresen, Weiss
Fred Lee, DSCSOC
Larry McEwen, DOE/OAK
Dawn Mitchell, PNNL/LEHR

Joe Niland, D&M
Brian Oatman, UCD
Julie Roth, DSCSOC
Don Williams, DOE/HQ

ACTION MEMORANDUM
Removal Action at the
Laboratory for Energy-Related Health Research
University of California, Davis
Davis, California
June 1996

1.0 PURPOSE

The purpose of this Action Memorandum is to document, for the Administrative Record, the Department of Energy (DOE) decision to remove and dispose of approximately fifty-five cubic yards of low-level waste from a small on-site trench at the former Laboratory for Energy Related Health Research (LEHR), University of California Davis, California.

The category of this removal action is time-critical as per decision at the Remedial Project Manager (RPMs) Meeting of May 16, 1996.

As a lead agency, DOE is taking this action under the authority defined in Section 104 of CERCLA and Federal Executive Order 12580. This action is also consistent with the U.S. EPA strategic planning recommendations on taking action as early as data makes it possible.

2.0 SITE CONDITIONS AND BACKGROUND

2.1 Site Description

The on-site waste subject to this Action Memorandum consists of buried gravel and labware including syringes, small bottles, and vials. Laboratory results indicated that the waste contains elevated levels of Radium-226 and Strontium-90. Detail description of the site history and background can be found in the Final Draft RI/FS Work Plan (reference 1).

2.1.1 Removal Site Evaluation

Thirteen waste and soil samples were collected from four backhoe excavations and hand auger borings within the 40 ft. long, 10 ft. wide and 12 ft. deep trench. Trench excavation revealed that numerous laboratory waste containers were buried along with radioactive contaminated gravel and wood. Excavated waste and soil samples were analyzed for the following parameters:

- | | |
|-----------------|--|
| -Ignitability | -Pesticides/PCBs |
| -Corrosivity | -Herbicides |
| -Metals | -Volatile Organic Compounds (VOCs) |
| -Radiochemistry | -Semi Volatile Organic Compounds (SVOCs) |

Analytical results showed that only Radium-226 and Strontium-90 exceeded either backgrounds or the U.S. EPA Region IX Preliminary Remediation Goals (PRGs). Refer to

reference 2 for more information on the analytical results of the trench waste and soil contents.

Several response action options were evaluated, and on May 16, 1996, the RPMs concurred with DOE proposal to remove and ship the contaminated trench waste to an approved off-site waste disposal facility.

2.1.2 Physical Location

The former LEHR site is located on a 15 acre land south of the main campus of the University of California, Davis. The site is surrounded by UC Davis property, private farmland and by the south fork of Putah Creek.

2.1.3 Site Characteristics

A detailed description of the LEHR site settings can be found in reference 1, listed at the end of this document. Below is a brief description of the waste matrix subject to this Action Memorandum.

For the purpose of cleanup, the inactive LEHR site is divided into six operable units. The time-critical action documented herein will be conducted in a disposal trench which is part of Operable Unit No. 1 (OU1). Recent trenching in the suspected waste disposal area confirmed the presence of elevated levels of radioactive waste as well as labware type containers. The exterior boundary of the disposal area consisted of metal revetment strips placed side by side to an approximate depth of 10 feet. The buried waste included radioactive gravel and plywood and discarded laboratory bottles, vials, and syringes.

2.1.4 Release into the Environment

Operation history, on-site trenching, and laboratory analyses indicated that radioactive materials including gravel and other radioactive solutions contained in small bottles, vials, and syringes were disposed of at the subject trench area. If not addressed, contaminants from these buried materials may potentially migrate downward and adversely effect the water quality of the shallow aquifer system. Additionally, the labware containers will most likely deteriorate and release contents into adjacent soils, and therefore, significantly increase the extent of soil contamination.

2.1.5 National Priorities List Status

The LEHR site was placed on the National Priorities List (NPL) in May 1994. A Federal Facilities Agreement (FFA) is being negotiated between DOE, the U.S. EPA and state environmental agencies.

2.1.6 Maps, Pictures, and other Graphic Representations

The site and disposal area locations are shown on Figures 1 and 2 respectively. A sketch of the disposal area sampling locations is shown as Figure 3. Additional maps and other illustrations can be found in references 3 and 4.

2.2 Site Action To Date

2.2.1 Previous Actions

Several previous removal actions were completed as part of the LEHR decontamination and decommissioning (D&D) program. These actions included removal of radioactive sources, demolition of contaminated facilities and D&D of four on-site buildings.

2.2.2 Current Actions

The LEHR site is conducting this removal action while completing the Remedial Investigation/Feasibility Study (RI/FS).

2.3 State and Local Authorities Roles

2.3.1 State and Local Actions To Date

The state is heavily involved in all aspects of the LEHR cleanup process. In addition to the US EPA, the site Remedial Project Managers team (which monitors, directs, and approves site cleanup progress) includes representatives from the California Department of Toxic Substance Control, California Regional Water Quality Control Board, and the California Department of Health Services (DHS) Radiological Branch.

2.3.2 Potential For State/Local Response

There are no state or local response actions anticipated. DOE will provide the necessary funds and support to complete remediation of the LEHR site areas under its responsibility.

3.0 THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

In accordance with the 1990 National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the following threats must be considered in determining the appropriateness of a removal action (40 CFR 300.15 (b) (2):

- (i) actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals, or food chains;
- (ii) actual or potential contamination of drinking water supplies or sensitive ecosystems;

- (iii) hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat or release;
- (iv) high levels of hazardous substances or pollutants of contaminants in soils largely at or near the surface, that may migrate;
- (v) weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;
- (vi) threat of fire or explosion; and
- (vii) other situations or factors that may pose threats to public health or welfare or the environment.

3.1 Threats To Public Health or Welfare

Subsection ii above, as related to public health or welfare, applies to the proposed action at the LEHR site, thus documenting conditions necessary for initiating a removal action.

(ii) Actual or Potential Contamination of Drinking Water Supplies or Sensitive Ecosystems

Beneficial users of the shallow (50-110 ft) aquifer system may be exposed to harmful contaminants if these contaminants are allowed to migrate from the trench waste and reach groundwater.

3.2 Threats To The Environment

If not removed, the labware containers will most likely deteriorate and release hazardous contents into adjacent soils, and therefore, significantly increase the extent of soil contamination

4.0 ENDANGERMENT DETERMINATION

Threatened releases of hazardous substances or pollutants from this site, if not addressed by implementing the response action selected in this Action Memorandum, will have the potential for causing an imminent and substantial endangerment to public health or welfare, or the environment.

5.0 PROPOSED ACTION AND ESTIMATED COST

5.1 Proposed Action

The proposed action consists of excavation, removal and packaging of contaminated trench waste for shipment to off-site (out-of-state) waste disposal facility in accordance with all applicable laws and regulations.

5.1.1 Proposed Action Description

Field activities for the implementation of this proposed action are summarized below. Detailed description of these activities can be found in references 3 and 4.

Work Plans and Site Preparation

Field activities will be conducted in accordance with an activity specific work plan and health and safety plan (reference 2). Health and safety considerations will include hazard analyses, radiological and chemical exposure protection, proper safety equipment, heat stress prevention, and air monitoring.

Site preparation will include proper designation and posting of work areas and obtaining underground utility clearance prior to excavation.

Trench Excavation

The first step of the excavation task is to remove the clean overburden material from the top of the disposal area followed by the removal of the first two to three feet of clean soil overlaying the waste matrix.

The second step is to remove the waste matrix which extends from a depth of about three feet below ground surface to a depth of about ten feet.

The final step is to over-excavate and remove approximately six inches of native soils at the bottom and from the internal walls of the open trench. The purpose of this step is to ensure that all potentially contaminated materials have been removed.

Waste Management

Once the waste is excavated to the surface, it will be placed at a pre-designated waste separation area. In this area, labware type materials (bottles, syringes, etc.) will be separated from gravel and other waste matrices. Following separation, the labware type waste will be placed in 55 gallon drums while contaminated gravel will be placed in B-25 steel boxes. An external radiological survey of each waste container will be performed and these containers, holding approximately 55 cubic yards of waste, will be transported to the DOE Hanford site for disposal.

Follow-up Sampling

After the waste matrix, steel revetments, and approximately six inches of native soil have been removed from the excavated trench, soil samples will be collected two to three feet from the bottom and along the sides of the excavation in the native soil. Grab samples will also be collected using the backhoe bucket at the appropriate location. Collected samples will be analyzed for Radium-226, Strontium-90, Gross Alpha, Gross Beta, and Gamma Spectrum. The purpose of the sampling is to determine if all contaminated materials have been removed

from the trench area. Following the collection of samples, temporary fencing will be placed around the open trench area until laboratory results from this sampling effort can be reviewed.

Trench Backfilling

Once the trench cleanup objectives are achieved and verified, all clean soils removed from the excavation process will be placed back into the open trench. Additional soil that may be required to backfill the excavated areas will come from either clean off-site soil or from soil previously removed from the Animal Hospital Buildings trenching activities and found to be essentially background. Backfill soil will be compacted with backhoe if possible, and mounded to prevent surface depressions.

Completion Report

At the completion of this removal activity, a brief activity report will be prepared. This report will include a brief description of work performed, and documentation of any deviation from the field work plan. The report will also include the results of the follow-up sampling activities. Copies of this report will be provided to the regulators and other stakeholders.

5.1.2 Contribution to Remedial Performance

The ongoing LEHR RI/FS includes characterization and evaluation of remedial actions for all operable units. This removal action does not preclude future remedial actions at the site trench areas and is consistent with the overall objectives of the site restoration program.

5.1.3 Description of Alternative Technologies

Among several alternatives, waste excavation and off-site disposal was selected. Other alternatives considered, but not selected, included soil washing and immobilization of contaminants. Because of the small volume of contaminated soils and the location of the trench area, the excavation and off-site disposal was determined to be superior to the other two alternatives.

5.1.4 Project Schedule

The excavation, removal, packaging and off-site shipment of the contaminated trench waste is scheduled to begin on August 5, 1996 and be completed by September 30, 1996.

5.2 Estimated Cost

Total estimated cost for this removal action, including off-site disposal cost is \$220,000.

5.3 Compliance With Applicable or Relevant and Appropriate Requirements (ARARs)

There is no discussion of both State and Federal ARARs since the Feasibility Study has not been completed. The proposed action however, is consistent with the overall objectives of the site cleanup.

6.0 EXPECTED CHANGE IN THE SITUATION IF ACTION IS DELAYED OR NOT TAKEN

Delayed action may increase the risk of contaminant spread and possible pollution of domestic groundwater resources.

7.0 OUTSTANDING POLICY ISSUES

None

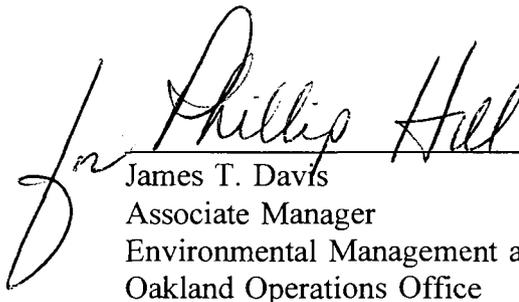
8.0 FEDERAL FACILITY AGREEMENT

A draft Federal Facility Agreement (FFA) has been prepared and is being discussed with the U.S. EPA and state agencies.

9.0 RECOMMENDATION

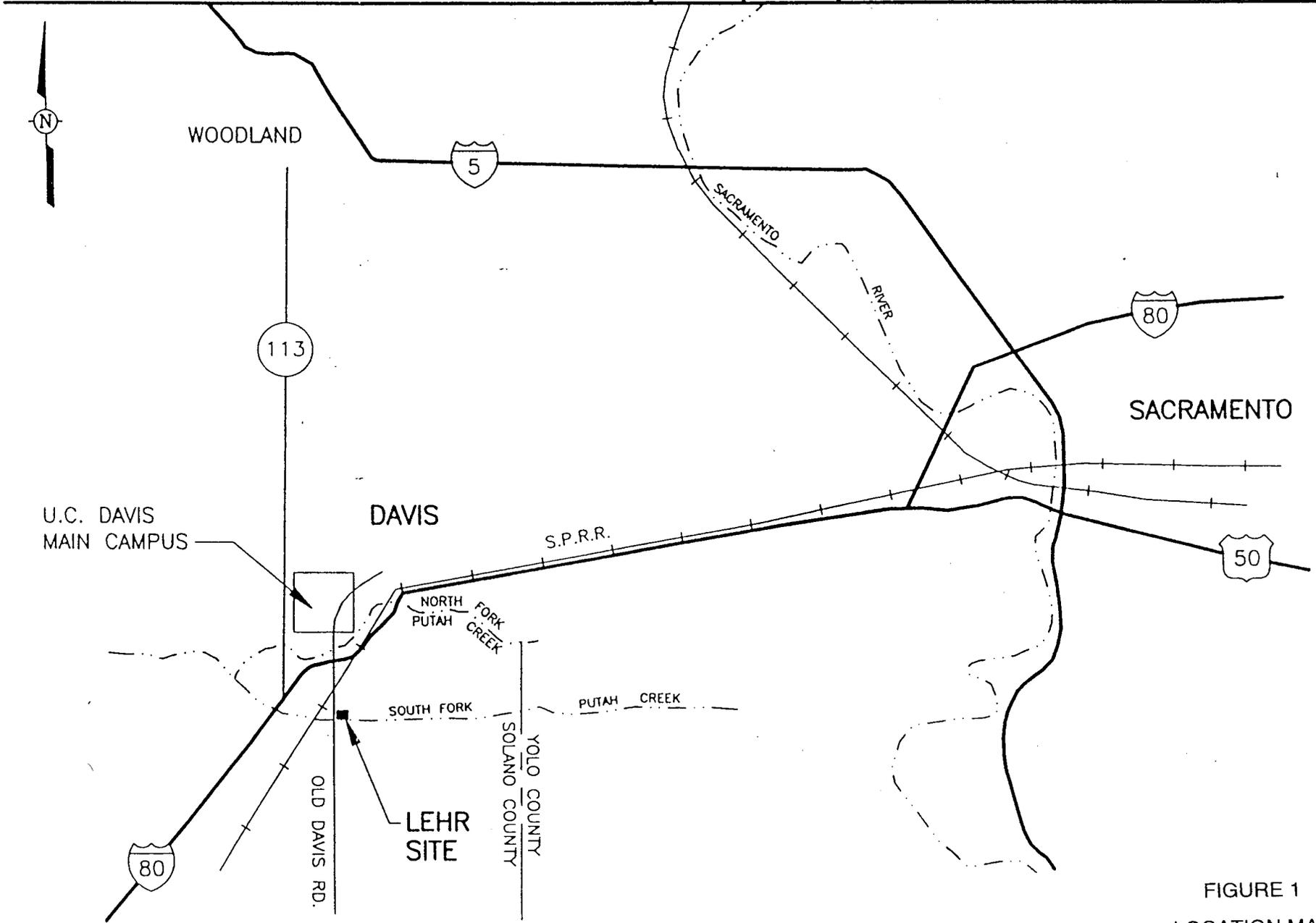
This decision document represents the selected removal action for part of OUI, at the former LEHR site, developed in accordance with CERCLA as amended, and is consistent with the National Contingency Plan (NCP). This decision is based on the administrative record for the site.

APPROVED

 Phillip Hill 7/12/96
James T. Davis Date
Associate Manager
Environmental Management and Support
Oakland Operations Office

REFERENCES

1. Draft Final Remedial Investigation/Feasibility Study (RI/FS), Laboratory for Energy-Related Health Research (LEHR). U.S. Department of Energy, September 1994.
2. Summary of Analyses, DOE Disposal Box Samples, March 1996.
3. Work Plan, DOE Disposal Box Excavation and Sampling, Laboratory for Energy-Related Health Research (LEHR), University of California at Davis. U.S. Department of Energy, September 1995.
4. Work Plan, DOE Disposal Box Area Excavation and Disposal, Laboratory for Energy-Related Health Research (LEHR), University of California at Davis. U.S. Department of Energy, May 1996.



NOT TO SCALE

FIGURE 1
 LOCATION MAP
 PREPARED FOR
 LEHR FACILITY
 DAVIS, CALIFORNIA

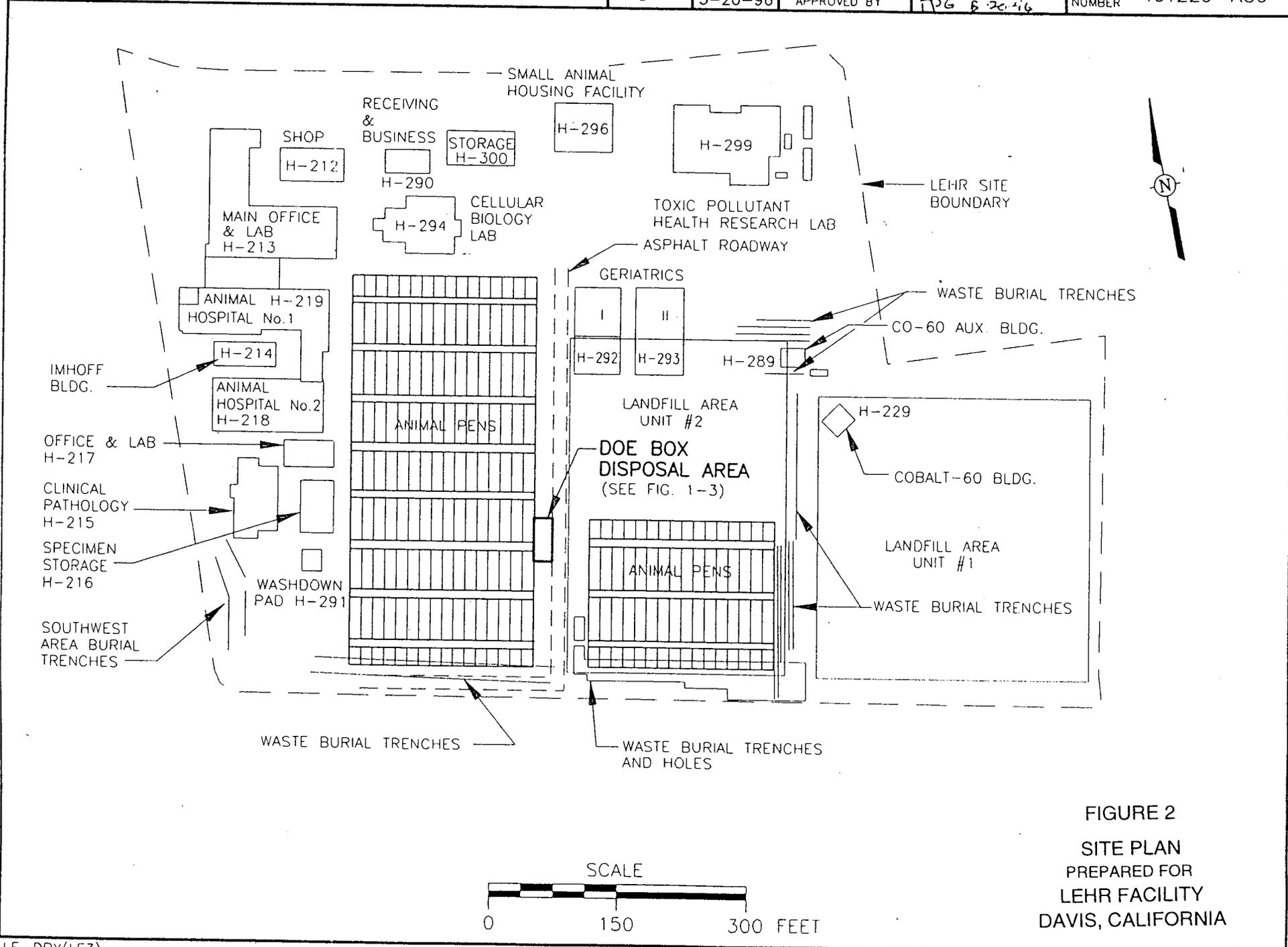


FIGURE 2
SITE PLAN
 PREPARED FOR
 LEHR FACILITY
 DAVIS, CALIFORNIA

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