Los Alamos Environmental Restoration Records Management Facility

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ENVIRONMENTAL RESTORATION
Records Processing Facility
ER Record Index Form
(Side 1 of 2)

Part I: Complete all fields; indicate if not applicable or appropriate; please write legibly.

DOCUMENT TO: —

DOCUMENT DATE: 01-20-59

ORIGINATOR NAME: Thomas L. Shipman

ORGANIZATION: H

SYMBOL: H-287

PAGE COUNT: 6

SUBJECT/TITLE: H-Division Progress Report January 20- February 20, 1959

RECORD TYPE (Circle relevant type for primary record; type of attachments should be selected on *Keywords List*):

Analytical Data	Excerpt	Map	Plan	Study
Article	FAX	Memo	Procedure	Summary
Chain-of-Custody	Figure	Microform	Purchase Request	Telephone Record
Chart	Form	Notebook	Receipt Acknowledgment	TOC
Computer Output	Interview	Outline	Report	Transcription
Contract	Letter	Personal Notes	Review	Video
Controlled Distribution	List	Photo	SOW	Work Plan
Drawing	Logbook			Other

RECORD CATEGORY: P
(P for Programmatic or R for Reference)

RECORD PACKAGE #: —

RECORD FILMED (Y/N): Y

RECORD LOCATION: —
(Indicate location of record if not filmed.)

Part II: Complete all fields; indicate if not applicable or appropriate; please write legibly. Use *ER Record Index Form Attachment Sheet* if needed.

ATTACHMENTS FILMED (Y/N): —
(Were attachments to this record filmed?)

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TECH AREA(S)	ADS NO(S)	WBS NO(S)	STRUCTURE NO(S)/MDA
LIST RELEVANT TECH AREA(S).	*LIST RELEVANT ADS NO(S).*	*LIST RELEVANT WBS NO(S).*	*LIST RELEVANT STRUCTURE NO(S)/MDA.*
—	1129	—	—

30819

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PRS NO(S)	DOCUMENT TO	ORIGINATOR NAMES
LIST RELEVANT PRS NO(S).	*LIST MULTIPLE RECIPIENTS.*	*LIST MULTIPLE ORIGINATORS.*

FILE FOLDER:

CORRECTION (Y/N):
(Is this a correction to a record previously processed?)

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CORRECTION DESCRIPTION (Optional):

SUPERCEDE: REPLACE: DELETE: ADD: REVISE:

ATTACHMENT LIST

KEYWORDS: Circle relevant KEYWORDS from the list below for ER Record #: 21538

MISCELLANEOUS (List other indexing criteria as necessary; please write legibly):
Subject File; Progress Report, OU 1129, Progress, Styrene, Trichloroethylene, Tolylene, diisocyanate, Phosphine

Abandon
Aboveground Tank
Absorption
Abstract
Accelerator
Access
Accident
Accumulation
Acid
Active
Administrative
ADS (Activity Data Sheet)
Adsorption
AEC (Atomic Energy Commission)
Aerial
Agenda
Agreement
Air
Alpha
Americium
Analysis
Analytical
AOC (Area of Concern)
Approval
Aquifer
ARAR (Applicable, Relevant, or Appropriate Requirements)
Archaeology
Archive
Area
Arsenic
Asbestos
Asphalt
Assessment
Audit

Backfill
Bacteria
Barium
Baseline
BCP (Baseline Change Proposal)
Beds
Bermed Area
Beryllium
Beta
Biology
Blank
Boiler
Boneyard
Bunker
Buried

Burn
Burn Site

Cadmium
Caisson
Calibration
Canyon
Capacitor
Caustic
CEARP (Comprehensive Environmental Assessment and Response Program)
Cement
CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)
Certification
Cesium
Chain of Custody
Chamber
Change Control
Change Order
Charge
Chart
Checklist
Chemical
Chromium
Cleanup
Clearance
Closure
Clothing
CMI/RA (Corrective Measures Implementation/Remedial Action)
CMS/FS (Corrective Measures Study/ Feasibility Study)
Cobalt
Comment
Committee
Community Relations
Compliance
Compressed Gas
Computer Modeling
Computer Output
Concern
Concrete
Concurrence
Configuration
Construction
Container
Containment

Contaminant
Contract
Control
Controlled Distribution
Core
Corrective Action
Correspondence
Criteria
Cyanide

Data
Deadline
Debris
Decision Analysis
Decommission
Decontamination
Deficiency
Deliverable
Demolition
Description
Detection
Detonation
Development
Discharge
Disposal
Documentation
DOE (Department of Energy)
Dose
DQO (Data Quality Objectives)
Draft
Drainage
Drainline
Drawing
Drilling
Drop Tower
Drum
Dry Well
Dump
Duplicates

Ecology
Effluent
EIS (Environmental Impact Statement)
Emission
Engineering
Environmental
EPA (Environmental Protection Agency)
Equipment

ERDA (Energy Research and Development Administration)
Erosion
Error
ES&H (Environment, Safety, and Health)
Estimate
Evacuation
Evaluation
Evaporator
Excavation
Exclusion
Exhaust
Experiment
Explosive
Exposure
Extension
Extraction

Facility
Fallout
Farm
FAX
Fence
Field
Figure
Filter
FIMAD (Facility for Information Management, Analysis, and Display)
Finding
Fire
Firing Site
Fiscal
Fission
Five-Year Plan
Flow
Flow chart
Fluid
Form
Framework
Free
Fuel
Fume

Gamma
Gas
Generation
Generic
Geochemistry
Geology
Geophysics
Glass Beaker

Glove Box
Graph
Guidance
Gun

Handling
Hazardous
Health
HE (High Explosive)
History
Hole
Home Owner
Hood
HSWA (Hazardous and Solid Waste Amendments)
Hydrology
Hygiene

Impact
Implementation
Implosion
Impoundment
Inactive
Incident
Incinerator
Industrial
Infiltration
Injection Well
Injury
Inorganic
Inspection
Installation
Interim
Interim Action
Internal
Interview
Inventory
Investigation
IRM (Interim Remedial Measure)
Isotope
IWP (Installation Work Plan)

Lab Job
Laboratory
Lagoon
Land
Landfill
Laundry
Leach
Lead
Leak
Legal

Letter
Limit
Lines
Liquid
List
Log
Logbook

Magazine
Management
Manhole
Map
Material
MDA (Material Disposal Area)
Media
Meeting
Memo
Mercury
Metal
Microform
Minimization
Minutes
MIS (Management Information System)
Mixed Waste
MOA (Memo of Agreement)
Model
Modification
Money (Allocation, Appropriation, Budget, Cost, Funding, etc.)
Monitoring
Monthly Report
Mortar Impact Area
MOU (Memo of Understanding)
MSA (Major System Acquisition)

NEPA (National Environmental Policy Act)
NFA (No Further Action)
Nitrate
NMED (New Mexico Environment Department)
NMEID (New Mexico Environmental Improvement Division)
NOD (Notice of Deficiency)
Nonexplosive
Notebook
Notification
NPDES (National Pollutant Discharge Elimination System)
NRC (Nuclear Regulatory Commission)
Nuclear

Observation
Off-gas
Oil
Open
Open Burning
Operation
Order
Organic
Organization
OSHA (Occupational Safety & Health Administration)
OU (Operable Unit)
Outfall
Outline

Pad
PA/RFA (Preliminary Assessment /RCRA Facility Assessment)
PCB (Polychlorinated Biphenyl)
Permit
Personal Notes
Personnel
Personnel Qualification
Photo
Pilot Study
Pipe
Pit
Plan
Plant
Plutonium
Pollution
Polonium
Polaroid
Potential
Presentation
Prevention
Priority
Procedure
Program
Programmatic
Project
Project Leader
Propellant
Property
Proposal
Protection
Protocol
PRS (Potential Release Site)
Public
Pump
Purchase Request

Quality
QA (Quality Assurance)
QP (Quality Procedure)
Quarterly Report

Radioactive
Radiochemistry
Radionuclide
Radium
Rationale
RCRA (Resource, Conservation, and Recovery Act)
Reactor
Receipt Acknowledgment
Recommendation
Reconnaissance
Records
Recovery
Recycle
Reduction
Reference
Regulation
Release
Remediation
Removal
Report
Request
Requirements
Research
Resin Bed
Resolution
Resource
Respirator
Response
Restoration
Restriction
Results
Review
Revision
RFI/RI (RCRA Facility Investigation/Remedial Investigation)
Risk
RPF (Records-Processing Facility)

Safety
Salamander
Salvage
Sample
Sampling Plan
Sanitary
Satellite
Schedule
Scope
Scrap
Scrap Detonation Site
Screening
Scrubber
Search
Security
Seep
Seminar
Semivolatile
Septic
Sewer
Shaft
Sheet
Shell
Shot
Silver
Site
Sludge
Soil
Solid
Solvent
SOP (Standard Operating Procedure)
SOW (Statement of Scope of Work)
Specific
Spill
Stack
Standard
Statistics
Steamline
Steel
Storage
Strontium
Structure
Study
Subcontractor
Subsurface
Summary
Sump
Support
Surface
Surveillance
Survey
Swipe
SWMU (Solid Waste Management Unit)
System

Table
Tank
Task
TCLP (Toxicity Characteristic Leaching Procedure)
TDD (Technical Document Description)
Technical
Technical Team
Technology
Telephone Record
Test Area
Testing
TLD (Thermoluminescent Dosimeter)
TOC (Table of Contents)
Townsite
Toxic
Tracking
Training
Transcription
Transfer
Transformer
Transport
Treatment
Trench
Trip Report
Tritium
TRU (Transuranic)
TSCA (Toxic Substances Control Act)
Tuballoy
Tuff

Underground
Uranium
Urine
USGS (United States Geological Survey)
UST (Underground Storage Tank)
Utility

Validation
Variance
VE (Value Engineering)
Ventilation
Verification
Video
Volatile
Volume

Warehouse
Waste
Water
WBS (Work Breakdown Structure)
Weapon
Well
Work
Working Group

Zinc

TI-1 104

(4)

H-DIVISION PROGRESS REPORT
January 20 - February 20, 1959

H 187

Class:
H-DO - U
H-1 - CRD
H-3 - U
H-5 - U
H-6 - OUO
H-7 - U

I. ADMINISTRATION (Thomas L. Shipman, M.D., Leader)

A. General

The period covered by this month's report has been one of unusual activity in the Health Division, and in addition to more or less normal and routine operations the following subjects drew particular attention:

1. Dosimetry studies on the fatal accident case of December 30, 1958. It now becomes apparent that the principal cause of death in this case was primarily radiation injury to the heart muscle itself. This was simply one of the individual peculiarities of this particular case. It is perfectly clear, however, that had this particular injury not existed the victim of the accident would almost certainly have died within a matter of hours of perfectly typical central nervous system damage. We are waiting with considerable interest the results of the assays of various tissues for plutonium content. The victim of the accident was known previously to have absorbed gradually and over a period of years approximately half a permissible body burden of plutonium. This case gives the first opportunity to determine whether or not the deposition of plutonium in the body behaves as we have thought it does during the past fifteen years.

2. Careful preparations were made to insure safety for all personnel in connection with the coming criticality of LAPRE II. This involved drawing up a series of specific rules to be followed in the event of any untoward happening.

3. The IBM compilation of radiation exposures for all Los Alamos personnel for calendar year 1958 has been completed and is presently under consideration.

4. Preparations for all H-Division activities in connection with the operation of KIWI A are virtually completed. It is felt very definitely that the coverage will be sufficiently complete to evaluate the degree of hazard to operating personnel within the remainder of the proving ground and in offsite areas. Calculations have been made which indicate that

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II. GROUP H-1, MONITORING (Dean D. Meyer, Leader)

A. General

1. Jerome Dummer was assigned to NTS from January 19 to 29.

2. Ray Pederson returned from NTS on February 4 for a two-week period and returned to that site on February 18.

3. Carl Buckland attended a one day traffic transportation meeting in Albuquerque on February 2. The discussion was confined to the regulations pertaining to the shipment of radioactive materials.

B. Incidents

1. On January 24 a contaminated incident occurred at the CMB-6 Press Building during deep drawing operations with D-38 uranium. At 3:00 P.M. it was found that an oven had overheated forming a thick coating of oxide on the surfaces of three large uranium pieces. The discs were removed from the oven and placed in a quench tank. An abundance of steam and vapor from the quench water carried oxide to higher elevation horizontal surfaces such as beams. ORNL personnel were performing the work. The oven read 4000 c/m and the floor in front of the press 18,000 c/m before contamination. The majority of the floor contamination was confined to the paper floor covering and was therefore readily removed. Fortunately all personnel were wearing respirators because the highest air count was 655 c/m-M^3 near the quench tank. All of the urinalyses results were zero.

2. On February 16, during a routine monitoring survey of HRL lab coats, an alpha count of 10,000 c/m was detected on one coat. It was found after further investigation that approximately one month previous to the 16th a member of H-4 had processed and injected some animals with either thorium or ionium. Up to 20,000 c/m was detected in the animal quarters bench area and the hood of Room [illegible] at HRL Bldg. The areas were successfully decontaminated by H-1 and H-4. As far as can be determined, no radioactive material was spread or carried beyond the immediate environs of Rooms 137 and 247.

C. Special Monitoring

1. The experimental reactor LAPRE 11 began a series of subcritical tests the week of February 16. On Tuesday, February 17, a 100 curie lanthanum source was added to the fuel solution to serve as a source for detecting the liquid level in the reactor. As the experiments progressed, difficulty was encountered with the scintillator (NaI) detector which was not effectively shielded from neutron radiation. On February 19 the reactor was critical to a few watts power and at this time the

5. A member of the Safety Office met with J-7 and discussed the type of hydrogen detectors that are needed at NTS.

6. Roy Reider met with representatives of W-7 to work out problems involving a very high pressure cell at TA-41.

7. Several meetings were held to discuss construction and fire protection of a proposed new warehouse for storage of J-Division electronic gear.

IV. INDUSTRIAL HYGIENE GROUP, H-5 (Harry F. Schulte, Leader)

A. Evaluation and Control Work

1. Beryllium

A large number of beryllium air samples and surface swipe tests were made during this period in the Beryllium Shop and in Groups P-15, N-2, GMX-3, and during a shot at R Site. No concentrations above the maximum permissible level were found in any case. The program of picking up beryllium metal and its compounds at all sites where it has not been used for several years is being continued.

2. Styrene

At the request of Group P-2 and the Zia Paint Section, an evaluation was made of protective requirements for personnel working with a "Liquid File" which was to be applied to a newly constructed pit in the Omega West reactor room. Since it was desired to keep the reactor working, protection of adjacent personnel as well as those applying the material was required. An analysis was made of the solvent and it was found to be principally styrene. Several methods of air sampling were devised and calibrated in the gas chamber against known concentrations of styrene before being used in the field. During the 5-day operation at least one Field Section man stayed on the job continuously supervising the supplied air system, checking the ventilation, and collecting air samples in the working area. A blower was installed immediately outside the building with an exhaust duct extending to the bottom of the pit. Air concentrations reached 500 ppm in the pit but they were kept below 100 ppm outside the pit. This is an excellent example of the type of industrial hygiene service which can be rendered when adequate notice of the operations is given and all necessary facilities can be applied to a specific job.

3. Trichloroethylene (TCE)

Investigations were made of complaints from the Lithograph Section of Group D-8 and from operators at TA-46 where TCE vapors were involved. Urine analysis indicated that exposures at TA-46 were minimal but were quite appreciable in the Lithograph Section. A study of the cleanup operation showed excessive

concentrations of TCE and additional air samples will be collected to evaluate the level during routine operations. A ventilation study is being made and improvements will be recommended to control this exposure.

4. Tolylene diisocyanate (TDI)

Four air samples were collected for TDI in Building 306 at S Site; none of these showed exposures above permissible levels.

5. Phosphine

Group CMF-5 has prepared some phosphine and plans to do further work with this material. Special detectors and analytical methods are being investigated for this extremely toxic material.

6. Toxicity Information

Inquiries have been received regarding the possible toxicity of mononitromethane, sulfur dioxide, PETN, mercury and niobium carbonyl. The hazards of niobium carbonyl are currently being investigated and plans are being made to work closely with Group CMB-3 whenever this material is received.

7. Ventilation

Conferences have been held with Engineering Division and with groups involved to discuss ventilation and air cleaning problems in the following areas: a) new Wing 9, CM Bldg.; b) ozalid machines at TD Site, R Site and the Administration Bldg.; c) LAPRE I at Ten Site; d) new Powder-Metallurgy Building of Group CMB-6; e) new basement laboratories in Wing 5 of CM Bldg.; f) a lamp-black conveying system for Sigma Bldg.; g) machine installations for the new Sigma Building.

The last problem above involved meetings with ENG-2, CMB-[illegible], the Shops Department, and H-5 to decide on a method to be used to control graphite dust in the graphite machine shop of the new Sigma Building. It was felt by the Shops Department that the original plan of using hollow tools with a local exhaust system would be extremely expensive. Possible alternatives are being investigated by Group ENG-2.

Hood surveys have been made on all hoods in HRL Building; ventilation inspections have been made of welding and soldering hoods in 18 shops throughout the project.

B. Research and Development

1. Preparations for the fallout study program for Kiwi A have now been completed. All the necessary supplies and equipment have been shipped to the Nevada Test Site where they have been calibrated and checked out operationally. Preparation and checking of the necessary counting standards have been completed and all

organism with which to degrade TNT has been repeated. In each case positive degradation has been observed.

3. Project 460

Tile Field Installation, NTS, Jackass Flats. During the period February 9 through 21 a representative of H-7 and one from the U. S. Geological Survey, Albuquerque Office, were at NTS to complete installations for washdown measurements from the MAD Building.

Porous cups were installed at four different depths under each control tile in each of the three caissons for a total of 24 sampling points. Back filling and solid wood shoring was completed in all caissons to prevent future caving. Vacuum tubing and three pumps were installed and tap water introduced to the two control tile lines to determine if water samples could be obtained with this vacuum system. By admitting 5000 gallons of water to each tile line, samples were obtained in 21 of the 24 cups in place.

One caisson of the three installed filled to a five inch depth with water. This particular unit has a cemented stratum at the floor level, apparently trapping water in the gravel layer above. To use this caisson when washdown wastes are introduced, a small pump will be installed or a hole bored through the cemented layer to the gravel below.

All vertical test holes in the tile field were surveyed for beta-gamma background. They were also logged for strata formation and for activity background by a mobile logging probe furnished by the U. S. Geological Survey.

Drilling equipment furnished by the USGS was available for only three days. During this time four holes were drilled, the deepest being 48 ft. Plans were made for a test hole to be drilled using bentonite clay or driller's mud. If this method is successful, 4 fifty-foot test holes will be installed to be used for long term deep activity penetration studies.

Water was kept for six days in a leaching pit which had been used previously in the tile field area. Moisture determinations were made periodically from ground level to a seven foot depth at six inch intervals. Moisture data obtained from this pit indicate an apparent 25-30 per cent saturation of the gravel layers with the cemented layers at 12-18 per cent saturation.

With the equipment and information on hand we should be able to determine the moisture and activity movement in the tile field through the soil layers and selectivity of the soil layers for specific isotopes in the washdown water. If the 50 foot test holes can be installed, deeper activity penetration can be measured

over a long range period providing there is sufficient activity of long-lived isotopes present.

4. Hot Cell Wastes

Additional conferences have been held with CMB-7 and ENG-1 personnel on the treatment of the wastes from the new Hot Cell for the CMB-F Building. Apparently the volume of waste will be much higher than was anticipated. For this reason it will be necessary to truck the accumulated wastes from the cell to a treatment facility at TA-35. The trucking should present no great problem and it is felt that the treatment facilities at Ten Site will be adequate to care for these wastes.

C. Visitors

On January 24 a group of 40 Boy Scouts, under the supervision of Ellis Stout, visited TA-45 as a part of the requirement for the Safety Merit Badge.

D. Miscellaneous

The Group Leader attended the JCAE Public Hearings on Radioactive Waste Disposal January 28 to February 1. He also visited ORNL on February 4 and 5.

March 6, 1959

T. L. SHIPMAN, M.D.,
Health Division Leader

cIA - H-Div. Files (following circulation to H-Div. Group Leaders)