

NRC License SMB 1393

Renewal Application

8603130328 860226  
PDR ADOCK 04008778  
C PDR

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## APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

### FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION  
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS  
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND,  
MASSACHUSETTS, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND,  
OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
NUCLEAR MATERIAL SECTION B  
631 PARK AVENUE  
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA,  
PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR  
WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II  
MATERIAL RADIATION PROTECTION SECTION  
101 MARIETTA STREET, SUITE 2900  
ATLANTA, GA 30323

### IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR  
WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III  
MATERIALS LICENSING SECTION  
799 ROOSEVELT ROAD  
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA,  
NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH,  
OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
MATERIAL RADIATION PROTECTION SECTION  
611 RYAN PLAZA DRIVE, SUITE 1000  
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON,  
AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS  
TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V  
MATERIAL RADIATION PROTECTION SECTION  
1450 MARIA LANE, SUITE 210  
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

### 1. THIS IS AN APPLICATION FOR (Check appropriate item):

☐ A. NEW LICENSE

☐ B. AMENDMENT TO LICENSE NUMBER \_\_\_\_\_

☒ C. RENEWAL OF LICENSE NUMBER SMB-1393

### 2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)

Molycorp, Inc.  
1201 West 5th Street  
Los Angeles, CA 90017  
(corp. offices)

### 3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED:

Molycorp, Inc.  
Caldwell and Green Sts.  
Washington, PA 15301

### 4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

George W. Dawes, Environmental & Safety Engineer

### TELEPHONE NUMBER

412-222-5605

SUBMIT ITEMS 5 THROUGH 11 ON 8 1/2 x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

### 5. RADIOACTIVE MATERIAL

a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.

### 6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

### 7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.

### 8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

### 9. FACILITIES AND EQUIPMENT.

### 10. RADIATION SAFETY PROGRAM.

### 11. WASTE MANAGEMENT.

### 12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

### FEE CATEGORY

AMOUNT  
ENCLOSED \$

### 13. CERTIFICATION (Must be completed by applicant): THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

### SIGNATURE—CERTIFYING OFFICER

### TYPED/PRINTED NAME

### TITLE

### DATE

Lars J. Hansen LARS J HANSEN Plant Superintendent 2/26/86

### A. ANNUAL RECEIPTS

|             |           |
|-------------|-----------|
| <\$250K     | \$1M-3.5M |
| \$250K-500K | \$3.5M-7M |
| \$500K-750K | \$7M-10M  |
| \$750K-1M   | >\$10M    |

### B. NUMBER OF EMPLOYEES (Total for entire facility excluding outside contractors)

### C. NUMBER OF BEDS

d. WOULD YOU BE WILLING TO FURNISH COST INFORMATION (Dollars and/or staff hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? (NRC regulations permit it to protect confidential commercial or financial—proprietary—information furnished to the agency in confidence)

☐ YES

☐ NO

### FOR NRC USE ONLY

|                 |              |              |          |             |
|-----------------|--------------|--------------|----------|-------------|
| TYPE OF FEE     | FEE LOG      | FEE CATEGORY | COMMENTS | APPROVED BY |
| AMOUNT RECEIVED | CHECK NUMBER |              |          | DATE        |

CHAPTER 1. STANDARD CONDITIONS AND SPECIAL AUTHORIZATIONS

1.1, 1.2, 1.3 See form 313

1.4 POSSESSION LIMITS

Natural thorium, mass no. 90, physical form: slag; maximum amount estimated at  $8.84 \times 10^4$  kg. Note: As part of a decontamination and decommission plan a more definitive calculation will be provided. This submission is an estimate without the benefit of more detailed pre decontamination and decommission testing.

1.5 AUTHORIZED ACTIVITIES

The license material was processed at this site over 15-20 years ago and is no longer processed. Part of the license material is being stored as described here -in and the additional retrieval per approved decontamination and decommission plan will also be stored in a similar manner. The license material will not be used in any processing at this site.

1.6 EXEMPTIONS AND SPECIAL AUTHORIZATIONS

Does not apply.

## CHAPTER 2. GENERAL ORGANIZATIONAL AND ADMINISTRATIVE REQUIREMENTS

### 2.1 ORGANIZATIONAL RESPONSIBILITIES AND AUTHORITY

The Radiation Safety Officer (RSO) has the responsibility and authority to maintain a safe operating facility. The RSO will supervise the safety of all Molycorp, Inc. personnel at the plant site. The enclosed organization chart attachment IV shows the lines of authority.

The RSO has the authority to shutdown any plant site operations which he believes threatens the health or safety of personnel or the public.

### 2.2 PERSONNEL EDUCATION AND EXPERIENCE REQUIREMENTS

A 24-hour radiological safety orientation course has been given to the selected supervisory, safety personnel (with a minimum of (2) years industry technical experience) of Molycorp, Inc. Attachment I. contains a typical outline that has been used by Applied Health Physics Inc. in training Radiation Safety Officers.

George Dawes has been given the responsibility and authority to serve as Radiation Safety Officer. Any changes by Molycorp in Radiation Safety Officer will have similar qualifications. George Dawes resume is enclosed as Attachment II. In his absence George Dawes will designate a competent individual to serve as Radiation Safety Officer.

### 2.3 ALARA POLICY

Molycorp, Inc. has a strong commitment to ensure that exposures to radiation will be maintained "as low as reasonably achievable" (ALARA). This policy will be implemented by maintaining licensed material in a restricted area under supervision of the Radiation Safety Officer. See item 3.8 for a description of this containment area. All retrieval of additional contaminated material will be performed under NRC approved ALARA guidelines by Applied Health Physics personnel. No Molycorp, Inc. personnel, except the RSO as a coordinator, will participate in any proposed material retrieval.

2.4 SAFETY REVIEW COMMITTEE

A quarterly audit of the Molycorp, Inc. Radiation Safety Program (see attachment III) will be conducted quarterly by Applied Health Physics. Reports will be distributed to management and maintained on file.

2.5 TRAINING

See item 2.2 and Attachment III, (RSO Operating Manual) for Molycorp, Inc. training program.

2.6 PROCEDURES

The Molycorp, Inc. RSO will conduct a weekly physical inspection of the restricted area containing the licensed material checking the integrity of the pile cover, fence and signs. These procedures are reviewed quarterly during the Applied Health Physics audit.

Molycorp, Inc. does not have any provisions for unplanned activities since the the licensed material is not being used in plant production nor handled by employees.

2.7 AUDITS AND INSPECTIONS

The Molycorp, Inc. RSO conducts weekly storage pile inspections as described in item 2.6 and Applied Health Physics conducts quarterly audits of all radiological safety programs and procedures. Reports are copied to management and kept on file.

2.8 RECORDS

See part C RECORDS attachment III RSO Operating Manual.

### CHAPTER 3. RADIATION PROTECTION

#### 3.1 RESTRICTED AREAS - ACCESS CONTROL

1. Posting and labeling: Signs are posted to inform potential intruders of radiation.
2. The restricted area is fenced with 6' high cyclone fence with three strands of barb wire as a means of controlling access.
3. Protective clothing is not required since employees do not handle licensed material.
4. Personnel cleanup provisions are not required since Molycorp employees do not handle licensed material.
5. Plant equipment does not handle or process licensed material.

#### 3.2 RADIOACTIVITY MEASUREMENT INSTRUMENTATION

Instrumentation used and stored at Molycorp, Inc. include:

- A. (1) Dosimeter Model 3700.
- B. (1) Bicron, Micro Analyst.
- C. Numerous other instruments are available on loan from Applied Health Physics, Bethal Park, PA.

All radiation instrumentation is calibrated and serviced by, Applied Health Physics as required. Calibration is performed using radiation sources standardized by or traceable to U.S. National Bureau of Standards by Applied Health Physics per NRC License #37-09135-01.

#### 3.3 OCCUPATIONAL EXPOSURE CONTROL

Since no material is handled or used in processing at this site, this does not apply.

#### 3.4 VENTILATION

Since no material is handled or used in processing at this site, this does not apply.

#### 3.5 WORK-AREA AIR SAMPLING

Since no material is handled or used in processing at this site, this does not apply.



CHAPTERS 4 & 5 ENVIRONMENTAL PROTECTION AND DECOMMISSIONING PLAN

A cleanup for retrieval of additional radioactive material initially identified by ORAU's report of June 1985 will be submitted by June 1, 1986 for NRC approval. The following is a schedule for completion of plan:

- Phase 1. Confirmation of ORAU findings plus more comprehensive plant site surveys including soil and water analysis to more accurately quantify potential contamination and verify ORAU's results. A progress report will be submitted May 1, 1986. A meeting with the NRC will be held as soon as possible after submittal, if required.
- Phase 2. Decontamination test boring and pilot procedures to verify decontamination and decommission methods. Progress report submitted by July 1, 1986. A meeting with the NRC will be held as soon as possible after submittal, if required.
- Phase 3. Engineering design of proposed decontamination and decommissioning methods, including quality control procedures and NRC verification. Complete plan submitted by September 1, 1986. A meeting with the NRC to follow.

In the event unexpected difficulties are encountered during any of the above phases, the scheduled completion dates may slip. The NRC will be notified as soon as possible both verbally and in writing by the Molycorp RSO or Applied Health Physics.



CHAPTER 6. SAFETY DEMONSTRATION

6.1 EDUCATION AND EXPERIENCE OF KEY PERSONNEL

See Chapter 2, section 2.2 and Attachment II.

6.2 PROCESS DESCRIPTION

No source material has been processed at this site for at least 15 years. Therefore the current plant processes do not handle licensed material.

6.3 RADIATION PROTECTION

All pertinent information has been included in Chapter 3 and Attachment III, RSO Operating Manual.

## CHAPTER 7. PERFORMANCE DEMONSTRATION

### 7.1 LICENSE HISTORY

In 1963 Molycorp applied for its NRC license in order to process Columbian ores containing 1-2% Thorium as an unwanted contaminant. The original license (SMB 744) was issued 12/19/63. Amendments were added in 1965 and 66.

The license was renewed in 12/66 and amended on 11/67. The next renewal was in 4/77.

The license was amended in 1981 and the amending resulted in renewal and issuance of the current license #SMB 1393. This is the renewal of that license.

### 7.2 EXPOSURE HISTORY

No history available. No source material has been processed in at least 15 years.

RSO OUTLINE AND SCHEDULEMONDAY

|                  | <u>Lecture #</u> | <u>Topics</u>  |
|------------------|------------------|--|
| 8:30-10:00 a.m.  |                  | Introductions, descriptions of course, and distribution of training materials.     |
| 10:00-11:00 a.m. | 1                | Natural Radioactivity & Environmental Sources of Radiation                         |
| 11:00-12:00 p.m. | 2                | Applications of Radiation and Radioactivity  |
| 12:00-1:00 p.m.  |                  | LUNCH  |
| 1:00-2:00 p.m.   | 3 & 4            | History of Adverse Effects of Radiation and the Philosophy of Radiation Control    |
| 2:00-3:00 p.m.   | 5                | Safety Standards and Regulatory Control of Ionizing Radiation                      |
| 3:00-3:30 p.m.   |                  | COKE BREAK   |
| 3:30-4:30 p.m.   | 6                | Units, Terms and Definitions & Organizing and Operating Radiation Safety Programs  |
| 4:30-5:00 p.m.   |                  | Review and Discussion<br>Schedule private review of your radiation safety program. |

TUESDAY

|                  |    |   |
|------------------|----|---|
| 8:00-8:30 a.m.   |    | QUIZ #1   |
| 8:30-9:00 a.m.   |    | Videotape #1 - "A is for Atom"                    |
| 9:00-10:30 a.m.  | 7  | Atomic and Nuclear Structures and Radioactivity   |
| 10:30-10:45 a.m. |    | COFFEE OR TEA BREAK                               |
| 10:45-12:00 p.m. | 8  | Radioactivity and Ionizing Radiation              |
| 12:00-1:00 p.m.  |    | LUNCH   |
| 1:00-2:30 p.m.   | 9  | Interaction of Radiation with Matter              |
| 2:30-2:45 p.m.   |    | COKE BREAK  |
| 2:45-5:00 p.m.   | 11 | Radiation Shielding and Use of Inverse Square Law |

RSO COURSE OUTLINE AND SCHEDULE

WEDNESDAY

|                  | <u>Lecture #</u> | <u>Topics</u>   |
|------------------|------------------|---|
| 8:30-9:00 a.m.   |                  | Quiz #2   |
| 9:00-10:30 a.m.  | 10               | Instrumentation for the Detection and Measurement of Ionizing Radiation |
| 10:30-10:45 a.m. |                  | COFFEE OR TEA BREAK   |
| 10:45-12:00 p.m. | 12               | Biological Effects of External Radiation                                |
| 12:00-1:00 p.m.  | 13               | Biological Effects of Internal Radiation                                |
| 1:00-2:00 p.m.   |                  | LUNCH   |
| 2:00-3:15 p.m.   | 15               | Personnel Monitoring  |
| 3:15-4:30 p.m.   | 16               | Audit, Evaluation & Control of Radiation Risks                          |
| 4:30-5:00 p.m.   |                  | Video Tapes   |

THURSDAY

|                  |     |  |
|------------------|-----|--|
| 8:30-9:00 a.m.   |     | Quiz #3  |
| 9:00-10:30 a.m.  | 17  | Documentation and Effective Management of a Radiation Safety Program |
| 10:30-10:45 a.m. |     | COFFEE OR TEA BREAK  |
| 10:45-12:00 p.m. | 18  | Management of Emergencies, Incidents & Crises                        |
| 12:00-1:00 p.m.  |     | LUNCH  |
| 1:00-2:00 p.m.   | 19  | Packaging, Transporting & Disposing Radioactive Materials            |
| 2:00-2:15 p.m.   |     | COKE BREAK   |
| 2:15-3:15 p.m.   |     | Introduction to Nonionizing Radiation                                |
| 3:15-5:00 p.m.   | 20A | Optical Radiation  |

ATTACHMENT II

RESUME

George W. Dawes

EDUCATION

High School: Pittsburgh Central Catholic (1965)  
Fifth Avenue  
Pittsburgh, PA 15200

College: Point Park College  
Wood St. & Blvd. of the Allies  
Pittsburgh, PA 15200  
1965-1968 -- 1971-1972

Degree: B. S. Chemistry  
QPA - Overall 2.5 (4)  
Major 2.95(4)

EXPERIENCE March 1969-December 1970

Worked at Westinghouse Electric Corporation, Atomic Fuels Division Cheswick, PA, as a Lab Technician. Main duties involved: Wet chemical and instrumental analysis of nuclear fuels. Analysis of  $U_3O_8$  and  $PuO_2$  pellets for  $H_2O$ , C, N, U, O/M and Alpha and Gamma counting.

January 1973-June 1975

Molycorp, Inc. Supervising solvent extraction operation for recovery of Molybdenum and Rhenium from spent Sulfuric Acid.

June 1975-January 1979

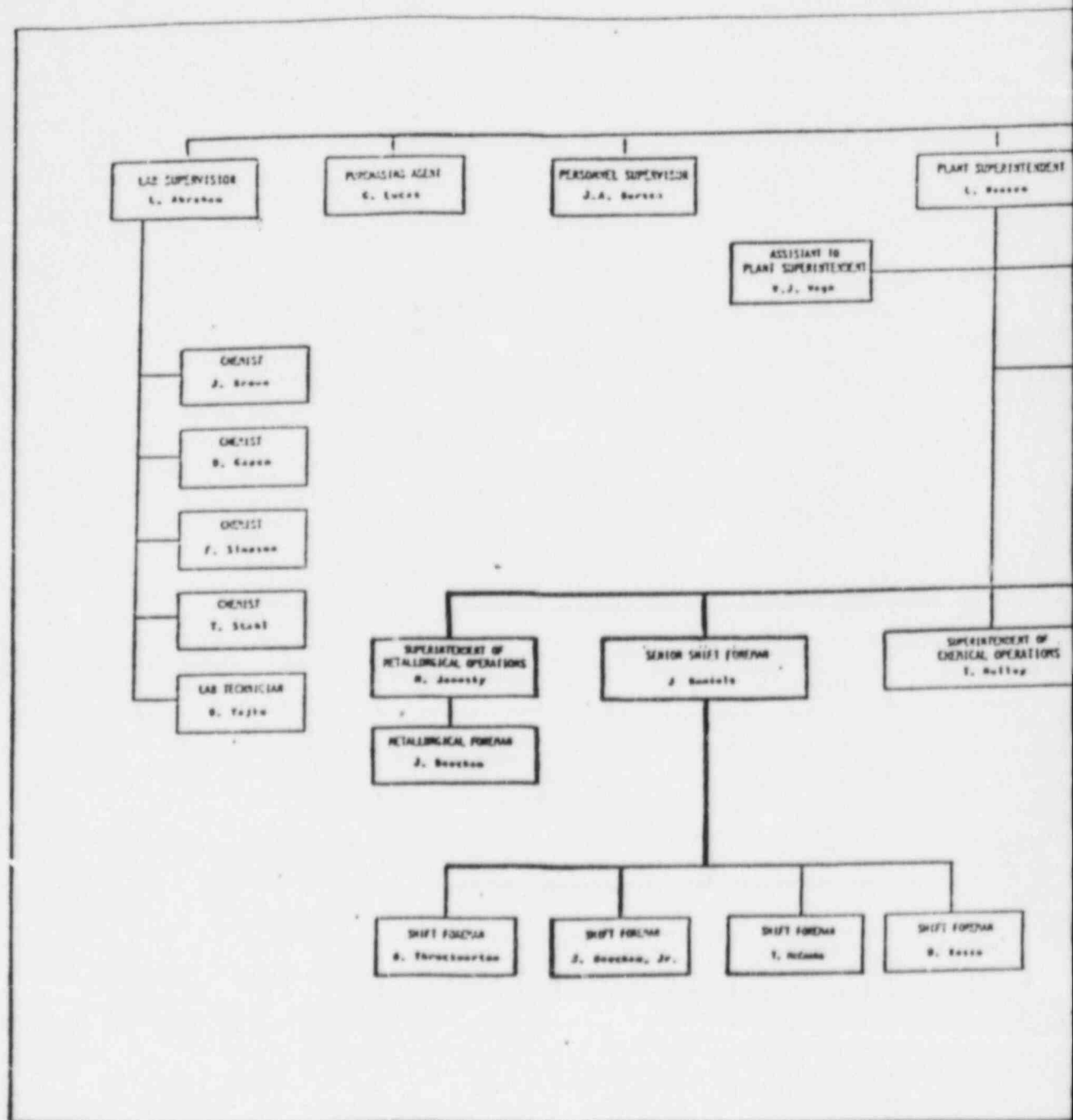
Assumed additional responsibility to supervise chemical operation producing high purity Ammonium Molybdate.

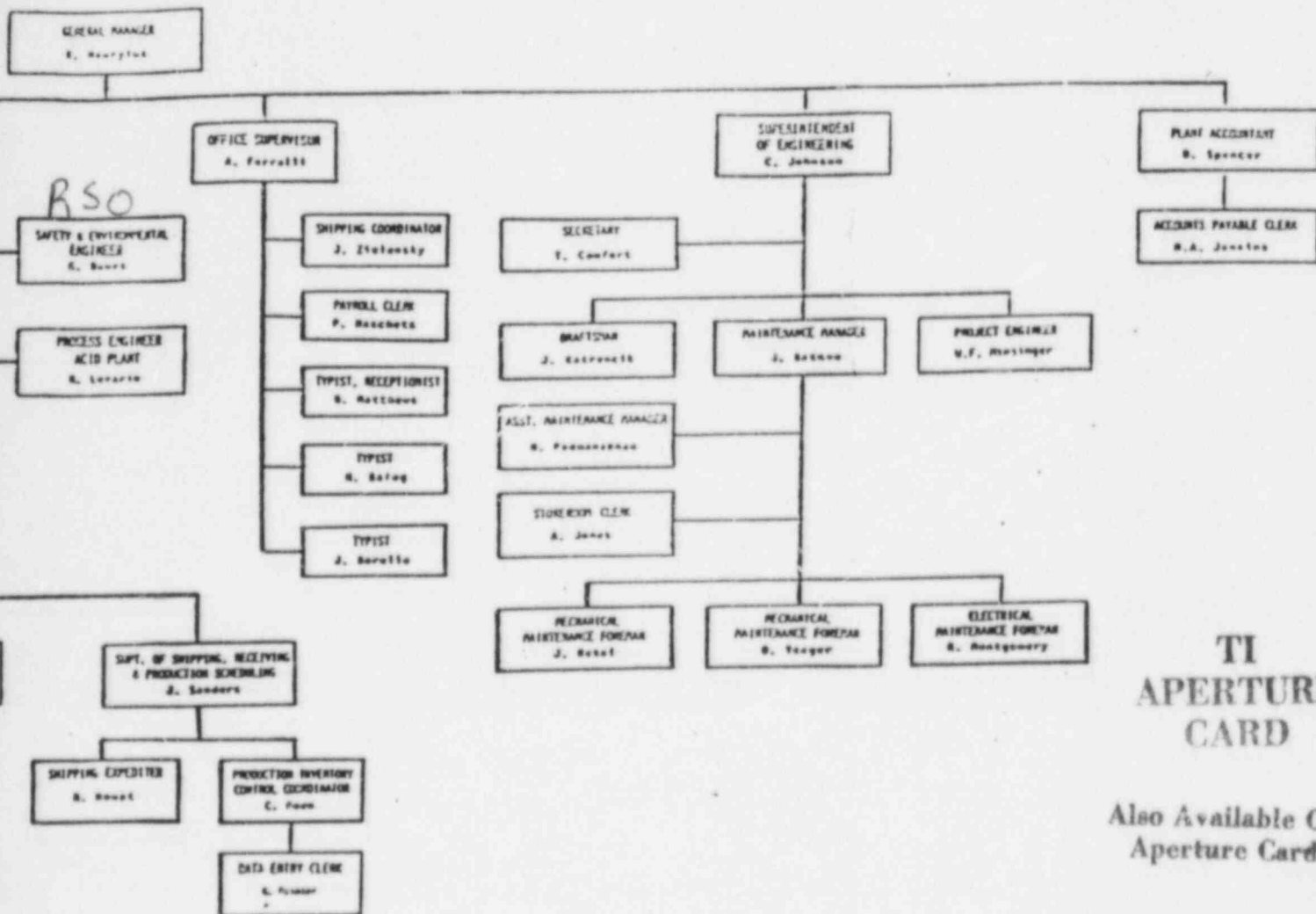
January 1979-January 1980

Chemical operation for Ammonium Molybdate discontinued. Continued with solvent extraction and worked with R&D group on Misch Metal cell and Samarium production.

January 1980-to present

Transferred to administrative staff with position of Environmental and Safety Engineer and RSO. Took required RSO training course March 1980 at Applied Health Physics, Bethal Park, PA.





TI  
APERTURE  
CARD

Also Available On  
Aperture Card

Salary Personnel Organization Chart 1/13/86

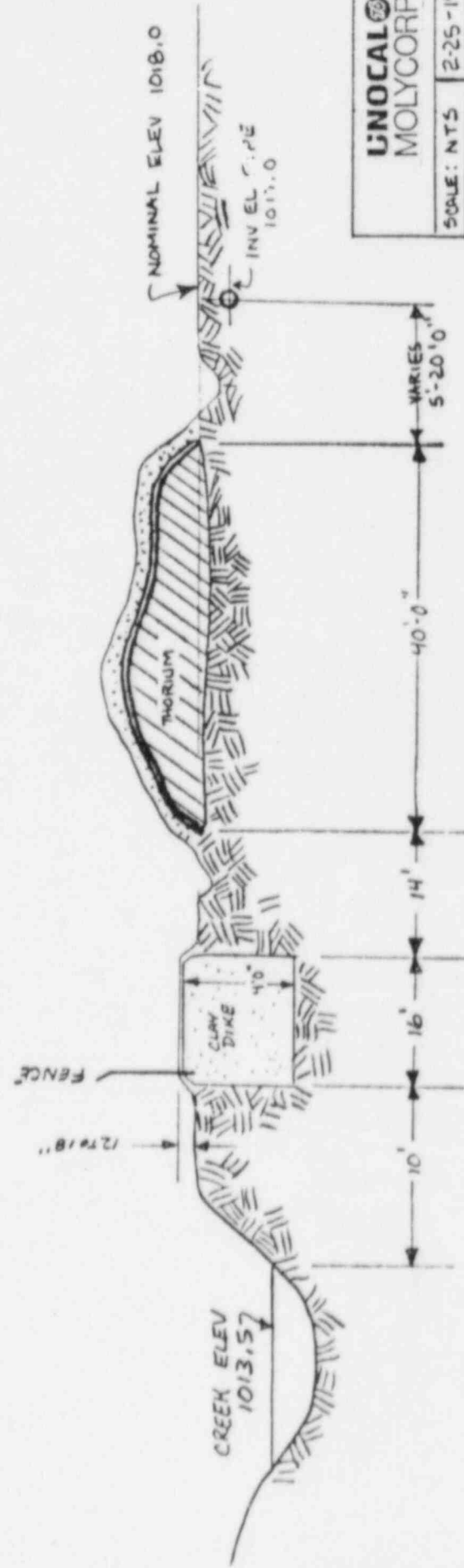
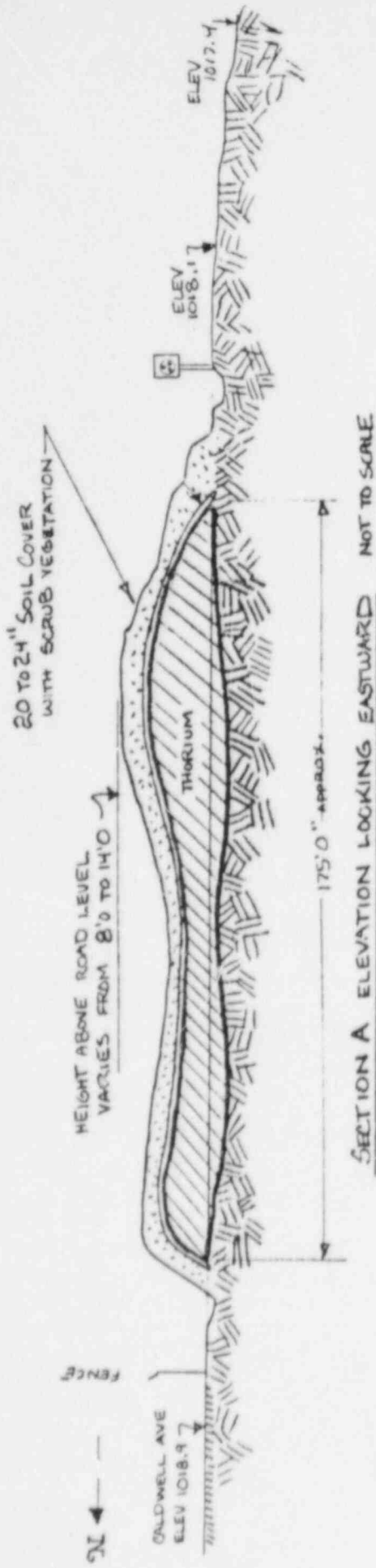
UNOCAL<sup>®</sup>  
MOLYCORP

P. O. BOX 500, CALDWELL, IVE & GREEN ST., WASHINGTON, PA. 15351

Attachment IV

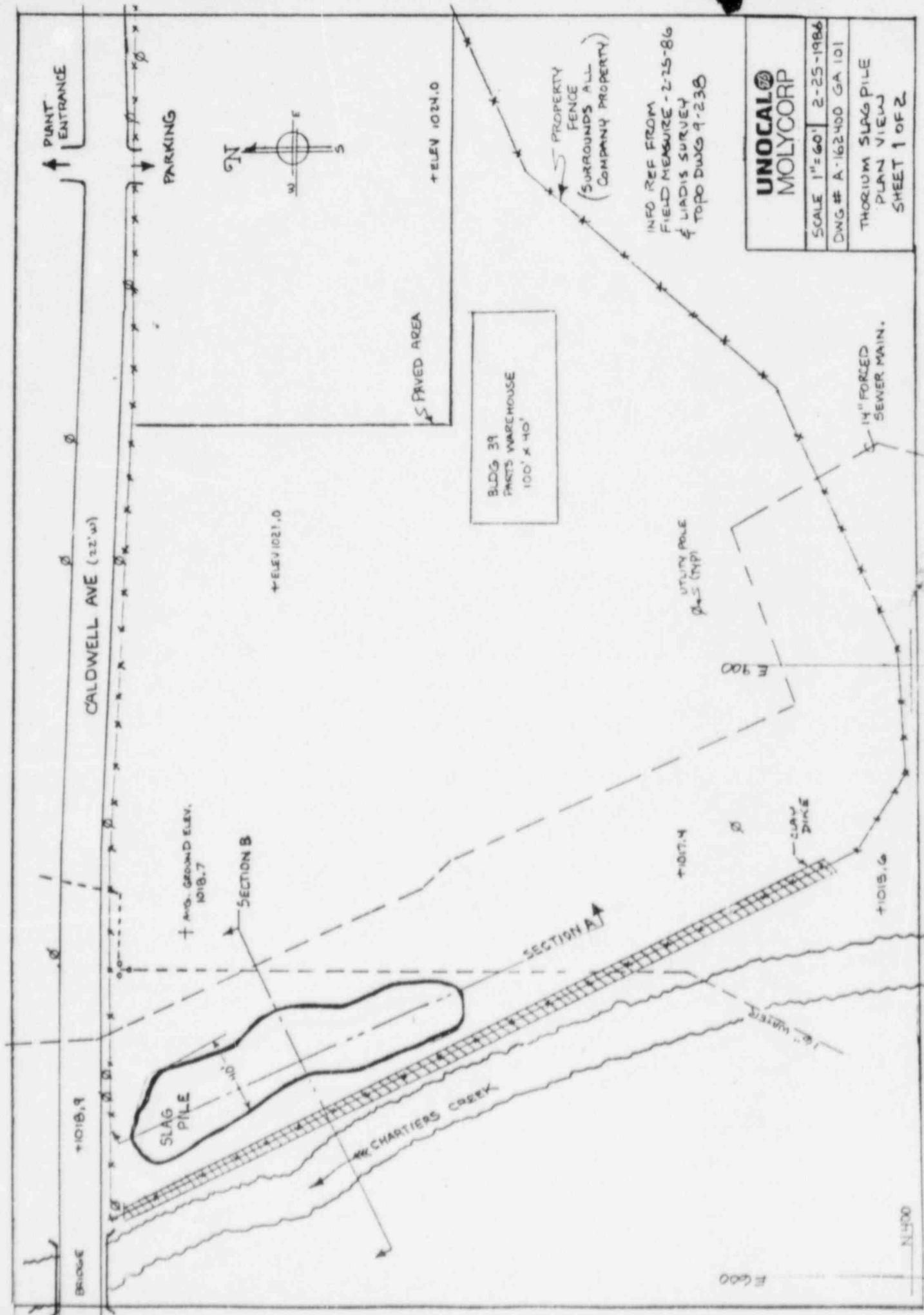
8603/30328-01





|                              |                 |
|------------------------------|-----------------|
| L'NOCAL MOLYCORP             |                 |
| SCALE: NTS                   | 2-25-1986       |
| DWG#                         | A-162400 GA 102 |
| THORIUM SLUG PILE ELEVATIONS |                 |
| SHEET 2 OF 2                 |                 |

SECTION B ELEVATION LOOKING NORTHWARD NOT TO SCALE



|  |           |
|--|-----------|
| UNOCAL <sup>®</sup><br>MOLYCORP                |           |
| SCALE 1"=60'                                   | 2-25-1986 |
| DWG # A-162400 GA 101                          |           |
| THORIUM SLAG PILE<br>PLAN VIEW<br>SHEET 1 OF 2 |           |

E 600  
N 400