

3515

CT.13

CT-13-1

MEMORANDUM

TO: FILE

DATE 6/15/87

FROM: D. Levine

SUBJECT: Elimination Recommendation

SITE NAME: American Cyanamid Co.

ALTERNATE NAME:

CITY: Stamford

STATE: CT CT.13

OWNER(S)

Past: Current: Owner contacted [] yes [x] no; if yes, date contacted

TYPE OF OPERATION

- [x] Research & Development
[] Production scale testing
[] Pilot Scale
[] Bench Scale Process
[] Theoretical Studies
[] Sample & Analysis

- [x] Facility Type
[x] Manufacturing
[] University
[x] Research Organization
[] Government Sponsored Facility
[] Other

- [x] Production
[] Disposal/Storage

TYPE OF CONTRACT

- [x] Prime through NYOO
[] Subcontractor
[] Purchase Order
Other information (i.e., cost + fixed fee, unit price, time & material, etc) -> \$45,000 for research

Contract/Purchase Order # \$10,000 through 6/30/43

CONTRACTING PERIOD: W-7401-eng-91 was through 7/1/46

OWNERSHIP:

Table with 7 columns: AEC/MED OWNED, AEC/MED LEASED, GOVT OWNED, GOVT LEASED, CONTRACTOR OWNED, CONTRACTOR LEASED. Rows include LANDS, BUILDINGS, EQUIPMENT, ORE OR RAW MATL, FINAL PRODUCT, WASTE & RESIDUE.

AEC/MED INVOLVEMENT AT SITE

Control

- AEC/MED managed operations
- AEC/MED responsible for accountability
- AEC/MED overviewed operations
- Contractor had total control
- unknown

Health Physics Protection

- Little or None
- AEC/MED responsibility
- Contractor responsibility

MSA had direct safety responsibility (letter, J. Maddy to Area Engineer, 7/18/45)

MATERIALS HANDLED:

Type (on basis of records reviewed)

- No Radioactive
- Natural Radioactive from Feed Materials Production
 - Ore
 - Refined Source Material
 - Residue
- Natural Radioactive Material from Non-Nuclear Activities
- Man-Made
- Other

possibly handled small amounts for research purposes only (analysis)

Comment Boron (Product 091A)

Quantities (on the basis of records reviewed)

- None
- Production Quantities
- Small Amounts

Comment _____

OTHER PERTINENT FACTS:

- Facility was Licensed
 - During AEC/MED-Related Operations
 - For Similar Activities
 - For Other Activities
- Comment _____

Commercial Production Involving Radioactive Material during AEC/MED Operations

Facility was Decontaminated and Released

Availability of Close Out Records

- None
- Some
- Sufficient

Radioactive Status:

	YES	MAYBE	PROBABLY	NOT
Contaminated Potential for Exposure (accessible)	---	---	X	---
			X	

QUANTITY OF RECORDS AVAILABLE:

- Very Little Some Sufficient

PROBABILITY OF FINDING ADDITIONAL RECORDS:

- Low Possible High

RECOMMENDATIONS:

- Eliminate
 Consider for Remedial Action
 Collect More Data

Comment folder CT.13 missing at this time. RES
American Cyanamid also operated Watertown Arsenal and reactor at Idaho Falls

REFERENCES: (see attached list and copies of other reference)

SUMMARY

American Cyanamid, under contract W-7401-eng-91 from
the New York Operations Office, operated a plant to
produce boron. In addition, American Cyanamid
performed research, such as organic compound analysis
by physical methods (infrared spectroscopy methods
and analyses for gas diffusion project). Because
of the type of work performed at this site,
it is recommended that it be eliminated.

American Cyanamid

DATE FILE# FROM TO SUBJECT SITES

- ✓ 03/22/43 3.1 BURNHAM, L. FILES (DESCRIPTION OF) DSRD CONTRACTS - HOOKER P-45 PLANT, PURDUE FLUOR MULTIPLE, HOOKER, PURDUE, JOHNS CARBON PREPARATION, JOHNS HOPKINS C-716, C-816, ETC, duPONT R&D, HOPKINS, MIT, duPONT, OHIO STATE, OHIO STATE, AMERICAN CYANAMIDE, HARSHAW, MIT, UNIV. OF CHICAGO AMERICAN CYANAMIDE, HARSHAW, UNIV. OF CHICAGO
\$10,000 through 6/30/43 (unknown contract number): organic compound analysis by physical methods
- not found*
 06/20/44 CT.13 DIXON, J. KILPATRICK, M. REPORT ON POSSIBILITY THAT MN IS COMING OFF GRINDING ROLLS INTO AMERICAN CYANAMID
 THE 891 AND INTERFERING WITH MAGNETIC SEPARATION OF THE Fe
- not found*
 09/01/44 CT.13 ANTHES, J. RUMOFF, L. SCHEDULE FOR ^{Boston} 891A AMERICAN CYANAMID
- not found*
 12/18/44 CT.13 DIXON, J. HEARON, W. SHIPMENT OF PRODUCT ^{Boston} 890A FROM MADISON SQUARE AREA TO AMERICAN CYANAMID CO., ITS ANALYSIS AND YIELD AMERICAN CYANAMID, STAMFORD
- not found*
 01/09/45 CT.13 HEARON, W. THURSTON, J. SHIPMENT OF SPECIAL ^{Boston} 890-A AND REGULAR 890-A FROM MADISON SQUARE TO AMERICAN CYANAMID FOR SPECIAL PROCESSING AMERICAN CYANAMID
- ✓ 07/18/45 3.1MSA MADDY, J. AREA ENGINEER ORGANIZATION OF SAFETY ACTIVITIES AMERICAN CYANAMID CO., YALE,
MSA has direct safety responsibility for American Cyanamid MADISON SQUARE AREA, PRINCETON, MIT, MCW, ST. LOUIS, BROWN, TONAWANDA
- ✓ 10/15/45 3.1MSA HEARON, W. AREA ENGINEER HISTORY OF PROCUREMENT OF SPECIAL MATERIALS FOR K-25 BY MSA duPONT, JOHNS HOPKINS, HOOKER,
 COSTS OF RESEARCH CONSTRUCTS HARSHAW, AMERICAN CYANAMID, MIT,
 MANUFACTURING COSTS FOR VARIOUS PRODUCTS PURDUE, CARBIDE & CARBON, K-25
W-7401 eng-53 \$45,000 research PLANT
- not found*
 01/03/46 CT.13 DIXON, J. HEARON, W. SUMMARY OF PRESENT STATUS OF AMERICAN CYANAMIC INVENTORY OF AMERICAN CYANAMID, GENERAL CHEMICAL
ALUMINUM CHLORIDE AND GENERAL CHEMICAL CALCIUM FLUORIDE
- ~~01/03/46 CT.13 DIXON, J. HEARON, W. SUMMARY OF PRESENT STATUS OF AMERICAN CYANAMIC INVENTORY OF AMERICAN CYANAMID, GENERAL CHEMICAL
ALUMINUM CHLORIDE AND GENERAL CHEMICAL CALCIUM FLUORIDE~~
DUPLICATE LISTING
- not found*
 03/11/46 CT.13 HEARON, W. FILE TRIP TO AMERICAN CYANAMID ON 3/1/46 TO DISCUSS FINAL ADDITIONAL AMERICAN CYANAMID CO, CLINTON,
 WORK NEEDED TO BE CARRIED OUT GENERAL CHEMICAL CO.
- ✓ 12/03/51 MA.2 KENTRO, D. MARVIN, G. URANOUS PHOSPHATE PRECIPITATION ON LEACH LIQUORS DERIVED FROM AMERICAN CYANAMID CO., *Watertown Arsenal*
 RADIUM HILL ORES
- ✓ 06/24/46 3.9 GUIDOR, J. DISTRICT ENGINEER TRANSMITTAL OF CONTRACTUAL DOCUMENTS (LIST OF CONTRACT NUMBERS) MULTIPLE, LEDOUX, AMERICAN
W-7401-eng-91 CYANAMID, NATIONAL SMELTING,
 KINETICS, FREGEL, BRUSH BERYLLIUM,
 CALLITE TUNGSTEN, CARBOLOY,
 ELECTROMET, MCW, METALS RESERVE,
 VANADIUM, NORTON, VASCOLOY-RAMET,
 WESTINGHOUSE

✓ 11 3.1NLD

FMFC SUBCONTRACTOR LIST FMFC SUBCONTRACT LIST - INCLUDES CONTRACT NUMBER AND BACKGROUND

<u>AEC Contract</u>	<u>Type of Work</u>	<u>AEC OFF</u>
AT(30-1)-893	R+D	NYOO
W-7401-eng-53	R+D and operation	NYOO
W-7401-eng-91	R+D	NYOO

ALLIED CHEMICAL & DYE, AMERICAN CYANAMID, EAGLE-PICHER, HERCULES POWDER, KELLEX, VITRO, MCW, MATHIESON, NLD, CHARLES PFIZER, REYNOLDS METALS, ROHM AND HAAS, J.T. BAKER

✓ 11 OH.12

LIST OF COMPANIES

ADVANTAGES AND DISADVANTAGES OF VARIOUS COMPANIES AS OPERATOR OF FMFC
for selection of operator

FMFC, ALLIED CHEMICAL, AMERICAN CYANAMID, J.T. BAKER, HERCULES POWDER, KELLEX, MCW, MATHIESON, NLD, REYNOLDS METALS, ROHM & HAAS

✓ 04/06/56 3.1RMD BARR, J.

FILES

PROJECT REPORTS - COMPANY RESERVES OF LEACHED ZONE
requesting American Cyanamid's advice

MULTIPLE, AMERICAN AGRICULTURAL, AMOUR, DAVIDSON, ROYSTER GUANO, INDEPENDENT, IMCC, SMITH-DOUGLASS, SWIFT AND CO., VIRGINIA-CAROLINA, WAYNE THOMAS, AMERICAN CYANAMID, U.S. PHOSPHORIC

✓ 11/01/56 3.1RMD MARVIN, G.

REPORT

HISTORY OF WORK CARRIED OUT BY PROCESS DEVELOPMENT GROUP OF THE DIVISION OF RAW MATERIALS, MARCH 1951 TO NOVEMBER 1956

MULTIPLE, IMCC, AMERICAN CYANAMID, DOW (SEE PAGE 8)

→ Watertown Arsenal, Winchester (Mass.) Laboratory (AEC)

✓ 05/14/54 NY.5 SPARKS, B.

BABCOCK, J.

DISMANTLEMENT OF PILOT PLANT EQUIPMENT
mentioned as operator of pilot plant

CHEMICAL CORPS, AMERICAN CYANAMID, HOOKER

✓ 11 3.0 REPORT

HISTORY OF PROCUREMENT OF SPECIAL MATERIALS FOR K-25

JOHNS HOPKINS, DUPONT, HOOKER, AMERICAN CYANAMID, HARSHAW, MIT, PURDUE

SAME AS 10/15/45 3.1MSA Hearon, W. Area Engineer

✓ 07/03/53 NY.17 FRY, H.

ROWLEY, E.

SELECTION OF HOOKER AS THE OPERATING CONTRACT FOR THE VITAMIN PROJECT
American Cyanamid was also considered

HOOKER ELECTROCHEMICAL, STANDLIND, AMERICAN CYANAMID, CALCO CHEMICAL DIV, STAMFORD LAB, LEDERLE LAB, FOOD MACHINERY & CHEM, BUFFALO ELECTRO. DIV, WESTVACO DIV, NIAGARA CHEM, MULTIPLE

✓ 04/29/46 3.6 BEELER, G.

WHITAKER, M.

W-7401-eng-91 for production of CONTRACT WITH AMERICAN CYANAMID COMPANY Product 891A, through 7/1/46

AMERICAN CYANAMID

✓ 07/06/50 3.1NYOO BELMORE, F.

PARSEGAN, V.

MULTIPLE CORRESPONDENCE REGARDING THORIUM

RARE EARTHS, INC., WESTERN RESERVE UNIVERSITY, UNIVERSITY OF ILLINOIS, OHIO STATE, WELSBACH CO., LINDSEY LIGHT, UNITED GAS LIGHTING & HEADING, PHILADELPHIA GAS WORKS CO., AMERICAN CYANAMID *→ not really: new employment for former Welsbach employee*

~~07/07/53 NY.17 FRY, H.~~

~~ROWLEY, E.~~

~~SELECTION OF HOOKER AS THE OPERATING CONTRACT FOR THE VITAMIN PROJECT~~

~~HOOKER ELECTROCHEMICAL, STANDLIND, AMERICAN CYANAMID, CALCO CHEMICAL DIV, STAMFORD LAB, LEDERLE LAB, FOOD MACHINERY & CHEM, BUFFALO~~

07/03/53 NY.17 FRY, H.

ROWLEY, E.

SELECTION OF HOOKER AS THE OPERATING CONTRACT FOR THE VITAMIN PROJECT

HOOVER ELECTROCHEMICAL, STANCLIND, AMERICAN CYANAMID, CALCO CHEMICAL DIV, STAMFORD LAB, LEDERLE LAB, FOOD MACHINERY & CHEM, BUFFALO ELECTRO. DIV, WESTVADO DIV, NIAGARA CHEM, MULTIPLE

DUPLICATE LISTING

not found

05/14/54 NY.17 SPARKS, B.

BABCOCK, J.

DISMANTLEMENT OF PILOT PLANT EQUIPMENT

AMERICAN CYANAMID, HOOKER

not found

10/01/52 ID.1 FREITAG, H.

DONIHUE, V.

SHIPMENT OF NORMAL URANIUM SCRAP

AMERICAN CYANAMID

not found

07/01/52 CT.13 FREITAG, H.

DONIHUE, V.

REQUEST FOR SPECIAL QUOTA - ENRICHED URANIUM IN THE FORM OF (9) IRRADIATED "J" SLUGS

AMERICAN CYANAMID

UNITED STATES ARMY IN WORLD WAR II

Special Studies

MANHATTAN:
THE ARMY AND THE ATOMIC BOMB

by
Vincent C. Jones



N PROJECT

CENTER OF MILITARY HISTORY
UNITED STATES ARMY
WASHINGTON, D.C., 1985

tion plants. Because of the huge requirements of just the gaseous diffusion plant, as well as the problems of shipment, the designers decided to build a fluorine gas production plant right at the diffusion plant site. The District's materials group also played a significant role in letting contracts and overseeing the activities of a number of private research institutions (Johns Hopkins, MIT, Purdue) and chemical firms (American Cyanamid, Du Pont, General Chemical, Harshaw Chemical, Hooker Electrochemical, Kinetic Chemicals, Penn Salt) in the development and supply of the numerous fluorinated hydrocarbon chemical compounds—in the form of coolants, sealants, and lubricants—needed to operate the plants safely and efficiently with the highly corrosive feed material.¹⁶

Feed Materials Production

The initial phase of the feed materials production network was conversion of the uranium-bearing crude ore into pure concentrates of black oxide and soda salt by various industrial firms under contract to the District. In each case the refining treatment was quite similar and involved subjecting the crude ore to the successive processes of pulverization into a sandlike material, acid immersion, precipitation to eliminate impurities, and roasting (drying).

Eldorado Mining at its Port Hope refinery processed all Canadian ore

¹⁶MDH, Bk. 7, Vol. 1, App. K, DASA; List, sub: Contracts To Be Taken Over by MD, Incl to Ltr. H. T. Wensel (Tech Aide, OSRD) to Marshall, 20 Mar 43, Admin Files, Gen Corresp. 161. MDR; List, sub: MD Contracts With Various Univs, Incl to Memo, Marsden to Groves, 2 Nov 43, MDR.

and some Congo ore into black oxide, whereas the Vitro Manufacturing Company at its Cannonsburg (Pennsylvania) refinery processed only Congo ore into soda salt. Designed only for treating the higher-grade Congo and Canadian ores, neither the Eldorado nor Vitro plants could properly process the carnotite concentrates from the Colorado Plateau region. Aware that the Linde Air Products Company had produced for the OSRD a satisfactory grade of black oxide from carnotite concentrates, the District's Materials Section at the end of 1942 made arrangements with Linde to refine new stocks of concentrates at its plant in Tonawanda, New York, as well as to produce other feed materials for the project. With assistance of the Tonawanda area engineer, Linde expanded its black oxide production facilities, but, by late 1943, was phasing out domestic ores and using its facilities to refine higher-yielding African ores.¹⁷

Figures compiled by the Madison Square Area Engineers Office, beginning in September 1943, show that the amount of uranium from all sources available for refinement in the United States and Canada, and the quantity of black oxide and soda salt extracted from this ore, grew dramatically from 1943 to 1945. Thus, at the end of September 1943, the Manhattan District had available 2,920 tons of uranium ore and produced 1,660 tons of black oxide and soda salt. A year later, the quantities rose

¹⁷MDH, Bk. 7, Vol. 1, pp. 1.20, 7.1-7.8, Apps. C-1A and F7, DASA. Details of early development of black oxide production by Linde in 1942-43 may be followed in Rpts, Mat Sec (later Mad Sq Area Engrs Office), Oct 42-Aug 43, 30 Oct, 30 Nov, and 31 Dec 43, 29 Jan 44, OROO.

to 5,640 tons of black oxide produced. And in 1945, the figure rose to 6,600 tons of black oxide.

The final product of the uranium feed materials production process was a version of uranium oxide (UO₂) through a series of chemical treatments, into a form suitable for use in the electrical pile plants. The uranium oxide (UO₂) was an important component of the uranium feed materials for the development of the atomic bomb. The uranium oxide (UO₂) was transformed into a form suitable for use in the atomic bomb. The uranium oxide (UO₂) was transformed into a form suitable for use in the atomic bomb.

Because of the considerable quantities of uranium feed materials required for each treatment, the Manhattan District had to shape the process into a form capable of

¹⁸Rpts, Mat Sec, 31 Oct 44, 29 Nov 44.
¹⁹Ibid., Series 10, pp. 8.1-10.10.