

NJ.7-3

PA 25
#18

~~SECRET~~

NJ.7

This document consists of 30 pages,
No. 5 of 21 copies, Series A
with Figs. 12 and Table 1.

Prospectus On Uranium Center Operation

Special Rereview
Final Determination
Unclassified
By: _____
Date: _____
P. F. Brown

February 1, 1951



A. L. Baker
President

THE KELLEX CORPORATION
233 BROADWAY
NEW YORK 7, N. Y.

"CAUTION"

This document contains information affecting
the National Defense of the United States.

~~SECRET~~

~~SECRET~~

Special Rereview
Final Determination
Unclassified

KLX-033
Page 3

By: _____
Date: _____
P. F. Brown

CONTENTS

	<u>Page</u>
INTRODUCTION.....	5
PROPOSED PROGRAM.....	7
Contract Scope.....	7
Corporate Mechanism.....	8
Contract Terms.....	9
Proposed Operating Organization.....	9
Drawing Review.....	10
Preparation of Operating Manuals.....	10
Staff Planning.....	10
Personnel Assignment & Recruitment.....	11
Job Training.....	12
Proposed Staff.....	13
Commitment of Personnel.....	13
General Manager.....	14
Assistant General Manager.....	15
Plant Superintendent.....	16
Technical Director.....	17
Health Physics.....	17
Business Manager.....	18
Other Positions.....	18
Consultants.....	21

~~SECRET~~

~~SECRET~~

Special Review
Final Determination
Unclassified

By: [Signature]
Date: P. F. Brown

CONTENTS (Cont.)

	<u>Page</u>
SUMMARY OF QUALIFICATIONS.....	22
Experience in Uranium Ore Processing.....	23
The Kellex Corporation.....	23
The Vitro Manufacturing Company.....	24
Vitro Chemical Company.....	25
Available Personnel.....	26
Available Facilities.....	26
Familiarity with Health Physics & SF Procedures.....	26
AEC Contract Experience.....	26
 BACKGROUND INFORMATION.....	 29
General.....	29
The Kellex Corporation.....	30
The Vitro Manufacturing Company.....	32
Vitro Chemical Company.....	34
 ATTACHMENT A — EXPERIENCE SUMMARIES, Following Page	 35

~~SECRET~~

Special Review
Final Determination
Unclassified

By: [Redacted]
Date: [Redacted]
P. F. Brown

PROSPECTUS

ON

URANIUM ORE PROCESSING CENTER

INTRODUCTION

This prospectus has been prepared in response to the Atomic Energy Commission's recent letter of inquiry regarding operation of the projected uranium ore processing center.* We have already stated our great interest in contracting for the operation of this facility.** Our purpose here is to specify the operating organization we are prepared to establish and to outline how we would handle operator recruitment, training and other preparations for plant start-up.

In submitting this prospectus, we speak not only for The Kellex Corporation but also for our associate companies, The Vitro Manufacturing Company and Vitro Chemical Company. While we propose to fill all key positions in the operating organization from our own ranks, we plan to draw upon the staff, experience and facilities of the Vitro companies as required, in the planning, training, and early operational stages of the contract program.

The material presented is divided into three sections as follows:

1. Outline of the manner in which the work of subject contract would be handled, and nominations to fill the key positions.
2. Summary of technical and organizational qualifications.
3. Background information on The Kellex Corporation and the Vitro Companies.

* Letter addressed to The Kellex Corporation from W. E. Kelley, Manager, New York Operations Office, AEC, dated December 20, 1950.

** Letter in reply from H. H. Willis, Technical Director, The Kellex Corporation, dated January 8, 1951.

The treatment throughout is general. Supporting technical details can readily be supplied if required.

We take this opportunity to invite Commission representatives to inspect the facilities mentioned in the body of this prospectus, specifically:

1. The offices and laboratories of The Kellex Corporation, including the recently acquired Key Laboratory at Summit, New Jersey.
2. The offices and plant facilities of The Vitro Manufacturing Company at Pittsburgh and Canonsburg, Pennsylvania.
3. The offices and plant facilities of Vitro Chemical Company at Salt Lake City, Utah.

By: _____
Date: _____
P. F. Brown

Consultants

Personnel of the Vitro companies whose consultation will be especially valuable to the operating organization include:

A. J. Strod, President of the Uranium Division of The Vitro Manufacturing Company, and President of Vitro Chemical Company (23 years' experience in uranium processing).

Herbert Fleck, Vice President of the Uranium Division of The Vitro Manufacturing Company, in charge of plant operations (26 years' experience in uranium processing).

Harry Chappel, Chief Chemist of The Vitro Manufacturing Company's Canonsburg plant (20 years' experience in uranium processing).

Of the consultants retained by The Kellex Corporation, the following are particularly well qualified to advise on the organizational and technical aspects of subject program:

Earnshaw Cook, metallurgist, formerly Chief Metallurgist, American Brakeshoe Company.

John R. Dunning, physicist, Dean of Engineering, Columbia University.

A. O. C. Nier, physicist, University of Minnesota.

S. B. Smith, industrial engineer, Vice President, The Henry Pratt Manufacturing Company.

H. S. Taylor, physical chemist, Dean of the Graduate School, Princeton University.

Closely related work includes:

1. Job 11 (AEC Contract AT-30-1-GEN-169)

Research, development and design work on a solvent extraction process for the recovery of uranium from Hanford underground wastes and pile products. (See KLX-1 to -70, inclusive.)

Special Review
Final Determination
Unclassified

By: [Redacted]
Date: [Redacted]
P. F. Brown

2. Technical assistance to AEC

Assistance to the Commission under the Job 11 contract on problems of handling and storage associated with certain materials produced in existing AEC refinery operations. (See KLX-012 & -015.)

3. Job 15 (Subcontract G-148 under G. E.)

Design and engineering of Redox and TBP plant facilities for the Hanford Works. Supporting chemical research on uranium chemistry. (See KLX-1000 to -1081, inclusive.)

The Vitro Manufacturing Company

The Vitro Manufacturing Company's uranium processing experience includes:

1. Commercial operations

More than 40 years' experience in the processing of a wide range of uranium bearing materials to produce industrial chemicals and pigments. This work has included the processing of uranium ore concentrates to recover radium as well as uranium and other metals.

2. Manhattan Project work (Contracts W-26-021-ENG-24 & -7)

Operation of facilities for the recovery of natural uranium from a range of uranium bearing materials, including domestic and foreign ores, residues, sludges and waste materials. Flexible, low cost methods stressed.

Special Rereview
Final Determination
Unclassified

By:
Date:

P F Brown

3. AEC work (Contract AT-30-1-GEN-253)

Operation comparable to (2) above. At the present writing, this operation has been underway for eight years (counting the war-time work).

4. Research and development

Laboratory studies of economic uranium recovery processes and plant methods in connection with (1), (2) and (3) above. Also in connection with Vitro Chemical Company operation outlined directly below.

Vitro Chemical Company

Vitro Chemical Company, incorporated earlier this year (see Background Information section) is currently operating. The company has acquired a large, modern ore processing facility near Salt Lake City, Utah, which is being modified to process various low-grade domestic uranium ores and certain other raw materials. Vitro Chemical Company has a Letter of Intent from the Commission's Raw Materials Operations Branch to process certain Government stockpiled uranium ores and contemplates initiating its own ore operations at a future date. By the time the uranium ore processing center is in operation, Vitro Chemical Company will have had approximately a year and a half of large scale uranium ore processing experience behind it. This experience will also include the operation of semi-works installations for process development and improvement.

~~SECRET~~

Special Review
Final Determination
Unclassified

KLX-033
Page 26

By: _____
Date: _____
P. F. Brown

AVAILABLE PERSONNEL

As was brought out in the preceding section, The Kellex Corporation is prepared to fill substantially all project management and key technical positions in the required operating organization from its present ranks. In addition, a pool of cleared, experienced personnel is available for assignment as a nucleus operating staff. Also, senior personnel of the Vitro companies are available for assistance during the planning, training and early operational stages of the contract program.

AVAILABLE FACILITIES

The following facilities of The Kellex Corporation and the Vitro companies are available for use in giving the nucleus of the operating organization background and training in certain of the operations involved.

1. The Kellex Corporation's Jersey City Laboratory, operated under AEC Contract AT (30-1) 812, and the recently acquired Key Laboratory at Summit, New Jersey.
2. The Vitro Manufacturing Company's Canonsburg plant.
3. Vitro Chemical Company's Salt Lake City plant.

FAMILIARITY WITH HEALTH PHYSICS & SF PROCEDURES

The Kellex Corporation is thoroughly conversant with Health Physics and SF materials accountability procedures, having applied them extensively on the laboratory and semi-works scale.

AEC CONTRACT EXPERIENCE

Following this page is a tabulation of past and present contracts held by The Kellex Corporation, The Vitro Manufacturing Company and Vitro Chemical Company with the Commission or its contractors. (Contracts with the Commission's predecessor, the Manhattan District, Corps of Engineers, are also entered.)

~~SECRET~~

Special Rereview
Final Determination
Unclassified

By: 
Date: 
P. F. Brown

TABLE OF ATOMIC ENERGY CONTRACTS

The Kellex Corporation

**Job 2 - Army Corps of
Engineers - Manhattan
District**

**Research, development, design, en-
gineering, procurement and super-
vision of construction of the K-25 and
K-27 Gaseous Diffusion Plants at Oak
Ridge, Tennessee.**

**Job 8 - Monsanto Chemical
Company/AEC**

**Design and engineering services in con-
nection with the Heterogeneous Reactor
for Clinton Laboratories, Oak Ridge,
Tennessee.**

**Job 11 - Atomic Energy
Commission**

**Research and development and engine-
ering services in connection with a
process and facilities for the recovery
of uranium from Hanford metal wastes.**

**Job 15 - General Electric
Company/AEC**

**Research, development, design, engi-
neering, procurement and field engi-
neering services in connection with
special Production Facilities for Hanford
Engineer Works, Hanford, Washington.**

**Job 23 - Atomic Energy
Commission**

**Research, experimental investigation
and studies in connection with decon-
tamination of radioactive wastes.**

Special Rereview
Final Determination
Unclassified

By:
Date:

P. F. Brown

TABLE OF ATOMIC ENERGY CONTRACTS (Cont.)

The Kellex Corporation (Cont.)

Job 24 - Atomic Energy
Commission

Research, experimental investigation
and studies in connection with decon-
tamination of radioactive wastes.

The Vitro Manufacturing
Company

W-26-021-ENG-24 &
W-26-021-ENG-7
Army Corps of Engineers —
Manhattan District

Production of natural uranium from a
variety of raw materials such as do-
mestic and foreign ores, residues,
sludges and waste materials.

AT-30-1-GEN-253
Atomic Energy Commission

Vitro Chemical Company

Letter of Intent
Atomic Energy Commission

Processing of Government - stockpiled
domestic uranium ores.

~~SECRET~~

Special Rereview
Final Determination
Unclassified

By: [REDACTED]
Date: [REDACTED]
P. F. Brown

BACKGROUND INFORMATION

GENERAL

In December, 1949, a group of prominent industrialists, interested in the industrial development and future of atomic energy, purchased a controlling interest in The Vitro Manufacturing Company of Pittsburgh — long a producer of uranium-based chemicals and pigments and, in recent years, a contractor to the Manhattan District and the Atomic Energy Commission.

On June 30, 1950, this same group of industrialists, acting through The Vitro Manufacturing Company and with the participation of Kellex management, purchased The Kellex Corporation, one of the first industrial firms to enter the atomic energy field and a principal contractor to the Manhattan District and the Atomic Energy Commission.

On December 11, 1950, a subsidiary, Vitro Chemical Company, was established to acquire and operate a large ore processing facility at Salt Lake City, Utah. This company has a letter contract with the Atomic Energy Commission to recover uranium from certain Government stock-piled domestic uranium ores and to process other types of uranium ores.

The principal objective of the three associated companies is maximum participation in the industrial development of atomic energy and its manifold applications, direct and indirect. Toward this objective each company devotes its particular skills — The Vitro Manufacturing Company, its long commercial operating experience; The Kellex Corporation, its specialist technical experience; and Vitro Chemical Company, its plant facilities adapted to the important work of domestic uranium ore refining.

Special Review
Final Determination
Unclassified

THE KELLEX CORPORATION

By: ~~SECRET~~
Date: P. F. Brown

Corporate Information

The Kellex Corporation, a subsidiary of The Vitro Manufacturing Company, is incorporated under the laws of the State of Delaware. Prior to its purchase by Vitro on June 30, 1950, Kellex was owned by The M. W. Kellogg Company of New York, itself owned by Pullman, Inc.

The directors of the corporation are:

- Wildey C. Rickerson, Chairman
- Albert L. Baker
- Thomas E. Brittingham, Jr.
- Norton V. Coyle
- John R. Dunning
- William H. Denne, Jr.
- John I. Gearhart
- Charles S. Payson
- George T. Weymouth

The officers of the corporation are:

- | | |
|-----------------------|---------------------------------------|
| Wildey C. Rickerson | Chairman of the Board |
| Albert L. Baker | President |
| William H. Denne, Jr. | Vice-President and
General Manager |
| F. Thomas Freear | Secretary |
| Herman J. Nullmeyer | Treasurer |

Staff & Consultants

The Kellex Corporation staff numbers approximately 1,200. Of this number, two-thirds are members of the technical staff, and one-third serve administrative, service or security functions.

Special Rereview
Final Determination
Unclassified

By: _____
Date: _____
P. F. Brown

Make-up of the technical staff is approximately as follows:

Chemists & chemical engineers.....	10%
Electronics & electrical engineers.....	12%
Mechanical engineers.....	15%
Architectural & structural engineers.....	8%
Physicists, metallurgists, mathematicians, etc.	5%
Draftsmen & designers.....	50%
	<u>100%</u>

For assistance on special problems, the Corporation retains a number of scientific and industrial consultants, among them J. R. Dunning, physicist, Dean of the Engineering School, Columbia University; H. S. Taylor, physical chemist, Dean of the Graduate School, Princeton University; A.O.C. Nier, physicist, research fellow, University of Minnesota; S. B. Smith, industrial engineer, Vice-President, The Henry Pratt Manufacturing Company; and Earnshaw Cook, metallurgist, formerly Chief Metallurgist, American Brakeshoe Company.

Offices & Laboratories

The Kellex Corporation has its administrative offices at 233 Broadway, New York City. Engineering offices, including some 60,000 square feet, are at 120 Wall Street, New York City. The Corporation has research laboratories at Jersey City and Summit, New Jersey, and at Silver Spring, Maryland, and a test station at Key West, Florida.

The Jersey City Laboratory is equipped primarily for chemical research and has facilities available for process and component piloting. Instrument and equipment development facilities are also available. The laboratory was designed to permit work at tracer levels of radioactivity, and appropriate protective equipment; instruments and waste disposal facilities are available in this connection.

The Key Laboratory at Summit, New Jersey, is a recent acquisition of The Kellex Corporation. A total of approximately 22,000 square feet of working space are available in the laboratory building proper. Built in 1943 for the development and manufacture of precision devices, the Key Laboratory is currently being adapted for chemical research, instrument and mechanical development and semi-works operation.

The Silver Spring Laboratory, operated for the Navy Department, is equipped primarily for the development of electro-mechanical components and systems, and for product engineering of these same components and systems.

THE VITRO MANUFACTURING COMPANY

Special Rereview
Final Determination
Unclassified

By: [Signature]
Date: [Signature]
P. F. Brown

Corporate Information

The Vitro Manufacturing Company was incorporated under the laws of the State of Pennsylvania in 1909. Vitro has three subsidiaries — Vitro Pigments, incorporated December 19, 1949; The Kellex Corporation, purchased June 30, 1950; and Vitro Chemical Company, incorporated December 11, 1950.

The directors of the company are

- Wildey C. Rickerson, Chairman
- Albert L. Baker
- Thomas E. Brittingham, Jr.
- Norton V. Coyle
- John R. Dunning
- John I. Gearhart
- N. K. Parker
- Charles S. Payson
- Arvid J. Strod
- George T. Weymouth

The officers of the company are:

- | | |
|---------------------|--------------------------------------|
| Wildey C. Rickerson | Chairman of the Board
& President |
| Arvid J. Strod | President, Uranium Division |
| Herbert Fleck | Vice-President |
| Theodore Lenchner | Vice-President |
| Meredith H. Ewing | Secretary |
| Raymond T. Ruder | Treasurer & Vice-President |

~~SECRET~~

Special Rereview
Final Determination
Unclassified

KLX-033
Page 33

By: [redacted]
Date: P. F. Brown

Plant Facilities

The Vitro Manufacturing Company has its principal offices and plant facilities at 60 Greenway Drive, Pittsburgh, Pa. Vitro Pigments, Inc., a wholly-owned subsidiary located at Falls Creek, Pa., is operated as a branch of the Pittsburgh organization. An additional plant facility is located at Canonsburg, Pa., and a branch of this organization has been established on the Colorado plateau with headquarters at Grand Junction, Colo.

Pittsburgh Operations

The Pittsburgh plant comprises three fireproof brick buildings having a total floor space of approximately 100,000 square feet. The plant is equipped with modern machinery, mills, furnaces and auxiliary facilities for the production of ceramic colors and chemicals. Ample storage space is available along the P.R.R. tracks. Testing and chemical laboratories are equipped and staffed for analysis of raw materials, product control and for conducting research work. Approximately 65 people are employed here and branch offices are maintained at New York, Chicago, Chattanooga, Los Angeles, and San Francisco.

The manufacture of industrial chemicals, pigments and related materials represents approximately half of the present business of The Vitro Manufacturing Company. These products are distributed to manufacturers in the ceramics, glassware and allied industries.

Canonsburg Operations

The Canonsburg plant occupies an area approximately 18 acres in extent. It is designed essentially for hydro-metallurgical processing of ores and metallic or metal-bearing raw materials and is equipped with laboratories for testing, control and analytical work. Employees number approximately 65. Uranium, vanadium and radium have been produced at Canonsburg since 1928. The plant is at present producing natural uranium from a variety of raw materials and ores under contract to the Atomic Energy Commission. The plant facilities are currently being modified and enlarged in connection with this contract.

[redacted]