

# Robert B. Crookston—His Oil Shale Achievements, His Collections, and the Tell Ertl Oil Shale Archives

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## ABSTRACT

Robert B. ("Bob") Crookston was one of the oil shale pioneers who spent his career working for industry. He served The Oil Shale Company (TOSCO) in the Colony I, Colony II, and Sand Wash projects. Later in his career, he served as a private consultant, providing service to clients in many worldwide oil shale sites.

Bob presented and published numerous papers describing his activities in oil shale. Many of those presentations were made at earlier meetings of the Oil Shale Symposium. Several of his later publications focused on the importance of safety in oil shale mining and disposal and the possibilities of fires and explosions.

The collection of Robert B. Crookston has been donated to the Colorado School of Mines Tell Ertl Oil Shale Repository. This collection consists of more than 5,000 documents in 46 archive boxes.

With the addition of the Crookston collection to the archives, the Tell Ertl Oil Shale Repository now contains more than 40,000 documents in more than 200 archive boxes from seven collections. Several other collections, amounting to more than 10,000 additional documents, are awaiting placement in the archives.

## ROBERT B. CROOKSTON

Robert ("Bob") Ballantyne Crookston was born August 20, 1918, in Rexburg, Idaho. He attended Utah State University and majored in engineering. Bob finished his college work by correspondence after military service in World War II.

Bob married Geraldine Anne "Ducky" Hedge on November 22, 1961. They were parents to Glen Hedge, Currie Patrick, and William Stuart.

Prior to his retirement from TOSCO Corporation in 1983, Bob had spent 18 years in oil shale development. His major

efforts were nearly always in oil shale mining, crushing, and spent-shale disposal. His work for TOSCO involved extensive travel to 31 countries, from which he became an internationally recognized authority on foreign oil shales. A major motivation was to hasten development of third-world countries, such as Morocco, where Bob spent much time and effort.

In his professional career, Bob developed two rare and valuable talents. One was the writing, publication, and presentation of an impressive array of technical reports (Tables 1 and 2). The second was the collection and organization of a personal library on oil shale and related topics.

The library of Robert B. Crookston has been donated by Ducky Crookston to the Tell Ertl Oil Shale Repository in Arthur Lakes Library at the Colorado School of Mines. It is a particularly valuable resource for:

- the Colony oil shale era;
- oil shale mining and crushing technology; and
- foreign oil shales.

Bob led a full and rewarding personal and professional life. On December 21, 1988, he passed away in Littleton, Colorado.

Bob Crookston lent pleasure and insight to all of his coworkers. He was a man of impeccable moral and professional character. He is greatly missed by all of his friends and associates.

## THE ROBERT B. CROOKSTON COLLECTION

### Scope of Collection

The Robert B. Crookston Collection is the largest private collection in the Tell Ertl Oil Shale Repository. This collection, contained in 46 archive boxes, consists of 5,111 documents (Tables 3 and 4). Reports comprise more than 80% of the volume of the Collection. Only the U.S.

**Table 1. Robert B. Crookston publications (partial listing).**

No.	Date	Title
1	1967	The Oil Shale Corporation—CCIC crushing tests conducted at Tosco Research Center
2	1967	Oil shale comparative costs 1966 vs 1967
3	1970	A cost estimate for comparing three schemes for crushing, screening, and conveying oil shale
4	1972	Impact crusher closed circuit study
5	1973	Economics, crushing, screening, and conveying—Revised
6	1973	Primary crusher selection
7	1974	Secondary crusher selection
8	1975	Tosco mining technology, upper and lower level scaling, and roof bolting
9	1975	Tosco mining technology and mine production and economics
10	1975	Crushing, screening, conveying concept, and economics
11	1975	Miscellaneous mining equipment operation and economics
12	1975	Timahdit oil shale feasibility study, mine consulting services
13	1975	Colony ventilation plan and economics
14	1975	A summary report of mine auxiliary services
15	1976	Select secondary crusher
16	1976	Colony—Union crushing tests
17–18	1976	Evaluation of the fire and explosion hazards of oil shale mining and processing, draft report to USBM
19	1977	Evaluation of the fire and explosion hazards of oil shale mining and processing (revised)
20	1977	Tosco technology—A summary
21	1977	Tosco technology—Mining, crushing, and spent shale
22	1978	An evaluation of the fire and explosion hazards of oil shale mining and processing, interim report, USBM JO275001
23	1979	Determination of in situ horizontal rock stress on mine and district basis, final report, USBM JO275020
24	1979	Oil shale deposits in Iran (prepared for the National Iranian Oil Company)
24	1982	Data summary of the Anvil Points raw shale waste pile combustion interim report, USBM JO275001
25–27	1983	An evaluation of the fire and explosion hazards of oil shale mining and processing, draft final report (vols. 1–3), USBM JO275001
28–30	1983	An evaluation of the fire and explosion hazards of oil shale mining and processing, final report (vols. 1–3), USBM JO275001

Department of Energy Collection, representing contributions from a number of professional people, has more reports in the Repository. Numerous large reports (many 2 to 3 in. thick and containing more than 300 pages each) were the main reason for the large size of the Robert B. Crookston Collection.

Bob Crookston was a meticulous person, as evidenced by the careful arrangement of his collection. The Collection has been categorized (Table 3) for comparison with other collections in the Tell Ertl Oil Shale Repository. However, the arrangement of the Collection has been maintained in the archives to reflect his professional activities—Colony Projects, Other Oil Shale Projects, Foreign Oil Shale, and Miscellaneous (Table 4).

## Colony Information

As expected, information dealing with the three Colony projects comprises the bulk of the collection. These have been divided arbitrarily by date as follows: pre-1970, Colony I; 1971–1979, Colony II; and 1980–1984 Colony Shale Oil Project.

Reflecting Bob Crookston's professional interests in mining, crushing, and materials handling are 11 archive boxes—nearly 40% of the Colony collection. These boxes contain *Vendor Information*, *Mining/Crushing*, and *Technical Reports* from 1971 to 1984. *Vendor Information* consists of 563 brochures in 75 alphabetized files. The *Mining/Crushing*

**Table 2. Robert B. Crookston presentations (partial listing).**

No.	Date	Title	Location
1	1975	Material Handling for a Commercial Oil Shale Plant	AIME Annual Meeting, New York City, New York
2	1975	Oil Shale Mining	SAE West Coast Meeting, Seattle, Washington
3	1976	Oil Shale Mining, Crushing, and Handling	Nevada Section AIME, Reno, Nevada
4	1976	Oil Shale Mining Methods	31st AIME Petroleum Mechanical Engineering Conference, Mexico City, Mexico
5	1976	Mining, Crushing, and Handling Raw and Spent Shale (Health Effects)	Committee on Medicine and Biological Sciences, API, Chicago, Illinois
6	1977	Reclamation of Spent Oil Shale	American Mining Congress Meeting, San Francisco, California
7	1979	Potential for Fires and Explosions in Oil Shale Mining and Processing	12th Oil Shale Symposium, Colorado School of Mines, Golden, Colorado
8	1979	Oil Shale Mining and Spent Shale Disposal—Surface Processes	IGT Symposium, Atlanta, Georgia
9	1980	Oil Shale Mining—Plans and Practices	AIME Fall Meeting, Las Vegas, Nevada
10	1980	Oil Shale Mining—Present and Future	AIME Fall Meeting, Denver, Colorado
11	1981	Oil Shale Mining	IGT Symposium, New Orleans, Louisiana
12	1982	Mitigation of Socioeconomic Impacts of a Large Oil Shale Project	Industrial Development Executives of Utah, Salt Lake City, Utah
13	1982	The Colony Oil Shale Project—Status Report	Energy International Council, Second Biennial Meeting, Denver, Colorado
14	1982	Oil Shale Research Needs—Mining	NRC Workshop, Denver, Colorado
15	1982	A First Look at Continuous Miners in Oil Shale	International Mining Show (AMC), Las Vegas, Nevada
16	1983	Mining and Its Role in Energy Development	ASCE Conference, Philadelphia, Pennsylvania
17	1983	Mechanical and Conventional Excavating Experience in Oil Shale Shafts and Tunnels	Rapid Excavation and Tunneling Conference, Chicago, Illinois

**Table 3. Robert B. Crookston Collection—Types of documents.**

Type of Document	Archive Boxes	No. of Documents
Reports (books and journals)	37	2,946
Correspondence	4	999
Maps and drawings	3	508
Visual aids	1	608
Non-oil shale documents	1	50
<b>Total</b>	<b>46</b>	<b>5,111</b>

and *Technical Reports*, consisting of 465 files, are arranged by coded file numbers used by Bob Crookston.

Also included in the Colony information are four archive boxes of correspondence (999 documents) from 1951 to 1985; three boxes of maps and drawings (508 documents); and one box of 608 visual aids. Because the collection was not arranged by type of document, as shown in Table 3, the breakdown by type of document is based on best estimates.

### Other U.S. Oil Shale Projects

Within this category are documents on the Sand Wash project in Utah, the extensive research carried out by Bob

**Table 4. Tell Ertl Oil Shale Repository—Robert B. Crookston Collection.**

Topics	Archive Boxes	No. of Documents
Colony		
Colony 1, Colony 2, and Colony Exxon Project	28	3,441
Other Oil Shale Projects		
Fire/explosion research, Sand Wash, and other U.S. oil shale projects	5	138
Foreign Oil Shale	8	1,266
Miscellaneous		
Reprints/journals, government documents, proposals, non-oil shale documents	5	266
<b>Total</b>	<b>46</b>	<b>5,111</b>

Crookston and his associates in oil shale fires and explosions, and other United States oil shale projects (Table 4). The category, *Other Oil Shale Projects*, includes 27 reports dating

from 1958 to 1979 on several oil shale projects in which The Oil Shale Corporation (TOSCO) was not an active partner.

## Worldwide Oil Shale

Reflecting the activities of Bob Crookston as well as TOSCO, the Robert B. Crookston Collection contains a significant amount of information on worldwide oil shale—1,266 documents in eight archive boxes. Much of this (59 detailed reports) deals with studies made for the Kingdom of Morocco. The remaining documents on worldwide oil shale include 1,207 reports, photographs, correspondence, and reprints on oil shale from 18 countries, arranged alphabetically in four archive boxes. The final document is a detailed report, with references, on the location, geology, and quality of more than fifty worldwide oil shales.

## Other Documents

This section consists of miscellaneous documents. Two archive boxes contain 126 government documents—primarily U.S. Bureau of Mines Reports of Investigations

and Information Circulars from 1951 to 1984. Another box contains 58 reprints and technical journals (primarily mining). One box contains 34 proposals written, for the most part, to or by Bob Crookston during his career. This has not been a “clean” separation because some proposals are found with the worldwide oil shale documents, some with the Colony documents, and several with the vendor information. The last archive box contains 50 non-oil shale documents. The Robert B. Crookston Collection essentially is an oil shale collection—more than 99% of the documents in the collection pertain to oil shale.

## TELL ERTL OIL SHALE REPOSITORY

### Current Status

With the compilation of the Robert B. Crookston Collection, the Tell Ertl Oil Shale Repository now contains an estimated 40,253 documents in 213 archive boxes (Tables 5 and 6).

In addition to the Robert B. Crookston Collection, three other collections from the U.S. Department of Energy

**Table 5. Tell Ertl Oil Shale Repository documents.**

Collection	Reports	Correspondence	Visal Aids	Maps and Drawings	Non-Oil Shale Documents	Total
John Ward Smith	1,275	0	1,012	141	324	2,752
Galway Layton	78	8	3	0	0	89
Tell Ertl	3,143	6,993	4	258	143	10,781
U.S. Dept. of Energy						
Laramie Project Off.	2,098	138	9,789	6,485	2,045	20,555
Theodore C. Bartke	0	0	633	0	0	633
Harold F. Thomas	332	0	0	0	0	332
Robert B. Crookston	2,946	999	608	508	50	5,111
Total (17 collections)	9,872	8,138	12,289	7,392	2,562	40,253

**Table 6. Tell Ertl Oil Shale Repository archive boxes.**

Collection	Reports	Correspondence	Visal Aids	Maps and Drawings	Non-Oil Shale Documents	Total
John Ward Smith	26	0	1	1	4	32
Galway Layton	1	0	0	0	0	1
Tell Ertl	16	11	1	3	1	32
U.S. Dept. of Energy						
Laramie Project Off.	39	1	12	14	30	96
Theodore C. Bartke	0	0	1	0	0	1
Harold F. Thomas	6	0	0	0	0	6
Robert B. Crookston	37	4	1	3	1	46
Total (17 collections)	125	16	16	21	36	214

(DOE) have been donated and placed in the Tell Ertl Oil Shale Repository. These include additional documents from the Laramie Project Office, the Theodore C. Bartke Collection, and the Harold F. Thomas Collection. With the documents provided to the archives in 1990, DOE contributions now total 21,520 documents.

Three other collections have been given to the Tell Ertl Oil Shale Repository and are being cataloged at this time—the Andrew Gulliford Collection, the Cameron Engineering Collection, and the Paul L. Russell Collection.

### Andrew Gulliford Collection

The Andrew Gulliford Collection contains the documentation obtained by Dr. Gulliford as he was collecting information for his thesis and book, *Boomtown Blues: Colorado Oil Shale 1885–1985*. Most of the Gulliford Collection, estimated to contain 3,500 documents, includes reports, news clippings, and notes of interviews made after “Black Sunday” (May 2, 1982).

### Cameron Engineering Collection

The Cameron Engineering Collection includes many of the *Synfuel Data Quarterly Reports* published by Cameron Engineering from about 1960 to 1980. Most of the balance of the collection consists of reports prepared for various industrial and government clients. It is estimated that the Cameron Engineering Collection will consist of approximately 3,000 documents.

### Paul L. Russell Collection

This collection consists primarily of information acquired by Paul L. Russell during the preparation of his two books, *The History of Western Oil Shale* and *Oil Shales of the World, Their Origins, Occurrence, and Exploitation*. Other materials in the collection include Paul’s depositions used in early oil shale litigation and other documents acquired during his long career.

### Other Collections

Additional materials are being prepared for transfer to the Tell Ertl Oil Shale Repository. These include several

boxes from the U.S. Department of Energy Laramie Project Office Collection and the Harold F. Thomas Collection. Although it is impossible to determine the size of these additions at this time, it is estimated that they may contain an additional 500 to 1,000 documents.

### Future Status

With the addition of the Gulliford, Cameron, and Russell Collections and other DOE documents to the Tell Ertl Oil Shale Repository, it is estimated that the archives contain more than 50,000 documents in more than 250 archive boxes and will require about 500 linear feet of shelf space.

About three-quarters of this collection documents much of the development in oil shale from 1950 to 1980. Only about five percent of the documents are non-shale related, and most of these deal with coal. The largest portion, more than one-half, of the archives deals with oil shale correspondence and reports.

The room in the Arthur Lakes Library at the Colorado School of Mines, currently designated as the Tell Ertl Oil Shale Repository, is nearly two-thirds full. There is still room for several more collections.

The School is seeking additional collections to add to the archives and additional funding to maintain the archives as a repository of historical documents and a resource for future scholars and researchers.

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