DOCUMENTS CONTAINING OPERATING DATA FOR
HANFORD SEPARATIONS PROCESSES, 1944-1972

Hanford Environmental Dose
Reconstruction Project

S. P. Gydesen

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Battelle
Pacific Northwest Laboratories
Richland, Washington 99352

MASTER

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PREFACE

The primary objective of the Hanford Environmental Dose Reconstruction (HEDR) Project is to estimate the radiation dose (with descriptions of the uncertainties inherent in such estimates) that individuals could have received as a result of emissions since 1944 from the U.S. Department of Energy's (DOE) Hanford Site near Richland, Washington. An independent Technical Steering Panel directs the project which is conducted by Battelle Pacific Northwest Laboratories staff.

A secondary objective is to make Hanford-Site-originated documents of potential interest and use available to the public through the U.S. Government's National Technical Information Service and the DOE Richland Field Office (RL) Public Reading Room, Richland, Washington.

The HEDR Project work is conducted under several technical and administrative tasks, among which are the Source Terms Task and the Information Resources Task. Under the Source Terms Task, estimates of radioactive emissions from Hanford facilities since 1944 are developed. These estimates are based on historical measurements and production information.

The Information Resources Task identifies, searches for, retrieves, declassifies (if necessary), and makes available to HEDR staff and the public those documents essential to meet project needs. Project information needs center around 1) information necessary to estimate doses people may have received and 2) information requested by the public on operational and radioactive material releases.

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SUMMARY

The purpose of this letter report is to identify documents that record batch, daily, or selected monthly separations processes operating information at the Hanford Site for the years 1944-1972. The information found in these documents is needed to develop the source terms necessary to make dose estimates. The documents have been identified, located, declassified if necessary, evaluated, and made available to the HEDR Project in general, the HEDR Task 03 (Source Terms) in particular, and the public. Complete bibliographic citations and some sample pages from the Hanford separations processes documents are included.

This report and an earlier report (one listing those documents from 1944-1971 which address daily operating data for the single-pass reactors) (Gydesen 1992a) fulfill the information resource needs for HEDR Task 03 to develop the source terms necessary to make dose estimates.

The documents identified in this report may be of significant value to other Hanford-Site activities requiring operating information. Consequently, it is recommended that they be identified as historical records for permanent retention.

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1.0 INTRODUCTION

The primary objective of the Hanford Environmental Dose Reconstruction (HEDR) Project is to estimate the radiation doses that individuals could have received as a result of emissions since 1944 from the U.S. Department of Energy's (DOE) Hanford Site near Richland, Washington. The first step in dose estimation is to calculate source terms--the quantities of radionuclides that were released to the environment from various Hanford operations. The quantities of each radionuclide available for release at any time are a function of the irradiation history of the fuel, the time elapsed since the fuel was removed from the reactor, and the amount of irradiated fuel being dissolved.

To calculate source terms, two types of information are needed:

1) facilities operation information necessary to calculate amounts of radioactive materials generated and released to the environment and 2) monitoring information indicating concentrations of radioactive materials in the environs and how those concentrations were measured or calculated. One of the responsibilities of the Information Resources Task is to identify and retrieve historical production operating information for developing source terms.

The purpose of this letter report is to identify documents that record the operating information on batch, daily, or selected monthly separations processes at the Hanford Site for the years 1944-1972. Only documents containing information about separations processes operations are listed here. A similar listing addressing operation of the single-pass Hanford reactors (Gydesen 1992a) was published earlier. The time periods of the data needed by the various HEDR models are detailed in a July 1992 letter report (Shipler and Napier 1992).

2.0 QUALITY ASSURANCE AND DATA QUALITY OBJECTIVES

Data quality objectives (DQO) were established in FY 1992 task plans for the Information Resources Task. For this activity, completeness and representativeness were the only data quality objectives identified in the task plan. The approach to achieve these objectives is to use the search tree process to review currently available subject, author, periodical, and serial indices of archival documents for those of interest to the project. Achievement of these data quality objectives was to be addressed at the completion of each search effort or report.

Completeness and representativeness were included as data quality objectives to ensure that any discovery of additional information would not alter the project reconstructed results. Achievement of these DQOs has been satisfied by the internal peer reviews performed by the source term task leader and the line manager of the author. The line manager's review ensures that the development of the search trees was sufficient for this particular activity and the source term task leader's review ensures that the required information has been provided to him to perform the necessary reconstructed release information for the source term model.

3.0 APPROACH

The process used (Shipler 1991) to collect the documents which contain operating information for Hanford separation processes for the period 1944-1972 included the following activities:

- identifying - screening author, subject, periodical, and serial indices and other computer-generated lists
- searching - physically looking for documents
- retrieving - acquiring documents from their filed, stored, or archived locations
- evaluating - reading documents to determine content and usefulness
- declassifying - reading of documents by an Authorized Derivative Declassifier to determine whether the document could be declassified as is or declassified with certain information deleted in accordance with directives from originating agencies
- making available - processing and placing documents in the RL Public Reading Room in Richland and other publicly available collections of the National Technical Information Service (NTIS).

In the course of retrieving the separations processes documents created from 1944-1972, it was discovered that some of the documents no longer existed. Older documents especially had been destroyed over the years when the storage retention dates assigned to them in accordance with the government's records disposition schedule were reached or exceeded. This was the case for many daily operating records from 1951 forward. Consequently, for most years, only monthly data could be retrieved for the reduction/oxidation with solvent extraction (REDOX) and plutonium uranium extraction (PUREX) processes.

The verification of document destruction is on file record cards which are located in one of two places: the Battelle Pacific Northwest Laboratories Classified Matter Control Center or the Boeing Computer Services Richland Records Holding Area. All data originated prior to 1972 that are necessary to the Source Terms Task today were classified. All classified documents were

assigned numbers, and the destruction of documents with assigned numbers always was recorded on the file records cards. Consequently, Battelle staff are assured that there are no destroyed data necessary to the Source Terms Task that have not been identified.

Another aspect of the document retrieval to be addressed was that many of the documents sought were classified. In order for these documents to be used and made available to the public, they needed to be declassified. DOE declared that Hanford plutonium production and operations-related information generated between 1944-1972 could be declassified.^(a)

During 1944-1972 there were three Hanford-Site separations processes, one of which was used at two separate plants--the B Plant and the T Plant. From these three separations processes, Battelle staff compiled three sets of documents. Table 3.1 provides an overview of the separations processes, their startup and shutdown dates through 1972. Tables 3.2, 3.3, and 3.4 provide the

TABLE 3.1. Hanford Separations Processes with Startup and Shutdown Dates
(Jech et al. 1986)

<u>Plant</u>	<u>Startup</u>	<u>Shutdown</u>
Bismuth Phosphate Process T Plant - 200 West	December 1944	March 1956
Bismuth Phosphate Process B Plant - 200 East	April 1945	July 1952
REDOX Process S Plant - 200 West	January 1952	November 1966
PUREX Process A Plant - 200 East	January 1956	November 1972 [*]

(*) The PUREX Plant was reactivated in 1983 and shut down again in 1989.

(a) The initial authorizing guidance to review those documents generated from 1944 through 1960 for declassification was given in DOE memorandum, Change Notice No. 2 to CG-PR-2, dated February 21, 1990, from A. Bryan Siebert, Director, Office of Classification, DOE-HQ, Washington, D.C. The second authorizing guidance to review documents generated from 1961 through 1972 for declassification was given in DOE memorandum, PR-24 Declassification of Hanford Production and Fuel Cladding Technology, dated April 6, 1992, from Roger Heusser for A. Bryan Siebert, Director, Office of Classification, DOE-HQ, Washington, D.C.

TABLE 3.2. Documents Containing Operating Data from the Bismuth Phosphate Process at the B and T Plants, 1944-1956

Year	Document Number	Title	Availability	Document Date Year of Publication	Corporate Author and Location	Number of Pages	Author(s)	Remarks
1944	HW3-1369	Plant Performance Data Report for Week Ending 1/3/1945	RL Public Reading Room	Jan 6, 1945	Du Pont-Hanford	8	M. F. Acken	By dissolver batch
1945	HW3-1406	Weekly Reports, Summary of Plant Results 1/10/45-6/27/45	RL Public Reading Room	Jun 27, 1945	Du Pont-Hanford	157	M. F. Acken G. W. Bird	By dissolver batch
1945-1946	HW7-1938	Summary of Plant Results 7/5/45-5/22/46	RL Public Reading Room	May 22, 1946	Du Pont-Hanford	371	G. W. Bird V. D. Donihee	By dissolver batch
1946	HW7-3135	Summary of S Department Plant Results for Weeks Ending 5/29/46-6/26/46	None (See Remarks)	Jun 26, 1946	Du Pont-Hanford		V. D. Donihee	All copies destroyed 4/68 ^(a)
1946	HW7-4333	S Department Summary of Plant Results for Weeks Ending 7/3/46-8/31/46	None (See Remarks)	Aug 31, 1946	Du Pont-Hanford		V. D. Donihee	All copies destroyed 4/68 ^(a)
1946-1947	FTS-XX-71	Metal History and Percent Record 8/27/46-12/29/47	Metal History only PNL-3760 Bldg	Nov 19, 1946	GE-Hanford	300	V. D. Donihee	By dissolver batch (Handwritten ledgers not easily reproduced)
1947-1949	FTS-XX-179	Metal History and Percent Record (Continuation of FTS-XX-71) 12/26/47-4/29/49	Metal History only PNL-3760 Bldg	Jan 1, 1948	GE-Hanford	300	V. D. Donihee	By dissolver batch (Handwritten ledgers not easily reproduced)
1949-1950	FTS-XX-311	Metal History and Percent Record (Continuation of FTS-XX-179) 4/25/49-12/31/50	Metal History only PNL-3760 Bldg.	Apr 26, 1949	GE-Hanford	300	V. D. Donihee	By dissolver batch (Handwritten ledgers not easily reproduced)
1951	HMN-1182	S. F. Accountability Logs, B Percent 1951	None (See Remarks)	Jun 6, 1955	GE-Hanford		V. D. Donihee	Only copy destroyed 1967 ^(a)
1951	HMN-1183	S. F. Accountability Logs, T Percent 1951	None (See Remarks)	Jun 6, 1955	GE-Hanford		V. D. Donihee	Only copy destroyed 1967 ^(a)

(a) Verification of Destruction is on File Record Cards at the Battelle Classified Matter Control Center or Boeing Computer Services Richland Records Holding Area.

TABLE 3.2. (contd)

Year	Document Number	Title	Availability	Document Date Year of Publication	Corporate Author and Location	Number of Pages	Author(s)	Remarks
1952	HMN-1178	S. F. Accountability Logs, B Percent 1952	None (See Remarks)	Jun 6, 1955	GE-Hanford		V. D. Donihee	Only copy destroyed 1967(a)
1952	HMN-1181	S. F. Accountability Logs, B Percent 1952	None (See Remarks)	Jun 6, 1955	GE-Hanford		V. D. Donihee	Only copy destroyed 1967(a)
1952	HM-4683T	Dissolving Data, 271B Building (Continuation of HM-2875L which has been destroyed) 1/1/52-3/20/52	RL Public Reading Room	Dec 21, 1951	GE-Hanford	5	J. H. Wolff	By dissolver batch but not complete in all respects
1952-1955	HM-4684T	Dissolving Data, 271T Building (Continuation of HM-2875L which has been destroyed) 1/1/52-6/30/55	RL Public Reading Room	Dec 21, 1951	GE-Hanford	52	J. H. Wolff	By dissolver batch but not complete in all respects
1953-1955	FTS-XX-1658	T Plant Percent Book 1953-1955	Metal History only PNL-3760 B1dg	Aug 10, 1956	GE-Hanford	152	V. D. Donihee	By dissolver batch (Handwritten ledger not easily reproduced)
1944-1957	FTS-CLVI-73	Monthly Summary of Dissolver Data 12/31/44-6/30/57	RL Public Reading Room	Jun 30, 1957	GE-Hanford	50	J. L. Jaech	Monthly
1944-1972	HMN-1991	CPD Waste Storage and Experience (Commonly referred to as the Anderson notebook)	RL Public Reading Room	Jul 26, 1957	GE-Hanford	152	R. E. Roberts	Monthly averages only
1944-1972	HM-89085	Selected Monthly Operating Data for B and T Plants, REDOX and PUREX (1944-1972)	RL Public Reading Room	Apr 1992	GE-Hanford	27	S. P. Gydesen	Monthly averages only
1944-1972	RHO-RE-SR-47	Fuel Irradiation, Separations and Shipment Data	RL Public Reading Room (Microfiche only)	May 20, 1985	Rockwell- Hanford	664	F. M. Jungfleisch	Monthly averages only

(a) Verification of Destruction is on file record cards at the Battelle Classified Matter Control Center or Boeing Computer Services Richland Records Holding Area.

TABLE 3.3. Documents Containing Operating Data from the REDOX Process at the S Plant, 1952-1966

Year	Document Number	Title	Availability	Document Date Year of Publication	Corporate Author and Location	Number of Pages	Author(s)	Remarks
1952-1955	HW-4685T	Dissolving Data, S Plant	RL Public Reading Room	Dec 21, 1951	GE-Hanford	60	J. H. Wolff	By run but not complete in all respects
1952-1957	FTS-CLVI-73	Monthly Summary of Dissolver Data 12/31/41-6/30/57	RL Public Reading Room	Jun 30, 1957	GE-Hanford	50	J. L. Jaech	Monthly
1952-1966	HMN-1991	CPD Waste Storage and Experience	RL Public Reading Room	Jul 26, 1957	GE-Hanford	152	R. E. Roberts	Monthly
1952-1966	HW-89085	Selected Monthly Operating Data for B and I Plants, REDOX and PUREX (1942-1972)	RL Public Reading Room	Apr 1992	GE-Hanford	27	S. P. Gydesen	Monthly
1960-1964	PNWD-2017 HEDR	Selected Hanford Reactor and Separations Operating Data for 1960-1964	RL Public Reading Room	Apr 1992	BNW- Richland	230	S. P. Gydesen (Gydesen 1992b)	Monthly
1944-1972	RHO-RE-SR-47	Fuel Irradiation, Separations and Shipment Data	RL Public Reading Room (Microfiche only)	May 20, 1985	Rockwell- Hanford	664	F. M. Jungfleisch	Monthly

TABLE 3.4. Documents Containing Operating Data from the PUREX Process at the A Plant, 1956-1972

<u>Year</u>	<u>Document Number</u>	<u>Title</u>	<u>Availability</u>	<u>Document Date Year of Publication</u>	<u>Corporate Author and Location</u>	<u>Number of Pages</u>	<u>Author(s)</u>	<u>Remarks</u>
1956-1957	FTS-CLVI-73	Monthly Summary of Dissolver Data 12/31/44-6/30/57	RL Public Reading Room	Jun 30, 1957	GE-Hanford	50	J. L. Jaech	Monthly
1956-1972	HMN-1991	CPD Waste Storage and Experience	RL Public Reading Room	Jul 26, 1957	GE-Hanford	152	R. E. Roberts	Monthly
1956-1972	HM-89085	Selected Monthly Operating Data for B and T Plants, REDOX and PUREX (1944-1972)	RL Public Reading Room	Apr 1992	GE-Hanford	27	S. P. Gydesen	Monthly
1960-1964	PNWD-2017 HEDR	Selected Hanford Reactor and Separations Operating Data for 1960-1964	RL Public Reading Room	Apr 1992	BNW- Richland	230	S. P. Gydesen (Gydesen 1992b)	Monthly
1944-1972	RHO-SE-SR-47	Fuel Irradiation, Separations and Shipment Data	RL Public Reading Room (Microfiche only)	May 20, 1985	Rockwell- Hanford	664	F. M. Jungfleisch	Monthly

listings of these separations processes documents. Additional information relative to the design of site facilities and some of the significant events during the early years of operation can be found in the history of site operations by Ballinger and Hall (1991).

Documents which contain information for the Bismuth Phosphate Process at the B Plant and T Plant are presented in Table 3.2. The B Plant and T Plant dissolver batches were identified by run number. These dissolver batches are commonly referred to as metal histories. For those time frames when information by run number no longer exists, documents giving the best available monthly averages are identified. The listing of documents in Table 3.2 includes for each year these plants were operating the year, document number, title, availability, date of publication, corporate and personal author(s) (when known), number of pages, and remarks which explain either the periodicity of the document or its destruction.

Table 3.2 shows that the Du Pont S Department weekly reports for May 23, 1946 through August 31, 1946 have been destroyed. The approach taken to fill this 14-week gap will be discussed in detail in the forthcoming HEDR report on iodine-131 releases from the Hanford Site, 1944-1947 (Milestone 0302A).

When General Electric Company assumed the contract for operation of Hanford in September 1946, they created metal histories for the B Plant and T Plant. The logs for General Electric's 1951 and 1952 metal histories were destroyed in 1967. Only monthly data still exist for calendar year 1951 for both B Plant and T Plant (see FTS-CLVI-73, HWN-1991, HW-89085, or RHO-RE-SR-47, listed in Table 3.2). There are limited batch dissolver data for B Plant from January through most of March 1952 (HW-4683T, Table 3.2). No batch or daily dissolver data are available for B Plant from April through July 1952. B Plant was shut down in July 1952. T Plant dissolving data and metal history still exist for the years 1952 through 1955 (HWN-4684T and FTS-XX-1658, Table 3.2). No batch or daily data are available for January through March 1956. The T Plant was shut down in March of that year.

Battelle staff compared the available batch and daily data through 1947 with the data for the comparable period found in J. L. Jaech's monthly summary

of dissolver data (Jaech 1957). Jaech's monthly summary presents excellent corroborative information. This can, in turn, be crosschecked utilizing data in what has recently become known as the Anderson notebook (Roberts 1957). This notebook was also used to record data on the quantities and location of the stored wastes.

In addition, the compilation of data in the document, *Selected Monthly Operating Data for B and T Plants, REDOX and PUREX (1944-1972)* (Gydesen 1992c), is in very good agreement with that presented in the Anderson notebook (Roberts 1957). The Anderson notebook data were used to generate the document (Anderson 1974) that gives values for gaseous wastes discharged to the atmosphere from 1944-1972. The collection of reactor and separations data from 1944-1972 (Jungfleisch 1985) provides another excellent monthly source of data on all separations plants from startup to shutdown.

The Information Resources Task of the HEDR Project was unable to identify logbooks containing information by dissolver batch for either REDOX or PUREX. Records of this nature were kept by the Chemical Processing Department, but they were destroyed by 1969 because a need for further retention had not been established. However, this batch data is not necessary to calculate dose. It was determined that source term estimation for REDOX and PUREX from 1952-1972 would be based on monthly averages (Shipler and Napier 1992).

The most complete and reliable summary of dissolver data (Jaech 1957) for REDOX and PUREX addresses their operations from startup but only through June 30, 1957. The Anderson notebook (Roberts 1957), the compilation of chemical processing statistics (Gydesen 1992c), and the fuel irradiation and separations data (Jungfleisch 1985) give data by the month from startup through shutdown for both REDOX and PUREX. Tables 3.3 and 3.4 identify existing documents specific to REDOX and PUREX. It should be noted that these tables do not present the continuity that was possible for Table 3.2.

REDOX and PUREX operating experience and statistics are presented in each Hanford monthly report of the organization that had the responsibility for operation of these plants. A listing of these reports for 1952-1972 is

given in Table 3.5. All of these reports in Table 3.5 are in the RL Public Reading Room or scheduled to be placed there before the completion of the HEDR Project.

As an aid to potential readers, copies of some of the pages from documents listed in this report are in the Appendix. These samples are provided to show the content and quality of typical historical documents to help readers decide whether to request them.

TABLE 3.5. REDOX and PUREX Monthly Reports, 1952-1972^(a)

Hanford Works Monthly Reports, General Electric Company - Hanford Atomic Products Operation (200-400 pages each)

HW-23437	Jan 1952	HW-29229	Aug 1953	HW-35891	Mar 1955
HW-23698	Feb 1952	HW-29513	Sep 1953	HW-36440	Apr 1955
HW-23982	Mar 1952	HW-29794	Oct 1953	HW-36928	May 1955
HW-24337	Apr 1952	HW-30130	Nov 1953	HW-37658	Jun 1955
HW-24605	May 1952	HW-30423	Dec 1953	HW-38375	Jul 1955
HW-24928	Jun 1952	HW-30724	Jan 1954	HW-38828	Aug 1955
HW-25227	Jul 1952	HW-31006	Feb 1954	HW-39260	Sep 1955
HW-25533	Aug 1952	HW-31267	Mar 1954	HW-39751	Oct 1955
HW-25781	Sep 1952	HW-31734	Apr 1954	HW-40182	Nov 1955
HW-26047	Oct 1952	HW-31964	May 1954	HW-40692	Dec 1955
HW-26376	Nov 1952	HW-32317	Jun 1954	HW-41205	Jan 1956
HW-26720	Dec 1952	HW-32624	Jul 1954	HW-41702	Feb 1956
HW-26946	Jan 1953	HW-32889	Aug 1954	HW-42219	Mar 1956
HW-27288	Feb 1953	HW-33200	Sep 1954	HW-42626	Apr 1956
HW-27624	Mar 1953	HW-33585	Oct 1954	HW-43137	May 1956
HW-27932	Apr 1953	HW-33962	Nov 1954	HW-43938	Jun 1956
HW-28267	May 1953	HW-34147	Dec 1954	HW-44580	Jul 1956
HW-28576	Jun 1953	HW-34631	Jan 1955	HW-45115	Aug 1956
HW-28906	Jul 1953	HW-35530	Feb 1955		

Chemical Processing Department Monthly Reports, General Electric Company - Hanford Atomic Products Operation (50-75 pages each)

HW-45707	Sep 1956	HW-56602	Jun 1958	HW-64576	Mar 1960
HW-46432	Oct 1956	HW-56972	Jul 1958	HW-64991	Apr 1960
HW-47056	Nov 1956	HW-57328	Aug 1958	HW-65165	May 1960
HW-47675	Dec 1956	HW-57640	Sep 1958	HW-65935	Jun 1960
HW-48132	Jan 1957	HW-58051	Oct 1958	HW-66271	Jul 1960
HW-48835	Feb 1957	HW-58305	Nov 1958	HW-66646	Aug 1960
HW-49503	Mar 1957	HW-58711	Dec 1958	HW-66958	Sep 1960
HW-50089	Apr 1957	HW-59079	Jan 1959	HW-67252	Oct 1960
HW-50584	May 1957	HW-59434	Feb 1959	HW-67459	Nov 1960
HW-51211	Jun 1957	HW-59849	Mar 1959	HW-67985	Dec 1960
HW-51802	Jul 1957	HW-60236	Apr 1959	HW-68345	Jan 1961
HW-52353	Aug 1957	HW-60559	May 1959	HW-68700	Feb 1961
HW-52864	Sep 1957	HW-60915	Jun 1959	HW-69051	Mar 1961
HW-53449	Oct 1957	HW-61366	Jul 1959	HW-69443	Apr 1961
HW-53967	Nov 1957	HW-61736	Aug 1959	HW-69803	May 1961
HW-54319	Dec 1957	HW-62179	Sep 1959	HW-70182	Jun 1961
HW-54821	Jan 1958	HW-62593	Oct 1959	HW-70588	Jul 1961
HW-55815	Feb 1958	HW-62864	Nov 1959	HW-70918	Aug 1961
HW-55571	Mar 1958	HW-63313	Dec 1959	HW-71187	Sep 1961
HW-55914	Apr 1958	HW-63706	Jan 1960	HW-71577	Oct 1961
HW-56218	May 1958	HW-64089	Feb 1960	HW-71895	Nov 1961

TABLE 3.5. (contd)

HW-72154	Dec 1961	HW-77795	May 1963	RL-SEP-52	Oct 1964
HW-72551	Jan 1962	HW-78076	Jun 1963	RL-SEP-112	Nov 1964
HW-72890	Feb 1962	HW-78484	Jul 1963	RL-SEP-197	Dec 1964
HW-73193	Mar 1962	HW-78817	Aug 1963	RL-SEP-282	Jan 1965
HW-73525	Apr 1962	HW-79097	Sep 1963	RL-SEP-332	Feb 1965
HW-73884	May 1962	HW-79480	Oct 1963	RL-SEP-405	Mar 1965
HW-74151	Jun 1962	HW-79768	Nov 1963	RL-SEP-476	Apr 1965
HW-74505	Jul 1962	HW-80243	Dec 1963	RL-SEP-509	May 1965
HW-74804	Aug 1962	HW-80672	Jan 1964	RL-SEP-618	Jun 1965
HW-75145	Sep 1962	HW-81078	Feb 1964	RL-SEP-654	Jul 1965
HW-75470	Oct 1962	HW-81620	Mar 1964	RL-SEP-706	Aug 1965
HW-75702	Nov 1962	HW-82089	Apr 1964	RL-SEP-755	Sep 1965
HW-76054	Dec 1962	HW-82526	May 1964	RL-SEP-837	Oct 1965
HW-76443	Jan 1963	HW-83102	Jun 1964	RL-SEP-874	Nov 1965
HW-76848	Feb 1963	HW-83508	Jul 1964	RL-SEP-913	Dec 1965
HW-77138	Mar 1963	HW-83876	Aug 1964		
HW-77504	Apr 1963	HW-84354	Sep 1964		

200 Area's Operation Monthly Reports, Isochem, Inc. (40-60 pages each)

ISO-00089	Jan 1966	ISO-00476	Aug 1966	ISO-00709	Mar 1967
ISO-00143	Feb 1966	ISO-00512	Sep 1966	ISO-00710	Apr 1967
ISO-00210	Mar 1966	ISO-00563	Oct 1966	ISO-00711	May 1967
ISO-00276	Apr 1966	ISO-00610	Nov 1966	ISO-00712	Jun 1967
ISO-00315	May 1966	ISO-00642	Dec 1966	ISO-00713	Jul 1967
ISO-00365	Jun 1966	ISO-00707	Jan 1967	ISO-00714	Aug 1967
ISO-00428	Jul 1966	ISO-00708	Feb 1967		

200 Area's Operation Monthly Reports, Atlantic Richfield Hanford Company (40-60 pages each)

ARH-00059	Sep 1967	ARH-01101	Feb 1969	ARH-01507	Jul 1970
ARH-00060	Oct 1967	ARH-01102	Mar 1969	ARH-01508	Aug 1970
ARH-00061	Nov 1967	ARH-01103	Apr 1969	ARH-01509	Sep 1970
ARH-00062	Dec 1967	ARH-01104	May 1969	ARH-01510	Oct 1970
ARH-00300	Jan 1968	ARH-01005	Jun 1969	ARH-01511	Nov 1970
ARH-00301	Feb 1968	ARH-01106	Jul 1969	ARH-01512	Dec 1970
ARH-00302	Mar 1968	ARH-01107	Aug 1969	ARH-01901	Jan 1971
ARH-00303	Apr 1968	ARH-01108	Sep 1969	ARH-01902	Feb 1971
ARH-00304	May 1968	ARH-01109	Oct 1969	ARH-01903	Mar 1971
ARH-00305	Jun 1968	ARH-01110	Nov 1969	ARH-01904	Apr 1971
ARH-00306	Jul 1968	ARH-01111	Dec 1969	ARH-01905	May 1971
ARH-00307	Aug 1968	ARH-01501	Jan 1970	ARH-01906	Jun 1971
ARH-00308	Sep 1968	ARH-01502	Feb 1970	ARH-01907	Jul 1971
ARH-00309	Oct 1968	ARH-01503	Mar 1970	ARH-01908	Aug 1971
ARH-00310	Nov 1968	ARH-01504	Apr 1970	ARH-01909	Sep 1971
ARH-00311	Dec 1968	ARH-01505	May 1970	ARH-01910	Oct 1971

TABLE 3.5. (contd)

ARH-01100	Jan 1969	ARH-01506	Jun 1970	ARH-01911	Nov 1971
ARH-01912	Dec 1971	ARH-02305	May 1972	ARH-02310	Oct 1972
ARH-02301	Jan 1972	ARH-02306	Jun 1972	ARH-02311	Nov 1972
ARH-02302	Feb 1972	ARH-02307	Jul 1972	ARH-02312	Dec 1972
ARH-02303	Mar 1972	ARH-02308	Aug 1972		
ARH-02304	Apr 1972	ARH-02309	Sep 1972		

(a) Each monthly report includes 2-4 pages which address REDOX and/or PUREX operating experience and statistics.

4.0 CONCLUSIONS AND RECOMMENDATION

Documents containing batch, daily or selected monthly operating data for Hanford separations processes from 1944-1972 have been identified, located, declassified if necessary, evaluated, and made available to the HEDR Project and the public. This report and an earlier report (Gydesen 1992a), listing those documents from 1944-1971 which address daily operating data for the single-pass reactors, fulfill the information resource needs for HEDR Task 03 to develop the source terms necessary to make dose estimates.

The documents identified in this report may be of significant value to other Hanford Site activities requiring operating information. Consequently, it is recommended that they be identified as historical records for permanent retention.

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APPENDIX

SAMPLE PAGES FROM HANFORD SEPARATIONS PROCESSES DOCUMENTS

APPENDIX

SAMPLE PAGES FROM HANFORD SEPARATIONS PROCESSES DOCUMENTS

The purpose of this appendix is as an aid to potential readers. The sample pages provided here show the content and quality typical of historical documents to help readers decide whether to request them. The samples, therefore, are only photocopies and purposely not enhanced.

<u>Samples Included</u>	<u>Appendix Page Nos.</u>
Daily Run Status, 221T-224T Bldgs.	A.2
Metal History, B Area (200E)	A.3
221-T & 221-B Production	A.4
PUREX	A.5
Dissolving Times	A.6

DATE		12-27-45	12-28-45	12-29-45	12-30-45	12-31-45	1-1-46	1-2-46
SECTION								
3	Dissolving	D42,43,44	D4 44	----	D4 46,47	----	D4 1,2,3*	D4 1,2,3*
4	Dissolving	----	----	----	----	----	----	----
4-7	Storage	D4 41	D4 42, 43	D4 43, 44	D4 44	D4 45, 46	D4 45,46,47	D4 46,47
4-8	Storage	----	----	----	D4 45	D4 47	----	----
6	Extraction	F 31	F 32	----	D 35	----	----	----
8	Extraction	----	----	D 33	D 34	D 35, 36	D 36	D 1*
9	Waste	----	----	F 32	----	----	----	----
12	Oxidation Storage	----	----	----	----	D 35	----	----
13	1st Ry-Prod.	F 30	F 31	F 32	D 33	D 34	D 35	36
14	1st Prod.	D 29	F 30	F 31	F 32	D 33	D 34,35	D 35
15	Waste	D 27	D 28	D29F30,31	F 32	F 32	D 33,34	D 33,35
16	2nd Ry-Prod.	D 28	D 28	----	----	----	----	D 34
17	2nd Prod.	D 27	D 29	F 30	F 31	F 32	D 33	D 33
C	Oxidation	----	----	----	----	----	----	----
A	Gross-Over Bl PU ₄	----	----	D 29	F 30	----	----	----
D	1st Ry-Prod.	----	D 27	D 28,	F 30	F 31	F 32	F 32
E	Prod.	D 26	----	D 28	D 29	F 30	----	----
F	Metathesis	----	----	D 27	D 28	F 30	F 31	F 31
G	Waste	----	----	D 27	----	----	----	----

*Represents 16-01 items

10-Metal History

B Area (200E) 1946

Drill No.	Dib No	Pierces		Pace Date	MWD		Extraction				Split		Soils		
		Per	TD		Per	MO	Date	Size	Run	Time	Grain	Time	7-25	Time	
00	Dd 36	3-5		173541	7-2D		135990	8-27	56	D33	281	10	28	46	129
	Dd 37	4-5	315		7-2D	249									
	38		525		7-9D	421		8-28	50	D34	277	6	17	35	97
	39			174321			136660	8-29	51	D35	285	4	11	24	68
	Fd 40	3-5	840		7-3F	663		8-30	58	F36	286	2	6	18	51
	41							8-30	58	F37	271	2	5	11	30
	42			175221			137383								
	Dd 43	4-5	840		7-9D	676		8-31	53	D38	283	1	3	8	23
	44							9-1	54	D1	288	1	3	5	14
	45			176061			137999	9-3	56	D2	295			4	12
	Dd 46	3-5	840		7-9D	678						7-16D			
	47							9-4	57	D3	285	13	37	2	6
	48			176901			138671	9-4	57	D4	289	24	69	1	3
	Dd 49	4-5	840		7-9D	672		9-5	58	D5	277	37	102	1	3
	50														8-68
	51			177741			139343	9-6	59	D6	285	51	145		
	Dd 52	3-5	840		7-16D	672		9-7	53	D7	282	65	183		
	53							9-7	53	D8	279	76	212		
	54	Loss	-26	178555			140015								
09	Dd 1	4-5	210	148765	7-16D	118	140183	9-8	54	D9	277	83	230	7-17F	
	2		630		7-16D	584		9-9	55	D10	278	77	214	12	33
	3			179395			140687	9-10	56	D11	278	74	206	19	53
	Dd 4	3-5	840		7-16D	665		9-11	57	D12	283	51	144	44	125
	5														
	6			180235			141352	9-11	56	F13	285	34	97	63	179
	Dd 7	4-5	840		7-17F	694		9-14	59	F14	292	22	64	76	220
	8														
	9			181075			142046								
	Fd 10	3-5	840		7-17F	692		9-15	60	F15	296	14	42	68	201
	11														
	12			181915			142738	9-16	61	F16	285	10	29	47	134
	Dd 13	4-5	840		7-23D	677		9-16	55	D17	283	6	17	34	96
	14							9-17	56	D18	264	3	8	23	61
	15			182755			143415								
	Dd 16	3-5	840		7-23D	680		9-18	57	D19	272	2	5	15	41
	17							9-19	58	D20	283	2	6	9	25
	18			193595			144095								
	Fd 19	4-5	840		7-24F	653		9-19	57	D21	285	1	3	6	17
	20							9-20	58	F22	283			4	12
	21			194435			144778	9-21	59	F23	281			3	8
								9-21							

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D U R E X

	Tone	Ko's	% Crown	Swelling Avg	min	% U	% D
1969							
Jan	0	605	29	244	230	-	-
Feb	128.38	262.57	23	297	195	.34	.46
Mar	133.346.09	316.94	37	247	184	.19	.24
Apr	133.270.01	173.16	46	300	234	.22	.65
May	459.90	224.57	23	373	183	.22	.39
June	109.52	95.23	71	222	121	.33	.42
FY 1969	2217.20	2572.22					

July	17.67	24.81	89	215	129	.49	.22
Aug	368.62	318.80	24	261	180	.30	.22
Sept	384.32	303.23	21	226	175	.27	.24
Oct	312.12	190.47	29	244	187	.38	.50
Nov	303.45	204.35	37	291	191	.25	.46
Dec	312.42	357.96	23	361	202	.20	.22
CY 1969	3024.56	2544.14					

Jan	246.37	149.94	56	215	177	.33	.39
Feb	84.27	62.28	82	0	0	.25	.53
Mar	11.55	17.23	22	227	125	.05	.45
Apr	311.61	242.09	41	326	219	.19	.40
May	61.93	131.23	62	304	201	.63	.68
June	51.98	47.83	82	-	-	.03	.45
FY 1970	2026.77	2050.22					

July	-	-	100	-	-	-	-
Aug	-	-	92	1395	438	-	-
Sept	121.99 (u-233)	132.19 (u-233)	10	922	355	9.0 (u-233)	2.22 (u-233)
Oct	22.01 (u-233)	40.11 (u-233)	63	525	352	2.76 (u-233)	10.26 (u-233)
Nov	155.66 (u-233)	110.20 (u-233)	18	534	302	2.55 (u-233)	5.00 (u-233)
Dec	20.57 (u-233)	175.76 (u-233)	56	525	110	4.63 (u-233)	2.10 (u-233)
CY 1970	116.24	1210.26					

SECRET-INTRO-10-10-10

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Run	Date	Dissolving Times, August 1952, cont'd	Time	Push Data	Δt Days	I ¹²¹	X
1	7-28	0110 → 0800	A-2	6 ⁵⁰	84	47	
2	28	2005 → 0250		6 ⁴⁵	84	46	
3	7-29	2115 → 0555		8 ⁴⁰	84	35	
D-18, 1	29	0020 → 0555	B-2	5 ³⁵	84	35	
2	29	2045 → 0152		5 ⁴⁷	84	32	
3	7-30	0240 → 0940		7 ⁰⁰	84	32	
H-19, 1	30	2048 → 0300	A-2	6 ¹²	84	60	
2	7-31	0356 → 1000		6 ⁰⁴	80	58	
3	31	1600 → 1205 ex B-1		20 ⁰⁵	80	54	
H-20, 1	31	0350 → 0933	B-2	5 ⁴³	80	57	
2	31	1547 → 2115		5 ¹⁸	80	55	
3	B-1	0400 → 1105		7 ⁰⁵	81	53	
H-1 1	8-2	2052 → 0145	B-2	4 ⁵³	82	46	
2	8-3	0310 → 0845		5 ³⁵	83	44	
3	3	2142 → 0423		6 ⁴¹	83	42	
H-2 1	8-5	0020 → 0640	A-2	6 ²⁰	85	36	
2	5	1510 → 1840		3 ³⁰	85	36	
3	5	1950 → 0300		7 ¹⁰	85	35	
H-3 1	5	0105 → 0705	B-2	6 ⁰⁰	85	39	
2	5	1550 → 1857		3 ⁰⁷	85	36	
3	5	2210 → 0300		4 ⁵⁰	85	35	
H-4 1	8-7	0035 → 0650	A-2	6 ¹⁵	87	32	
2	7	1732 → 2355		6 ²³	87	30	
3	8-8	0115 → 0920		8 ⁰⁵	88	29	
B-5 1	8-7	1700 → 2225	B-2	5 ²⁵	72	113	
2	7	2255 → 0407		5 ¹²	72	111	
3	8-8	0510 → 1137		6 ²⁷	73	105	
B-6 1	8	2340 → 0557	A-2	6 ¹⁷	73	110	
2	8-9	1825 → 2400		5 ³⁵	74	94	
3	8-10	0115 → 0828		7 ¹³	75	91	
B-7 1	8-11	2236 → 0332	B-2	5 ⁵⁶	76	78	
2	8-12	0455 → 1000		5 ⁰⁶	77	81	
3	12	1635 → 2235		6 ⁰⁰	77	72	
B-8 1	12	0309 → 0918	A-2	6 ⁰⁷	77	76	
2	12	1630 → 2220		5 ⁵⁰	77	72	
3	12	2315 → 0637		7 ²²	77	71	
H-9 1	8-13	2100 → 0103	B-2	4 ⁰³	68	152	
2	8-14	0514 → 0832		5 ¹⁷	69	150	
3	14	1815 → 0025		6 ¹⁰	69	17	

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