PRIVACY ACT MATERIAL REMOVED

[redacted]

DECLASSIFIED WITH DELETIONS

HW 25227-DEL

This document consists of 296 pages. No. [redacted] of [redacted] copies. Se[redacted]

HANFORD WORKS MONTHLY REPORT

FOR

JULY 1952

727761

REPOSITORY PNL

COLLECTION Atmospheric Releases

BOX No. N/A

FOLDER N/A

Hanford 46029

Compiled By
Department Managers

August 15, 1952

Classification Cancelled (Change to ----------)

By Authority of RLO-16-4
D. Lewis 3/6/92
DJ Krich 3/10/92
L Wells 3/11/92

DECLASSIFIED WITH DELETIONS

Classification [illegible] or [illegible] classification but [illegible] by J P D [illegible]

Date 5-15-73

HANFORD WORKS
RICHLAND, WASHINGTON

Operated for the Atomic Energy Commission
by the
General Electric Company
under
Contract # W-31-109-eng-52

[redacted]

THIS DOCUMENT IS PUBLICLY AVAILABLE

[redacted]

Route To	Read By	Date
D. F. Shaw		
[redacted]		

PRIVACY ACT MATERIAL REMOVED

[redacted]

DECLASSIFIED WITH DELETIONS

RECEIVED
OPERATION DIVISION
AUG 21 1952
A.M. P.M.

1205387

DECLASSIFIED

[redacted]

HW 25227 DEL

[redacted]

COPY NUMBER	DISTRIBUTION
1	Yellow Copy - G. R. Prout
2	K. H. Kingdon
3	K. R. Van Tassel
4	W. E. Johnson
5	C. N. Gross
6	A. B. Greninger
7 - 9	Atomic Energy Commission Hanford Operations Office Attention: D. F. Shaw, Manager
10	Atomic Energy Commission Hanford Operations Office Attention: J. J. Joyce
11	Atomic Energy Commission For: B. M. Fry, AEC, Washington
12 - 13	700 File

[redacted]

[redacted]

1205388

[redacted]

HW 25227 - DEL
August 15, 1952

General Summary A-1

Staff B-1

Force Report C-1

Personnel Distribution . . . . . D-1 through D-7

Manufacturing Department . . . . . E-1 through E-3
- Plant Statistics . . . . . Ea-1 through Ea-4
- Metal Preparation Section . . . . . Eb-1 through Eb-7
- Reactor Section . . . . . Ec-1 through Ec-9
- Separations Section . . . . . Ed-1 through Ed-10

Engineering Department . . . . . F-1 through F-5
- Engineering Department Administration . . . . . Fa-1 and Fa-2
- Technical Section
  - Pile Technology Unit . . . . . Fb-1 through Fb-32
  - Separations Technology Unit . . . . . Fc-1 through Fc-31
  - Applied Research Unit . . . . . Fd-1 through Fd-17
  - Technical Services Unit . . . . . Fe-1 through Fe-16
- Design Section . . . . . Ff-1 through Ff-10
- Project Section . . . . . Fg-1 through Fg-19

Medical Department . . . . . G-1 through G-16

Radiological Sciences Department . . . . . H-1 through H-17

Financial Department . . . . . I-1 through I-3
- General Accounting Section . . . . . Ia-1 through Ia-9
- Payroll Section . . . . . Ib-1 through Ib-9
- General Cost Section . . . . . Ic-1 and Ic-2
- Manufacturing Cost Section . . . . . Id-1 and Id-2
- Engineering Accounting Section . . . . . Ie-1 through Ie-4
- Internal Audit Section . . . . . If-1 and If-2

Utilities and General Services Department
- Plant Security and Services Section . . . . . Ja-1 through Ja-34
- Purchasing and Stores Section . . . . . Jb-1 through Jb-11
- Transportation Section . . . . . Jc-1 through Jc-6
- Electrical Distribution and Telephone Section . . . . . Jd-1 through Jd-5
- Statistical and Computing Services Section
  - Statistics Unit . . . . . Je-2 through Je-8
  - Computing Unit . . . . . Jf-1 through Jf-9

Employee and Public Relations Department . . . . . K-1 through K-27

Community Real Estate and Services Department . . . . . L-1 and L-2
- Contract Section La-1
- Community Services Section Lb-1
  - Public Works Unit . . . . . Lc-1 through Lc-3
  - Recreation and Civic Affairs Unit . . . . . Ld-1 through Ld-4
  - Richland Public Library . . . . . Le-1 and Le-2
  - Richland Police . . . . . Lf-1 through Lf-9
  - Richland Fire . . . . . Lg-1 and Lg-2
  - Engineering Unit . . . . . Lh-1 through Lh-5
- Real Estate Section Li-1
  - Housing and Real Estate Maintenance Unit . . . . . Lj-1 through Lj-10
  - Real Estate Engineering Unit . . . . . Lk-1 and Lk-2
  - Commercial Property Unit . . . . . Ll-1 through Ll-4
- 700, 1100, 3000 Area Services Section . . . . . Lm-1 through Lm-8

Project and Related Personnel M-1

[redacted]

1205389

DECLASSIFIED

[redacted]

HW 25227

HANFORD WORKS MONTHLY REPORT

GENERAL SUMMARY

JULY 1952

Production Operations

Production continued at a high rate, even though accompanied by annoying difficulties which prevented the attainment of forecasted quantities by trivial amounts at certain points in the process. Another new high record for reactor input was established. The forecasted quantity of feed to the Redox plant was exceeded by a substantial amount.

Engineering and Technology

Tests with 90-day cooled feed in the Redox plant established the feasibility of a 2-cycle process which will be much less costly than the present 3-cycle process.

High losses experienced in the early shake-down studies in the Uranium Recovery plant have been reduced to an acceptable level, using cold uranium.

Design work on KW advanced 6% during July, to a total of 29% complete.

Design work was begun on the Purex Separations plant.

Announcement was made by the AEC that a contract had been let to the Kaiser Engineers Division of the H. J. Kaiser Company for the construction of 100-K facilities.

Personnel and Services

The plant roll decreased slightly to 8,901, and the turnover rate decreased to 1.75%.

Total housing applications pending reached 695.

[redacted]

DECLASSIFIED

DE[redacted]

HW 25227-DEL

STAFF

Vice President in Charge	G. R. Prout
General Manager	W. E. Johnson
Manager, Schenectady Office	B. R. Prentice
Assistant to the General Manager, General Administration	G. G. Lail
Assistant to the General Manager, Technical	W. I. Patnode
Assistant to the General Manager, Evaluation of Division Activities	W. K. MacCready
Counsel	G. C. Butler
Manager, Finance	W. W. Smith
Manager, Employee and Public Relations	H. E. Callahan
Director, Radiological Sciences	H. M. Parker
Director, Medical	W. D. Norwood, M.D.
Manager, Engineering	A. B. Greninger
Manager, Manufacturing	C. N. Gross
Manager, Utilities and General Services	F. E. Baker
Manager, Community Real Estate and Services	L. F. Huck

[redacted]

1205391

DECLASSIFIED

FORCE REPORT
JULY 1952

	EXEMPT		NON EXEMPT		TOTAL	
	6-30-52	7-31-52	6-30-52	7-31-52	6-30-52	7-31-52
GENERAL	23	24	135	96	158	120
LAW	2	2	4	4	6	6
ENGR. DEPT.						
General	5	5	7	6	12	11
Design	118	128	58	60	176	188
Project	167	162	323	299	490	461
Technical Section						
Administrative	7	7	5	5	12	12
Pile Tech.	147	154	136	136	283	290
Separations Tech.	112	127	58	51	170	178
Technical Services	30	29	132	143	162	172
Applied Research	124	139	195	198	319	337
MANUFACTURING DEPT.						
General	22	23	13	12	35	35
Reactor	202	216	968	979	1170	1195
Metal Prep.	72	73	384	396	456	469
Separations	264	271	1172	1162	1436	1433
MEDICAL DEPT.	45	45	232	238	277	283
RADIOLOGICAL SCIENCES						
General	2	2	2	2	4	4
Records & Standards	26	26	142	153	168	179
Biophysics	50	50	68	64	118	114
Biology	39	39	43	45	82	84
FINANCIAL DEPT.						
General	4	4	17	18	21	22
Engr. Acctg.	13	13	55	54	68	67
Mfg. Cost	9	9	31	30	40	39
Gen. Acctg.	11	12	83	82	94	94
Payroll Section	12	11	76	72	88	83
Gen. Cost	11	11	34	34	45	45
Internal Auditing	8	7	4	5	12	12
EMPLOYEE & PUBLIC RELATIONS	40	40	72	68	112	108
UTILITIES & GENERAL SERVICES						
General	18	18	15	13	33	31
Elect. Dist. & Telephone	32	33	146	143	178	176
Transportation	42	42	474	475	516	517
Purchasing & Stores	86	84	319	309	405	393
Statistical & Computing	23	24	50	54	73	78
Plant Security & Services						
Patrol & Security	59	59	576	571	635	630
Safety & Fire	44	44	106	103	150	147
Office Services	29	29	327	316	356	345
COMM. REAL ESTATE & SERVICES	183	178	371	365	554	543
TOTAL	2081	2140	6833	6761	8914	8901

1205392

PERSONNEL DISTRIBUTION - JULY 1952

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
GENERAL												
Exempt Pers.	-	-	-	-	-	-	-	-	-	-	24	24
Cler. & Other non Exempt	-	-	-	-	-	-	-	-	-	-	96	96
Total	-	-	-	-	-	-	-	-	-	-	120	120
LAW												
Exempt	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	-	-	6	6
ENGR. DEPT.												
GENERAL												
Supv.	-	-	-	-	-	-	-	-	-	-	5	5
Clerical	-	-	-	-	-	-	-	-	-	-	6	6
Total	-	-	-	-	-	-	-	-	-	-	11	11
DESIGN												
Supervisors	-	-	-	-	-	-	-	-	-	-	17	17
Other Exempt	-	-	-	-	-	-	-	4	-	-	107	111
Tech. Grads.	-	-	-	-	-	-	-	2	-	-	25	27
Clerical	1	-	-	-	-	-	-	1	-	-	31	33
Total	1	-	-	-	-	-	-	7	-	-	180	188
PROJECT												
Supervisors	27	-	-	-	2	-	1	-	-	6	31	67
Other Exempt	24	-	-	-	8	7	4	-	-	15	37	95
Draftsmen & Designers	1	8	-	-	-	2	6	9	-	-	86	112
Clerical	12	-	1	-	1	-	2	-	-	10	74	100
Others	29	-	-	-	21	-	-	-	-	11	26	87
Total	93	8	1	-	32	9	13	9	-	42	254	461
TECH. SECTION												
GENERAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	-	-	12	12

1205393

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
PILE TECH.												
Supv.	-	-	-	-	-	-	-	4	-	-	-	4
Metallurgists & Engrs.	5	20	-	6	4	-	-	36	-	-	1	72
Physicists	-	5	-	1	-	-	-	2	-	-	-	8
Engr. Assts.	10	22	1	6	5	-	-	26	-	-	-	70
Tech. Grads.	3	13	1	-	2	-	-	21	-	-	-	40
Technologists	1	-	-	5	-	-	-	5	-	-	-	11
Lab. Assts.	2	3	-	-	-	-	-	4	-	-	-	9
Clerical	1	6	-	3	1	-	-	20	-	-	-	31
Engr. Assts.	6	18	1	10	1	-	-	9	-	-	-	45
Total	28	87	3	31	13	-	-	127	-	-	1	290
SEPARATIONS TECH.												
Supv.	-	-	-	-	-	1	10	8	-	-	-	19
Chemists & Engrs.	-	-	-	-	-	11	47	41	-	-	1	100
Other Exempt	-	-	-	-	-	6	1	1	-	-	-	8
Clerical	-	-	-	-	-	1	5	11	-	-	-	17
Engr. Assts.	-	-	-	-	-	-	-	2	-	-	-	2
Lab. Assts. & Tech.	-	-	-	-	-	-	9	8	-	-	-	17
Tech. Grads.	-	-	-	-	-	3	4	8	-	-	-	15
Total	-	-	-	-	-	22	76	79	-	-	1	178
TECH. SERVICES												
Supervisors	-	2	-	-	-	-	2	7	-	-	3	14
Other Exempt	-	3	-	-	-	-	2	6	-	3	1	15
Technologists & Tech. Grads.	-	-	-	-	-	-	4	4	-	-	-	8
Lab. Assts.	-	-	-	-	-	-	15	-	-	-	-	15
Clerical	-	4	1	-	-	-	4	28	-	1	48	86
Others	-	3	1	-	-	-	8	21	-	-	1	34
Total	-	12	2	-	-	-	35	66	-	4	53	172
APPLIED RESEARCH												
Supervisors	2	-	-	-	-	-	22	12	-	-	-	36
Other Exempt	7	5	1	-	-	-	24	66	-	-	-	103
Technologists & Tech. Grads.	5	4	1	-	-	-	40	24	-	-	-	74
Lab. Assts.	3	2	2	-	-	-	76	29	-	-	-	112
Clerical	2	-	-	-	-	-	3	7	-	-	-	12
Total	19	11	4	-	-	-	165	138	-	-	-	337

1205394

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MANUFACTURING DEPT.												
GENERAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	14	14
Other Exempt	-	-	-	-	-	-	-	-	1	-	8	9
Clerical	-	-	-	-	-	-	-	-	-	-	12	12
Total	-	-	-	-	-	-	-	-	1	-	34	35
REACTOR												
Supervisors	32	46	34	36	-	-	-	-	-	-	-	148
Other Exempt	20	13	11	20	-	-	-	-	-	1	3	68
Supv. In. Trn.	5	1	2	2	-	-	-	-	-	-	-	10
Operators (Operations)	39	70	38	39	-	-	-	-	-	-	-	186
Operators (Power)	95	116	70	71	-	-	-	-	-	-	-	352
Craftsmen	69	104	95	46	-	-	-	-	-	-	-	314
Inspectors & Lab. Assts.	7	14	7	11	-	-	-	2	-	-	-	41
Clerical	6	12	12	18	-	-	-	-	-	1	1	50
Others	3	5	8	7	-	-	-	-	-	-	-	23
Tech. Grads.	-	1	1	1	-	-	-	-	-	-	-	3
Total	276	382	278	251	-	-	-	2	-	2	4	1195
METAL PREP.												
Supv.	-	2	-	-	1	-	-	43	-	-	-	46
Other Exempt	-	1	-	-	-	-	-	26	-	-	-	27
Operators (Operations)	-	-	-	-	-	-	-	165	-	-	-	165
Operators (Power)	-	-	-	-	-	-	-	11	-	-	-	11
Craftsmen	-	27	-	-	6	-	-	124	-	-	2	159
Clerical	-	1	-	-	-	-	-	24	-	-	-	25
Others	-	2	-	-	-	-	-	16	-	-	-	18
Lab. Assts.	-	-	-	-	-	-	-	11	-	-	-	11
Tech. Grads.	-	-	-	-	-	-	-	7	-	-	-	7
Total	-	33	-	-	7	-	-	427	-	-	2	469
SEPARATIONS												
Supv.	-	-	-	-	-	14	208	-	-	-	-	222
Other Exempt	-	-	-	-	-	1	45	-	-	-	3	49
Operators (Operations)	-	-	-	-	-	31	509	-	-	-	-	540
Operators (Power)	-	-	-	-	-	27	87	-	-	-	-	114
Craftsmen	-	-	-	-	-	40	295	-	-	-	-	335
Inspectors & Lab. Assts.	-	-	-	-	-	3	79	-	-	-	-	82
Clerical	-	-	-	-	-	3	58	-	-	-	1	62
Tech. Grads.	-	-	-	-	-	-	7	-	-	-	-	7
Others	-	-	-	-	-	7	15	-	-	-	-	22
Total	-	-	-	-	-	126	1303	-	-	-	4	1433

1205395

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MEDICAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	24	24
Physicians	-	-	-	-	-	-	-	-	1	3	9	13
Other Exempt	-	-	-	-	-	-	-	-	-	-	8	8
Technicians	-	-	-	-	-	-	-	-	2	2	10	14
Nurses	6	4	4	1	-	1	7	2	-	3	66	94
Clerical	-	-	-	-	-	-	-	-	2	8	43	53
Others	-	-	-	-	-	-	-	-	-	1	76	77
Total	6	4	4	1	-	1	7	2	5	17	236	283
RADIOLOGICAL SCIENCES												
STAFF												
Supv.	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	-	-	4	4
RECORDS & STANDARDS												
Supv.	-	-	-	-	-	-	-	10	-	-	3	13
Other Exempt	1	-	1	-	-	1	1	3	-	-	6	13
Clerical	-	-	-	-	-	2	-	-	-	-	1	3
Others	11	4	8	4	-	16	28	60	9	-	10	150
Total	12	4	9	4	-	19	29	73	9	-	20	179
BIOPHYSICS												
Supervisors	-	-	-	-	-	1	6	1	-	-	-	8
Other Exempt	-	-	-	-	-	5	20	16	-	-	1	42
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Others	-	-	-	-	-	21	34	4	-	-	-	59
Total	-	-	-	-	-	28	62	23	-	-	1	114
BIOLOGY												
Supv.	-	4	-	-	-	-	-	-	-	-	-	4
Other Exempt	-	35	-	-	-	-	-	-	-	-	-	35
Clerical	-	3	-	-	-	-	-	-	-	-	-	3
Others	-	42	-	-	-	-	-	-	-	-	-	42
Total	-	84	-	-	-	-	-	-	-	-	-	84

1205396

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
FINANCIAL DEPT.												
Supv.	-	-	-	-	-	-	-	-	-	8	34	42
Other Exempt	-	-	-	1	-	-	1	1	-	6	16	25
Clerical	2	-	-	1	-	2	-	-	-	72	218	295
Total	2	-	-	2	-	2	1	1	-	86	268	362
EMPLOYEE & PUBLIC REL. DEPT.												
Supv.	-	-	-	-	-	-	-	-	-	-	19	19
Empl. Rel. Counselors	-	-	-	-	-	-	-	-	-	-	2	2
Other Exempt	-	-	-	-	-	-	-	-	-	-	19	19
Clerical	-	-	-	-	-	-	-	-	-	-	55	55
Others	-	-	-	-	-	-	-	-	-	-	13	13
Total	-	-	-	-	-	-	-	-	-	-	108	108
UTILITIES & GEN. SERVICES												
GENERAL												
Supv.	-	-	-	-	-	-	-	-	-	-	18	18
Clerical	-	-	-	-	-	-	-	-	-	-	13	13
Total	-	-	-	-	-	-	-	-	-	-	31	31
PLANT SEC. & SERVICES												
SECURITY & PATROL												
Supv.	6	6	6	5	-	5	9	7	8	-	4	56
Other Exempt	-	-	-	-	-	-	-	-	3	-	-	3
Patrolmen	89	48	61	46	-	65	129	76	2	-	26	542
Clerical	-	-	-	-	-	-	-	-	17	5	5	27
Seamstress	-	-	-	-	-	-	-	-	2	-	-	2
Total	95	54	67	51	-	70	138	83	32	5	35	630
SAFETY & FIRE												
Supervisors	14	-	-	-	4	-	4	4	7	-	-	33
Engineers	-	2	1	-	-	2	-	2	1	-	3	11
Firemen	49	-	-	-	8	-	16	14	9	-	-	96
Clerical	-	1	1	-	-	1	-	1	1	-	2	7
Total	63	3	2	-	12	3	20	21	18	-	5	147
OFFICE SERVICES												
Supv.	-	-	1	-	-	1	3	1	1	-	18	25
Procedures Analysts	-	-	-	-	-	-	-	-	-	-	4	4
Ldry. Operators	-	-	-	-	-	-	2	-	-	-	1	3
Janitors & Servicemen	7	7	7	6	-	3	28	14	-	-	46	118
Clerical	-	-	-	-	-	-	2	-	-	1	51	54
Others	1	-	-	5	2	-	52	9	-	3	69	141
Total	8	7	8	11	2	4	87	24	1	4	189	345

1205391

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
PURCHASING & STORES												
Supervisors	-	1	-	-	-	-	-	-	-	4	30	35
Other Exempt	-	-	-	-	-	-	-	-	20	2	27	49
Clerical	-	-	-	-	-	-	-	-	-	38	127	165
Others	11	2	2	1	-	-	7	1	-	45	75	144
Total	11	3	2	1	-	-	7	1	20	89	259	393
ELECT. DIST. & TELEPHONE												
Supv.	-	-	-	-	-	9	-	-	3	3	10	25
Other Exempt	-	-	-	-	-	2	-	-	-	-	6	8
Craftsmen	-	-	-	-	-	24	-	-	11	16	38	89
Clerical	-	-	-	-	-	3	-	-	-	1	19	23
Operators & Dispatchers	4	4	4	4	-	-	-	-	13	-	-	29
Others	-	-	-	-	-	2	-	-	-	-	-	2
Total	4	4	4	4	-	40	-	-	27	20	73	176
TRANSPORTATION												
Supv.	2	-	3	2	-	1	1	-	3	-	26	38
Other Exempt	-	-	-	-	-	-	-	-	-	-	4	4
Bus Drivers	-	-	-	-	-	-	-	-	-	-	167	167
Journeymen	5	1	1	8	-	-	2	-	5	-	65	87
Trainmen	-	-	-	-	-	-	-	-	26	-	-	26
Servicemen	7	-	3	-	-	-	-	-	1	-	24	35
Equip. Operators	7	-	12	-	-	1	-	-	-	-	33	53
Clerical	-	-	1	1	-	-	-	1	-	-	28	31
Others	8	-	8	7	-	10	3	-	1	-	39	76
Total	29	1	28	18	-	12	6	1	36	-	386	517
STATISTICAL & COMPUTING SERVICES												
Supv.	-	-	-	-	-	-	-	-	-	-	6	6
Other Exempt	-	-	-	-	-	-	-	8	-	-	10	18
Clerical	-	-	-	-	-	-	-	1	-	-	38	39
Technologists	-	-	-	-	-	-	-	2	-	-	-	2
Bus. & Tech. Grads.	-	-	-	-	-	-	-	3	-	-	10	13
Total	-	-	-	-	-	-	-	14	-	-	64	78

1205398

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
COMMUNITY REAL ESTATE & SERVICES												
Supervisors	-	-	-	-	-	-	-	-	-	15	100	115
Other Exempt	-	-	-	-	-	-	-	-	-	-	10	10
Firemen	-	-	-	-	-	-	-	-	-	22	31	53
Patrolmen	-	-	-	-	-	-	-	-	-	14	22	36
Journeymen	-	-	-	-	-	-	-	-	-	-	137	137
Servicemen	-	-	-	-	-	-	-	-	-	-	36	36
Truck Drivers	-	-	-	-	-	-	-	-	-	-	29	29
Power Operators	-	-	-	-	-	-	-	-	-	-	32	32
Clerical	-	-	-	-	-	-	-	-	-	-	56	56
Others	-	-	-	-	-	-	-	-	-	1	38	39
Total	-	-	-	-	-	-	-	-	-	52	491	543
GRAND TOTAL	647	697	412	374	66	336	1949	1098	149	321	2852	8901

1205399

[redacted]

MANUFACTURING DEPARTMENT

JULY, 1952

August 11, 1952

METAL PREPARATION SECTION

The production for the month was 26 tons of four inch material and 105 tons of eight inch material for a total of 131 tons. This production represents 97 percent of forecast, which was low because 11 tons of lead dipped material was rejected that had doubtful transformation in heat treatment. The machining yields were 79.7 percent and 81.4 percent respectively for four and eight inch material.

The canning yield was 76.2 percent for the four inch material and 74.2 percent for the eight inch material. The June four inch canning yield was abnormally high and returned to normal in July.

The melt plant produced 54 tons of billets with a yield of 83.9 percent and a solid yield of 93.5 percent. The decrease in billet yield reflects more rigid quality standards.

There were no autoclave failures during this period for either eight inch or four inch material making the second successive month for the latter category.

REACTOR SECTION

The reactor input production was 108.8 percent of forecast, and established a new record. The per diem production rate for the month exceeded the previous month high by seven units. This increase is primarily caused by the recalibration of the water flow meters at the H reactor which were previously reading 5 percent low. Recalibration is in progress at the other reactors. An increase of 25 MW in the maximum operating levels was achieved by the revision of the outlet water temperature limitations for process tubes and improved temperature distribution control. The reactor output production was 98.8 percent of forecast.

There were 13 uranium slug jacket failures during July, eight of which were Group 8 and 5 were Group 7. Ten of the 13 failures were discharged within the scram recovery time avoiding approximately 250 hours of potential outage time.

The operating efficiency of the reactors was 89.5 percent, with DR reactor operating 99.97 percent of the total time.

A total of six process tubes were removed during this period because of water leaks into the graphite moderator; five at the F reactor and one at the H reactor. At the F reactor a total of 86.2 outage hours was spent pressure testing all tubes in the reactor and the removal of tubes 0867-F, 3670-F, 1475-F, 3668-F and 3883-F. At the end of the month water collection rates were returning to

1205400

[redacted]

[redacted]

HW 25227 DE

[redacted]

HANFORD WORKS MONTHLY REPORT

GENERAL SUMMARY

JULY 1952

Production Operations

Production continued at a high rate, even though accompanied by annoying difficulties which prevented the attainment of forecasted quantities by trivial amounts at certain points in the process. Another new high record for reactor input was established. The forecasted quantity of feed to the Redox plant was exceeded by a substantial amount.

Engineering and Technology

Tests with 90-day cooled feed in the Redox plant established the feasibility of a 2-cycle process which will be much less costly than the present 3-cycle process.

High losses experienced in the early shake-down studies in the Uranium Recovery plant have been reduced to an acceptable level, using cold uranium.

Design work on KW advanced 6% during July, to a total of 29% complete.

Design work was begun on the Purex Separations plant.

Announcement was made by the AEC that a contract had been let to the Kaiser Engineers Division of the H. J. Kaiser Company for the construction of 100-K facilities.

Personnel and Services

The plant roll decreased slightly to 8,901, and the turnover rate decreased to 1.75%.

Total housing applications pending reached 695.

DECLASSIFIED

[redacted]

1205401

REACTOR SECTION (Continued)

normal. Tube number 3189-H was removed from the H reactor because of a water leak which apparently was in conjunction with a ruptured piece.

SEPARATIONS SECTION

A total of 41 runs and 3 acid washes was started in the Canyon Buildings representing 100 percent of forecast. In Redox 126 runs were started representing 112.5 percent of forecast. A total of 157 runs was processed in the Isolation Building and was 97 percent of forecast.

Special test runs of 90 day aged material were processed through the Redox plant. With full head-end treatment, only two plutonium and two uranium cycles were necessary for satisfactory decontamination. However, without full head-end treatment, three cycles for both plutonium and uranium streams were necessary to produce acceptable material.

The average purity of completed charges was 99.0 percent.

"Cold" uranium test runs continued in the TBP process with waste losses from the RA column of 1-30 percent reported. Considerable effort was expended to determine the cause of the erratic performance and to duplicate results. This resulted in mechanical revisions to the RA columns. Evaluation of the changes was in progress at month end.

A total of 51.6 tons of uranium as UO_3 was produced this month which was 92.2 percent of forecast. A total of 30.9 tons of this material was shipped. Considerable difficulty with foaming was encountered with the material from the TBP process. Attempts to correct this by the addition of nitric acid to the pots alleviated this situation to some extent, but not sufficiently to allow the production schedule to be met.

GENERAL

Organization

Effective July 15, W. K. MacCready was transferred from his former position of Assistant Manager-Manufacturing Department to Assistant to the General Manager-Evaluation of Division Activities.

Personnel

Total on Roll June 30, 1952	3111
Accessions	79
Separations	75
Total on Roll July 31, 1952	3115

DECLASSIFIED

C. N. GROSS, MANAGER
MANUFACTURING DEPARTMENT

[redacted]

1205402

[redacted]

DECLASSIFIED

MANUFACTURING DEPARTMENT

PATENT REPORT SUMMARY
FOR
MONTH OF JULY, 1952

Richland, Washington
August 8, 1952

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

INVENTOR	TITLE
Lyle M. Palmer, Metal Preparation Section	Electronic Instruments Designed to Give Audible Indication of Alpha Contamination When Used with a Proper Survey Probe.
T. H. Quinn, Reactor Section	Radiation Pulse Counting Equipment (Hanford P-12 D.C. Coupled Pulse Amplifier)

C. N. Gross

C. N. GROSS, MANAGER

MANUFACTURING DEPARTMENT

[redacted]

[redacted]

HW-25227-DEL

DECLASSIFIED
WOH DELETIONS

1205404

[redacted]

[redacted]

DECLASSIFIED
WITH CAUTIONS

1205405

[redacted]

[redacted]

1205406

[redacted]

[redacted]

[redacted]

205407

[redacted]

[redacted]

DECLASSIFIED

Richland, Washington
August 11, 1952

MANUFACTURING DEPARTMENT
METAL PREPARATION SECTION
JULY 1952

I. RESPONSIBILITY

Responsibilities of the Section were unchanged.

II. ACHIEVEMENT

A. Operating Experience

1. Statistics

	June	July	Year To Date
Bare Pieces Machined (4",Tons)	38	18	425
Machining Yield (4", %)	79.9	79.7	79.2
Bare Pieces Machined (8",Tons)	125	136	643
Machining Yield (8", %)	81.5	81.4	80.4
Acceptable Pieces Canned (4",Tons)	25	26	457
Canning Yield (4", %)	81.0	76.2	77.7
Acceptable Pieces Canned (8",Tons)	118	105	504
Canning Yield (8", %)	69.3	74.2	68.0
Acceptable Pieces Canned (4" & 8") (% of Forecast)	112.8	97.0	103.0
Autoclave Frequency (4",No./M)	.00	.00	.07
Autoclave Frequency (8",No./M)	.06	.00	.09

1205408

[redacted]

	June	July	Year To Date
Briquettes Produced (Tons)	34	16	173
Chip Recovery Yield (%)	87.6	85.8	86.9
Billets Produced (Tons)	51	54	387
Melt Plant Billet Yield (%)	85.5	83.9	84.7
Melt Plant Solid Yield (%)	94.3	93.5	93.6
Oxide Burned (Weight Out Tons)	7	8	50
Poison Canned (Number Pieces)	0	989	10,199
Chemical 68-56 Canned (No. Pieces)	0	0	296
Chemical 10-66 Canned (No. Pieces)	390	386	2,186
Poison, Chemical 68-56, Chemical 10-66 Canning (Man Hours)	112	268	1,885
Special Request (Man Hours)	1,243	469	3,282
305 Routine Tests (Man Hours	143	141	785
305 Special Tests (Man Hours)	401	305	2,053
Maximum Steam Generated (M lbs/hr)	19	16	
Total Steam Generated (M lbs)	9,900	7,300	
Average Rate Steam Generated (M lbs/hr)	13	10	
Coal Consumed (Tons)	629	478	
Sanitary Water from 3000 Area (Million gallons)	32	35	
Well Water Pumped (Million gallons)	14	0.6	
Total Water Average Rate (gpm)	746	781	
Chlorine Residual (ppm)	.48	.42	

2. Activities

Of the material machined, 70% was from virgin rods rolled during March, April and May. Although a larger percentage of the rods machined were of smaller diameter (1.400"), the anticipated increase in yield did not materialize due to the increased number of seams and cracks in the rods.

Rejection rates for both four and eight inch material decreased in several categories, resulting in an overall canning yield improvement. This improvement is not evident with four inch material because the reprocessing of stained material in June caused a high yield for that month.

The initiation of more rigid standards of billet quality required additional cropping and machining, resulting in decreased billet yield. The processing of a large amount of TX scrap resulted in a decrease in the solid yield.

Of approximately 2400 four inch slugs machined at Fernald to simulate standard Hanford slugs which were inspected, 35% were found to be acceptable "M" slugs by Hanford specifications. Of the rejects approximately 42% were diameter faults, 8% radius, 1% length,

1205409

[redacted] DECLASSIFIED

DECLASSIFIED

6% seams, cracks and surface defects, 9% other causes. The acceptable pieces will be triple dip canned and the rejected pieces returned to Fernald in order to establish inspection standards.

In an effort to increase capacity of the slug recovery process, work was started to determine optimum load size and solution concentrations. It was found that reaction time in the caustic bath could be reduced from three hours to fifty minutes by mechanical removal of both the caps and the bottoms from the slugs prior to immersion. Construction of a de-capper is under way.

The statistical quality control program which was put in effect in the machining operation in June was continued during July with encouraging results. The yield of "M" slugs improved 6.3%, while the production of "Z" slugs decreased 4.7%.

3. Special Operations

Production Test 313-105-2M - "Triple Dip Canning and Irradiation of Eight Inch Uranium Slugs Fabricated in Heavy Walled Aluminum Cans" (HW-22463). During the month approximately 26,500 acceptable pieces were fabricated in accordance with this test. The over-all yield was slightly higher than the preceding month. AlSi, marred surface and poor bond rejects were higher than June but improvements were realized in all other rejection categories, with greatest progress being made in reduction of No. 4 frost test rejects.

Production Test 313-105-3M - "Fabrication of Alpha Lead Dip Canning and Irradiation of Salt Bath Heat Treated Alpha Rolled Uranium Slugs" (HW-22770). This test was temporarily discontinued upon the discovery of a number of heat treated slugs which had not been transformed completely. It was decided to reject all slugs which had been heat treated and canned in accordance with this test. The process will be resumed upon issuance by the Pile Technology Unit of a revised test which will provide for a longer heat treatment period.

Production Test 313-105-9M - "Irradiation of Triple Dip Canned Uranium Slugs From Fernald Evaluation Material" (HW-24803). Approximately 4000 acceptable four inch pieces were fabricated in accordance with this test. No unusual characteristics were noted during the canning of this material.

4. Schedule Variance

Machining production exceeded forecast by 2.9%, due to the larger proportion of eight inch material produced than was forecasted.

Due to the rejection of 11 tons of material produced by the lead dip method under production test 313-105-3M, canning production was 97% of forecast.

Billet production exceeded the forecast by 6.6%, attributable mainly to a minimum of operational difficulties.

1205410

B. Equipment Experience

1. Operating Continuity

Mechanical failures on the canning lines resulted in a 3% loss in production time, 50% of this time being attributable to the bronze bath agitators.

2. Inspection, Maintenance and Replacements

Revisions to the air conditioning and ventilating system for the canning area have been completed, greatly improving working conditions.

C. Improvement Experience

1. Process Tests and Revisions

Production Test 313-120 M -"High Amperage Welding of Four Inch Triple Dipped Canned Slugs" (HW-24569). This test prescribes a turntable speed of 6 rpm, one preheat pass and one welding pass with welding current at 115 amperes as compared to the previous process of 6 rpm, one preheat pass and two welding passes with current of 70-85 amperes. Of the approximately 500 slugs welded by this process a reduction of rejects for pinholes and voids resulted.

MER-247A - "Canning Bath Fluxing". The purpose of this test is to determine if ill-effects would result from treating the AlSi canning bath with flux (Soffelite #2) for removal of oxides. Treated and untreated, used and virgin AlSi was used to can sample lots of slugs. Results of the 305 pile test indicate no significant difference in reactivity between samples. Chemical analysis and physical examination of the bonding layer is being conducted.

313-D-17 - "Evaluation of Advantages of Facing Slugs With a Circular Metal Saw". This method was used to face approximately 2000 slugs. Preliminary evaluation indicates that this method will be satisfactory.

2. Adoptions, Inventions and Discoveries

High amperage welding as described in Production Test 313-120 M was adopted resulting in welding production increase of approximately 20% with a higher quality weld.

A report of what may be an invention in electronic instruments designed to give an audible indication of Alpha particles when used with a poppy survey probe, was issued by Lyle M. Palmer on July 26, 1952. This report was based on development of an A.C. Poppy of greatly reduced size and weight and simplified construction.

1205411

[redacted] DECLASSIFIED

D. Events Influencing Costs

1. Labor Variance

Decontamination of five rod cars and one scrap car received during the month, required 172 manhours.

2. Material Variance

A 4.4% reduction in eight inch Alcoa cap quality resulted from insufficient filling of the extrusion die during fabrication. 14,000 of these rejects now on hand will be returned to the vendor.

3. Other

A total of 21,840 units of slugs canned by the lead dip process as a part of Production Test 313-105-3M were rejected because of incomplete transformation. This reduced production for the month by approximately 7%, causing a proportional increase in unit slug cost. It is estimated this will amount to about .05 per unit.

E. Plant Development and Expansion

1. Project Status

Project C-199 - 300 Area Sewage Disposal System. This project is complete except for tie-in to the existing septic tank and repairing the influent lines to the new septic tanks which were broken while backfilling. Construction is 96% complete.

Project C-394 - Outside Facilities and Utilities for Laboratory Area. Steam, condensate return, air and propane lines are complete with the exception of lines to Pile Technology building and Radio-Chemistry building. Z-crete is being applied to steam and condensate lines. Construction is 68% complete.

Project C-433 - Power House Addition. The No. 4 boiler has been tested at 300 psi hydrostatic pressure. Installation of insulation and steel jacket for this boiler is complete and the stokers are in place. Tube installation in No. 5 boiler is complete. The chemical pumps and tanks were moved to new location and placed in service. The walls and roof of the power house have been completed except for finishing. Construction is 61% complete.

Project C-481 - Equipment for 8" Slug Manufacture. Preliminary design on the installation of winches in the vans used to transfer slugs to the 100 Areas has been completed. As soon as estimates are received, a revised proposal will be submitted to cover 100 Area unloading facilities.

2. Plant Engineering

Labor cost standards for 4" and 8" triple dip canning were completed and published. Studies are under way to formulate labor and material cost standards for the dry canning operations.

The design of mechanical fixtures for application on the canning lines was continued during the month. The fabrication of two semi-automatic canning jacks has been completed and they are being given preliminary tests. It is expected that they will be ready for a production test early in August.

F. Significant Reports Issued

1. Routine

Number	Title	Author	Date
HW-24965	Monthly Report, Process Unit, Metal Preparation Section	E. W. O'Rorke	7-8-52

2. Non-Routine

HW-24891	Interim Report on Fluxing of AlSi Canning Bath	R. C. Aungst	7-1-52
HW-25091	Canning Adsorption Factor for 8.4" Slugs	T. A. DeZellar	7-21-52
HW-25129	Suspected Discrepancy of SF Material	J. A. Cowan	7-29-52

III. PERSONNEL

A. Organization

No change.

B. Force Summary

	Start of Month	End of Month	Net Change
Section General	5	5	0
Operations Unit	187	194	7
Power & Maintenance Unit	222	221	- 1
Process Unit	23	22	- 1
Plant Engineering Services Unit	18	18	0
Radiation Monitoring	3	3	0
Section Total*	458	463	5

*Technical Graduates on rotational assignments (13) not included.

1205413

[redacted]

C. Safety Experience

There were no major or sub-major injuries in the Section during the month.

D. Radiation Experience

An exposure of 340 mrep was recorded by the weekly badge film of a machining operator. This exposure can be attributed to personal work habits which magnify job exposure. Personal instruction is being given in an attempt to correct faulty work habits.

E. Personnel Activities

During the month a series of training meetings was initiated to acquaint personnel of the Process and Operations Units, principally, with some of the work being done by other groups which relate directly to the functions of the Metal Preparation Section. In July, J. W. Riches of the Pile Technology Unit spoke on "The Metallurgy of Uranium" and J. W. Lang of the same Unit spoke on "The Statistics of Slug Ruptures." Interest in this exchange of information has been gratifying.

A bi-monthly series of Radiation Hazard Meetings was initiated for Metal Preparation Section personnel. High turnover rates for personnel in the Operations Unit, principally, has increased the problem of providing current information on this subject to all employees.

[redacted]

HW-25227 _ DEL

Richland, Washington
August 11, 1952

MANUFACTURING DEPARTMENT
REACTOR SECTION
JULY, 1952

I. RESPONSIBILITY

Effective July 1, 1952, responsibilities for the reactor physics and engineering functions of a plant assistance nature were transferred from the Engineering Department to the Manufacturing Department. Specifically, these responsibilities were assigned to the Reactor Section, Process Unit. Appropriate personnel experienced in this work were transferred with these functions.

II. ACHIEVEMENT

A. Operating Experience

The total reactor input production was 108.8% of forecast and 3.6% greater than for June. This production was a new record, having exceeded the previous high established in May, 1952. The per diem production rate for the month exceeded by seven units the previous high of June. The new high in per diem production was possible due to increases resulting from the recalibration of H Reactor process water flow meters discussed below under "Activities". Reactor output production was 98.8% of forecast. Established maximum operating levels were increased 25 MW as a result of a revision in the outlet water temperature limitation for process tubes and improved temperature distribution control. D Reactor attained a level of 600 MW on July 23.

There were 13 uranium slug jacket failures during July, ten of which were discharged within the scram recovery time limitation. These "fast" discharges made it possible to avoid an estimated 250 hours of potential outage time. No further incidents of eight inch slug failure were experienced.

During the month, leakage of water into the F Reactor moderator required 86.2 hours outage time. Five leaking process tubes were located and cor-

1205415

[redacted]

A. Operating Experience (Continued)

rective action taken. One additional process tube leak occurred at H Reactor in conjunction with a slug jacket failure.

1. Statistics

	B	D	DR	F	H	Total or Average
Reactor Time Operated Efficiency (%)	92.8	88.9	99.97	75.1	90.6	89.5
Reactor Outage Time (Hrs.)						
Plutonium Production	46.3	82.7	0.2	177.9	57.1	364.2
Special Irradiation and Production Tests	7.0	-	-	7.7	12.8	27.5
Total	53.3	82.7	0.2	185.6	69.9	391.7
Reactor Unscheduled Outage Time (Hrs.)	4.3	63.0	0.2	89.8	27.0	184.3
Metal Discharged (Tons)	31.11	30.98	0	18.31	28.36	108.76
Water Quality (ppm Iron)						
Raw Water - Average	0.08	0.08	0.08	0.08	0.11	-
Raw Water - Maximum	0.12	0.19	0.14	0.15	0.08	-
Process Water - Average	0.021	0.017	0.024	0.006	0.023	-
Process Water - Maximum	0.029	0.029	0.034	0.019	0.039	-
Water Pumped (MM gals.)						
Bldg. 190 to Reactor	1569	1611	1848	1406	1853	8287
Bldg. 181	2020	4479		1860	2206	10565
Steam Generated (MM lbs)	123.7	205.4		100.7	85.9	515.7
Coal Consumed (Tons)	8209	14076		6826	5790	34901

2. Activities

Six leaking reactor process tubes were encountered during the month; five at F Reactor and one at H Reactor. The five tube leaks at F Reactor were located by hydrostatic testing following indication that water was entering the moderator. Prolonged outages for this work were begun on July 7 (tube 0867-F), July 11 (tube 3670-F) and July 19 (tubes 1475-F, 3668-F and 3883-F). Hydrostatic tests of 311 and 1485 tubes were made to locate the leaking tubes during the first two outages, respectively. All active process tubes were tested during the July 19 outage. At month end, a total of 843 gallons of water had been removed from the reactor and the water collection rate was returning to normal. These leaks apparently were caused by corrosion or erosion on the inside of the tubes. The tube leak at H Reactor occurred on July 25 in tube 3189-H and was apparently caused by a jacket failure of a four inch metal slug. A total of 185 gallons of water was removed from the reactor before the water recovery rate returned to normal.

Re-calibration of H Reactor process water flow meters resulted in an upward adjustment of 5% in power levels. This change was based on a test which determined that the actual water flow was higher than in-

2. Activities (Continued)

dicated by the flow meters. (See Document HW-24713) Similar tests are being made on the other process water flow meters at other reactors.

The water demand on the export system has increased progressively throughout the summer due principally to increased 200 Area requirements. Since electric pumps at 100-F or 100-H cannot supply the full demand, 100-B or 100-D Area facilities are being used for export purposes. This avoids pumping from two areas simultaneously which would require additional Power personnel.

Operation of the 101 Area boilers was discontinued July 1 since steam is not required during the summer months.

Coal deliveries were interrupted from July 7 to July 24 because of the normal miner vacation. Storage pit coal was used during the interim and stocks are gradually being replaced by increased receipts.

Routine analytical control services were supplemented by work of a special nature involving improved methods for the determination of low concentrations of aluminum, iron and manganese in process water, and preparation for aluminum analysis on a routine basis in 100-D and 100-C Areas.

The following breakdown indicates activities associated with special irradiations during the month. The J Slug shipment completed shipment of this material to Arco, Idaho, which was begun on November 8, 1951.

	Tubes Charged	Tubes Discharged	Casks Shipped
Chemical 10-66	8	15	2
Chemical 72-60	2	2	11
J Slugs	-	-	1
Rala	-	6	4
Other Special Irradiations	45	4	20
Total	55	27	38

B. Equipment Experience

Equipment failures caused five unscheduled reactor outages during July. At B Reactor, an outage occurred when a soldered panellit connection failed. At H Reactor, three outages were caused by failure of the P-13 water recirculation system, and one outage was caused by a restriction in the water return line of PT 105-506-E (Recirculation of Pile Cooling Water) equipment.

Number 8 horizontal rod at F Reactor, which was previously reported out of service due to a loose cover plate on the rod tip and a thimble leak, was returned to service after replacement of the rod tip and thimble.

B. Equipment Experience (Continued)

A scheduled outage was taken at H Reactor on July 15 to make temporary repairs of leaks in the east Building 107 retention basin so that more extensive repairs could be made to the west basin during reactor operation. Stopgap repairs of the west basin were in progress at month end.

Tests for corrosion were made on the F Reactor steel effluent line at three widely separated locations between Buildings 105 and 107. These tests, made with an Audigage, did not indicate any appreciable internal corrosion.

Inspections of the Power House boilers were continued. One boiler in each of the four 100 Area Power Houses was inspected by the Traveler's Insurance Company representative during July. All were reported to be in very good condition.

Exterior inspections were made of the fire and sanitary water tanks and soft water tanks at the 184 Buildings in 100-B, D and F Areas and the 101 Area Power House. Small leaks were found in all tanks. Interior inspection of one tank, considered to be representative, revealed that the two-inch wooden tank walls were generally sound.

C. Improvement Experience

1. Process Tests and Revisions

A revised Operating Standard on corrosion considerations increased the maximum permissible outlet water temperature from 85° C to 90°C for any individual process tube. All reactors are now limited by tube boiling considerations. A revised Standard on "Make-Up of Tube Charges" was approved which altered the downstream process tube dummy charge and modified the standard charge make-up for tubes adjacent to "B" columns.

Production and Process Tests of greatest significance are indicated below:

PT-105-1-MR (Poison Control Addition During Reactor Operation)
The results of this test indicate that supplementary control can be achieved by this method. A final report was issued.

PT-MR-105-2 (Orifice Selection During Operation)
This test of a double orifice pigtail assembly, which permits the selection of either of two flow rates, is in progress on tube 1981-B. Preliminary results are satisfactory and indicate the practicality of this type of equipment in improving process water utilization.

1. Process Tests and Revisions (Continued)

PT-105-313-2-M (Irradiation of Eight-Inch Uranium Slugs)
An additional 683 process tubes were charged with this material during the month, bringing the total charged to date to 2738. At month end, the percentage of regular tubes charged with this material was: B-15.8%, D-15.8%, DR-29.2%, F-20.5% and H-59.3%.

PT-105-503-E (Use of Activated Silica as a Coagulation Aid for Aluminum Sulfate)
This method of water treatment continues to give good results at 100-F Area with flow rates of 65% above design rate. Use of alum as a coagulant was started successfully at D Reactor water plant. The new type filter bed in No. 2 filter at 100-F Area is operating at 100% above design rate and producing high quality water.

2. Adoptions, Inventions and Discoveries

During the July 19 hydrostatic tube testing program at F Reactor, a new high of 680 tubes per shift was reached. During March and April, 250 tubes per shift was considered normal. Improvements in equipment and techniques, and the addition of one Mechanical Foreman per shift have contributed largely to the increase in efficiency of this operation.

A long, shallow extension was added to the diversionary crib at H Area process water retention basin during the month. The increased drainage will permit the emptying of the basin at a satisfactory rate.

A new method for determining and marking the location of the hole in a leaking process tube was used extensively throughout the month at F Reactor. A liquid dye is forced into the leaking process tube and stains a small area around the hole on the outside of the tube.

One invention was reported by a Reactor Section employee during July.

Inventor	Invention
T. H. Quinn	Radiation Pulse Counting Equipment (Hanford P-12-D.C. Coupled Pulse Amplifier)

D. Events Influencing Costs

Retention basin repairs at 100-H Area and major outages at F Reactor due to process tube leaks will have an adverse effect on costs.

As a result of distributing electricity costs on a demand basis rather than on a consumption basis, a savings in Reactor Section electricity charges is expected.

D. Events Influencing Costs (Continued)

The addition of the functions indicated above under "Responsibility" will increase Section irradiation costs since the salaries of associated personnel were not previously charged to the Section.

The Reactor Section irradiation unit cost for July is expected to be slightly lower than the record established during June because of the increase in total production

E. Plant Development and Expansion

1. Project Status

The most significant Reactor Section projects are reported below. Further details concerning projects will be found in the report, "Status of Reactor Section Projects, Informal Requests and Budget Items", F. A. R. Stainken to E. P. Lee, dated July 21, 1952.

CA-431 (100-C Plant)
The construction of the water plant is approximately 91% complete; the reactor is approximately 88% complete. During the month, the reactor top shield skin and the placing of VSR hoists were completed. Nozzle installation was begun on the front and rear faces. Building 181 was completed and acceptance testing is in progress. Process piping between Buildings 190 and 105 were flushed following completion. Four redesigned pump impellers for the Building 190 process pumps were received from the Byron-Jackson Company.

CG-438 (Ball 3X Facilities for B, D, DR, F and H Piles)
A further delay in the proposed September 15 starting date is very likely as it is believed that sixteen weeks will elapse after settlement of the steel strike before 27,000 pounds of balls can be delivered for the first area. A meeting of interested parties has been tentatively scheduled for August 11 to set up a firm schedule for construction and reactor outages.

CG-482 (Pile and Pile Water Plant Improvements)
The final draft of Part II of the project proposal requesting $2,250,000 to accomplish the revised scope of the project was tentatively approved by the A and B Committee, but is being revised to include a clear description of the relationship of the project and the construction rider before submission to the Atomic Energy Commission for approval. An order was placed with the Cascade Manufacturing Company for the manufacture of both the DR and H Reactor pigtails.

1. Project Status (Continued)

RDA-DC-3 (Improved Reactor Design)
The design of 105-KW Reactor is approximately 29% complete.

RDA-DC-6 (Water Plant Design Development)
The design of the 100-KW Water Plant is approximately 13% complete. A preliminary layout of the 100-K plant was made in the field.

2. Plant Engineering

A number of engineering and development studies were active in the Reactor Section during July. These studies are, in general, aimed at decreased costs and/or increased production. Details are given in documents HW-25209 and HW-25231. The most significant are reported below.

The comprehensive review of Reactor Section power and water problems continued during the month. Preliminary investigative engineering of reactor water requirements under varying conditions was begun. Study of organizational requirements necessary to develop this program was continued.

Work in connection with boiler performance tests at Building 184-H was continued. Efforts were directed toward accurate determination of water-steam-heat balances under combined normal operation of No. 2 and No. 4 boilers. Studies were also made of some peculiarities of the stack gases, as well as of the coal that has been in storage.

F. Significant Reports Issued

1. Routine

July monthly reports of the Reactor Section Units will be found in the following documents: Operations Unit - HW-25244, Process Unit - HW-25231, Plant Engineering Services Unit - HW-25209, Radiation Monitoring Unit (Technical Report) - HW-25282.

Other routine reports were:

"Process Committee Meeting - Reactor Section" - HW-24918.
"Reactor Section Quarterly Process and Cost Improvements" (restricted).
"Slug Jacket Failures During July" - HW-25235.

2. Non-Routine

"Testing and Operation of H Pile Hot Water Recirculation System"- HW-24895.
"Water Leak at 100-H, Tube 3189-H" - HW-25141.
"Process Test MR-105-2 - Orifice Selection During Reactor Operation" - HW-25032.

2. Non-Routine (Continued)

"Process Test MR-105-3 - Evaluation of Larger Crossheader Screen Openings" - HW-25088.
"Final Report for PT-105-1-MR - Poison Column Control During Reactor Operations" - HW-25082.

III. PERSONNEL

A. Organization

There were no appointments made in the Reactor Section during July.

B. Force Summary

	Beginning of Month	End of Month	Net Change
Section General	3	3	0
Operations	263	260	- 3
Plant Engineering Services	24	19	- 5
Power and Maintenance	807	815	8
Process	26	34	8
Radiation Monitoring	59	58	- 1
Section Total	1182	1189	7

Changes during July consisted of 8 terminations, 8 new hires, 3 deactivations, 20 transfers out and 30 transfers into the Section. The transfers out of the Section included 13 Technical Graduates on assignment under the rotational training program who were removed from the Section's payrolls and placed on the Technical Personnel Services payroll for administrative purposes. This change did not involve reassignment of these employees. The transfers into the Section included ten employees from the Technical Section in connection with the transfer of functions indicated above under "Responsibility".

C. Safety Experience

One sub-major injury, No. 226, was sustained by a Reactor Section millwright on July 9 at Building 105-F. The employee broke the left little finger while using a "knocker" to remove a gun-barrel from the reactor front face.

A Safety and Housekeeping Contest between Power and Maintenance Unit facilities in the four 100 Areas was inaugurated during the month. The contest was won by 100-D Area during July. A winner is intended to be selected each month on the basis of inspections.

D. Radiation Experience

No employee of the Reactor Section received a known exposure in excess of 300 mrem/wk. during July.

[redacted]

1205422

D. Radiation Experience (Continued)

There were five Class I Radiation Incidents during the month. No. X-12 at DR Reactor involved the spread of contamination from an office table to personal clothing which had been worn home by an Operations Unit employee prior to discovery of contamination on the table. No contamination was found in the employee's home. No. 32 involved general skin contamination of an Operations Unit and Mechanical employee when they were sprayed with contaminated water while leak testing an F Reactor process tube. No. 33 occurred when an Instrument employee received external exposure and possible internal exposure while changing a cylinder supplying gas to a special F Reactor process tube. Back-up of gas caused the release of contamination. No. 34 occurred when four Mechanical employees entered the Building 105-F inner rod room while two rods were out of the reactor. No. 35 resulted when an Operations Unit employee received an exposure of 300 mr while sorting material on the F Reactor washpad for burial. The investigations of these incidents are reported in documents HW-25028, HW-25172, HW-25173, HW-25174 and HW-25175, respectively.

A new Manufacturing Department procedure for investigating radiation incidents was placed in effect during July. The Class I category was increased to include incidents previously defined as informal. The severity value which increases from 1 to a maximum of 5 is assigned to each incident by the investigating committee. Such classification is expected to be useful in analysis of radiation incidents.

The Reactor Section sponsored educational film, "Radiation Hazard Control at Hanford Works", was shown to approximately 250 employees during July. The 45-minute film is well suited for supplementing the radiation training of personnel. It will continue to be available to Reactor Section and other groups.

E. Personnel Activities

At month end, 26 employees are receiving on-the-job training in order to meet future engineering and supervisory personnel requirements of the Reactor Section. Thirteen of these employees are on assignment under the Rotational Training Program.

Conference meetings with Operations Unit shift supervision were held during July to review procedures and practices related to the preparation, field liaison and follow-up of construction projects as carried out by Plant Engineering Services Unit personnel.

DECLASSIFIED

HW-25227-DGL

[redacted]

DECLASSIFIED
WITH DELETIONS

Richland, Washington
August 11, 1952

MANUFACTURING DEPARTMENT
SEPARATIONS SECTION
JULY, 1952

I. RESPONSIBILITY

The Separations Section assumed responsibility for the Waste Metal Removal Facilities at the C Tank Farm and the pipe lines between the East and West Areas on July 25, 1952.

II. ACHIEVEMENT

A. Operating Experience

1. Statistics

a. Bismuth Phosphate Operations

	B Plant		T Plant		Combined	
	Normal	Acid Wash	Normal	Acid Wash	Normal	Acid Wash
Charges started in Canyon Bldgs.	5	2	36	1	41	3
Charges completed in Conc. Bldgs.	6	-	31	-	37	-
Special charges - Conc. Bldgs.	2		12		14*	
Charges completed - Isolation Bldg.	7	0	31	0	38	0
Average Waste Losses, %	3.9		2.6		2.8	
Special charges - Isolation Bldg.					17	
Material balance thru Isolation, %					101.4	
Yield through process, %					101.0	
Average cooling time (Days)					53	
Minimum cooling time (Days)					46	

[redacted]

1205424

b. Redox Operations

	June	July
Charges started	70	126
Charges shipped to Isolation	74.4	119.1
Charges completed-Isolation Bldg.	82.0	99
Tons Uranium delivered to storage	44.8	77.2
Average Production Rate per operating day, Tons	2.70	2.94
Average Daily Operating Rate for the month, Tons	1.50	2.50
Average yield, %		
Uranium	96.76	100.13*
Plutonium	98.82	103.28*
Total Waste Loss, %		
Uranium	1.57	1.42
Plutonium	2.51	1.09
Average cooling time, days	58	79
Minimum cooling time, days	54	59
Average purity thru Isolation, %	99.5	99
Percent down time	44.7	15.3

*Reflect cleanout of dissolver heels.

c. 234-5 Operations

	June	July
Batches started in Task I (RG)	202	28
Batches completed through Task II	301	304
Runs completed through Task III	146	152
Reduction yield, RG	95.5	98.4
Reduction yield, RM	92.7	94.8
Waste Disposal, units	5.3	5.4

d. UO_3 Operations

	July	To Date
Uranium drummed, Tons	51.63	237.96
Uranium shipped, Tons	30.91	216.69
Average cooling time, days	129	
Minimum cooling time, days	91	
Waste loss, %	.096	

e. Power

	July	June
Raw water pumped, gpm	9,109	8,149
Filtered water pumped, gpm	1,465	1,404
Steam generated, M lbs/hr	118	121

1205425

[redacted]

e. Power (Continued)

	July	June
Maximum steam generated, M lbs/hr	173	208
Total steam generated, M lbs.	87,619	87,540
Coal consumed, tons (est.)	5,477	5,581

f. Waste Evaporation

	July	To Date
Gallons feed processed, 200-W	516,000	7,141,095
Percent volume reduction	72.3	72.9
Gallons feed processed, 200-E	646,000	3,211,246
Percent volume reduction	65.8	71.4

g. Waste Storage

	Batches
Metal Waste reserve storage capacity - T Plant	625
1st Cycle reserve storage capacity - T Plant	1,247
Metal Waste reserve storage capacity - B Plant	606
1st Cycle reserve storage capacity - B Plant	87*
Redox Waste reserve storage capacity	2,766

*Decrease from last month reflects the assignment of additional space to TBP.

h. Analytical Control

Laboratory	Samples	Determinations
T Plant	2,320	4,135
Isolation	606	1,621
Standards	680	962
Total	3,606	6,718

2. Activities

a. Redox Processing

Redox operated reasonably well during July with a normal amount of emulsion and equipment troubles, averaging 2.94 Tons/day during the time of operation. 42,000 gallons of the Aluminum Nitrate which had been previously contaminated through storage in Tygon lined tanks was consumed. 186,000 gallons of this material is still on hand.

b. TBP Processing

Shakedown operation continued throughout the month in studies primarily concerned with RA column performance. RAW (waste) losses on both "A" and "B" line RA (extraction) columns varied between 1.09

and 30.6% of the feed uranium and the data obtained were not reproducible. It became apparent that the erratic performance of the RA columns might be due to loss of pulse amplitude through compression of air pockets trapped in the system. Efforts were initially directed toward finding means whereby entrapped air could be vented and replaced by fluid. These efforts resulted in performance that was better than that previously obtained although not satisfactory. The spare RA column was dismantled in the shops and reassembled with a multipoint RAX (extraction feed) distributor and equipped with sight glasses for visual inspection of interface and distributor performance.

The revised RA column was installed on "A" line and operated with a direct run of piping for RAX from the wall nozzle and the Hammel-Dahl valve close to the column. Initial performance was somewhat improved but was not satisfactory from the standpoint of expected losses. Experimentation continued. The RAW (RA column waste stream) line from the column to the RAW receiver was modified to eliminate an inverted "U" trap and the RAW let-down valve was located close to the column. Operation under these conditions at varying rates and frequencies resulted in the best performance up to that time with RAW losses ranging from 0.169% to 0.57% of the feed uranium at 2.5 T/D and 70 cpm frequency.

Revisions to the "B" line RA column followed. The RAX Hammel-Dahl valve was relocated on a horizontal run of piping into the pulser leg and the RAW line revision incorporated on "A" line was transferred to "B" line. No RAX distributor was installed for operation and RAW losses dropped to the range 6.51 - 8.51% of the feed uranium at a 5 T/D rate and a frequency of 56 cpm and a 115% RAX rate.

Installation of a single point distributor for RAX resulted in operation in range of 0.3 - 1.5% of the feed uranium in the RAW stream at a 5 T/D, 55 cpm frequency and 115% RAX rate.

Operation of the "A" line was resumed in an effort to test the effect of minor changes (vents, valved steam line at dump jet on RAW line) incorporated in the RA system during the studies.

c. UO_3 Processing

The severe foaming of uranium from the TBP Plant which was reported last month was reduced somewhat by the addition of nitric acid to the furnaces prior to calcination. Although the foaming was not eliminated, it was possible to produce about thirty tons of uranium from this material.

Processing of Redox material was resumed near the end of the period and foaming developed when processing this material also. This foaming may be due to cross contamination from the TBP material because there was no extensive flushing and cleaning of the equipment

prior to processing Redox material since it was felt this was not necessary.

Extensive investigation of the problems of furnace operation with regard to foaming is planned in the coming period since the productive capacity of the UO_3 Plant has been reduced sharply by this difficulty. During July, approximately ten furnace charges foamed severely enough to spill uranium on the floor. Nearly every other furnace charge started foamed enough to either activate the high level alarms or spill out on the furnace top. Obviously a reduction in productive capacity resulted directly from the need to spend considerable periods of time in decontamination efforts.

d. Waste Metal Removal

Nine blend batches, equivalent to 21,438 pounds of Uranium, were transferred from the U Tank Farm facilities to the TBP Plant. This amount, plus that transferred last month, fills all the available storage facilities at the TBP Plant. Sluicing activities will continue in an endeavor to move all sludge from 101-U to 103-U tank and blending activities will be temporarily discontinued.

3. Special Operations

a. Redox

A plant test to determine the decontamination available with and without full head-end treatment of 90 day cooled metal was conducted during the month. With full head-end treatment, shipping specifications on both U and Pu streams were successfully met after two cycles. Without head-end treatment, three cycles were required to produce acceptable material.

As a means of decreasing undesirable sodium content of the final uranium stream, alkalinity adjustments of the 2D (second uranium cycle extraction column) scrub stream, the 1CU (first cycle uranium product) concentrator, and the 2EU (second cycle uranium product) concentrator were altered to use KOH in place of NaOH. At month-end, return to NaOH in the 1CU concentrator was necessary because of limited KOH supplies. No beneficial effect on the sodium content of the 3EU stream has yet been detected.

b. TBP

After adding 155,140 gallons of cold uranium waste to the special ditch that was provided, the rate of absorption of this material into the ground has decreased sharply. It was necessary to provide a second ditch to dispose of the remaining cold run waste.

c. B Plant

In preparation for placing B Plant on total stand-by status the dissolver heels were removed and formed the equivalent of approximately

five runs. It is expected that all product will have been removed by acid washes and shipped by August 29, 1952. During September the area will be prepared for processing of water runs in 221-B and decontamination of sections 16 and 17. The Concentration Building will be placed on complete stand-by.

d. T Plant

Processing of nineteen runs, from which Neptunium was recovered, was completed.

e. 234-5

Processing of the stored concentrated supernate solutions (SN-3's), according to Production Test 234-1, Supplement C, was completed during the first part of the month. All stored solutions have thus been treated and recycled to the main process stream.

4. Schedule Variance

Actual production of regular material processed through the Isolation Building was 97.1% of the forecasted amount. Material was held up in the Isolation Building at month end due to difficulty in filtering Redox material. UO_3 production was 92.2% of that forecasted because of pot foaming troubles. The 234-5 production commitment for assemblies was met.

B. Equipment Experience

1. Operating Continuity

There were no significant equipment failures which appreciably affected the operating continuity of the various plants. Revisions to the TBP equipment were made to improve performance.

2. Inspections, Maintenance and Replacements

a. HF Tank Inspection

At T Plant, the bi-annual inspection of the SY-181 tank (HF storage tank) was completed during the month. The tank was cleaned, inspected, and hydrostatically tested, and faulty valves were replaced. The tank has been returned to service. All indications are that it is in satisfactory condition.

b. UNH Storage Tank

On July 3, the empty X-1 UNH storage tank at the UO_3 Plant caved in at several points on the vertical wall. The tank was re-shaped by filling with water. Eleven 8" "I" beams were then welded vertically on the outside to act as stiffeners. The reason for the failure is being investigated.

c. Boiler Inspection

The No. 1 boiler in the 284-E Power House in the 200 East Area and the No. 4 boiler in the 284-W Power House in the 200 West Area were inspected and approved by the Travelers Insurance Company inspector on July 16.

d. Metal Removal Equipment

The failure of the Nagle sludge pump in the 101-U waste metal storage tank indicates a serious problem of providing a satisfactory pump for this service. Investigation of the required pump changes is under study since three such failures have occurred.

Other factors which delayed operations during the month were: sluice nozzle failures, plugged dip tubes, continued poor visibility in the tanks and switch gear difficulties.

C. Improvement Experience

1. Process Tests and Revisions

a. Dry Chemistry - 234-5

Hydrofluorinations for all charges processed during the month were carried out by diffusion of the gas into the powder rather than by drawing it through the filter bost and the material. The vacuum on the furnaces was decreased during the processing cycle in an effort to minimize the effect of air in-leakage at the furnace doors and thus improve the conversions to fluoride. This change resulted in decreasing the number of runs requiring refluorination by seventy-five percent.

b. Waste Evaporator Operation

The 200-E waste evaporator operation was stabilized at 70 percent reduction after tests indicated that this volume reduction would give optimum performance.

2. Adoptions, Inventions and Discoveries

There were no items of a patentable nature reported or adopted during the month in the Separations Section.

D. Events Influencing Costs

1. Labor Variance

There was no change in the number of personnel for the month of July.

2. Material Variance

During the month of July, it was demonstrated that it would be possible to use the Aluminum Nitrate which had been contaminated by Tricresyl Phosphate leached from Tygon lined storage tanks. Approximately 42,000 gallons, representing a cost of $25,200 were consumed, however, the remaining 186,000 gallons will be treated before use in the Redox process.

3. Other

During July, after evaluating all factors the decision was made to place B Plant in a standby status. After the removal of product from the vessels by means of acid washes, water flushes will be run through the equipment to keep it in operating condition. The cost of removing residual product from the equipment will be charged as operating costs and subsequent processing of water flushes on a periodic basis will be considered as "standby" costs.

The 200-N lag storage areas which are no longer required were also considered as being in "standby" starting in July.

As a result of a study of the usage of protective clothing, the cost of laundering has been cut appreciably. This savings will be fully evaluated three months after the inauguration of the revised practices.

Effective July 1, a work order system was adopted for all analytical services performed by the Process Unit laboratories. The coding system employed will enable each laboratory group to follow their costs each month, thereby bringing closer to the operating supervisor the necessity for good cost control.

E. Plant Development and Expansion

1. Project Status

TBP - Project C-362

Atkinson and Jones completed their work on the CR Waste Removal Facility (Phase II) on July 11, 1952. Minor construction completed their portion of this facility on July 25, 1952.

The East-West Pipeline (Phase III) was completed by Atkinson and Jones on July 11, 1952.

2. Plant Engineering

The first phase of a cost reduction study dealing with methods of

weed control was completed and issued as P.E.S. Report No. 22. With the adoption of the specific recommendations concerning types and methods of applying sprays an annual savings of seven thousand dollars is expected. The study of possible additional savings with the use of shredding equipment for the disposal of weeds is continuing.

A program for the establishment of steam standards and subsequent conservation of steam in the 200 Areas is being pursued. Preliminary data has been collected and correlation of these data is in progress.

F. Significant Reports Issued

1. Routine

Document	Title	Author
HW-25266	Separations Section - Operations Monthly Report	V. R. Chapman
HW-25265	Separations Section - 234-5 Operations Monthly Report	V. R. Chapman
HW-25225	Separations Section - Process Unit Monthly Report	W. N. Mobley
HW-25223	Separations Section - Radiation Monitoring Monthly Report	A. R. Keene
Unclassified	Separations Section-Power & Maintenance Monthly Report	R. T. Jessen
HW-25290	Separations Section - Plant Engineering Monthly Report	C. P. Cabell
HW-25027	Separations Process Committee Minutes	L. M. Knights
HW-25023	Essential Materials - Operations Unit Separations Section	J. P. McBride

2. Non-Routine

HW-25131	Production Test 234-5-1-MS	W. N. Mobley
HW-25120	Twelve Month Post Acceptance Report Section 5 Waste Settling Tanks, 221-T & B - Project C-415	R. S. Bell by A. Bradway, Jr.
P.E.S. #22	Weed control	P. J. Norderhus
P.E.S. #25	Improved Trash Handling	M. Pociluyko
HW-25045 (P.E.S. #26)	Revised Recuplex Economic Stidy	R. H. Chesworth A. Bradway, Jr

III. PERSONNEL

A. Organization

There were no major organizational changes in the Separations Section during the month.

B. Force Summary

	Start of Month	End of Month	Net Change
Section General	3	3	0
Operations Unit	722	716	- 6
Power and Maintenance Unit	547	552	5
Process Unit	70	72	2
Radiation Monitoring Unit	68	68	0
Plant Engineering Services Unit	21	20	- 1
Section Total (Excludes 6 Rotational Trainees)	1431	1431	0

C. Safety Experience

For the fourth consecutive month, no major or sub-major injuries were incurred by Separations Section personnel.

D. Radiation Experience

There was one Class I radiation incident which involved probable spontaneous ignition of contaminated waste in the Burial Ground. Spotty airborne plutonium contamination from this fire fell out of the smoke in the vicinity of the Z Facility.

In the Redox Plant, surveys continued to indicate sporadic emission of radioactive particles from the main stack. The quantity and activity of these particles showed no significant change from last month. Total emission of I^{131} from S and T Facilities averaged less than 1.0 curies per day.

There was a significant reduction in the total number of skin contamination cases for the Separations Section, the lowest number since February 1950.

E. Personnel Activities

O. F. Beaulieu visited Los Alamos and Rocky Flats for consultation and inspection of operating lines.

ENGINEERING DEPARTMENT

JULY 1952

TECHNICAL SECTION

Two flow laboratory tubes exhibited severe pitting resulting in leaks when operating at 20 gpm at 95°C. Film patterns showed that in each case the slugs were cocked. Examination of five process tubes removed from F Pile because of water leaks showed similar pits located at the slug junctions. No evidence of corrosion products was observed. Tests conducted with standard charging equipment showed that when forces of 600 to 800 pounds are applied to a slug column, buckling of the column is likely to occur. This information indicates that the cause of leaks may be cavitation due to low pressure areas caused by cocked slugs.

Bore diameter measurements of graphite tube blocks of a regular process tube channel of the H Pile showed that the channel has remained smooth within 10 mils of normal diameter. No trend toward the elliptical and irregular dimensions found by similar measurements in the older piles is indicated.

Tests to determine accurately the water flow rate at the H Pile by displacement of the water in the 190 storage tanks showed that production was 5 percent more than the instruments had recorded in the past.

Preliminary experimental work has demonstrated that an eddy current method can detect Al-Si penetration into the aluminum can wall of the uranium slug assembly. Ultrasonic techniques for examining uranium structure show a radical difference between the pattern obtained for a slug which has not been heated into the beta phase, and that for a slug which has been fully transformed through such treatment.

The energy spectrum of the thermal neutrons emerging from a side hole at DR Pile has been measured with the use of the neutron spectrometer. The results indicate a pile neutron temperature of about 700°A, very nearly that of the pile moderator, confirming the prediction based upon pile theory.

A device was designed and constructed to allow continuous monitoring of the gamma activity of flowing process streams. It operates by remote control and allows determinations of background, standard, and sample. The unit shows adequate stability, low background, and suitable overall operation except for an excessive loss of signal over the long connecting cable; the latter remains to be corrected.

The cupferron extraction procedure for extracting impurities from plutonium prior to spectrographic evaluation has never given entirely satisfactory results in spite of a great deal of development study. Accordingly, a new TTA extraction procedure has been developed. Tests with 52 separate elements have shown forty-four to be quantitatively recoverable and the remaining

eight partitioned between the two phases or tracked with the plutonium. None of the latter are of process importance. The method is being installed for final control laboratory evaluation.

B Plant ($BiPO_4$) is being taken toward a true standby basis by the removal of dissolver heels and final product flushes.

Tests with 90-day cooled feed in the Redox Plant definitely established that head-end and two solvent extraction cycles will provide adequately decontaminated product streams. Operation with 90-day feed without head-end results in borderline product activities in two cycles. Plutonium and uranium recoveries were 99-99.5 percent.

Cold uranium studies were continued in the Uranium Recovery plant in an effort to reduce the initial high (10-30 percent) uranium losses from the extraction (RA) column. By mechanical changes to improve the pulse efficiency the losses were reduced to 0.4 to 1.4 percent. Work is continuing to obtain losses consistently below 0.5 percent. The stripping column (RC) has performed as designed. Following several unreactive batches, the UO_3 powder produced from TBP uranium has been at least as reactive to UF_4 conversion as the material previously produced in the Redox plant.

A Purex chemical flowsheet together with preliminary contactor design specifications was issued during the period to permit the initiation of design scoping.

The completion date of August 29 for Phase II of the Redox Analytical and Plant Assistance Laboratory (Building 222-S) is considered realistic.

The components of the Works Laboratory Area attained construction completion status as follows by month's end: CA-381, Radiochemistry Building, 32.1%; CA-385, Radiometallurgy Building, 51.5%; CA-414, Building 326, 21.8%; CA-394, Plot Plan & Utilities, 65.2%; CA-421, Library & Files Building, 74.3%.

DESIGN SECTION

Engineering effort for July was distributed approximately 36% to the expansion program, 29% to research and development and 35% to other projects and design orders.

Design of the 105-KW facility was approximately 29% complete at the month's end, an advance of 6% during July. Expenditures to date are approximately $350,000 of the $415,000 authorized for this design. Design criteria for basic reactor requirements, basic building requirements, electrical, architectural and structural, and horizontal rods were approved by the Working and Design Committees. Seventy-one requisitions have been written by the General Electric Company for procurement of equipment valued at $3,450,000 for the 105-KW and 105-KE facilities.

The Title I and Title II Water Plant design being performed by the architect-engineer was advanced 8% during July to 15%. A total of 65 construc-

tion drawings have been received for comment. Also, a total of 19 purchase requisitions, amounting to $6,300,000, and eight specifications have been received. Design scope requirements of the General Electric Company were reviewed during the month with C. T. Main. Specific information for portions of the scope document to be furnished by C. T. Main was agreed upon.

The preparation of design scope for modifications to B, D, F, DR and H water plants for utilization of the activated-silica alum treatment was completed during the month. Project proposals and a scope document are being prepared.

A project proposal covering the increase in the Redox plant capacity to 150% of the designed capacity (Phase I) was prepared. The estimated cost of revisions to the plant is $120,000, exclusive of transferred capital property.

Design scope activity was started on the Purex separations facility. The preliminary checmical flow sheet was approved by the Design Committee as a firm basis for developing design scope.

A reactor hazards study for the new "K" Area reactors was started during the month at the request of the Atomic Energy Commission.

PROJECT SECTION

Major projects advanced during the month and attained construction completion status as follows: CG-349, Hot Semiworks, 99%; CA-362, Waste Metal Recovery (TBP), 92.8%; CA-431-A, 100-C Production Facility (Waterworks), 91%; CA-431-B, 100-C Production Facility (Reactor), 88%; CG-438, Ball Third Safety System, 9.5%; CG-483, Downcomer Repairs in 100-B, D, DR and H and Replacement in 100-F, 5%.

Deliveries of steel are being scheduled again following settlement of the steel strike. Steel balls for the first unit to be fitted with Ball 3X are scheduled for delivery after November 17, 1952. The first 29 hopper units for Ball 3X are delayed until late August. The boiler for CG-477, Fifth Boiler Addition for 284-W Building, is delayed for at least two months. A priority purchase has been requested but not yet approved. The Type AISI 502 steel for CG-483 (Downcomer Repairs) is scheduled for shipment in early August.

A wildcat strike of 102 millwrights working on the 100-C facilities occurred on July 28 and lasted for the remainder of the month (until August 4). The intimated cause of this strike was a reduction in the millwright force performing inspection services on the facility. Because of the inability to procure pipefitter-welders, long-standing requisitions for personnel of this craft were cancelled.

Announcement was made by the A.E.C. that a contract (CPFF) had been let to the Kaiser Engineers Division of the H. J. Kaiser Company for construction of the 100-K facilities. An option for Kaiser to furnish laborers and mechanics for Minor Construction is included in the contract. The new contractor will perform under national agreements with several crafts,

permitting members of the plumbing craft to be employed directly and electricians through a subsidiary.

Pending clarification of the Construction Rider to the Fiscal Year 1953 Appropriation Act, work by Minor Construction has slowed considerably, since jobs having a doubtful status are not being accepted for performance. Total work amounting to $1,591,475 is under way. Stop gap repairs to the East 107-H Retention Basin were completed, and repair work on the West Basin is progressing with a thirty-minute health-hazards time limit.

Seventy-three project items and 14 informal requests, totaling $20,757,700, were active in Project Engineering. Six project proposals and five informal requests were approved by the A & B Committee. Important projects now in progress include the Ball 3X Program, Pile and Pile Water Plant Improvements, Hot Semiworks, Downcomer Repairs, and Experimental One Tube Ink Facility.

The Field Services group completed soundings and additional field data necessary for Program X design. Project Control group continued a study on "Equitable Liquidation of Reproduction Expense," and also began a detailed study of "Cost Control for Program X."

Preliminary investigations concerning the substitution of neoprene steam hose for the brass rear face pigtails was completed. The required assemblies have been received and are being installed. Despite a wildcat strike by millwrights, the testing and run-in of equipment has progressed. All parts of the 100-C waterworks are advanced to the stage of testing, instrumentation, adjustments, and connecting of electrical and piping work. The 181-B River Pump House has been released to the Manufacturing Department. The basic 105-C structure was completed. The 105-C process unit was being fitted with monitoring systems, safety systems, and high pressure gas piping. Flushing of the process water system through the front-face cross-headers was completed July 19. Hydrostatic tests began July 29.

Work was resumed on Project CA-362, Waste Metal Recovery (TBP) on July 28. A small force of 29 was assigned to the TXR Area, and work on the BXR Area is scheduled for re-opening about August 15, 1952. Extensive study and tests were made of the slurry pumps which are installed in the large underground tanks, after a second pump failed about mid-July. The cause of failure has not been determined, but as a precaution, all future units are being modified by welding the impeller to the shaft.

GENERAL

Organization & Personnel

Total on Roll July 1, 1952	1,544
Accessions	51
Separations	42
Total on Roll July 31, 1952	1,553

Effective July 1, 1952, process control functions in the 100 Areas were transferred from the Technical Section to the Reactor Section of the Manufacturing Department. Coincidental with this transfer of functions, five physicists and engineers and five technical graduates were transferred to the Manufacturing Department.

A. B. GRENINGER, MANAGER
ENGINEERING DEPARTMENT

DECLASSIFIED

1205438

ENGINEERING DEPARTMENT

GENERAL

During the month of July 1952, the following major items of work were handled by the Contract Unit of the Engineering Department:

1. Special Agreement No. G-5 with National Carbon Company was activated by the issuance of a formal notice to proceed on July 8, 1952. The notice to proceed was issued subsequent to the obtaining of the priorities for necessary construction work. Executed and conformed copies of Special Agreement No. G-5 were distributed on July 9, 1952.

2. During July, the Fred J. Early, Jr. Company, Inc. forwarded a letter disputing a decision of the Commission dated June 17, 1952, which disallowed an escalation claim. On July 16, 1952, the Fred J. Early, Jr. Company, Inc. was advised that the Commission was considering arbitration of the dispute at the Washington Office level and that the Richland office of the Commission would advise the necessary procedures to be followed and obtain final arbitration of this matter.

3. Proposed Consultant Agreement No. 102 with Aluminum Company of America continues to be held up pending an attempt by the Purchasing Department to secure a firm quotation from the vendor or from other vendors which will permit the work being placed on purchase order.

4. Various claims outstanding under Subcontract No. G-182 with the Combustion Engineering Company are still held up pending an answer to our letter of June 16 addressed to Combustion Engineering and setting forth results of our study of various claims and suggesting a basis for settlement thereof.

5. Modification No. 1 to Subcontract No. G-303, Morrison-Knudsen, covering a settlement due to an accident resulting from removal of deaerator equipment, was forwarded to the Commission for approval on July 18, 1952.

6. Special Agreement No. G-11 with Remington-Rand, Inc., covering the microfilming of records, has been executed by General Electric and the contractor and will be forwarded to the Commission early in August.

7. Modification No. 2 to Special Agreement No. G-4, Prepakt Concrete Company, covering extension of time, was forwarded to the Commission on June 13 but has not been approved as yet.

8. Modification No. 1 to Special Agreement No. G-6, Washington State College, covering services and hydraulic testing of downcomer model, was approved by the Commission on July 3 and all copies of the Agreement were distributed on July 15, 1952.

9. On July 17, 1952, General Electric requested National Carbon Co.

1205439

to formulate a proposal for increasing the amount of graphite to be procured under Special Agreement No. G-5 to 8,000 tons. This entails a reduction in a total requirement of 14,000 tons, for which a proposal was requested early in March 1952.

10. In accordance with a request from the Commission, all lump-sum construction contractors under contract with the General Electric during the period May 1, 1950, through December 31, 1950, were contacted and requested to file petitions for refund of Business and Occupation Tax paid subsequent to May 1, 1950, with the Tax Commission of the State of Washington.

DECLASSIFIED

HW-25227-DEL

[redacted]

DECLASSIFIED

PILE TECHNOLOGY UNIT

JULY, 1952

[redacted]

1205441

VISITORS AND BUSINESS TRIPS

Visitor	Date	Address	Purpose
James E. Brown Kenneth E. Gilbert	7-1/4-52	General Engineering Laboratory	Consultation on water examination facility
James W. Moyer	7-1/7-52	Knolls Atomic Power Laboratory	Consultation on thermal conductivity of graphite experiment and KAPL creep of metal and slug coatings project
Arthur H. Barnes	7-14/15-52	Argonne National Laboratory	Attend the fuel slug test meeting
G. Beyers O. N. Carlson	7-10/11-52	Ames Laboratory	Discuss jacketing operation and extraction operations
H. L. Hull W. L. Doe	7-14/17-52	Argonne National Laboratory	Take part in the non-destructive test information meeting and inspect laboratory and plant facilities
C. L. Karl J. C. Hughes R. E. L. Stanford	7-14/16-52	Atomic Energy Commission - Fernald Office	Take part in the non-destructive test information meeting and inspect laboratory and plant facilities
E. J. Boyle	7-14/15-52	Oak Ridge National Laboratory	Attend non-destructive test information meeting and inspect laboratory and plant facilities
J. W. Halley L. R. Kelman W. J. McGonnagle	7-14/16-52	Argonne National Laboratory	Attend non-destructive test information meeting and inspect laboratory and plant facilities
R. C. McMaster S. A. Wenk	7-14/15-52	Battelle Memorial Institute	Attend non-destructive test information meeting and inspect laboratory and plant facilities

1205442

DECLASSIFIED

Visitor	Date	Address	Purpose
G. W. Wensch M. J. Donahue	7-13/19-52	DuPont Wilmington	Attend non-destructive test information meeting and inspect laboratory and plant facilities
E. E. Hamer	7-31-52	Argonne National Laboratory	Consult on irradiation of samples
F. F. Farris	7-17/18-52	American Aviation Company - Downey, California	Radiation damage services
H. L. Hull	7-18-52	Argonne National Laboratory	Take part in non-destructive test information meeting and inspect laboratory and plant facilities
W. K. McCarty	7-1/31-52	North American Aviation	Follow performance of in-pile experiment
P. C. Aebersold	7-14-52	Atomic Energy Commission - Oak Ridge National Laboratory	Discuss isotope program

Name	Date	Place Visited	Purpose
J. C. Ballinger	7-1/5-52	National Bureau of Standards	Discussion of work being done for graphite
E. C. Wood	7-1-52	Knolls Atomic Power Laboratory	Technical consultations on non-destructive testing
	7-2-52	Battelle Memorial Institute	Technical consultations on non-destructive testing
M. W. Hulin H. L. Henry J. C. L. Chatten D. F. Snoeberger A. B. Carson	7-14/16-52	Atomic Energy Commission - Idaho Falls	Attend materials testing program meeting

1205443

Name	Date	Address	Purpose
M. Altman	7-16/18-52	Knolls Atomic Power Laboratory	Attend classified heat transfer meeting
	7-16/18-52	General Engineering Laboratory	Attend classified heat transfer meeting
E. A. Eschbach	7-21/23-52	California Research and Development	Consultation on fuel element development
J. W. Riches	7-30-52	Chalk River, Canada	Attend meeting of joint U.S.A. - Canadian Committee on dimensional stability
A. T. Taylor	7-14-52	Knolls Atomic Power Laboratory	Discussion on fuel element development program
	7-15-52	Superior Tube Norristown, Pa.	Observe tube reduction
	7-16-52	Mass. Institute of Technology - Cambridge	Discussion on fuel element development program
	7-17-52	Westinghouse Atomic Power Division - Pittsburgh, Pa.	Discussion on fuel element development program
	7-18-52	Battelle Memorial Institute	Discussion on fuel element development program
P. J. Pankaskie	7-14-52	Knolls Atomic Power Laboratory	Discussion on fuel element development program
	7-15-52	Superior Tube Norristown, Pa.	Observe tube reduction
	7-16-52	Mass. Institute of Technology - Cambridge	Discussion on fuel element development program
	7-17-52	Westinghouse Atomic Power Division - Pittsburgh, Pa.	Discussion on fuel element development program

1205444

Name	Date	Address	Purpose
P. J. Pankaskie	7-18-52	Atomic Energy Commission - Washington	Attend Zr Meeting
	7-21-52	Alcoa, New Kensington Plant	Discussion on fuel element development program
	7-22-52	Argonne National Laboratory	Discussion on fuel element development program
J. J. Cadwell J. F. Music L. P. Bupp	7-15/19-52	National Carbon Company	Technical conferences on experimental graphite production
M. Altman	7-6/8-52	Oregon Corbett Company	Check analog
G. E. McCullough	7-8/11-52	Dugway Proving Ground - Tooele, Utah	Recruiting
S. Goldsmith	7-19/24-52	Gordon Research Conferences - New London, New Hampshire	Attend symposium on corrosion
S. R. Fields	7-17-52	Pacific Scientific Company	Inspect and test electrical analogue

1205445

PROCESS CONTROL AND ANALYSIS

Limitations to Pile Power Level

Pile power levels during July, 1952, were primarily limited by the following:

Pile	Limits Controlling Pile Power Level
B	Vapor binding.
D	Vapor binding (also outlet water temperature prior to limit change to 90°C and fringe orifice changes).
DR	Vapor binding.
F	Vapor binding.

Process Changes

On July 11, the corrosion limit on outlet water temperature was increased from 85°C to 90°C.

Process Specifications

A rough draft of specifications for the pile process was issued as HW-24929, "Process Specifications - Pile Process" and circulated to members of both the Engineering and Manufacturing Departments for comment.

Water Leaks at F Pile

Water leaks necessitated three outages at F Pile during the month, on July 7, 11, and 19. Leaking tubes were identified as 0867, 3670, and 1475, 3668, and 3883 on the respective outages. All of these tubes were stain tested while in the pile to aid in locating the point of leakage. This was done in conjunction with the Corrosion group by filling the tubes with a colored dye and later noting the stained area on the outside of the tube. In addition tube 0486, a previous leaking tube, was stain tested. All of the above tubes were removed for subsequent examination.

A summary of the water leak history of F Pile through June 30, 1952, combined with a general discussion of the causes and effects of water leaks was presented in HW-24440, "Water Leaks and their Effects at F Pile", by D. J. Foley.

Slug Pitting in F Pile

Examination of the metal discharged from the three leaking tubes detected on the July 19 outage at F Area revealed two slugs from tube 3668-F which were extensively pitted. Radioactivity measurements combined with visual observation of the film indicated these slugs were probably near the downstream end of the charge. Examination of the metal from tube 3773-F, which was discharged during a short

1205446
UNCLASSIFIED

outage because of rupture indications, revealed three slugs which were extensively pitted. The ruptured slug, which had the end cap completely removed, was one of the severely pitted slugs. Radioactivity measurements and observation of the film indicated these three slugs were also near the downstream end of the charge.

Process Development Survey

A study has been initiated of the 100 and 300 Area processes to provide information helpful in determining the proper timing and emphasis to be placed on the various fields of 100 and 300 Area development effort. A compilation will be made of possible improvements to the process which affect production rates, production costs, pile longevity, and pile safety. A preliminary evaluation will be made of the relative merits of the various possible improvements now under study by others as well as those which appear worthy of study in the future. The fundamental purpose of this survey is to clarify the manner in which specific means and methods for improvements to the process are related to other specific competing or complementary means and methods.

Manual of Physics Standard Practices

The first item of the "Manual of Physics Standard Practices", has been issued as HW-24975, "Prediction Chart Preparation", by R. O. Brugge. This document explains in detail the calculations involved in predicting reactivity transients during pile shutdowns and start-ups. The section on xenon calculations has been completed in rough draft form and will be issued next month. Work is progressing on the other portions of the Manual.

Water Flow Rate at H Pile

A report was issued on the tests to determine the accuracy of the currently used water flow measurements at H Pile as HW-24713, "Water Flow Rates at H Area", by L. H. McEwen. These tests utilized the volumetric displacement of the 190-H water storage tanks as a standard, and results of the tests indicated that the pile power level meters at H Pile from which daily production is determined are probably five per cent lower than the correct values. It was recommended that the meters be adjusted to register the indicated true water flow rates and that this type of tests be used as a primary standard for all process water flow measurements in the 100 Areas.

Production Test 105-313-2-M - Eight-Inch Heavy-Wall Fuel Slugs

Approximately 2500 tubes of the eight-inch heavy-wall fuel slugs are now under irradiation. Eighteen tubes have been discharged at less than goal exposure; two because of ruptured slugs, one because of a suspected ruptured slug, and the others for inspection.

Ruptured Slug Data Analysis

An equivalent exposure method of calculating an estimated rupture rate of metal at current goal exposure prior to the metal being irradiated to the full goal exposure was outlined in HW-25145, "Equivalent Exposure Methods of Calculating Rupture Rates", by L. W. Lang. This method is based on the observation that for both group 7 and

1205447

group 8 metal the rupture rate had a similar relationship with exposure. By use of this method it should be possible to evaluate rupture rates with a fair degree of accuracy several months prior to discharge of the metal.

Pertinent data on the 13 ruptured slugs which occurred during the month, are summarized in HW-25168, "Ruptured Slug Data for July, 1952", by L. W. Lang.

PILE PHYSICS

Pile Enrichment Studies

Preliminary studies of the manner in which moderate enrichments (30 - 50 kilograms of U^{235} in the form of aluminum-uranium alloy slugs) would best be utilized in H Pile are in progress. These studies will include the flattening problem, manner and position of enrichment loading, effect upon pile transients of such a loading, an evaluation of the gains in plutonium production which can be expected from various investments of enrichment and added water, and the effect, if any, upon pile life. Most of these factors have been studied in a general way, but not in specific application to a particular pile.

Pile Activation - C Pile

Detailed consideration is being given the schedule of activities during the C Pile start-up. Such a schedule at this time makes it possible for the experiments which are planned to be scheduled in the proper sequence of events and conducted in a minimum of time.

A tentative loading schedule realizing cylindrical geometry has been formulated. Data forms are being prepared and the start-up instrumentation is being reviewed with firm decisions made in some instances.

Yield-Bismuth Irradiation

The revision of the polonium yield prediction curves has been completed and the results placed in rough draft report form. The cases of both the single tube and the four tube cluster have been considered in this study.

Physics Aspects - Future Piles

A discussion of the technical factors affecting the choice of pile size has been placed in rough draft report form. This work was chiefly concerned with the physics aspects in the choice of number of tubes.

Stability to Radiation - Thorium Slugs - Production Test 105-316-A

A total of 45 extruded and 45 rolled thorium slugs will be given a range of exposures, both in flattening columns and in natural uranium columns, to determine the effects of high exposure and/or elevated temperature upon slug stability in cases of extruded and rolled material. The production test PT-105-316-A, "Effects of Irradiation in Thorium Slugs", has been issued and a portion of the material is now undergoing exposure.

1205448

Poison Columns - Ball 3X Outage

A report discussing the poison column requirements to compensate reactivity-wise for the vertical and/or horizontal rod systems, should they be removed from service during the ball 3X installation, has been prepared. Data are given which will apply to the particular cases of each of the five piles.

Neutron Diffusion Length - C Pile

The final correction to the average value for the diffusion length of thermal neutrons in the C Pile graphite has been calculated and applied. This correction is for the effect of fast neutrons on the measurement and proved rather small - reducing the previously reported values by 0.03 cm which is within the error of measurement.

A report discussing the experiment and reporting the results is now in rough draft form.

Measurement of Fluxes in Hanford Piles

Measurements are continuing in the calibration of the Test Pile neutron flux as a secondary neutron standard which can then be used for high flux detector calibration.

The initial measurements in a 105 Pile consisting of thermal neutron traverses through the reflector at F Pile, have been initiated utilizing the E test facility. The data are being analyzed at the end of the month.

Ruptured Slug Detection

The slug rupture detection instrumentation, i.e., the delayed neutron detector, scintillating crystal gamma spectrometer, and the electronic difference amplifiers associated with these systems, demonstrated good stability during the month. The major portion of the contemplated increased sensitivity in this instrumentation has been obtained.

Four uranyl nitrate injection experiments were conducted as planned during the month. In these experiments a slug rupture is simulated by introducing uranyl nitrate into a single process tube at a constant rate and conducting effluent water from the appropriate crossheader into a water sample room. The relative efficiencies of the various types of instrumentation are then determined from their responses to the single source of effluent activity.

The large quantities of data obtained from these tests have not been completely analyzed. It is apparent, however, that the extrapolation of instrument performance from these tests to an actual rupture is uncertain because of an uncertain uranium exposure time which apparently results from uranium holdup in the pressure tube. This condition makes theoretical calculations of extrapolation factors unreliable. Attention is being given the possibility of simulating a rupture more closely, i.e., releasing controlled quantities of highly exposed uranium to the effluent, to obtain reliable check of the relative detector sensitivities. Two crossheaders are being continuously monitored to obtain data from any unusual occurrences in the associated process tubes. In addition, a cycling system is

1205449

being developed to permit rapid monitoring of the effluent from larger numbers of crossheaders on an experimental basis.

Gamma Spectrum of Irradiated Thorium

Experimental measurements of the gamma spectrum from irradiated thorium are being made to facilitate U^{233} separations at Oak Ridge. Measurements are now in progress to determine the spectrum from highly irradiated thorium to supplement data reported last month for low exposure material.

Theoretical calculations of the expected gamma energies and their relative intensities as a function of exposure and decay time are being made also. The theoretical results predict quite accurately the experimental observations in the case of low exposure material.

Gamma Activity of Effluent Water

The energies and relative intensities of the gamma radiations emitted from the effluent water are being measured to determine the background which the slug rupture detection instrumentation must tolerate and to provide data for shielding design in future piles. Measurements at H Pile with ferric sulphate and lime water treatment were completed and similar measurements are nearly completed for the F Pile effluent, with aluminum sulphate and sodium silicate water treatment.

Automatic Tube Temperature Recording Facilities

The DR Pile IBM automatic tube outlet water temperature rise recording facilities has maintained the routine schedule of traverses during the month.

The Flexowriter tube outlet water recording facility at B Pile is operating very satisfactorily. The long time stability of the equipment still remains to be tested, however, through continued operation. Efforts are presently being directed to obtain a more accurate inlet temperature compensator.

Components are being procured to proceed with the development of an improved Flexowriter system for installation at those remaining piles wherein such action is warranted.

Test Pile - Routine Tests

Regular metal testing proceeded routinely during the month.

Sixteen lots of Mallinckrodt billet eggs were tested and yielded TDS values ranging from 12 to 17. Seven lots of Fernald billet eggs were tested and yielded TDS values from 14 to 18.

Test Pile - Special Tests

Graphite bars from three experimental heats were tested reactivity-wise during the month and the results reported to the interested groups.

1205450

Twelve uranium eggs produced in Belgium were submitted for reactivity tests. Test Pile measurements indicate a nuclear quality which compares quite favorably with the highest quality uranium received from Mallinckrodt which yielded a TDS of 11.

SHIELDING STUDIES

Attenuation Studies

The irradiation of neutron detectors to confirm previous data describing the spatial distribution of neutrons in both iron-masonite and Brookhaven concrete is still continuing in the absence of a DR Pile shutdown. The particular information sought is a verification of the fast neutron distribution in iron-masonite and a confirmation of the thermal neutron distribution in Brookhaven concrete through the use of molybdenum rather than gold detectors.

The neutron and gamma attenuation characteristics of "Prepakt" concrete - a concrete possessing an elemental composition similar to Brookhaven concrete but which is placed via the "Prepakt" process - will be determined to verify the predicted characteristics. Since the calculated composition is nearly equivalent to that of Brookhaven concrete the measurement actually will ascertain the success achieved in meeting specifications with this material. The experimental concrete sections have been fabricated and the measurement will proceed as one of the DR Pile shield test facilities becomes available.

The shielding data obtained to date are undergoing analysis prior to publication. The "best value" for the cadmium ratio in Brookhaven concrete has been determined as 2.6 with the ratio decreasing slightly at large shield thicknesses. In iron-masonite similar spectrum "hardening" is observed with a cadmium ratio varying through the laminar structure from nearly unity in the iron to a maximum of eight in the masonite.

Radiation Damage Studies

Increased emphasis is being given the evaluation of the present condition of the Hanford iron-masonite shield. Although all data available to date indicate that the shields are structurally sound, the increased exposure rates which will accompany higher pile power levels and/or the use of extensive enrichment make it imperative that shield life be predicted more accurately than is now possible. This study will include accelerated in-pile exposures of masonite as well as studies on irradiated masonite obtained directly from the pile shield.

One series of masonite samples was given an accumulated exposure, for which the thermal neutron component was estimated to be 4.3×10^{17} neutrons cm^{-2}, during the month and is now undergoing laboratory examination. Numerous samples of masonite and concrete have been prepared for future in-pile irradiations. Several unique pieces of equipment have been designed and fabricated to expedite the projected irradiations.

1205451

Shielding Effectiveness of Gun Barrels

The basic measurements of the gamma and neutron leakage through a standard ring and donut gun barrel assembly have been made utilizing the A test facility at D Pile. The taper bore gun barrel will replace the standard in subsequent studies. The observed intensities of the leakage radiations from the latter assembly will be compared directly with the standard, as well as, with calculated values.

Future Pile Design

An extensive discussion of those technical factors and data which are pertinent to pile shield design is being prepared. This discussion will summarize the present state of shielding knowledge particularly as it will apply to K Pile.

A review of the existing data indicates that neither magnetite nor magnetite-limonite concretes are well enough understood at present to be incorporated into a critical portion of a pile shield. Priority is being given radiation attenuation measurements on these materials as well as radiation damage studies.

HEAT STUDIES

A discussion of methods of raising the pile boiling limits was presented in HW-24927, "Methods to Alleviate Boiling Limits", by R. G. Vanderwater, July 11, 1952. Several points were made in the document. First, the present header pressure requirement provides pile operational safety under certain flow conditions, but leaves much to be desired as a general method of protecting against damage from boiling. Second, if unusual tube flow conditions could be detected by means of improved tube instrumentation, and if the pile could then be shutdown before damage could occur, it would be reasonable to rely on such instrumentation for pile safety. This action would permit relaxation of the header pressure requirement and would provide an economical means of raising the boiling limit, as well as, providing additional pile operating safety. At the present time, a large effort is being devoted toward establishing the proper specifications for such instrumentation and assuring the development of instruments satisfactory for the purpose. An outline of the types of instrumentation which appear promising is also given. At this time, it is not recommended that the schedule for outlet fitting changes on the 100-DR and H Piles be altered.

It is believed that instrumentation suitable for the purposes discussed above will consist ultimately of two separate devices per tube. Present indications are that the use of the Panellit system and a means to monitor tube outlet temperatures rapidly would provide the necessary safety. In order to rely upon temperature monitoring, it must be shown that the outlet temperature sensing devices (for example, thermocouples) would detect any unusual tube flow conditions before serious damage could occur. Tests have been in progress on the full scale tube mock-up to demonstrate that point. Preliminary data indicate that the use of outlet temperature monitoring would be satisfactory for this purpose.

Additional study has been given the possibility of connecting pairs of inlet nozzles by means of a one-inch diameter tube. Such action might prove to be an acceptable means of raising the boiling limits. However, experimental tests are needed in order to prove the feasibility of the method, and such tests have not been conducted due to higher priority work. The tests will be conducted when the full-scale mock-up becomes available.

Tests were conducted on the full-scale mock-up to determine the pressure-flow relations in the boiling region for low power outputs. The investigation was initiated to assist the Process Engineering Unit in the evaluation of water requirements following shutdown for a new pile. The results of the tests are reported in HW-24903, "Test Results", by K. G. Toyoda and R. F. Recht, July 2, 1952.

Panellit Studies

The 100-B Pile was shut down twice during the month as a result of the Panellit system alarm. The first shutdown resulted apparently from an excessive heat generation rate in tube 2666. Although the exact sequence of events is not known, it is possible that the shutdown was caused by boiling in the tube. The Panellit system operated satisfactorily. The second shutdown, for twelve minutes, resulted from a wiring failure on one of the gages. Two additional shutdowns would have resulted, had the delay period been set at zero rather than three seconds. Both would have resulted from gage-maintenance activities. At the other piles, the three-second automatic time delay caused no lost production.

A preliminary investigation was begun to determine the feasibility of substituting venturi meters for the present orifices. The study has indicated that a venturi on the order of 2.5 inches long might permit measurements of the tube flows without a large pressure drop, such as accompanies the use of orifices.

Emergency Cooling

Work has continued on establishing new header pressure requirements following an electrical power failure. It is hoped that outlet temperatures, at least as high as 95°C, can be permitted with the presently available header pressures.

The investigation of the results which would follow a cooling failure in one of the piles is continuing. Studies aimed to permit a better evaluation of the volume average properties of pile graphite with respect to such variables as stored energy and heat capacity are being made. Work is also continuing on the development of mathematical techniques which will make it possible to use instantaneous values of the temperature dependent properties rather than average values.

The possibility of using air cooling in case of a complete water loss from a pile is also being considered. This study has a direct bearing on the protection of the K Piles and is receiving a high priority.

1205453

Slug Studies

The temperature distributions in bonded slugs exposed at various power levels have been calculated and are presented in HW-24791, "Temperature Distributions in a Slug", by D. E. Amos, June 24, 1952. The calculations show that the axial temperature is practically constant along the center three inches of the uranium (in a four-inch slug) but drops about 70 per cent along the last half-inch on each end of the slug. For the slug having the maximum heat generation rate of all those in a 650 MW pile, the maximum axial temperature is about 305°C. An axial temperature of 550°C would be reached in a pile being operated at about 1350 MW. However, these temperatures were all based on the conductivity of unirradiated uranium, and thus are subject to revision as more data become available.

Arrangements have been made to install a slug having a single thermocouple located at the axis in the 100-D Pile under authorization of PT-105-411-P, Supplement A. The thermocouple will be used principally to measure the axial temperature of the slug.

Experimental work has continued by the Instrument Application and Design Group to develop a means of mounting a thermocouple near the surface of a slug. A mock-up slug has been fabricated, and plans have been made to can a standard eight-inch slug next. The latter will have thermocouples located at both the axis and surface of the slug.

Graphite Temperatures

The study to evaluate the desirability and feasibility of coring the K Piles for a 100 per cent helium atmosphere is continuing. The use of such an atmosphere should (1) make the graphite temperature limit sufficiently flexible that the piles could be operated with or without large-scale enrichment, (2) make it possible to gain a substantial amount of reactivity by permitting the graphite to be operated at temperatures above 410°C and (3) permit establishment of conditions which would cause a flow of heat to the fringe zones. Such heat flow would raise temperatures there and thus reduce expansion. The problems associated with the feasibility of this proposal are under active consideration.

The new electrical analogue has been received and assembled. At present, tests are being made to determine whether any defects exist in the equipment. Upon completion of these tests, the apparatus will be used in graphite temperature studies.

Shield Cooling Studies

Equipment has been installed in selected thermal shield cooling pipes at the 100-F Pile which will be used to measure temperatures in the shield. Data will be collected during the coming weeks.

Rod Cooling Studies

A document "Evaluation of Horizontal Rod Cooling Water", by W. D. Gilbert and R. P. Schmitz, HW-24972, has been issued. The document discusses the need for

1205454

experimental data regarding the cooling of the rods. A production test requesting authorization to determine accurately the water flow, pressure drop across the rod, and water temperature rise in the rods is in preparation.

MECHANICAL DEVELOPMENT STUDIES

Charging and Discharging Studies

Tests conducted with standard charging equipment have shown that when forces in the range of 600 to 800 pounds are applied to a slug column, buckling is likely to occur. This buckling action will result in slug to tube contact along the top of the tube which if not relieved before operation may cause excessive heating at points of contact. Indications are that differential thermal expansion between the slugs and tube may result in column forces of the same order of magnitude. This would imply that buckling may occur even though the slugs are not cocked during charging. This condition would be aggravated further by bound tubes or metallurgical expansion of the metal.

The study of the cocking phenomenon is being continued with the aid of an Eastman High-Speed Camera and a transparent window in a tube. It is hoped that lifting or cocking of the pieces can be detected as they pass the window in the tube. The window now in use is approximately six inches long and covers 120° of the tube. Longer sections of plastic and glass tubing are being procured to facilitate this study.

Horizontal Control Rods

Functional testing of the C Pile horizontal rod in an undistorted channel has been completed. The rod was equipped with the Silicone rubber sphincter seal and operation was found to be satisfactory. Insertion time under normal drive was found to be 44 seconds and under scram or emergency drive, seven seconds. Testing of the sphincter seal was carried to 80,000 cycles in cycling machine without relubrication and with negligible gas loss. This is equivalent to approximately 240,000 linear feet of rod travel.

Determination of the electrical power requirements is being made at present and operational tests under conditions simulating expected graphite growth will be carried out shortly.

Recent calculations indicate that excessive pressure would be built up in the sealed B_4C cans in C horizontal rod by the formation of helium gas from the absorption of neutrons by the boron. This fact was apparently overlooked in the design of this rod and immediate steps must be taken to correct it, since this condition could not be tolerated in operation.

Study of the possibility of using BF_3 gas for control purposes is continuing. These studies include irradiation tests of BF_3 gas in high flux fields, corrosion tests of aluminum in BF_3 with varying amounts of moisture, and evaluation of the most suitable means of handling the gas.

Vertical Safety Rods and Third Safety System

A C Pile VSR winch has been installed in the White Bluffs test tower and drop times have been determined with this winch connected to a C type rod. It was found that the rod dropped the first 24-1/2 feet in 1.825 seconds with a six foot head of water on the seal. With the seal unpressurized this time was 1.730 seconds. These times for the total travel of 30-1/2 feet, which includes six feet of deceleration, were 2.97 and 2.78 seconds respectively. Withdrawal time is 20.7 seconds.

The sphincter seal test at position 20D is continuing. There are indications that this seal, using dry lubricant, may be leaking very slightly. However, all attempts to measure this leak quantitatively have failed.

Development of a tool to fill the cracks between the vertical blocks in B, D, and F Piles has been completed and consideration is being given to the possibility of trying it out in the No. 20 hole at D Pile prior to the ball 3X installation.

IRRADIATION ENGINEERING AND SERVICES

High Pressure Water Channel - ANL-M-140

The behavior of water, fuel, and structural materials is being determined under conditions simulating those of the STR as nearly as is possible in the Hanford piles. Operation during the major part of the month was on process water.

The H Pile was scrammed three times during the month as a result of difficulties in the ANL-140 equipment.

Date	Down Time	Production Loss	Type of Scram	Cause
7-6-52	0.8 hour	21 MWD	Automatic	Water in pump cooling oil
7-8-52	0.5 hour	11 MWD	Requested	Water in pump cooling oil
7-21-52	0.2 hour	121 MWD	Requested	Leak in weld

Gamma Irradiation of Non-Metallic Materials - Production Test 105-246-P

The GEL-100 project, which tests the susceptibility of non-metallic material to gamma radiation damage, has proceeded at 100-F Area. The irradiations are accomplished in special sample baskets and racks using fission product gammas from pile exposed uranium slugs.

Spent slugs were replaced by freshly discharged pieces July 3, and again on July 26. Three samples completed the requested exposure of approximately 3.2×10^{12} R and were shipped to the General Engineering Laboratory for testing.

1205456

Plant Assistance Gamma Irradiations

The Pile Physics group has made arrangements for the gamma irradiation of an experimental rubber pigtail to determine the effect of gamma radiation on the tensile strength of the tube.

Thermal Conductivity of U-ZR Alloys - ANL-M-172 - Production Test 105-432-P

Performance of this test has been satisfactory since installation which took place during March, 1952. No significant change of thermal conductivity of the uranium-zirconium specimens has taken place.

Electrical Resistivity Measurement of Cu_3Au - WAPD-M-112 - Production Test 105-513-SR

The second slug assembly for this experiment was charged into B Pile during the July shutdown. No large changes of electrical resistivity of the zirconium and copper-gold specimens have yet occurred.

Heater Test for Graphite Thermal Conductivity Determination - KAPL-M-109 - Production Test 105-530-SR

The KAPL-109 in-pile experiment has continued at 105-B. The purpose of this experiment is to determine the effect of pile exposure on the thermal and electrical conductivity of a silica base and an alumina base heater cement.

Dr. J. W. Moyer, a visitor to Hanford from the Knolls Laboratory, inspected the experiment and accumulated data on June 28. At Dr. Moyer's suggestion a procedure has been developed for studying the voltage output and alternating current rectification properties of the cements. The findings of this study will be reported as soon as sufficient data have been gathered and analyzed.

Irradiation Studies for KAPL Fuel Research and Development Program - KAPL-M-111

These tests continue the former beta slug program (KAPL-M-079) and will investigate the effects of pile flux on the behavior of fuel elements in contact with sodium.

The annulus tube and associated equipment have been completed and charging is scheduled for the next DR shutdown.

Radiation Outgassing of U^{235} Impregnated Graphite - NAA-M-106 - Production Test 105-543-SR

This test is to determine the gas pressure to be developed by radiation outgassing in the fuel core of the North American Aviation Low Power Research Reactor. The minature fuel core of graphite impregnated with U^{235} has now been in the pile for ten weeks. The in-pile portion of this test is complete and the experiment will be discharged at the next shutdown. The gas pressure increased rapidly at the start of the test, reaching the maximum in about five days. The pressure has since been slowly decreasing and appears to be approaching an equilibrium value.

1205457

The core temperature which has been measured by a thermocouple located at the center of the slug increased at a diminishing rate and appears to have approached a constant reading after about 45 in-pile days. Upon discharge of the present experiment, a second will be installed in the same tube. The target for the second sample has been outgassed at high temperature prior to canning.

Thermal Conductivity of U^{235} Impregnated Graphite - NAA-M-107 - Production Test 105-544-SR

This experiment is being conducted to determine the effect of pile irradiation on the thermal conductivity of U^{235} impregnated graphite. The sample was charged into D Pile July 5, 1952, and is performing satisfactorily, exhibiting the expected decrease in thermal conductivity.

Controlled Gas Atmosphere Experiment - Project C-410

The gas analysis and circulating equipment for the determination of the effect of pile radiation upon the reaction between various atmospheres and pile graphite is being tested and revised. The gas flow meters are being calibrated, and the constant pressure reservoirs and circulating pumps are being replaced because of leaks and malfunction, respectively.

The heater-cooler assembly for constant temperature exposure of graphite samples is being rebuilt in the F maintenance shop. The rebuilding of the heaters and wiring was completed. Several leaks were found in the original weld between the collector ring and the cooler. This will be rewelded, the weld checked, and the assembly of the equipment continued.

Measurement of Slug Operating Temperatures - Production Test 105-411-A

The thermocouple slug assembly which will be used to measure slug central temperatures, change in uranium thermal conductivity, heat generation after shutdown, and heat flow from a tube to its surrounding tubes is essentially complete. A charge of numbered, solid aluminum slugs was placed in tube 1383 at the D Pile to obtain a measure of the actual flux distribution along this tube. Gas and electrical leads have been run from the rear face to the zero far level where the necessary piping and accessory equipment are about 40 per cent completed.

A thermocycling autoclave has been completed for testing thermocouple slugs with surface thermocouples and other special slugs.

An assembly for the in-pile calibration of thermocouples was charged into the F Pile on July 14. This consists of a thermocouple block with three iron-constant and three chromel-alumel couples surrounded by a bath of pure lead with a heater around the bath for obtaining lead melting and freezing point comparisons during the course of the thermocouples exposures.

Controlled Temperature Exposure of Graphite - Production Test 105-403-P

Series No. 4 has been irradiated for six months in tube 1684-B. The improved control system for series No. 3 is being assembled and will be ready for testing soon. This will be charged at the earliest possible shutdown, possibly in September.

1205458
DECLASSIFIED

Gas-Graphite Reaction Studies - Production Test 105-504-E

Capsules of gas and graphite have been irradiated in tube 0776-H for over two months. New capsules are being prepared for charging in August.

In-Pile Test Facility for W through Hole - H Pile

Construction of a mock-up for a water-cooled through hole sample exposure facility was begun at 189-F Building. The mock-up will test the proposed design and be available for checking experimental assemblies before charging into the pile.

Heater Test and Gas-Graphite Reaction Slug

This experiment is designed to provide information on the in-pile performance of a simplified type of high temperature in-pile heater, as well as, provide kinetic data on the motion of graphite with various in-pile gases.

Construction is under way on the first slug which will be used for out of pile performance tests.

SPECIAL IRRADIATIONS

Status of Special Requests

P-10-A pieces charged	136
P-10-A pieces recharged	120
P-10-A pieces discharged	255
P-10-A reaching scheduled exposure	0
P-10-A pieces under irradiation	466
P-10-A pieces in storage basin	512
Thorium pieces charged	146
Thorium pieces discharged	190
Thorium pieces being irradiated	716
Special request samples charged	64
Special request samples discharged	89
Samples being irradiated	415
Samples shipped during July	91
Samples awaiting charging	195
Samples awaiting shipping	2

GRAPHITE STUDIES

Pile Sampling

Process tube channel 2677-H was mined and traversed for bore diameter. Although several of the tube block junctions were obscured, the channel was quite uniform. Examination of all previously mined graphite powder samples for aluminum oxide corrosion product has been completed and the results are reported in the Technical Activities Report.

Graphite Exposure

Physical data have been obtained for transverse CSF samples with capsule exposures of 568, 1049, and 1617 MD/CT. The higher exposures indicate a sharper damage gradient toward the front of the pile. Additional casings of various types of graphite were loaded into test holes during this month.

Special graphite exposures in the MTR at Arco have been approved and samples are being prepared for shipment. Standard CSF graphite samples are being loaded in aluminum containers and will be exposed in two locations in the MTR. These experiments are designed to explore the effect of various neutron energy spectra on irradiation damage to graphite. The specific flux at the MTR will be greater than the Hanford flux and these exposures may prove to be valuable in predicting future Hanford Pile conditions.

Controlled Temperature Exposure of Graphite

Exposure of graphite samples in tube 1684-B continues at essentially constant temperatures.

Graphite-Carbon Dioxide-Reaction Rates

The reaction kinetics at constant volume for the system graphite-carbon dioxide have been studied at 962°C. The data from these runs fit the previously determined rate law for carbon monoxide concentration between 9 and 30 per cent. The extent of surface oxide formation seems essentially the same at this temperature as it was at 905°C.

Graphite-Carbon Dioxide-Helium System - Reaction Rates

Experimental difficulties have delayed the study of the reaction kinetics at constant pressure of the system graphite-carbon dioxide-helium.

Radiation Induced Reaction

Samples of gases and graphite in sealed quartz containers are being prepared to replace those which will be discharged from tube 0776-H in August. This second charge will consist of six tubes of pure carbon monoxide, five tubes of pure carbon dioxide and weighed samples of powdered GBF graphite, and five tubes containing weighed solid samples of GBF graphite in vacuum.

X-Ray Diffraction Studies

Study of damaged graphite specimens subjected to various thermal annealing temperatures has been initiated. It is planned to investigate the effect of the annealing temperatures well above 1000°C.

X-ray diffraction studies have been completed on several specimens of graphite subjected to chemical oxidation. A diffraction peak corresponding to a lattice spacing of approximately 12 angstroms appears with the formation of graphitic oxide. With increasing oxidation, intensity of the graphite 002 reflection decreases but does not shift in magnitude. This feature of the formation of

1205460

graphitic oxide is unlike the formation of irradiation damage, and within the limits of this experiment, it appears that the radiation damage phenomena cannot be likened to chemical attack.

Surface Studies

A study has been initiated to examine the surface characteristics of the stringer of graphite removed from the C test hole at the B Pile in December, 1950. In addition to this, additional controlled specimens of virgin graphite have been measured for surface characteristics after thorough outgassing and have been sealed in quartz tubes for pile irradiation. Simultaneously, quartz tubes containing graphite in atmospheres of oxygen and carbon monoxide will be exposed to pile irradiation, and surface characteristics measured after discharge.

Stored Energy Studies

The National Bureau of Standards has examined the heat of combustion of several samples of KC, CSF, and CSGBF graphite. The weighted mean of the new measurements is 7833.1 ± 1.6 cal/gram. This new value is 6 cal/gram less than the previous standard and will be adopted for the future total stored energy calculations.

Thermal Conductivity of Gases

Seven additional runs have been completed on the gas conductivity apparatus to explore the precision of the method and establish systematic behavior. The effect of convection is being investigated, using air as the conducting gas. Once these variables have been determined, the thermal conductivity of gases at 0°C will be investigated.

Special Graphites

Texas coke graphite samples have been removed after capsule exposure in a process tube. These samples, which were cut from an electrode 6 inches in diameter, indicate that the expansion of transverse samples in the pile is comparable to other pile graphites. Parallel specimens from this exposure also expanded. This behavior is unique and additional information will be available from TS samples cut from square extruded bars and should offer a check on these measurements.

A series of graphite specimens produced by Battelle Memorial Institute has been received. Of these, two lots were graphites with exceptionally low thermal conductivity. The irradiation stability of these specimens will be obtained as rapidly as possible. There appears to be some discrete advantages associated with the use of carbon moderators having low initial thermal conductivity and associated poorly defined crystal structure.

Damage Mechanism Studies

Virgin and damaged graphite specimens were removed from the pile basin after receiving two months' exposure to intense gamma irradiation adjacent to discharged uranium slugs. No detectable changes in the properties of these specimens were noted. A second exposure is in progress to run for a six-month duration.

1205461

WATER PLANT DEVELOPMENT

Flow Laboratory Operation

Flow laboratory chloride and temperature effects tests were completed during the month in preparation of the in-pile pH tests. Results of these tests show that slightly higher rates of slug corrosion result from the addition of 3 ppm chlorides to process water. Supplementary coupon tests are being continued. It is planned to operated further tests using fire and sanitary water, which will more nearly duplicate the effects of higher chlorine addition to raw water.

Results of the temperature tests confirm earlier observations that slug pitting occurs more frequently at 65°C than at 95°C, although weight loss is higher at the higher temperature.

The in-pile phase of the flow laboratory program was begun during the month. This test is designed to evaluate the effects of alum tested process water at pH 7.0 and 7.3 on pile operation. Two tubes in D Pile were loaded with dummies and connected to the flow laboratory water supply during the first shutdown of July. These tubes will be charged with regular metal, and three additional tubes supplied from the flow laboratory will be loaded with dummies during the next pile shutdown. No serious difficulty has occurred during operation of the dummy tubes, although each required purging once during the month.

The sodium tetraborate test in the 105-F Flow Laboratory was resumed after considerable delay caused by lack of an adequate pump.

Installation of the low pH alum-activated silica test equipment in 183-F progressed slowly during the month. It is anticipated that this test will furnish supplementary information to the 105-D in-pile tests.

Alum-Activated Silica Tests

Operation of this test proceeded satisfactorily during the month. A decrease in river turbidity enabled a reduction of alum and silica rates. Operation of the test filter containing 27 inches of anthrafilt continued with a filtering rate of 5.2 gpm/sq. ft. being maintained successfully throughout the month.

Film formation rates in the pile have been negligible since the institution of the procedure using panellit pressures as the control for filter operation. This procedure has allowed more flexible and certain operation of the filter plant. Because of the success of this method, it is being considered as the control method to be specified for use with the alum-activated silica process.

Corrosion data obtained last month have been analyzed and compared with rates in other types of process water. It is apparent that alum treated water is superior to ferric sulfate treated water with or without the presence of sodium dichromate. Flow laboratory data have been obtained which confirm the above conclusion.

A study of optimum design criteria for the 100-K settling basins was made based on pertinent operating data obtained at 100-F Area.

1205462

DECLASSIFIED

Effluent Activity Studies

A program has been initiated to obtain experimental information concerning effluent activity effects with alum-silica treated water. Two decay curves have been obtained using the Shonka counter set up in 105-F. More tests will be made in an effort to reduce the 10 minute hold-up time before counting of the samples.

A production test is being circulated for approval which will provide information about the effects of power level on effluent activity. The test will be initiated at 100-F Area at the next regular shutdown.

Pumping Capacity Studies

The proposed radial flattening program at H Pile will require considerably increased process water flows. To confirm estimates of the maximum pumping capacities available to H Pile, several capacity tests were performed during the month. It was confirmed that a 25 per cent increase in water flow, from 44,000 to 55,000 gpm, is available from the present pumping system. The filter plant capacity would be exceeded at this flow rate if ferric sulfate coagulation were used. The use of the alum-activated silica process will completely eliminate the filter plant as a limiting factor in water supply. In anticipation of future needs, tests were conducted at 190-D and 190-DR. Also, a comprehensive set of physical data is being collected for future use.

PILE COOLANT EFFECTS

Slug Corrosion

A test of the effect of flow rate on corrosion was completed during the month of July. Process water at 95°C was passed over dummy slugs at 5, 10, 15, and 20 gallons per minute. No significant difference between the corrosion rates was observed.

A special nickel-plated uranium slug is being exposed to boiling water to determine the time at which the coating will fail. Sixty-four uranium slugs in 63-S aluminum cans are being exposed in the flow laboratory for a corrosion test.

Because the slotted tube being used in the induction heater was found to overheat, a new tube was designed and is being fabricated for future tests.

Tube Corrosion

An excessively pitted slug, with the pitting at the end of the slug, was found in a ferric sulfate treated water tube which was operating at 20 gpm at a temperature of 95°C. The tube was also pitted severely at the pitted slug's location. Another flow laboratory which was operating at 20 gpm and with a temperature of 95°C on raw river water was also discovered to have undergone a severe pitting attack. In this case, the slugs were not attacked. In both the ferric sulfate treated and raw river water tubes, the pitting attack occurred at the end of the slugs and the film pattern showed that the slugs in each case were cocked. No corrosion product was seen in any of the pits. The pits appeared to

1205463

have undergone mechanical rather than chemical attack. Analytical analysis, as well as, the results of observation point rather firmly to the fact that both tubes suffered from cavitation attack. Confirmatory experimental work is now in progress.

The pits found in both types of water in the flow laboratory are similar to the pits recently found in the tubes taken from F Pile. It is believed that the attack in all three types of water are identical.

A report is being published to describe the results of the weighed tube corrosion test. At the low temperature involved (~10°C) a higher corrosion rate was observed at 13 and 18 gpm than at 5 and 23 gpm. Also, a higher overall corrosion occurred in magnesium-loaded tubes than in empty or aluminum-loaded tubes. No difference in pitting tendency was observed.

An IBM system of punched cards was devised to describe the film and corrosion observed in the 50 tube mock-up. The probolog and movie boroscope are being tested on this mock-up for possible in-pile use.

Recirculation

Production test 105-506-E, "Recirculation of Pile Cooling Water", has been in operation since July 5, 1952. Certain difficulties have presented themselves during this shakedown period which are being corrected before regular metal is charged into the tube. An emergency shutdown of the pile was caused by plugging of the outlet system. A dual outlet system will be installed to prevent such emergencies in the future.

The fourth flow laboratory recirculation test was completed. This test using filtered water at 92 ppm, showed a higher corrosion rate than previous tests. The minimum corrosion rate is, therefore, expected in water between 16 and 92 ppm. A test at 32 ppm is now under way, to be followed by one at 64 ppm. The deionization equipment for exploring the region of 1/2 to 4 ppm has been received and is now being installed.

Film Formation

Electron microscope studies of film in various stages of formation have been made. A tentative mechanism for film formation is being formulated and will be published along with descriptive electron photomicrographs. Laboratory facilities for a detailed study of the chemical nature of the film have been completed and a study is under way.

Correlation Studies

A new, completely enclosed cell was found not to indicate a change in water conductivity near a radiation source. The previously-reported effect can be reproducibly demonstrated with the open type cell originally used. The discrepancy has not been explained.

1205464

A relationship has been found to exist between the corrosion rate of a slug and the electrolytic resistance of the film on its surface. This is the first step in determining the effect of the film in accelerating or inhibiting corrosion.

Production Test 105-510-E, "Determination of Pile Irradiation Effect on Corrosion of 2S Aluminum", was held up because the shielding pieces could not be removed from the test hole. Either the shielding pieces or the entire thimble will be removed at the next shutdown.

The coupon test to determine the effect of water treatment and pH on aluminum corrosion has been completed. A report of the data will be published during August.

CORROSION STUDIES

A program for the testing of metal specimens in the flow cup laboratory has been set up in collaboration with the Pile Fuels Sub-Unit. Despite procurement delays, the work should be under way by about September 1.

In the anodizing laboratory, small specimens of aluminum have been successfully coated by the so-called "Martin Hard Coat" process. This coating, produced by anodizing at about 28°F, varies in color between gray and jet black, and is resistant to a knife blade. The practicability of the process for coating tubes or slug jackets will be studied.

The graphite-aluminum, galvanic couple in pile process water has been further investigated. Emphasis has been placed upon long-term corrosion tests of anodic coatins previously found promising by short-term experiments. The one mil, dichromate sealed coating still appears best among the various contenders, but quantitative appraisal must await the expiration of longer time intervals.

An assembly of graphite blocks coupled to aluminum tube sections to operate at 90°C has been completed and conditions are being established for maintaining steady temperatures and rates of water flow through the annuli.

The rate of attack of aluminum by pile process water in atmospheres other than air has been continued. The role of oxygen appears to be that of cathodic depolarizer.

Inspection of leaky tubes in 100-F has continued. The dye staining technique (injection of a solution of dye in acetone into a tube before removal from the pile) has been found very useful as a means of marking the exterior of a tube at the point of perforation, so that the amount of time spent in tube examination by remote control or in dangerously close proximity is reduced by a large factor. A development has been the discovery of holes, apparently originating from the interiors of the tubes rather than from the exteriors. The tube, in such spots, has been extensively attacked in patterns resembling gouges rather than pits. Erosion or cavitation resulting from misalignment of slugs or warped tubes is thought to account for the damage.

Thermogalvanic attack of aluminum has been briefly investigated. Substantial and significant differences in potential between identical coupons of aluminum at differing temperatures have been measured, but the reproducibility of the data is very poor. More elaborate equipment will be assembled for the investigation of the thermogalvanic effects on a slug jacket, and between slug jacket metal and 72S aluminum.

IRRADIATED MATERIAL EXAMINATIONS

Slug Examination

Slugs from two tubes of Production Test 105-503-E, Supplement B, "The Use of Activated Silica as a Coagulation Aid for Aluminum Sulfate", discharged with an average exposure of about 150 MWD/T, were weighed in air to determine weight loss of these slugs in alum activated silica coagulated water. The weight loss trend increased with the increase in bulk water temperature. It is felt that data from these low exposure slugs are inconclusive. Four more tubes from this production test will be discharged at higher exposure levels in the future.

Slugs from two tubes of Production Test 105-362-P, "Effect of Increased Enrichment on Slug Deformation and Corrosion", were weighed in air to determine weight loss. The entire jacket surfaces of all these slugs, except the ends, were etched. This made the slug jackets appear to be covered with very small bumps. These apparent bumps, or raised areas, were actually areas of less etching attack.

The slugs discharged from tube 3552-F on March 24, 1952, required considerable discharge pressure. Upon examining this charge, two warped slugs were found. The warp was easily noticed by visual examination and three areas of contact on each slug were evident.

During the past six months, considerable numbers of irradiated slugs from various production tests have been accumulating. Because of equipment limitations, it has not been possible to obtain the originally desired data. Changes in exposure conditions, such as, process water specifications and storage in stainless steel buckets, have made the data from some of these slugs obsolete. Considering the needs of Pile Engineering, Pile Fuels, and Pile Materials, a quantity of these slugs are being released to Manufacturing for processing.

Fabrication of new facilities for slug examination in a corner of the 105-B storage area is progressing slowly. An effort is being made to have these new facilities tried and their usefulness realized before installation of the facilities planned for the 100-C slug examination facility.

100-C Slug Examination Facility

All drawings have been completed for the building and underwater structure; construction is approximately 40 per cent completed.

Based on essentially complete but tentative specifications, a project proposal has been prepared requesting funds for design and construction of equipment for this facility.

1205466

It is planned to include the following equipment for routine processing irradiated canned slugs: slug cleaning apparatus, slug surface photographic equipment, slug radiation intensity measurement equipment, slug dimensional measurement apparatus, slug weighing equipment, and slug handling equipment.

Facilities to inspect decanned slugs is expected to include: slug surface photographic equipment, slug dimensional measurement apparatus, equipment for weight and density measurements, and a slug fracturing device. A means for end-cap removal, to remove the end-cap for subsequent examination elsewhere, is to be incorporated into the fracturing device.

Stereoscopic visual examination apparatus and an underwater microscope is planned for non-routine examination of selected specimens.

108-B Irradiated Materials Examination Facility

The work to be done by Minor Construction forces on the conversion of a portion of the first floor of the 108-B Building for this facility is being delayed pending a decision regarding construction appropriations.

Alterations and additions to this facility are continuing. The traverse crane over the cave was converted from hand to electrical operation to facilitate remote operation during transfer of process tubes into the cave. A pair of cave wall tongs was altered to handle process tubes. A saw has been fabricated and installed in the cave which will enable process tubes to be cut parallel to the long axis of the tube, as well as, perpendicular to this axis.

Three process tubes, 1475, 3883, and 3668, removed from F Pile near the end of the month because of water leakage, were transferred to this facility. Interesting sections of these tubes, including the suspected leak areas, which were about 10 - 12 feet from the rear Van Stone flanges, were visually examined and photographed. The holes through the tubes, and the area immediately adjacent to the holes showed no indication of chemical attack. The attack appeared to be caused by mechanical action. Pits of varying degrees of severity were also noted elsewhere on these three tubes, in all cases, appeared regularly at slug junctions. These cavities were found on or above the tube ribs but none were seen below the ribs. The type of attack was similar to that discovered by the Pile Coolant Effects group in the flow laboratory in their tests on ferric sulfate treated and raw river water.

PRESENT CANNING DEVELOPMENT

Salt Bath Heat-Treatment and Alpha-Lead Dip Canning - Production Test 313-105-3-M

This production test was interrupted because of the previously mentioned difficulties encountered in the heat-treating operation. Fabrication of slugs under the provisions of this test will not be resumed until a satisfactory heat-treating has been established and the specifications revised accordingly.

Penetration tests of the four-inch and eight-inch slugs that have been sampled from production runs indicate that the penetration behavior of the lead-dipped pieces is similar to that of triple-dipped slugs, i.e., the amounts of residual can wall

1205467

found in four-inch slugs varies little from the norm as compared to the large variance observed in the eight-inch slugs and a large portion of the additional 10 mils of can wall in the eight-inch cans is destroyed during canning.

Eight-Inch Slug - Production Test 313-105-2-M

A test is in progress to evaluate the penetration differences arising purely from dimensional differences between the eight-inch slug type and four-inch slug type.

No eight-inch slugs failed in the autoclave during the last month.

Sleeveless Canning

Further sleeveless canning trials have been made. It has been noted that the welding of the sleeveless canned pieces is difficult unless the anodized coatings are completely removed prior to welding.

Mechanical Agitation of the Canning Bath

Spectrochemical analyses of Al-Si samples taken from a used canning bath before and after mechanical agitation of the bath showed that lead was the only element whose concentration in the upper layers of the bath was affected by agitation. Stirring of the bath near the bottom of the crucible increased the lead content in the top of the bath by approximately a factor of ten.

Internal Wiping of Triple-Dipped Eight-Inch Slugs with a Graphite Wiper

A canning test on two groups of 60 slugs indicated that internal wiping of the cans with a graphite wiper during the submerge cycle had no effect on either slug seating or on can wall penetration.

MECHANIZED CANNING

Facilities and manpower for speeding up the prototype mechanization program are being rapidly expanded. To relieve the load on production facilities occasioned by the adjustment and testing of the mechanized units as they are fabricated, a development canning line is being set up in the 314 Building in the space formerly occupied by the extrusion press oil pumps and part of the electrical switch gear. One low frequency induction furnace and two resistance furnaces are being ordered for use in this development line. The one induction type furnace already on order for Building 304 will be temporarily installed in this new development area.

Fabrication of the machines is lagging slightly behind schedule owing to unavoidable delays in procurement of commercially fabricated parts, and the necessity of selecting substitutes, with accompanying changes in design. However, the time saved by being able to test these units on the development line will more than offset this delay.

1205468

DECLASSIFIED

NON-DESTRUCTIVE TESTING

A "dimpled" slug, produced by peening a standard triple-dip four-inch slug, was slow thermal cycled from room temperature to 500°C nine times without failure. The cycling will continue with this slug and a group of standard slugs till all have failed. Other cycling tests to various maximum temperatures are being run concurrently.

Preliminary work has demonstrated that an eddy current method can detect Al-Si penetration into the aluminum can wall. Effort is being concentrated on increasing the resolving power of the equipment in order to detect penetrations of the order of 1/64 inch in diameter extending to within 0.010 inch of the can surface. The equipment, at present, is also quite sensitive to small voids within the can wall and to deep scratches.

Ultrasonic techniques for examining the structure of the bare uranium slugs were further developed. Using the Sperry Reflectoscope, with a photo-multiplier pick-up from the cathode ray screen, ultrasonic properties of the uranium slugs have been plotted. These plots are very similar to the "butterfly" pattern observed by X-ray diffraction at Hanford and Argonne. There is a radical difference between the patterns observed for an unheat-treated slug and one which has been fully transformed.

Representatives from several other AEC sites attended a meeting on Non-Destructive Test Methods for fuel slugs at the Hanford Works on July 14 and 15. This meeting was one of a series which were begun by Dr. S. McLain of Argonne National Laboratory and is the first of the series to be held at Hanford.

METAL QUALITY

Uranium Rod Quality

In the past few months, several factors have emphasized the need for an expanded rod quality program. An informal report from National Lead at Fernald indicates a progressive increase in amount of inclusions in the metal. DuPont and Hanford have each reported an increase in slug warp during beta heat treatment. The June slug rupture report, HW-24831, reports that four of the ten ruptures were of the uranium cleavage type. A cooperative program between the Process Control Unit and the Pile Technology Unit was prepared.

Uranium Fabrication

Nine hundred and sixty triple-dip canned eight-inch slugs from rods rolled by the simulated Fernald process were charged into 15 tubes in H Pile. The four-inch slugs machined from these rods were triple-dip canned.

Uranium Salt Bath Heat Treatment in Rod Form

Four-inch slugs from rods beta heat treated in a salt bath at Lackawanna were charged in ten tubes of DR Pile. A minimum of three slugs from each rod was macroetched to ensure that all slugs charged were completely transformed.

1205469

Uranium Salt Bath Heat Treatment in Slug Form

On Friday, July 11, the Operations Unit of the Metal Preparations Section drew our attention to salt bath heat-treated slugs which were apparently not transformed. Fracture, metallographic, and X-ray examinations of these pieces showed that they were not transformed. With the cooperation of the Metal Preparations Section, samples from lots previously canned were fractured and examined. These pieces were in many cases not transformed or incompletely transformed.

Heat treating data obtained on July 12, 1952, using production heat treating equipment, with normal loading as done during production, showed that the specified 225 to 235 seconds at 700°C minimum specified temperature did not completely transform all slugs. These data further confirmed the necessity for recanning the 11,000 slugs.

A total of 28.4 tons of metal, about 7,600 four-inch and 3,400 eight-inch slugs, had been alpha-lead dip canned, finally inspected and were ready for pile loading. No slugs have been sent to the piles. It was, of course, recommended that this material be stripped and recanned.

Heat treating data obtained at the start of salt bath heat treating in early May, 1952, on the equipment and bath to be used in production, showed that at a 700°C minimum specified temperature about 150 seconds were required for complete transformation with the bath agitated, and that 240 seconds were required for complete transformation without agitation. A theoretical safety factor of 50 per cent was added to the required agitated bath time resulting in a 225 to 235 second specified minimum time to insure complete transformation. This data was obtained using an oxide-coated four-inch thermocouple slug with theoretically the worst heat transfer conditions, and was confirmed by fracturing many slugs sent through the standard process as set up.

Data obtained on July 12, 1952, with two new thermocouple slugs, one four-inch and one eight-inch, with apparently identical bath conditions to previous tests, showed that, with bath agitation, at the 700°C minimum specified temperature, 230 seconds were required for complete transformation. Using an oxide-coated thermocouple slug the time for complete transformation was 260 seconds. Macroetch data obtained on slugs sent through the standard production procedure showed that 250 seconds gave complete transformation at 700°C. The reason for the discrepancies between the early data and the data obtained on July 12, 1952, is not known.

The safety factor of 50 per cent, as selected in May, was obviously insufficient and no explanation can be given for the fact that 11,000 slugs were canned before the non-transformation was found. Fracture tests on the slugs were made but confusion arose between the small grain size of alpha-rolled uranium and the small grain size obtained by water quenching beta heat treated metal.

The production test for salt bath heat treating and lead dip canning will be revised by a supplement to the production test with a safe heat treating cycle. The timing will be finally determined at the start of the production heat treating. A minimum safety factor of 100 per cent over the time required for complete transformation with the bath agitated, and/or a safety factor of 50 per cent over the

1205470

time required for complete transformation without bath agitation will be set. Provision has been made for thorough daily checks for transformation and for checks of the safety factor.

Uranium Heat Treatment - Triple-Dip Process

Data obtained from production type runs gave ample assurance that the triple-dip material has been consistently transformed during canning. The safety factor was lower than desirable on eight-inch material and the minimum specified bath temperatures were increased for both four-inch and eight-inch slugs and the minimum specified time was increased for eight-inch slugs. These changes did not effect production rates.

63S Aluminum

Tests on irradiated samples of 63S aluminum indicate that the solution heat treated piece hardened during irradiation. Nevertheless, there was no indication of gross damage to the alloy during the three months irradiation.

Vertical Safety Rods

Crucible Steel Company reported that fabrication of a single piece vertical safety rod from stainless steel, containing a minimum of 1.3 per cent boron, was not feasible. Calculations by Pile Physics indicate that no decrease in the boron content is possible. This method of fabrication is, therefore, not feasible.

NEW CANNING PROCESSES

Warm Pressed Slug Program

Equipment and components are being assembled for limited production of hot-pressed canned slugs for testing purposes. Evaluation of parameters important to diffusion welding of Al to Al-Si made this month were in the temperature range Tensile failure data is being taken on these samples and macroscopic inspection is made of the failed surfaces to determine the actual bonded areas. Bond strength, in lbs/square inch determined by this method, show consistent results with theoretical parameters in addition to the fact that clues are afforded as to the actual surface condition preparatory to pressing.

Cold Canning of "J" Slugs

Equipment and techniques for cold canning the proposed 600 "J" slugs for C Pile enrichment have been developed and a document was prepared entitled, "Recommended

DECLASSIFIED

Procedures and Specifications for "J" Slug Canning for C Pile", HW-25099.

Coated Slugs and Alloy Sleeves

At this writing, slugs plated with 0.004 to 0.005 inch of nickel, prepared by International Nickel Corporation, have survived seven days in boiling water with no visible effects except for two 1/32 inch diameter blisters which occurred after the first three days of testing. Data and calculations to date indicate that 0.004 to 0.005 inch nickel coating over the uranium of a Hanford slug would likely produce an adverse reactivity loss of about 900 in-hours, although a 0.001 to 0.002 inch coat may be feasible.

A trip was made to discuss the possibility of scaling up experimental techniques to produce limited quantities of Hanford size uranium coated with zirconium, niobium, chromium, nickel, and other elemental layers. The machining of the Zr-U, Nb-U, Cr-U, Mo-U, and V-U alloy sleeves to be used for reactivity tests has been completed and are ready for reactivity tests. A few uranium wafers for preliminary insulated end-cap studies were prepared and methods of testing were outlined.

INVENTIONS

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor	Subject
P. J. Pankaskie	Tube Rolling Unit
J. D. Sprowl	Metal Powder Adjunct to Solid Diffusion

Signed: GE McCullough/WRL
G. E. McCullough
Manager, Pile Technology

GEMcC:mvo

[redacted]

DECLASSIFIED
1205472

[redacted]

HW-25227-DEC

DECLASSIFIED

August 5, 1952

SEPARATIONS TECHNOLOGY UNIT

MONTHLY REPORT
JULY, 1952

VISITORS AND BUSINESS TRIPS

F. W. Hurd and B. H. Thompson, Oak Ridge National Laboratory, visited here July 1 to discuss production specifications.

J. W. Halley, Inland Steel Company, visited here July 15 through 17 for Pu metallurgy discussions.

Dr. Harvard Hull, Argonne National Laboratory, visited here July 15 through 17 to inspect remote control equipment.

N. J. Donahue of the Atomic Energy Commission, Wilmington, Delaware, visited here July 15 through 17 to consult regarding new development in metallurgy of uranium and plutonium.

J. T. Stringer visited Vickers, Inc., Sundstrand, Inc., and Dennison Engineering Company, from July 3 through 25 for technical consultations on mechanical equipment.

F. Clagett and M. J. Szulinski visited the Atomic Energy Commission and Harshaw Chemical Company in Cleveland, Ohio, and Oak Ridge National Laboratory from July 15 through 25 for process consultations.

[redacted]

1205473

Separations Technology Unit

W. L. Lyon visited Iowa State College, Ames, Iowa, July 17 and 18 to study techniques and hydrofluorination of uranium.

R. W. Benoliel visited Los Alamos Scientific Laboratory and Dow Chemical Company - Rocky Flats - on July 25, and returned to Los Alamos Scientific Laboratory July 28 through August 1 for purification and fabrication consultations.

O. F. Hill visited KAPL, Schenectady, New York, June 30 through July 2 for discussions on separations methods.

ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	June	July
Administrative	5	6
Research	43	45
Chemical Development	87	88
Process	41	44
	176	183

Administrative: One Secretary B was transferred from Project Services.

Research: Two Technical Graduates were transferred from Management General, one Laboratory Assistant was added as a new hire, and one Laboratory Assistant was terminated. One Technical Graduate was converted to Engineer Assistant.

Process: One Technical Graduate was transferred from Separations-Operations, one Mechanical Engineer was transferred from Schenectady, and one Chemical Engineer was added as a new hire. One Laboratory Assistant was reactivated. One Technical Graduate was transferred to Pile Technology, and one Technical Graduate was converted to Engineer Assistant.

Development: One Chemical Engineer was added as a new hire, one Laboratory Assistant was transferred from Technical Services, three Technical Graduates were transferred from Management General, and one Technical Graduate was transferred from Pile Technology. One Chemical Engineer was terminated, three Technical Graduates transferred to Process Engineering, and one Technical Graduate transferred to Pile Technology. Nine Technical Graduates were converted to Engineer Assistants.

1205474

Separations Technology Unit

$BiPO_4$ PLANT ASSISTANCE

Canyon and Concentration Buildings

Neptunium Recovery Runs - T Plant - The neptunium recovery (IP) runs started on June 19, 1952, at T Plant were completed on July 19, 1952. A total of 13 neptunium extractions were made from 19 plutonium extraction wastes. The neptunium recovered was 11.7 grams which was shipped to three customers. No process difficulties were encountered in either the Canyon or Concentration Buildings on the IP runs.

Dissolver Heel Removal - B Plant - The uranium heels were removed from both dissolvers by dissolution at B Plant in accordance with the current plan to bring that plant to standby condition. The resulting metal solution was blended and processed as three runs.

Equipment Water Flushes - B Plant - Three water flushes of Sections 16 and 17 were processed at B Plant. The flushes were used for dilution water for the second cycle by-product precipitation. Flush B-12-06-EF-3 recovered 0.004 per cent of a standard run, B-12-07-EF-1 recovered 0.03 per cent and B-12-07-EF-2 recovered 0.03 per cent.

Production Test 221-T-16 - T Plant - Testing of a four-hour time cycle for the Canyon and Concentration Buildings authorized by Production Test 221-T-16 has been deferred due to increased production commitments for the bismuth phosphate process.

Waste Evaporators - B and T Plant - A program for determining the optimum degree of concentration was initiated at B Plant. From these tests, the optimum value was picked at 70 per cent reduction and the evaporator at B Plant was placed at this value commencing with Run B-12-07-E-37. The overall concentration of waste for the month averaged 67.7 per cent.

The waste evaporator at T Plant operated routinely for the month. The heel varied between 1378 and 1908 gallons. The average instantaneous evaporation rate was 732 gallons per hour and the average overall rate was 600 gallons per hour with a log dF of ~4.0. The average concentration ratio was 74.1 per cent.

Separations Technology Unit

Isolation Building

Oxalate Filtration - The form of product transfer between buildings 231 and 234-5 was changed from nitrate solution (AT) to plutonium IV oxalate filter cake. The filtration rate through filter boats was erratic and resulted in modifications designed to give a coarser and more rapidly filterable slurry. The rate of oxalic acid addition was decreased by 50 per cent. On the basis of data from fifty runs, the filtration rate was increased approximately 50 per cent - from 0.16 liters/minute to 0.32 liters/minute.

The transfer of oxalate cake from the filter boats to the solid RG Line type boats apparently leaves the filter disc in a partially plugged condition. Near month's end some difficulty was experienced with excessively slow filtrations (12 to 24 hour cycle) for those boats employed in the transfer operation. Interchanging filter boats under essentially identical conditions other than the fact that some of the boats were routed through the RG Line and others through RMA disclosed a radically shorter filtration cycle for those which had been through hydrofluorination, i.e. RMA Line. It is believed that backwashing with the proper reagents can accomplish the same effect and permit uniform time cycles irrespective of their subsequent process history.

There are several modifications pending to the filtration operation which should lead to reduced time cycles and improved operation. Those boats engaged in transfer operations from 231 to the RG Line will be constructed of stainless steel with a large sintered stainless steel filtering area. The present platinum boats with platinum sintered discs will be protected against leakage at the joint between the sintered frit and the body by inserting a Whatman grade 40 filter over the entire inside area prior to filtration.

Material Balance - The material balance between the 231 and the 234-5 Buildings continued to be erratic; however, the material processed through Cell #4 (B and T Plant solutions) varied between 99.5 and 100.5 per cent as opposed to 95.0 to 97.5 per Cells #1 and #2 (Redox material). The cause for this is most probably associated with P-1 Tank calibrations. The manometer on P-1 Tank in Cell #3 was changed and a new calibration made which revealed that the previously employed equipment could have been in error by as much as 6.6 per cent. Prior to the detection of the calibration error, a program was initiated to determine if there was any Am^{241} leaking through with the Redox material which would also result in low material balances. Two approaches have been employed: (1) measuring the specific activity of the entering P-1 solutions, and (2) making a peroxide and an oxalate precipitation on Redox material. In the latter

case the Am is retained in the peroxide supernatant, thereby permitting it to be accounted for on a radioassay basis, whereas with a single oxalate cycle, it appears in the 234-5 Building plutonium fluoride is measured gravimetrically. Because of the gross differences in half-life between Pu and Am, the latter element would be missed on the gravimetric determination.

Determination of Valence Distribution in S Plant Solutions - The results of determinations of the valence state on seven S Plant PR solutions shows that between H ion concentrations of 2.3 to 9.1 with an average value of 5.32 that the VI state is predominant.

Average Pu III - 2.61

Average Pu IV - 5.10

Average Pu VI -92.29

RZ Runs Processed in June - During June, 1952, the practice of collecting plutonium solutions from sample can, AT, WT flushes, etc., which are recoverable by Isolation Building processing was started. Previously most of these solutions were recycled to the 224 Building.

PURIFICATION AND FABRICATION BUILDING PLANT ASSISTANCE

RG Line

Task I (Purification) - Purification Hoods 5, 6, and 7 in the RG Line were retired from operation on July 20, 1952. The retirement of this process equipment was made possible by receiving plutonium (IV) oxalate cakes in RM Line boats from the 231 Building. The filter cake is removed by spatulas from the RM Line filter boats and placed in RG Line boats in which the drying and hydrofluorination processes are carried out.

Task II (Dry Chemistry) - Concurrently with the change covered above, the handling procedures and hydrofluorination process for Task II were changed. Drying and hydrofluorination times in the Task II cycle were shortened from 8 hours to 6 1/2 hours total in accordance with procedures established in Production Test 234-5. In this production test, procedures were established and evaluated for drying and hydrofluorinating filter cakes of plutonium (IV) oxalates. At month's end the new hydrofluorination process had been used a few times and preliminary evaluation indicated that it was satisfactory.

DECLASSIFIED
WITH DELETIONS

RMA Line

Task II (Hydrofluorination) - During the period beginning June 30 and ending July 27, 1952, 105 runs were processed through the Task II furnaces. A minimum furnace residence time of 9 hours is required to process a batch through Task II. This includes a four-hour hydrofluorination period at 600°C. Twenty-four of the 105 runs processed during the month of July required a rehydrofluorination operation. The rehydrofluorination requires approximately 6.5 hours. Therefore, a total of 156 furnace residence

hours were required for these rehydrofluorinations. Early in the month of July it appeared that a one hour addition to the hydrofluorination cycle would result in an overall saving of residence time in the Task II furnaces. In other words, using the month end figures if one hour additional hydrofluorination time had been expended and rehydrofluorination had thus been eliminated an overall residence time of some 50 hours would have been saved. An early investigation into the causes which might be contributory to the number of rehydrofluorinations indicated that some characteristics of the furnaces themselves were possible contributing factors. The investigation was continued throughout the month. A tabulation of the results showing that 88 per cent of the batches requiring rehydrofluorination were processed in furnaces 2, 5 and 7 emphasizes this conclusion.

Complete hydrofluorinations cannot be made if the oxygen to hydrogen-fluoride ratio is too high and from the data tabulated it appeared reasonable to postulate that air leakage around the doors in furnaces 2, 5, and 7 might well be the cause for the high percentage of rehydrofluorinations required for material processed in these furnaces. A program designed to determine the ratio of oxygen to hydrofluoric acid at various points within the furnaces versus the location of the gas inlet point has been proposed to the Manufacturing Department. It is hoped that the inauguration of this program will lead to a better knowledge of the furnace atmospheres and an improved operating cycle.

Task III (Reduction) - Approximately 25 per cent of the material processed through the RM Line Task II equipment was transferred to the RG Line for reduction. Task III equipment difficulties precluded the processing of all material through Task III. Furnace bases stuck in the furnaces several times during the month. During the process of removing these bases manually, the spacing and geometrical shape of the induction heating coils was disturbed and in several cases sufficiently to cause them to short out by touching the furnace shell. At month's end, the Tocco coils had been straightened and replaced and mica insulating sheets were being placed between the coils and the furnace bodies for insulation.

The proposed new mixer and its auxiliary equipment has been mocked up by the Technical Services group. The general design principles have been approved and design detailing and procurement was started at month's end. With this new mixing equipment it is anticipated that the following advantages will be obtained: (1) in this new equipment the operator in Zone 1 will be able to see the powder discharged from the boat to the mixer, the ingredients in the mixer being mixed, the addition of turnings to the mixer, the discharge of the mixer into the tube leading to the crucible and any hold-up that may exist in the entire system, (2) the

powder dumped from the boat to the mixer and from the mixer to the crucible takes place in a straight vertical line and this should reduce the degree of hold-up, (3) there are no valves in the equipment above which powder hold-up can occur, (4) better mixing should result in the tumbler-type mixer which is being provided, (5) batches up to ten times the current quantity of material handled can be mixed in the tumbler mixer, and (6) turnings can be added either to the crucible or to the mixer or both.

Separations Technology Unit

Process Recovery

Production Test 234-1 Supplement C, "Treatment of Concentrated Oxalate Supernatant to Permit Recycling", has been completed. A total of 122 lots of SN-3 material were processed in a series of twelve runs (3 in June and 9 in July) through the 234-5 Building supernatant-recovery system to permit the recovery of 438 grams of plutonium. This represents a return to usable form of $65,700 worth of produc

Quality Control

A total of five pieces were rejected for failure to meet product specifications with the following assigned causes: alpha emission rate - two, dimensional (small equatorial diameters and high primary plane to center distance) - three. The neutron/gram/second values averaged 49.68 and ranged from 46.86 to 51.94. The c/q values averaged 0.4837 and ranged from 0.2886 to 0.6854.

1205481

Separations Technology Unit

REDOX PLANT ASSISTANCE

Plant Performance

The Redox Plant operated at a 76.7 per cent time efficiency (IAF basis) and averaged 3.16 tons of uranium per operating day during the month. During the period from July 4 through July 13, 38,000 gallons of 72 per cent ANN from Tygon-lined storage tank SS-112 were used in aqueous salt solution make-ups with some emulsion difficulty and fission-product carry-over resulting. New ANN, from stainless steel tanks, was used for the balance of the month. An extensive (thermally) hot 60 per cent HNO_3 cleanout was given to the IA, IB, 2D, 3D, 2A, and 3A Columns and associated salt solution head tanks to prepare the solvent extraction battery for operation using 90-day "cooled" uranium. Continuous crossover oxidation to improve 2A Column waste losses, and employment of KOH (vice NaOH) in 2DS, ICU, and 2EU butt additions to minimize Na in 3EU, were begun concurrently on July 20. Aged (90-day) uranium in head-end treated feed batches, was started to the IA Column on July 21, with early data indicating adequate two cycle decontamination for both uranium and plutonium. The following is an overall summary of plant production performance:

	Approximate
Tons of Uranium Processed	77.2
Plutonium Processed (Batch Equivalents)	119.1
Per Cent Uranium to Waste	1.4
Per Cent Plutonium to Waste	1.1

Operating Performance

A nominal 3 ton/day rate was established on July 3 (changed from 2.5) and maintained, except as indicated below for the period July 4 through 11, during which time ANN from Tygon-lined tanks was used:

July 7 - Reduced IAF rate to 2 tons/day when activity in uranium product streams increased.

July 9 - Shut down IA Column due to high organic density (emulsion), high differential pressure (extraction section pluggage) and hexone in D Cell via IAW.

July 10- Reduced rates to 2 tons/day to permit clean-up of 2A and 2B Column emulsions.

1205482

The above test demonstrated that Tygon-contaminated ANN can be used at a reduced average production rate. The test operation was of too short duration to result in any serious problems but evidence indicates that continued use of this material, without treatment, could result in difficulties similar to those experienced in March of 1952.

After completion of the test operation employing Tygon-contaminated ANN, processing of IAF was continued until July 16 using clean ANN at nominal 3.5 ton/day rates except for a short duration (4 hours) "crash" shutdown due to water in hexone July 14 and an 8 hour IA Column shutdown July 15 to clean the IA Column interface and extraction section.

During this 3.5 ton/day operation a 3EU rework (June E-12 Batch No. 25) was successfully carried out through the 2D Column (operating at 3.75 tons/day) by blending with normal production.

From July 16 to 20 the IA, IB, 2D, 3D, 2A, and 3A Columns were soaked, with air sparging, in (thermally) hot 60 per cent HNO_3 for 12 hours. The IB Column flush was passed through the IBP Receiver (Tank E-6), Cross-Over Oxidizer (E-7), 2AF Tank (E-5), and thence to the Waste Header Receiver (D-13) via the 2AW letdown valve. 32 units of plutonium were found in the combined flushes and transferred to the Rework Adjustment Tank (D-7) for subsequent rework through the IS Column. The ANN solution head tanks (8th level) were used to introduce the hot HNO_3 flush and later for introduction of water flushes, and thus were cleaned along with the columns.

On July 21, IAF was restarted processing Batch HE 15 (the first 90 day "cooled" feed) at nominal 3 tons/day. Subsequent batches 16 through 18, permanganate-oxidized, were processed at 3 tons/day until July 25, when the processing rate was changed to 3.5 tons/day and 0.2M dichromate oxidized 90 day "cooled" feed was started to the IA Column.

During July, activity discharged through the ventilation stack averaged 0.5 curie/day of I^{131} and 0.001 curie/day of Ru. Maximums of 1.3 curies/day of I^{131} and 4.1 curies/day of Ru were observed during this period. Little change was observed in the rate of deposition of radioactive particles over the surrounding area during July as compared with June, and no unusually large radioactive particles were observed. Weekly stack flushes are continuing with qualitative evidence of ammonium ion present in the sump sample taken at the month's end, July 28.

The following tables summarize decontamination and waste loss values by solvent-extraction cycle for selected periods during the month of July:

1205483

Separations Technology Unit

Period 7/5/52 through 7/11/52; nominal production rate 3 tons U/day, processing 0.2M Cr^{6+} oxidized batches, using ANN from Tygon-lined storage tanks:

	Decontamination Factors (dF)						% to Waste	
	U			Pu				
Cycle	Gamma	Beta	Ru	Gamma	Beta	Ru	U	Pu
1st	3.6	3.8	--	3.9	4.4	--	0.04-1.5	0.5
2nd U	2.2	2.0	--	--	--	--	0.03	--
3rd U	0.7	0.6	--	--	--	--	0.01	--
2nd Pu	--	--	--	1.9	1.7	--	--	0.04-2.8
3rd Pu	--	--	--	1.0	0.8	--	--	0.05
Overall	6.5	6.4	5.3	6.8	6.9	5.6	0.08 to 1.6	0.6 to 3.4

Period 7/21/52 through 7/25/52; nominal production rate 3 tons U/day, processing head-end treated batches S-2-7-HE 15 through IE.

	Decontamination Factors (dF)						% to Waste	
	U			Pu				
Cycle	Gamma	Beta	Ru	Gamma	Beta	Ru	U	Pu
Feed (a)	0.7	0.1	0.6	0.7	0.1	0.6	0.18	0.28
1st	3.3	4.6	3.3	3.2	4.5	3.6	0.35	0.04
2nd U	2.3	2.0	2.4	--	--	--	0.02	--
3rd U	(b)	(b)	(b)	--	--	--	0.013	--
2nd Pu	--	--	--	2.9	2.3	1.7	--	0.043
3rd Pu	--	--	--	1.1	0.4	0.5	--	0.015
Overall	6.3	6.7	6.3	7.9	7.3	6.4	0.56	0.38

NOTES: (a) H-4 (oxidizer) flushed with 2 per cent H_2O_2 before these runs.
(b) Negative dF experienced. Probable recontamination by solids in 3D Column. Possible source, interface emulsion left from earlier operation remained clinging to sides of top disengagement section during packing flush.

Separations Technology Unit

Feed Preparation

The dissolvers were charged during the month with fifteen 4.4 ton charges of uranium with an average pile exposure of 594 MWD/T. The average age of the 26 feed batches prepared as IAF was 73 days for Batches S-2-6-HE-11 to 15, and through S-2-7 HE-14 and 102 days for S-2-7-HE-15 through 21. The following table summarizes the treatments each batch received and includes pertinent annotations:

All batches 0.2M in Cr VI, sparge 4 hours at 95°C. with 200 cu. ft./min. of air:

Batch	$KMnO_4$ M	dF's Gamma	dF's Beta	dF's Ru	Waste Losses % U	Waste Losses % Pu	Pu IV, % in IAF
S-2-6-HE 11	0.03	--	--	--	0.022	0.41	0.28
12	0.03	--	--	0.15	0.013	0.14	0.31
13	0.03	0.2	0	0.18	0.006	0.091	0.25
14	0.03	0	0.24	0	0.003	0.19	0.14
15	0.03	0.2	0	--	0.013	0.064	0.29

All batches 0.2M Cr VI, heat 4 hours at 95°C.:

Batch	Average Waste Loss % U	Average Waste Loss % Pu	Pu IV % in IAF
S-2-7-HE-1 through 12	0	0	0.25
and 19 through 21	0.013	0.17	0.14

S-2-7-HE Batch	$KMnO_4$ M	dF's Gamma	dF's Beta	dF's Ru	dF's Nb-Zr	Losses % U	Losses % Pu	Pu IV% in IAF	Notes
13	0.03	0.11	0.04	0	--	0.046	0.44	0.10	Dissolver heel.
14	0.06	0	0	0	0	0.068	0.32	0.19	1/2 batch, dissolver heel.
15*	0.06	0.63	0.08	0.62	1.6	0.08	0.16	0.085	
16	0.06	0.62	0	0.62	--	0.07	0.20	0.12	Concentrated before Mn VII addition.
17	0.08	0.59	0.09	0.95	--	0.37	0.11	0.11	
18	0.08	0.88	0.08	0.96	--	0.12	0.18	0.06	No sparge.

*Runs 15 through 18 employed manganous nitrate to complete the destruction of $KMnO_4$, after hot oxidation.

Uranium Extraction and Decontamination

In general, nominal conditions of the O.R.N.L. June, 1949, (acid deficient) Flowsheet (HW-22834) were employed throughout the uranium extraction cycles.

Average uranium losses were below the nominal flowsheet value for the month. Plutonium losses in the IAW ranged from 0.006 to 0.6 per cent during the month. Adequate partitioning of U and Pu was achieved in the IB Column and through 2D-3D without Fe to maintain all uranium product batches within Pu in U specification. One uranium product (3EU) batch 5-2-7-E-12-20, with gamma activity about nine times that of natural uranium, probably contaminated in the third cycle equipment, was sent to rework. On July 20, KOH was substituted for NaOH in 2DF, 2DS, and 3DF acid deficiency adjustment. Preliminary data indicate 300 parts K/10^6 parts U in 3EU but Na values are still being reported at approximately 200 parts Na/10^6 parts U.

Plutonium Extraction and Decontamination

All conditions of the HW#4 Flowsheet (except the 2AS and 3AS flow ratios) were maintained for Plutonium Cycle operation during the month. During operation at nominal rates of 3 tons/day or less, the 2AS and 3AS flow ratios were twice the flowsheet value; during operation at higher rates, the 2AS and 3AS flows were twice the 3 ton/day flowsheet rates. Following a series of exceptionally high 2AW Pu losses (1.5 per cent of IAF) the IBS HNO_3 concentration was changed on July 4 from 0.01M to 0.015M. At the same time, the cross-over oxidation procedure was changed so that IBP was acidified and oxidized after collection of one-half of the previous batch size; thus, the solution was butted within a shorter period. The 2AW Pu losses showed an immediate drop to flowsheet loss. On July 20, a continuous IBP butt via proportioning pump was instituted and was in satisfactory operation by July 22.

On July 14, the solvent extraction battery was upset by water in the hexone supply, with the IB Column being most seriously affected. The "crash" shutdown and following startup resulted in an excessive amount of uranium and fission products in the IBP solution. PR Batches S-2-7-L-62 through 65 were shipped to 224-T Building for processing because of high uranium content, ranging from 0.74 to 0.07 g.U/g.Pu, respectively. PR batches S-2-7-L-66 and 67, containing 0.04 to 0.02 g.U/g.Pu, were shipped to 231 Building for processing.

ANN Cleanup

Filtration - The 250 sq. ft., 36 in. diameter, vertical leaf Enzinger Union Corporation filter was received early in July. Installation of the filter and associated equipment is scheduled for completion on August 4.

Separations Technology Unit

Clarification by Settling - The results of a settling test showed that 8 to 10 days' settling time would be sufficient to produce a clarity of 92 per cent (as compared with 97 per cent for C.P. ANN) in a layer of solution 7 to 8 feet deep in Tank III (provided it remained undisturbed) from a solution of ANN containing initially 0.07 volume per cent Al_2O_3 solids (clarity 50 per cent).

Cleanup of Tygon-Contaminated ANN - The effects of Darco G-60 and polythene as adsorbents for the tygon contamination, were further studied. No really satisfactory adsorbents were found which could easily be removed by centrifugation. Of those which require filtration for removal, Darco G-60 has proved the most successful.

Process Chemistry

Head End Treatment - Further investigation of the cause for the high rate of $KMnO_4$ reduction during plant head end runs, led to the study of nitrite ion and total reducing molarity in metal solution samples. Five H-7 samples (plant metal solution storage tank) and two dissolver solution samples gave an average NO_2^- concentration of 7×10^{-4} M. The values for total reducing potential gave an average of 3×10^{-3} M, which leads to the conclusion that this reducing potential cannot account for the nearly 100 per cent $KMnO_4$ reduction in plant head end studies.

Laboratory studies showed that MnO_2 deposited on the walls of the H-4 (Oxidizer) tank could be readily removed by washing with a solution of 2 per cent H_2O_2 in 1 M HNO_3. This was done in the plant prior to the current series of head end runs, but did not prevent the usual reduction (approaching 100 per cent) of $KMnO_4$.

The laboratory scale studies so far completed would account for no more than approximately 50 per cent reduction of $KMnO_4$ due to the combined effects of radiation, heat, surface condition, and reducing agents.

Solvent Extraction - Studies of the loss of 2nd and 3rd U cycle decontamination have been completed. The fault was found to lie in the aqueous feed to the solvent extraction battery rather than with the solvent as was originally suspected. The cause was found to be the result of a "cold" dissolving in which the metal in the dissolver remained in contact with the HNO_3 for an unusually long period of time (18 hours) at a much lower than average temperature (40 to 50°C.) The laboratory experiments indicated that the offending fission product, primarily Ru, could be removed by a $KMnO_4$ oxidation treatment followed by an air sparge, thus producing an aqueous solution of normal extraction characteristics.

1205487

Solvent Treatment - The plant spare hexone distillation column (G-3) is being modified by removing all of the bubble cap plates, in order to permit distillation of the plant hexone from a caustic heel.

Laboratory runs are in progress to determine the effect of such a still on the fission product decontamination of the solvent. The equipment used in the laboratory was not quite to scale, and as a result the vapor velocity through the column was estimated to be approximately three times that of the plant still, in spite of the fact that the maximum feed rates obtainable were only 40 to 70 per cent of plant rates. The beta and gamma content of the distillate was at or below the limit of detection, as a result of which it is predicted that this method will give satisfactory results.

Preparation of ANN from Al_2O_3 - A laboratory study of the preparation of an acid deficient solution of ANN from Al_2O_3 is currently under way. A successful procedure has been demonstrated in the laboratory, and further studies are in progress, to find the maximum rate and optimum initial HNO_3 concentration which will give the minimum amount of residual undissolved Al_2O_3.

URANIUM RECOVERY PLANT ASSISTANCE

241-U Tank Farm Operation

Replacement of the slurry jets to the blend tanks (from designed 25 gpm to 100 gpm jets which deliver 60 gpm) permitted renewal of blending operations early in the month. Intermittent sluicing and blending operations proceeded uninterrupted for about two weeks. Although mist in the tank prevented visual inspection, sluicing results during this period were the best obtained to date, and approximately 2 to 3 tons of uranium were removed per day.

The average of the analytical results from the first ten blend batches transferred to 241-WR Process Vault indicate that the blends were made from a slurry somewhat high in supernate. In addition, the blended feed has been diluted with water by one or more of the following means: (a) excessive jet dilution, (b) dilute nitric acid, or (c) water added from the vault sumps.

Testing of the two new turbidimeters, operating on the principle of reflected light, during actual blending operations proved them to be entirely satisfactory. The failure of one instrument, after a short period of time, was traced to the widely varying voltage generated by the emergency generator. To prevent recurrence of this failure, the turbidimeters were disconnected from the emergency power generator circuit.

Separations Technology Unit

221-U Plant - TBP Extraction

Operations in the TBP Plant during the past month were directed primarily toward discovering and correcting the cause of the excessive uranium loss in the RAW (RA Column waste) stream. Twenty-nine runs were completed with no serious equipment difficulties. Rates varied from 1.8 to 6.25 tons of uranium per day and RA Column pulse frequencies ranged from 40 to 93 cycles/min. After it became apparent that varying the pulse frequency and flow ratios would not produce an RAW with a uranium concentration approaching the 0.5 per cent flowsheet uranium loss, various modifications were made in the original RA Column piping to minimize possible loss of pulse due to air pockets and produce more effective distribution of RAX. When the following modifications had been made on the spare column: (a) installation of an RAX distributor, (b) relocation of the RAX control valve from the operating gallery to a position adjacent to the column, (c) relocation of the RAW control valve to point closer to the column, and (d) installation of various air vents on the pulse leg and column, RA Column uranium losses as low as 0.4 per cent were achieved at a 2 1/2 ton U/day rate. At 5 tons U/day, the early 3 to 30 per cent RA Column uranium losses were reduced to about 1.5 to 2 per cent. At the present time the necessary modifications required for the production line RA Columns are being determined by a series of elimination runs. As soon as the required modifications have been determined, the equipment changes will be made, and the "cold" shakedown program will begin. The RC Column continued to function satisfactorily, with uranium losses ranging typically from 0.2 to 0.5 per cent.

During shakedown and subsequent operation for column runs the following difficulties were encountered in the operation of the feed and waste evaporators: (a) the corroded shafts on the feed concentrator cooler agitators were replaced with stainless steel shafts, (b) all concentrator steam traps required resetting, and (c) plugged tubes in both the feed and waste evaporators were evidenced.

The maximum capacity for the concentrators was determined in all cases by the maximum capacity of the feed pump or the valve in the feed line to the concentrator, and in most cases was equivalent to a production rate of 9 to 10 tons U/day per processing line. The condensate decontamination factors obtained during shakedown, based on sodium decontamination, approached the 3.2×10^5 which has been estimated to be the D.F. required during normal plant operation. Tables V and VI respectively indicate the shakedown operating conditions and D.F.'s for the feed and waste concentrators.

The continuous pH monitor for the waste neutralizer was tested and put into service. However, the reliability of the results from this instrument still must be shown.

Separations Technology Unit

224-U Plant - UO_3 Conversion

Twelve and one-half lots (100 drums) of UO_3 were calcined in the 224-U Building pots during the period. All but approximately 7 drums of this UO_3 was produced from RCU which originally was Redox UNH solution but had been used for "cold" shakedown runs in the 221-U Building equipment. The remaining 7 drums were calcined from UNH received directly from Redox.

Considerable difficulty was encountered in the processing of the RCU. In addition to the foaming experienced in the final concentrator (which concentrates 60 per cent UNH to 100 per cent UNH), approximately 7 per cent of the pots boiled over during calcination. To prevent the pot boilovers which occurred between temperatures of 125 and 150°C., the starting furnace temperature was reduced from 625°C to 400°C. When the pot charge temperature reached 160°C., the furnace temperature was increased to 625°C. and normal calcination was continued. 60 per cent nitric acid was used as an anti-foam agent and 3 to 10 gallons were added to each pot in an attempt to eliminate the boilovers. Although these two precautions (lower heat plus acid addition) greatly reduced the amount of foaming, pot boilovers were never entirely eliminated.

The foaming difficulties experienced with the RCU processed to date are believed to have been aggravated as a result of the previous history of the RCU solution. In order to provide storage space for continued 221-U Building operations, the RCU was repeatedly concentrated and continually recycled to the feed tank. In addition to this operation, which may have produced foaming agents by the decomposition of TBP, several high uranium content sump liquors containing building floor drainings were added to the RCU tank.

Rotating Equipment

On July 20, RA Column pulse generator 19-8 developed a loud hammering and squealing while operating at 92 cycles/min. Inspection revealed insufficient oil in the motion box case with subsequent starvation of the lower thrust bearing on the worm gear. No visible damage was evident to the mechanism and operation was smooth after addition of oil to the proper level.

Process Chemistry

Comparison of blended slurries has indicated no significant differences in beta and gamma extraction coefficients as a function of length of storage period following blending. This is clearly shown by the organic/

aqueous distribution ratios, which were calculated from analyses of aqueous and organic phases after equal volume contacts between the slurry sample and RAX.

RAF Preparations from Redox 3EU Solution - Four laboratory countercurrent batch runs (3 extraction, 1 scrub, 3 strip contacts) were made to determine the feasibility of using Redox 3EU solution having a gamma ratio (exclusive of U^{237}) of 23 to 55 times natural uranium as feed to the U.R. Plant. These data indicate that 3EU solutions with gamma ratios higher than specifications can be successfully decontaminated in the TBP Plant by using a modified Purex-type flowsheet.

Solvent Extraction - Excessively high uranium losses (up to 30 per cent) in the RAW stream have been shown to be the result of mechanical difficulties rather than inextractable uranium in the RAF, on the basis of single batch extraction contacts of high uranium RAW samples with new RAX. On equal volume contacts, the organic/aqueous uranium distribution ratios ($E_U{}^{o/a}$) ranged from 3.4 to 4.9, and on organic/aqueous volume ratios of 2.5/1, the $E_U{}^{o/a}$ rose to 7.7.

UNH Calcination and UO_3 Reactivity - Assistance to 224-U operations involved 24 laboratory calcination pot runs, a large number of small scale calcinations, and 36 reactivity test runs on both laboratory and plant produced UO_3 powder, comprising 144 samples for analysis. Three main approaches constitute the bulk of this laboratory investigation, viz., (1) the cause of foaming in calcining TBP UNH solutions, (2) its prevention, (3) the effect of the foaming agent(s) and anti-foam techniques on the UO_3-to UF_4 reactivity. Foaming in 100 per cent UNH solution during small scale (50 ml.) calcining was caused by TBP and DBP (1 g./l), but not by MBP or Shell Spray Base. The minimum amount of TBP which will cause foaming was found to lie between 0.1 and 0.5 g./l. In small scale experiments, anti-foam agents (such as heptadecanol) and HNO_3 (as little as 1 volume of 60 per cent acid for 60 volumes of UNH solution) were found to be effective foam preventatives. In the plant, however, the addition of these agents directly to the calcining pots has met with indifferent success. The volume ratio of 60 per cent HNO_3 to UNH solution was increased to 1:9 with noticeable beneficial results, but even so has not been completely effective. In laboratory experiments, adding the acid prior to the final UNH concentration step (from 60 per cent to 100 per cent UNH) has been completely successful in eliminating the foaming during subsequent calcination. This method has not been proved out in the plant.

The ractivities (in laboratory hydrofluorination) of the most recent batches of TBP UO_3 have shown steady improvement to values up to 80 to 85 per cent conversion to UF_4. This is believed to be due partially to the HNO_3 which

1205491

[redacted]

is added to control foaming and partially to the fact that the contamination accompanying the initial lot of material processed has been largely flushed out of the system.

Studies are currently under way to evaluate the effect of the water treatment (calcine, cool, add H_2O, and re-dry) proposed by personnel at K-25 for improving reactivity.

REDOX AND METAL RECOVERY DEVELOPMENT

Process Studies

Alterations to Uranium Recovery Process - Three methods of achieving additional decontamination have been partially demonstrated at this and other sites, and were evaluated tentatively from an economic viewpoint. The expedient of increasing the acidity of the feed to the RA Column from 3M to 4.5M and substituting NH_4NO_3 for nitric acid in the scrub is attractive in that additional decontamination is believed certain without adverse effects on uranium purity. However, the additional chemical and waste storage costs of operating in this manner would amount to about $3,500,000 per year. Alternatives to this path include the construction of additional facilities to decontaminate further the concentrated uranyl nitrate from the solvent extraction battery. One suggested process involves the batch precipitation and removal of copper sulfide for the removal of ruthenium, followed by passing the solution through a silica gel bed for the removal of zirconium-niobium activity (estimated construction cost approximately $1,000,000). Another possibility lies in the construction of a second solvent extraction cycle employing operating conditions similar to the Purex process, and making provisions for acid recovery, waste disposal, and solvent handling largely by modification of existing equipment (estimated construction cost approximately $2,500,000). It is believed that either of the latter two processes could be operated for about $250,000 per year. The first alternative could be incorporated with very little delay, while the latter two alternatives would require some delay for design and procurement of the necessary equipment. No decision has been reached pending an evaluation of actual plant performance.

Purex Flowsheet - An addendum was issued to Purex Chemical Flowsheet HW#1 as HW-25039. This addendum recommends adopting the conventional plutonium cycle for the Purex Plant design basis, with minimum jumpers to be provided so that the later adoption of the reflux flowsheet is not altogether precluded.

Dissolver Studies - A decision has been made to design the Purex dissolvers so that two dissolvers will normally service the Purex plant (a third unit will be supplied as a spare), and that the dissolver de-entrainment towers will also function as acid recovery units. Since these units will be of

larger and different design than any currently in use, a test program involving the 321 Building and $BiPO_4$ plant dissolvers has been formulated and is in progress.

Slug Modifications - In answer to queries from the Pile Technology Unit, the effects of various slug modifications on separations processes were postulated and reported in Document HW-25040. It was predicted that the use of 63S aluminum jackets would have no effect on separations processing. The use of thin metallic sheaths between the uranium and aluminum jackets would probably have an adverse effect on dissolution time cycles, especially the postulated zirconium or niobium sheaths. The incorporation of various metals as uranium metal alloys would probably not affect the dissolution cycles, but could overtax the solids separation equipment. Samples of the projected modified slugs will be dissolved as received to observe the magnitude of these and other effects.

Chemical Engineering Development

Purex Phase Disengagement Studies - An experimental program has been initiated for the purpose of developing disengaging sections for the hydrocarbon-diluent Purex IB Scrub, 2A, and 2B pulse columns, which would be safe from a slow neutron chain reaction by virtue of their geometry. In the course of this work it is planned to test the effectiveness of various packings (e.g., Raschig rings and screens of various designs), inserted into the disengaging sections with a view to aiding, mechanically, de-entrainment of the wrong liquid phase from the effluent streams. During the month, twelve runs were made in 321 Building in a 3 in. glass pulse column, with 3 in. diameter, vertical, unpacked phase disengaging sections. These runs were designed primarily as controls, with reference to which the effectiveness of the packings to be tested could be evaluated.

The following specification letter and informal report were issued during the month:

HW-25020 Revised Preliminary Specifications for Purex Plant Pulse Columns, by F. W. Woodfield and G. Sege, dated July 14, 1952. (These specifications involve the reduction of the overall column cascade height from the previously specified 39 ft. to 33 ft., with a special "penthouse"-type design to accommodate the top of a 40 ft. high 2A Column.)

HW-25105 Estimated Apparent Specific Gravities in Purex Pulse Columns, by G. Sege, dated July 22, 1952.

DECLASSIFIED

1205493

Separations Technology Unit

DECLASSIFIED

Mechanical Development

Centrifuge Baffle Development for the Hot Semiworks - Two types of baffles were evaluated in the 321 Building 26 in. bowl centrifuge to determine which design would produce optimum centrifugate clarity when operating under simulated Redox head end conditions. The second baffle, containing the two slots, was recommended for the Hot Semiworks centrifuge because the design allows the centrifuge bowl to be cleaned and drained more readily.

Bearing Development - Carbon filled fluorothene, fiber glass filled Teflon, and clear mica filled Teflon bearings have been evaluated in the bearing test machines using RAX (Spray Base - 12.5 per cent TBP) as a lubricant. Running against Stellite journals carbon filled fluorothene and fiber glass filled Teflon had the lowest coefficients of friction, while clear mica filled Teflon and carbon filled fluorothene had the greatest load carrying capacity.

When Teflon and fluorothene are used as bearing materials the diametral clearance must be increased to give good performance (clearances of 0.006 to 0.008 in. as compared to clearances of about 0.002 in. for a hard bearing material with a 1 in. shaft). The relatively high coefficients of thermal expansion for Teflon and fluorothene make these greater clearances necessary.

Pulse Generator Development

A 3 in. diameter Teflon bellows with a 4 in. face to face dimension has operated, pulsing water, for a total of 4,614,324 cycles at a pressure of 14 to 18 lb./sq.in.ga.

A piston ring test stand for evaluation of alternate piston and piston ring materials for pulse generators is being constructed. The first tests will be made with Teflon rings.

Pump Development

Small Pump Development - A model FP-1 Eco Engineering Company pump has completed a life test. It is concluded that the Eco pump might be suitable for intermittent use as a transfer pump, but would be unsuitable for use as a metering pump.

Radiation Exposure Tests

Samples of polythene, Teflon, and fluorothene were exposed to gamma radiation in the 105-F cooling basin to determine the suitability of these

materials for fabricating dual faced plates for the Purex process pulse columns.

After a total exposure of about 10^7 Roentgens, Teflon had become very brittle. The test was continued to a total estimated exposure of 1.5×10^8 Roentgens, at which time fluorothene was beginning to form thin cracks when bent. The only noticeable damage to the polythene was a relatively slight discoloration.

Dissolver Studies

A series of dissolver studies, employing the 321 Building dissolver, have been initiated to obtain information on dissolver performance, capacity, and modified or new dissolving techniques. Reaction rates in the dissolver were determined by taking frequent samples during dissolution. For the first run 600 lb. of 8 in. bare slugs were charged to the dissolver. A first cut and a heel cut, each of 150 lb. U, were taken with 60 per cent nitric acid. A 2nd cut, of 300 lb. U, was tried with 45 per cent nitric acid. The results of these dissolving studies are being correlated.

A condenser-absorber is being fabricated for insertion in the dissolver off-gas line to study absorption of the oxides of nitrogen.

Hot Semiworks

Construction of the Hot Semiworks is 99 per cent complete. All equipment has been received and installed except five transfer jets, one air operated three-way valve, and one explosion proof agitator motor. All buildings except the Hot Process Building have been accepted for beneficial occupancy.

The Hot Semiworks Manual is 98 per cent complete in rough draft and 75 per cent complete in final copy. Part I, a description of the facilities, has been completed except for three subsections. This has been issued as Document HW-22955 and the remaining subsections will be added later.

Calibration has been completed for 15 tanks in the Solvent Handling Building and 5 tanks in Aqueous Make-Up Building, i.e., a total of 20 of the 64 tanks.

The design of B Cell shielding has been completed and fabrication of lead sections to surround the IA Column has been initiated. A 400 gallon tank for transporting Uranium Recovery Plant solutions has been procured and is being modified for this use. A PR can and jacket have been procured for product removal.

Under the present schedule, the construction contractor will leave the Hot Semiworks area on August 1. The area will become an exclusion area on August 4. Four shift operation will start on August 4.

SEPARATIONS PROCESS RESEARCH

Redox Studies

It has been found that aluminum nitrate solutions can be made acid deficient by dissolving aluminum metal directly in 2 M $Al(NO_3)_3$ at 65-70°C. The reaction takes from one to eight hours at 70°C. depending on the state of subdivision of the metal. The presence of a small amount of mercury accelerates the reaction. As an alternative, zinc, which dissolves more rapidly, could be used. One to two grams of Al per liter or three to six grams of Zn per liter is required to make the solution 0.2 M acid deficient depending on whether or not NO_2 is lost from the solution during dissolving of the metal.

Tail-End Treatment of Concentrated Uranium Streams

Additional experiments with the copper(II) sulfice-silica gel Tail-End Scavenging Process have continued to give encouraging results. The feasibility of using this Tail-End treatment to decontaminate Redox IIIDF from non Head-Ended plant runs was again demonstrated, and the Tail-End treatment was also used successfully to decontaminate stored, off-standard IIIEU solutions which had resisted cleanup by the standard plant rework procedures.

Analyses of the uranium solutions after precipitation of copper(II) sulfide and air sparging indicate sulfur to be present in concentrations less than 50 ppm. Calcination to UO_3 reduces the sulfur contamination to less than 5.

Attempts were made to effect the ruthenium decontamination of concentrated uranium streams by the passage of H_2S-saturated feeds through silica gel columns (without precipitation of copper sulfide). These attempts failed because of the small capacity (less than 100 bed volumes) of silica gel for ruthenium and because sulfur produced during the saturation caused plugging of the column.

Uranium Recovery Process

Studies continued on the flowsheet using high acid (7.5 M H+ in the feed) extraction conditions to improve ruthenium decontamination. A countercurrent run using current metal waste as the feed employed four scrub stages of varying acidities. The product was within beta specifications but did not meet gamma specifications by a factor of two. (The high acid extraction

1205496

and scrub stage reduces the ruthenium concentration to a low value, while the low acid scrubs operate on zirconium and niobium).

In applying the high acid flowsheet to the recovery of uranium from young wastes, only waste aged six months or longer could be processed through a single cycle at the rate of five tons per day per line. The process would employ but two scrub stages, one high acid and one low acid. Since more scrubs cannot be engineered into the available space, the uranium product could be treated further in an absorption column to remove zirconium and niobium. To make the process economically attractive, nitric acid recovery should be included.

Work has been completed in setting up the "Mini" for operation on high level feed solutions. Two Metal Recovery RA column runs have been made on current metal waste obtained from the 221-T canyon. Work was directed towards determining the effect of nitric acid concentration in the feed on decontamination. All ionic concentrations (except acidity) and flow ratios were in accord with the HW #4 flowsheet. Five Mini scrub stages and seven Mini extraction stages were used in both runs. Operation was at a total throughput of 1.8 ml/min., and overall stage efficiency was about 65 per cent.

At a feed acidity of 7.82 M, beta and gamma decontamination factors of 1.35×10^6 and 9.7×10^5, respectively, were obtained. The product did not meet beta specifications by a factor of only 3 and the gamma specifications by a factor of 6. A control run at the flowsheet feed acidity of 3.14 M gave a beta D.F. of 7.62×10^4 and a gamma D.F. of 4.86×10^4. This product did not meet beta specifications by a factor of 80 and gamma specifications by a factor of 32.

Purex Process First Cycle

Preliminary Purex HA column runs have been made in the Mini mixer-settler at 10 per cent Hanford fission product level (but with the full flowsheet concentration of plutonium). Although smooth operation was obtained, analytical results are incomplete.

The favorable results of high acid extraction conditions found in Metal Recovery suggest the application to Purex first cycle. The goals here are (1) a single extraction cycle for uranium decontamination, followed by an absorption column Tail-End treatment, or (2) a two cycle process with sufficient decontamination to obviate Head-End or Tail-End treatments.

Off-Standard Purex Streams

Attempts to determine dibutyl phosphate (DBP) in an aqueous solution, by observation of plutonium distribution under strip conditions after extract-

ing with DBP (with added plutonium) into a TBP-CCl_4 phase, show promise for DBP concentrations (initial aqueous phase) down to 10 ppm. DBP. At less than 10 ppm., results to date have not been sufficiently consistent to warrant use of the procedure as an analytical method. The presence of large amounts of uranium in the initial aqueous phase markedly reduces the sensitivity of the method.

Solvent Studies

Work is progressing on preparation of tetrahydrofurans. Three different syntheses are under consideration which can be identified briefly as (1) cyclization of a 1,4 dialcohol, (2) preparation of the furan followed by hydrogenation and (3) combination of alkyl bromides with tetrahydrofurfuryl bromide. Starting materials for method (1) are rare, and high pressures are required for the hydrogenation step in (2). At the present both (2) and (3) have been carried through the first steps.

A method has been devised to study the decomposition (hydrolysis) of phosphorus esters by determining the alcohols produced. Paper partition chromatography using the Xanthate derivative looks very promising in recent tests, giving adequate sensitivity and the ability to separate mixtures of alcohols.

Pulse Column Studies

Displacement time curves for the air driven "square wave" pulsator have been measured. The maximum acceleration of liquid in the 1" diam. x 27" column was 62 ft./sec.^{2} at a velocity of 1.7 ft./sec. For a sine wave to give a comparable maximum velocity a frequency of 15,000 cycles per minute would be required.

Attempts to measure the pressure in the column have not been successful as the pressure fluctuation has a frequency matching the damped frequency of the pressure transducer.

Resin Column Studies

Further laboratory studies have been made to determine the factors responsible for the formation of gas in Dowex-50 resin column during the plutonium elution using 6 M HNO_3, 0.4 M NH_2SO_3H. Purifying the initial plutonium feed to the column by performing two successive plutonium peroxide precipitations had no effect upon the amount of column gassing. The plutonium feed was inspected spectrophotometrically and all the plutonium was found to be in the +3 oxidation state. Sulfurous acid was used as the plutonium reductant.

The feasibility of replacing Dowex-50 by Amberlite IR-112 is being investigated. A single experiment with the IR-112 does have the disadvantages of somewhat lower plutonium capacity and a fairly large volume shrinkage in concentrated acid (ca. 26 per cent shrinkage between ca. 0.3 M H+ and 6 M H+). Amberlite IR-120 is not suitable for resin column operation since even more gas was formed during the plutonium elution using 6 M HNO_3, 0.4 M NH_2SO_3H than forms when Dowex-50 is employed.

Decontamination of Condensate Streams

Cation exchange columns remove about 95 per cent of the beta activity present in synthetic condensates spiked with dissolver solution. Activity in the effluent is due mainly to Ru, Zr, and Nb. Anion exchange resins are effective in removing these activities but their capacities are relatively low and regeneration is difficult. Batch contact studies to find other materials effective in removing these activities have been made. Silica gel, charcoal, Superfiltrol and clay (Attapulgus) were poor adsorbents for these activities under the conditions used (room temperature; pH ca. 2). Iron(II) and copper(II) sulfides removed Nb and Ru but not Zr while Fluorex (a calcium phosphate exchanger) removed Zr and Nb but not Ru. Other adsorbents and combinations of adsorbents will be tried both in batch experiments and column runs.

Solvent Extraction of Fission Products

Sodium ethylenediaminetetraacetate (Versene) forms water-soluble, organic-insoluble complexes with the alkaline earth metal ions. In these complexes, two of the four carboxyl groups of the Versene molecule exist as negative ions, and the complex behaves as a typical alkali metal salt of anamino acid, i.e., soluble in water and insoluble in organic solvents. A Versene analogue containing only two carboxyl groups and suitable alkyl or aryl substituents might be capable of forming uncharged, organic-soluble complexes with divalent metal ions. A Versene analogue has been synthesized which contains only two carboxyl groups and two phenyl substituents (ehtylene-bis-(α-iminophenylacetic acid)), and work is in progress to determine whether or not the salt of this acid forms an organic extractable complex with strontium.

Preparation and Reduction of Plutonium Compounds

A sample of plutonium trifluoride prepared by the 234-5 Development Group in the manner described previously (HW-24605-H) has been reduced with calcium to plutonium metal with a yield of 92.6 per cent (ca. 10 g Pu scale).

Separations Technology Unit

Following several preliminary experiments with cerium, a compound of plutonium, presumably Pu_2S_3, has been prepared by reaction of plutonium(IV) oxalate with carbon disulfide saturated argon at 400°C. The black product dissolves in dilute nitric or hydrochloric acid with evolution of hydrogen sulfide to give a blue solution characteristic of plutonium(III). The two samples prepared thus far in this manner appear to be impure Pu_2S_3 inasmuch as some brown insoluble residue remains upon acidification.

234-5 PROCESS DEVELOPMENT

Dry Chemistry and Reduction

Hydrofluorination - The use of filter paper liners in RM filter boats has been suggested to prevent leakage of plutonium oxalate through the cracks which develop around the filter discs and thus to obviate the frequent repair work which, if continued, will soon make the filter discs unusable. That the paper liner will not be detrimental to subsequent dry chemistry and reduction operations was shown by the hydrofluorination of two laboratory boat-loads of plutonium (IV) oxalate, one with a strip of filter paper on top of the cake, the other with paper beneath the cake. Complete destruction of the filter paper resulted, and the tetrafluoride samples appeared normal and were reduced, with yields of 90.2 and 92.2 per cent, to metal buttons of satisfactorily low carbon content (220 ppm.).

Use of Freon12 as a Fluorination Agent - The replacement of anhydrous HF with Freon-12 in the dry chemistry process appears promising since a sample of PuF_3, prepared by treating plutonium(IV) oxalate with Freon-12 at 450°C., was reduced, with a yield of 92.6 per cent, to metal containing only 300 ppm. carbon.

The oxalate was dried at 130°C. in air for one hour, then in Freon-12 (di-fluoro, di-choro methane) for 45 minutes. After three hours in Freon at 450°C., the furnace was cooled to 100°C. and air admitted. The bulk of the PuF_3 was purple-gray in color, with some pink, green, and tan areas on the surface. The bulk density was 2.1 g PuF_3/cc.

Reduction - Inconclusive results have thus far been obtained in an investigation of the need to purge the reduction bomb with argon prior to reduction. Four laboratory scale reductions gave yields of 92.2 and 96.9 per cent (argon-purged) and 83.47 and 96.98 per cent (not purged).

A sample of sintered PuF_4 obtained from the RG Line (Run No. X-12-5-269, accidentally heated to the fusion temperature) was ground, yielding a powder of bulk density 4.62 g PuF_4/cc., and reduced to metal with a 92.5 per cent reduction yield.

1205500

Separations Technology Unit [redacted]

Recuplex

Slag and Crucible Dissolution - Dissolution of seven plant-reduction residues has produced solutions containing an average of 97.1 per cent (range: 91 to 132 per cent) of the plutonium charged by Accountability to the residues. Analyses of four silica cakes have indicated hold-ups of 20 to 190 mg., or 0.31 to 0.7 per cent. Continued investigation of possible variations in the slag and crucible flowsheet has shown that the iron cans to be used for packaging the reduction residues to permit dust free loading of the dissolver, will dissolve rapidly in 8 M HNO_3, and that the Fe^{+3} liberated by dissolution of as much as 100 grams of iron per crucible in the dissolver charge will not harmfully retard the plutonium dissolution. It was also found that when a synthetic oxalate supernatant from Task I was added to the dissolver prior to the dissolution of a crucible and slag from an iodine-boosted reduction, at least ninety per cent of the oxalate was destroyed during the course of the dissolution.

Corrosion of 0.070 and 0.086 mils occurred on the surfaces of plain and welded type 309 SCb stainless steel test coupons, respectively, when exposed for two hours to the vapors within the dissolver during iodine removal and dissolution of Run Y-12-5-89 slag and crucible.

Plutonium Distribution in the Recuplex System - E°_{a} values for the distribution of plutonium between TBP-CCl_4 and Recuplex feed (CAF, Flowsheet HW #6) were measured as a function of nitric acid (2 to 4 M) and aluminum nitrate (0.15 to 0.8 M) concentrations. For CAF 3M in HNO_3, treated with H_2O_2 to convert the plutonium to the IV state, the distribution coefficients varied from 7.6 for 0.15 M ANN (5 M NO_3^-) to 71 for 0.8 M ANN (6.9 M NO_3^-), with a value of about 27 for 0.4 M ANN (5.7 M NO_3^-), the proposed feed concentration. Three successive extractions of the same feed sample with fresh volumes of solvent gave nearly constant E_a values of about 20.

"Mini" Unit Operations - Mini Unit operations have been chiefly concerned with searching for the cause of the emulsification which appeared at the interfaces in the stripping (3/8") unit coincident with the introduction of plutonium-containing CAF (made up to Recuplex HW #5 specifications from slag and crucible solution and plutonium stock solution). Emulsion formation has continued to occur to a troublesome extent in spite of a variety of efforts to circumvent it.

Physical Properties of Recuplex Streams

The crystallizing temperatures, viscolities, and specific gravities of solutions of interest in designing equipment for Recuplex were determined for synthetic solutions made up according to Recuplex Flowsheet #8 (P.B. No. 15).

[redacted]

1205501

Separations Technology Unit

Recuplex Design Criteria Document - The primary purpose of the "Recuplex Design Criteria" (Document HDC-2552) has been achieved and its utility demonstrated by completing the rough draft form and making copies available to personnel in the Design and Project Sections. The final editing and preparation of the report for wider distribution, however, has been delayed by a shortage of manpower in the Project Section.

Equipment Evaluation

Caustic Scrubber for Task II Furnace Off-Gas - In a laboratory evaluation of the performance of a 3-1/2 inch I.D. column containing a two-foot packed section, in mock-up of the proposed counter-current caustic scrubber for the furnace off-gas of Task II, the column flooded at the maximum plant flow rates for air and 3 per cent NaOH of 215 and 2510 lb/hr/sq ft, respectively, when 1/4 inch carbon raschig rings were used in the packing. With a packing of 1/2 inch rings, the column did not flood until air and liquid flows of 612 and 3000 lb/hr/sq ft, respectively, were obtained. The 1/2 inch packing resulted in satisfactory HF removal efficiencies: 30 per cent HF in air was reduced to 1500 ppm, 22 per cent to 625 ppm, and 9.5 per cent 500 ppm.

Motorized Valve Operators for the RM Line - Monel and Teflon valve stem cones have been designed and tested for use in the Barber Colman throttling motor valves to give close control of HF and oxygen gas flow in Task II RMA.

Monel valve stem cones having 0.23° or 0.15° taper and 0.0005 inch clearance from the valve seat at the base deliver 480 grams/hour of HF near mid-valve opening. A Teflon gasket provides complete closure. A Teflon valve stem cone 0.001 inches oversize at the base and tapered 0.1 degrees, meters 250 cc/min of 35 psi oxygen at mid-valve opening. The Teflon closure gasket and the cone are fabricated in one piece.

Five 3-wire two-position valve operators have been tested and function to meet specifications. They withstand 200 psi gas with no leakage. These valves are scheduled for use in Task III RMA.

Crucible Shop

Sixteen CD-1101 crucibles were pressed. Steel dies for forming CD-130 crucibles were about 75 per cent complete.

It was found that a fair casting slip could be made by milling the -100 +200 mesh MgO, as a substitute for the -200 M grain, for 10-1/2 - 11 hours and 18-19 hours aging. When milled over 11 hours the slip was very thixotropic and had to be discarded.

The pattern for XCDRS-110 (reduction-casting crucible) was received and two plaster molds made. Three crucibles were cast and one prefired to 1350°C at

month's end. Sufficient slip to cast only two crucibles per slip batch can be prepared with the present ball mill.

The balance of the order for 50 RS-1 crucibles was completed. Four heavy wall (3/16) RS-1 crucibles were set aside for possible use in the RM Line. Weights of the RS-1 varied from 350 gms (3/32 inch wall) to 816 gms. (3/16 inch wall). With a good casting and draining slip crucibles can be made with a 1/16 inch wall.

A pouring crucible filled with lead was set on a contour casting mold (XCDM-110) and the assembly heated at 500°C for fifteen minutes. The mold did not leak at the cemented joint. The casting separated easily from the mold, and reproduced the molded contours quite well.

Experimental Coating

The experimental coating program to establish the coating condition in which the bell jar assembly is purged with nitrogen in lieu of high vacuum outgassing has been completed. Production Test No. 235-7 employing nitrogen purge in the production unit was completed and was being circulated for approval signatures to authorize the evaluation of this process in Plant Equipment at month's end.

INVENTIONS

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

R. B. Richards

R. B. Richards, Manager
Separations Technology Unit

August 8, 1952

RBR:eb

[redacted]

APPLIED RESEARCH UNIT

JULY, 1952

August 4, 1952

VISITORS AND BUSINESS TRIPS

J. A. Philoscopleos, Savannah River Works, DuPont Company, spent July 9-10 at Hanford discussing analytical methods.

H. O. Allen and J. G. Epp, Dow Chemical Company, Rocky Flats (Colorado) Plant, spent July 18 here discussing analytical methods.

F. W. Schonfeld, LAMS, visited Hanford July 2 for discussion of metallurgical problems.

W. E. Kirby, Consolidated Engineering Corporation, Pasadena, California spent July 14-30 at Hanford installing a mass spectrometer.

Prof. W. C. Fernelius, Pennsylvania State College visited here July 7 and inspected various laboratories.

[redacted]

1205564

L. D. Turner spent July 1 at KAPL and July 1-4 at WAPD, Pittsburgh, discussing metallurgical problems.

G. J. ALtire spent June 16-17 at American Cyanamid Company, Arco, Idaho discussing isotopic analyses of uranium.

J. W. Culvahouse and R. E. Peterson visited the Phillips Petroleum Company, Arco Idaho on July 24 to discuss sample exposure.

R. Ward and M. J. Sanderson spent July 29-31 at Chalk River, Ontario, Canada attending a joint U. S. - Canadian conference on uranium metallurgy.

ORGANIZATION AND PERSONNEL

Personnel totals as of July 31 were as follows:

		Technical Graduates				
	Exempt	Permanent	Summer	Regular*	Non-Exempt	Total
Physics	25	1	3	6	7	42
Metallurgy	24	2	2	8	17	53
Analytical Research	30	1	0	3	6	40
Analytical Service	53	43	0	5	101	202
Administration	6	0	0	0	3	9
Total	138	47	5	22	134	346

*Rotational Trainees

PHYSICS

Exponential Experiments

Detailed flux distribution measurements have been completed in the graphite of the 7 1/2 inch lattice cell. Determination of the neutron background caused by spontaneous fission is being made.

A report, entitled, "Low Power Reactor as a Neutron Source," HW-25069, has been issued discussing the advantages of using a low power reactor in the exponential experiments.

Lattice Design

Consultation with personnel working with the Materials Testing Reactor at Arco has revealed the fact that the measured neutron distribution in the test hole assigned to the C-12 samples is different from the formerly accepted calculated one. It appears that the actual variation of flux over the space occupied by the samples is of the order of 20 per cent. Thus the flux at the C-12 sample position will differ from that at the cobalt monitor by approximately ten per cent. Some redesign of the samples is planned so as to bring the monitor and sample into a more nearly equal flux.

Cost estimates are being prepared for the xenon apparatus to be installed at DR Pile. Two methods of insertion of the generator slug are being considered. In the first, the special slug would be inserted into a process tube; in the second, it would be put into a side hole of the pile.

Apparatus design to study methods of diluting xenon accurately has been installed in the Test Pile building. Experiments will begin shortly under Production Test 305-1-N.

The experiment, in which the removal of iodine from a helium stream is being studied, continued this month. Reproducible results have been obtained. It was shown that iodine separation factors of about 10^4 can be realized by the use of a charcoal trap. The separation believed necessary in the xenon experiment is 10^5; these experiments indicate that such separation is possible. Further tests utilizing eight-day I^{131} are planned.

The thermal neutrons emerging from the side hole of a pile are believed to have a Maxwellian energy distribution of which the characteristic temperature is that of the graphite moderator in which the neutrons have been diffusing. Recently calculations have been completed which give the intensity of the diffracted beam when the original beam falls on crystals of NaCl (200), Be (002) and LiF (111). The calculated intensities have been compared to the measured ones in order to determine the characteristic temperature. Good agreement with experimental data has been obtained only for the LiF crystal where the effects of higher order diffraction are not as large as in the other two crystals. The temperature found is 700° K and its close agreement with the graphite temperature represents substantial confirmation of this aspect of the diffusion theory of neutrons.

Meanwhile, the high neutron temperature (ca. 1300° K) obtained by a different experimental method, has been shown to be incorrect. In this experiment, 1/v detectors were used. It was, however, found that the detectors were too thick so that self shielding did not allow 1/v dependence. The experiments will be revised.

The thermal flux distribution in a cylindrical lattice cell is being calculated with the use of Serker's boundary conditions. Although the mathematical solution has been completed it is still in too cumbersome a form to be used for computation.

An accurate calculation is being made of the heat generation in the pile graphite and metal rods. Processes considered are fission product slowing down and beta decay in the rod, and radiative capture and moderation of neutrons, Compton scattering, photoelectric absorption and pair production in both rod and graphite.

The diffusion length of a uranium lattice cannot be measured directly on account of the production of fission neutrons. However, a direct measurement

1205506

is possible if the uranium is replaced by some equally absorbing (but not fissionable) material.

Diffusion lengths for Li-Al slugs loaded into a graphite lattice have been calculated from the formula:

$$L^2 = fg\, L^2_g,$$

where L = diffusion length of lattice; fg = thermal utilization of graphite and Lg = diffusion length of graphite. The values obtained are 10 to 15 per cent lower than the ones measured in the exponential experiments. An attempt is being made to develop a new formula for the lattice diffusion length by setting up the neutron balance for a single lattice cell in the form of a difference equation.

The two-group diffusion equations have been set up for an infinite slab which consists of a multiplying core, a graphite reflector, and a source of neutrons outside the reflector for driving the assembly. The thickness of the reflector will be varied to determine to what extent the ratio of slow to fast flux can be adjusted in the multiplying core. The purpose of the calculation is to determine the feasibility of adjusting this flux ratio in the core of a lattice test reactor.

One possible method of designing and operating a lattice test reactor has been studied in some detail and is reported in document HW-25107.

Operational Pile Physics

The changes in composition of chromel and alumel thermocouple wire after a one year exposure in the center of a Hanford pile have been calculated. The compositions before and after exposure are as follows:

Chromel			Alumel		
Ni	90%	89.9987%	Ni	94%	93.9987%
Cr	10	9.9957%	Mn	3	2.976%
Cu	0	0.0013%	Al	2	1.9998%
V	0	0.0043%	Si	1	1.0000%
			Cu	0	0.0013%
			Fe	0	0.024%
			Si	0	0.0002%
			P	0	0.000002%

Estimates have been made for the minimum critical masses of all the process vessels in 231 Building. These are based on the critical mass data obtained in the P-11 Project. A report on this work will be issued in August.

ANALYTICAL RESEARCH

Radiochemical Instrumentation

Laboratory tests showed the previously described in-line gamma counting

mechanism to work satisfactorily. The turret mechanism that permits remote readings of background, standard, and process solution operates as designed, and the recorder is stable to ± 5% over a 16-hour period. The 85% loss of signal over the remote control cable must be given further attention. In an area remote from process operation the background is noted to be only 1/50 of the counting rate expected from tolerance gamma activity in waste condensate solutions.

Two methods are being considered for in-line alpha counting. The first involves continuous transfer of sample to a moving chart, drying, and subsequent counting. It was observed that the optimum volume of aqueous solution that can be transferred to strip chart paper is about 0.1 ml., and that the paper tends to attenuate the alpha counting rate by about one half. Thus, 3BW solutions containing tolerance alpha quantities would register about 260 c/m. The second approach involves introduction of a scintillation probe directly into the process stream. The conventional probes, consisting of zinc sulfide crystals embedded in plastic, appear to have relatively good corrosion resistance to process type streams. However, plutonium is so strongly adsorbed on the surface that it cannot be removed by treatment with strong nitric or sulfuric acids. In an effort to avoid this adsorption one probe was treated to vaporize stainless steel onto the surface and is being investigated.

A scintillation spectrometer that automatically scans the gamma energy spectrum was constructed, successfully tested, and is being employed to catalog the energy spectra of various process solutions as the occasions arise. Tests of a scintillation spectrometer containing two optically insulated crystals connected via an anticoincidence circuit showed a marked reduction of the peak due to Compton scattering. Indications are that further modifications of the crystal geometry will nearly eliminate the Compton peaks and thus make the instrument usable over the entire gamma energy spectrum.

Radiochemical Techniques

Analytical techniques for determining the majority of the uranium and plutonium isotopes of interest have been established. Work is essentially completed, and a report is being prepared on a program involving the determination of plutonium-238, 239, 240, and 241 in a series of plutonium product solutions, representing pile exposure levels in the range 50-700 MWD. Further work on this subject involves the determination of heavy metal isotopes in selected portions of irradiated slugs and in slugs from selected pile irradiation positions. The windowless beta flow counter allows individual determinations of Pu-241 to ± 7%, and further precision improvement is expected to follow from work leading to more uniform deposits on the counting disc. Check of Pu-240 content with the spontaneous fission counter on a second standard disc received from off-site showed exceptionally close agreement with the previous standardization; the standard reported as 5.60% Pu-240 was analyzed locally to yield a content of 5.58%. The electrolytic technique for preparing sample discs for alpha energy determination of Pu-238 was

1255568

improved by replacing the troublesome preliminary ozone oxidation step with an anodic oxidation technique; 94% oxidation of plutonium was observed. The technique is particularly convenient because the reduction of plutonium onto the disc may be accomplished by simply reversing the current.

Work carried out at Reed College on a subcontract basis for establishing a qualitative scheme for separating trace quantities of radioactive elements proceeded satisfactorily. A volatilization step for separating certain elements was defined, as the first step in the scheme. The reagent British Anti-Lewisite was examined in considerable detail with respect to its precipitates in acid solutions and its stable complexes in alkaline solution and promises to be a useful separations reagent. Similar exploratory studies were carried out with chromatographic and solvent extraction techniques.

Electrochemical Techniques

Research on a coulometric procedure for determining plutonium continued along two lines, the first involving preliminary reduction, and a coulometric oxidizing titration and the second involving a preliminary oxidation and a reducing titration. The search for a reducing agent that could be destroyed after quantitative reduction of the plutonium led to investigations of sulfide, sulfite, sodium borohydride, magnesium, cadmium, and zinc amalgam; none worked satisfactorily, either because of difficulty in destroying the excess or because of partial attack on the anion in the solution. The search for a suitable oxidizing agent led to the preparation of potassium ferrate (K_2FeO_4) and divalent argentic ion which will be tested.

The system installed for continuous measurement of pH in waste neutralizer solution was tested by Instrument and Plant Assistance personnel who reported it to operate satisfactorily. The unit provides for the use of only one glass electrode rather than the two recommended, provides for buffer check, uses the alkaline Type E electrode, and has an easily replaceable electrode unit but is subject to the difficulty that the valve and jet assembly are replaceable only with difficulty. Although the electrodes recommended appeared to operate satisfactorily in preliminary investigations, work continued toward the complete laboratory testing of various electrodes under control conditions. The barricade and operating mechanism for such tests were completed and installed during the month.

Consideration is being given to the continuous determination of acidity in Redox and Metal Recovery Processes streams by means of pH measurement. A Beckman Model RX pH meter was modified to expand the pH range 2-4 over the entire scale and was tested for stability. In one overnight test the recorded pH of a buffer solution remained constant to less than 0.01 pH unit.

Mass Spectroscopy

Installation of the Consolidated mass spectrometer in the 3706 Building was

1205509

started during the month. The unit combines the features of the gas analyzer and the isotope ratio instruments and will serve as a stand-by for the routine instrument being employed for uranium isotope determinations and as a research instrument.

Emission Spectroscopy

It was reported last month that the TTA extraction procedure for recovering impurities from plutonium prior to spectrographic determinations had been tested with 11 elements. This number has been extended to include 52 elements. Eight of these extract into the organic phase with the plutonium, whereas 44 remain in the aqueous phase and are recovered for determination. Ferrous iron and uranium remain to be checked. Oxalate prevents the extraction of Pu(IV) by the TTA, so in applying the method to oxalate precipitates it will be necessary to destroy the anion by wet ashing. Fluoride similarly prevents the extraction of the tetravalent plutonium, so that the procedure may not be directly applied to fluoride precipitates. Boric acid is ineffective in eliminating the fluoride effect and complexing of fluoride with zirconium will be tested, although it is possible that the TTA will break the zirconium fluoride complex. The method has the advantages over the presently used cupferron extraction procedure in that it allows the determination of more elements and eliminates the uncertainties resulting from the instability of cupferron. Steps are being taken to put the method into routine use.

The mercury diffusion gas circulating pump installed in the hollow cathode spectrographic excitation unit supplies a steady gas flow and sufficiently rapid gas circulation in the pressure range below 15 mm. for operation of the unit. A redesigned source head that allows easy removal for cleaning was installed. The assembly is complete and ready for testing of a variety of samples.

An investigation was initiated directed toward the development of techniques for providing more accurate and precise methods for calibrating spectrographic films and plates. Towards this end a series of iron spectra was photographed, and the resulting lines were measured densitometrically to determine variation in density from top to bottom. Lines obtained on the Baird spectrograph showed a variation of ± 5% in density. Careful realignment of the instrument reduced this variation to ± 1%. In parallel with this work a stable neon light source enclosed in a quartz envelope has been sought. The initially prepared unit proved to be of low intensity, probably because of air contamination.

Spectrochemistry

Control personnel were trained in the use of the modified x-ray photometer for the assay of plutonium in plutonium metal. An initial set of comparisons on 19 metal samples showed the x-ray method to compare favorably with the presently employed volumetric method. In all analyses by both methods the

plutonium content was lower than expected, probably reflecting the oxide contamination present on the finely divided, milled samples taken from the RM line.

The previously described turbidity measuring unit was tested in the uranium recovery blend tanks and found to operate very satisfactorily. After a minor modification to prevent cocking of the cell in the riser, the unit gave a sharp indication of the neutralization reaction. A letter describing the unit and its operation was issued.

Miscellaneous

A set of four-way stopcocks with bore volumes in the range of 10-100 ul. was received and partially tested for suitability as an automatic sampling device. The proposal is to fill the bore by allowing the sample solution to flow through one set of connectors and then to flush out the discrete volume through the second set of connectors. The particular difficulty encountered is the collection of a variable quantity of grease on the lip of the stopcock bore. Light greasing is not satisfactory because leakage then occurs. Further consideration will involve the use of heavier greases, graphite, and plastic plugs that may require no lubrication.

Direct assistance given the Redox laboratory operating personnel during the month consisted of a minor improvement to prevent the loss of sulfur in the sulfate method; an evaluation of the uranium procedure to assure that the discrepancy in the uranium accountability between Uranium Oxide Process feed and product was not due to analytical error; and modification of the diketone procedure. It was noted that diketone is relatively unstable, so that both analytical samples and process solutions undergo a decrease in content of this compound.

The analytical standard sample program is being expanded. Nine different samples, mostly covering Redox and Uranium Recovery operations were submitted to the central laboratory during the month. Results of the standards program are reported by the laboratory involved.

ANALYTICAL SERVICE

Work Volume Statistics

The following tabulation shows the source and volume statistics for samples on which analyses were completed:

1205511

	June		July	
	Samples	Det'mns	Samples	Det'mns
Process Control - 234-5	462	3,049	498	2,864
Process Control - Metal Preparation	666	6,786	523	2,692
Research & Development Programs	3,720	6,528	2,934	6,849
Water Quality	288	1,659	214	1,321
Redox	1,030	3,169	1,219	3,904
TBP	224	552	705	2,185
UO_3	290	849	225	585
Essential Materials	212	561	114	497
Special Samples	245	1,447	324	1,934
Process Reagents	398	936	522	1,071
Totals	7,535	25,533	7,278	23,902

100-300 Area Laboratories

The large decrease in determinations for Process Control - Metal Preparation during July resulted from a temporary curtailment of the scrap uranium recovery program.

The development and/or modification of spectrochemical methods for determination of Na, Si and Al in UO_3 powder is essentially completed. Existing UO_3 methods for Na and Si were found satisfactory providing suitable standards were prepared, and a modification of the aluminum method, using higher arc current and a timed exposure, resulted in satisfactory Al determination. All spectrochemical UO_3 work is now being performed in the 300 Area spectrographic laboratory.

Study was begun on the development of a spectrochemical method for the quantitative determination of Fe and Si in uranium billets. Preliminary results indicate that a satisfactory method can be developed by using the carrier concentration method with a high arc current, timed exposure period and an internal standard of known concentration added with the carrier. Such a method would require considerably less analytical time than the lengthy wet chemical methods now used.

The pyrohydrolysis apparatus was used during 95% of the month to determine fluoride in UF_4 and in uranium oxide with 0.4 to 1.5% fluoride impurity. Some 156 samples were submitted by Process Chemistry personnel in the 222-S Building who were investigating the reactivity (ease of reduction to UC_2 and hydrofluorination of the latter to UF_4) of both laboratory and plant product UO_3. The UF_4 samples submitted varied from about 12% fluoride to values approaching the theoretical (24.2%).

The use of sulfuric acid by Chemical Research in a resin column technique for concentration and decontamination of Redox IIBP brought about the formation of an insoluble plutonium sulfate. The plutonium sulfate formed was metathesized and submitted for analysis to establish its formula. The Pu was analyzed by

radio assay and the sulfate by H_2S distillation. Both precision and accuracy of the sulfate method appear to be very good, i.e., 2% spread on duplicate analyses with a spike recovery of 103%. Results to date indicate a 1 to 2 mole ratio of plutonium to sulfate in the above-mentioned precipitate.

Several copper alloy "Pig Tail" samples were submitted by the Process Engineering Unit and analyzed for Cu, Zn, Sn, and Pb to assist in determining the cause for failure in operation. Some of the "Pig Tails" were found to be almost pure copper.

Of considerable interest was a film sample submitted by Pile Technology Unit, Corrosion Studies. The sample was taken from a tube carrying water to a test block in 108-B Building. This sample was found to contain a high percentage of organic matter, i.e., about 27% carbon and 4% hydrogen. Based upon a cursory study of the data and data obtained on algae samples submitted by Radiological Sciences Department, it appears that this organic matter may be algae. Of interest is the fact that this water supply is also used in the 105 Building. Further study is in progress.

234-5 Building Laboratory

Training on the newly developed X-ray Photometer method for determining plutonium in MC (metal casting) samples, was initiated on July 10. As soon as laboratory personnel are thoroughly trained on the X-ray procedure, a comparison of the two methods, x-ray vs. chemical assay, can be made.

During the past 3-4 months, metal casting sample analyses have indicated the carbon content to be higher than normal by a factor of 2-3. A check of the present carbon method, initiated on May 21, 1952, against the old method using twenty-four process samples gave very good agreement although variations within samples were definitely indicated. In addition, the new method was checked against a similar procedure and equipment in 3706 Building by analyzing a finely divided uranium sample. Good agreement was again obtained in this test establishing the fact that the carbon content has truly increased.

Process changes during the month with subsequent discontinuance of the SN-3 (Oxalate supernatant concentrate) and SN-4 (distillate from supernatant concentration) samples and associated analyses resulted in a monthly savings of approximately 55 man-hours. An additional savings of 15 man-hours per month was realized with the discontinuance of metal sample weighings by the laboratory. Future accountability will be based solely on weights supplied by Manufacturing.

222-S Building Laboratory

New sample valves and a replacement vacuum pump were installed on the Consolidated Mass Spectrometer during the month. Five lots of UO_3 powder for isotopic content have been reanalyzed and the data indicate that the original Hanford results were in error, as had been suspected. The complete data are listed below:

[redacted]

1205513

U-235/U-Total (Wt. %)

Lot	ORNL	Hanford	Hanford Reruns
10	0.655	0.668	0.649
12	0.644	0.664	0.646
13	0.646	0.659	0.647
14	0.646	0.657	0.650
16	0.645	0.662	0.642

K-25 has agreed to Hanford shipments of UO_3 on a carload (up to 96 drums) composite analysis, rather than on individual lot (8 drums) composite analysis. The carload composite is prepared by the laboratory from the 8 drum composite samples of the lots to be shipped. Carload composite will be analyzed for plutonium, beta, gamma, particle size bulk density, surface area, iron, sulfur and normal spectrographic analysis. These results are then the basis for the shipping report. Uranium isotopic ratios will continue to be determined on each 8 drum composite as per request of the Accountability Representative. Separations Technology and Operations Unit personnel have retained several analyses (UO_3, U_3O_8, H_2O, HNO_3 and Particle Size on every 5th lot) on the 8 drum composite for process control purposes, and a complete analysis will be requested if processing difficulties have been experienced.

Approval has been given by Plant Assistance personnel for the laboratory to return to process the UO_3 lot samples which have been stored pending analysis at K-25. UO_3 lots 001 through 066 are involved and amount to about 100 lbs. of UO_3 powder. Information has been received from K-25 through Plant Assistance that the laboratory need not retain lot samples longer than thirty days after shipment since K-25 expects to have completed their analysis by this time.

The analytical workload from the TBP Plant cold runs is now about 50% of that received from the Redox Plant. Processing of 90-day cooled metal in the Redox Plant with requests for many non-routine samples and determinations indicates that a serious analytical overload could soon develop unless adjustments are made in the Redox non-routine requests.

An increasing number of laboratory reactivity tests performed on UO_3 produced from Metal Recovery Process RCU material caused a sharp increase in analytical requests from Chemical Development personnel for total fluoride, UO_2, U(IV), and total uranium.

Special analyses performed during the month include nitrite and reducing normality determinations on Redox dissolver solutions, per cent solids in four composites of PR line samples, numerous specific fission product and gross beta and gamma determinations on CWS filter paper and special solution samples taken by Process Unit personnel in connection with the radioactive speck problem in the S Area.

1205514

A standard H-7 test solution simulating current production except for omission of fission products was analyzed for specific gravity, total alpha, and americium-curium. The high recovery for total alpha values would indicate the bias correction (1.008) could be removed; however, current values would still be approximately 2% high. The data are as follows:

	Sp. Gr.	Total Alpha (AT)	Americium-Curium
Average of Reported Values	1.657	2.465×10^7 c/m/ml	1.04×10^6 c/m/ml
Make-Up	1.654	2.39×10^7 c/m/ml	1.09×10^6 c/m/ml
Recovery		103.2%	95.6%

Methods Control

Activities of Methods Control personnel in direct support of a laboratory are reported under the applicable laboratory.

Safety and Special Hazards Control

Two high air samples were recorded in the 234-5 Building Laboratory during the month, but no personnel contamination resulted. One of these occurred in Room 149 and was caused by improper handling of contaminated equipment. The area was successfully cleaned under respiratory protection. The second high air sample occurred in Room 139 and the cause is unknown since no off-standard or unusual incidents were reported.

One fire occurred during the period covered by this report. The fire occurred in Room 157, 234-5 Building when methanol vapors escaped through a faulty rubber tubing connection and ignited. No equipment damage or special hazards condition was caused as a result of the incident. This operation will be discontinued as soon as equipment for a newer method arrives. Fabrication of this equipment has been held up pending settlement of a grievance between Electrical and Instruments.

METALLURGY

Metallurgy of Uranium

A metallurgical study of samples from uranium rods, which are under pile test in the Chalk River reactor, was continued and a preliminary report, combining all the data obtained by the Metallurgy Sub-Unit, was prepared. The data show a trend toward increased preferential orientation of certain planes at the lower rolling temperatures. Also, there is a trend toward increased mechanical properties with decreasing rolling temperatures; the best correlation of property and rolling temperature is obtained with the yield strength.

A study to determine the effects of a beta heat treatment on the preferred orientation of rolled uranium rods was begun. X-ray diffraction data obtained

to date indicate that a single beta heat treatment does not randomize certain types of preferred orientation existing in rolled uranium rods. Although this investigation is incomplete, evidence has been obtained which show that whenever a preferred orientation of the [100] direction with the rod axis occurs in the "as rolled" rod this orientation persists after a single beta heat treatment. Dilatometric results substantiate these findings in that the coefficient of thermal expansion after transformation appears to be unusually high.

A new X-ray diffraction method for determining the preferred orientation existing in rolled uranium rods was evaluated and found to be more quantitative than the "psi" method. This new X-ray technique is based upon the direct comparison of the diffraction pattern obtained for a given sample to the diffraction pattern obtained under identical conditions for a standard sample known to be randomly oriented. Since the intensity of the diffracted beam for a given reflection plane is directly proportional to the pole density of that plane, the ratio of the measured intensity of a given plane in a sample of rolled rod to the measured intensity of the like plane in the standard sample gives a measure of both the type and degree of preferred orientation. The standard samples used for comparison purposes were prepared by powder metallurgy techniques; thorough orientation studies at Hanford and other AEC sites have established the fact that this material has a completely random crystallographic orientation.

Preliminary measurements were made of mechanical properties of uranium at elevated temperatures extending thru the phase transition temperature were made on samples. No discontinuity of properties was observed on passing from the alpha to the beta phase. As the temperature of the test is increased, necking of the sample becomes more and more pronounced until at 700° C the fracture area is approximately a point. The tensile strength decreases from 91,500 psi at room temperature to 6,500 psi at 700° C.

Experimental work was started to establish the relationship between the degree of preferred orientation existing in rolled uranium rods and the rate of growth obtained during thermal cycling. The above relationship will be studied for experimentally rolled rods which have been fabricated at temperatures ranging from 300° C to 600° C and reductions in areas ranging from 40 to 90 per cent.

Bonding Studies

An attempt was made to form uranium-nickel and nickel-aluminum bonds by diffusion bonding under heat and pressure. Metallographic examination of the "sandwich" showed bonding of the nickel to the aluminum but no bonding of the uranium and nickel.

Current efforts are directed toward the assembly of electroplating equipment in order to provide a means of introducing a third metallic layer between uranium and aluminum. Such electrodeposited layers should provide interfacial conditions for diffusion bonding of the plated metal to the uranium.

[redacted]

1205516

[redacted]

Applied Research Unit

Hanford Structural Materials

Corrosion tests on type 304 ELC stainless steel for the Purex Process were started. The work involved determining the effect of the chloride ion concentration in various nitric acid solutions upon the corrosion rate of the stainless steel. Tests in nitric acid solutions of low concentrations revealed no correlation between chloride ion concentration and corrosion rates.

Corrosion data for SAE 1010 mild steel in synthetic Redox waste solutions were obtained for solution temperatures of 180° F and 200 °F. Results of the tests indicate that the corrosion is greater when the steel is exposed to atmosphere and vapor than when it is covered by waste solution. Decreasing the pH of the waste solution greatly increases the corrosion rate of steel. Average corrosion rates for this steel exposed to the vapor phase were 21.3×10^{-5} ipm and 29.2×10^{-5} ipm for solutions neutralized to pH 11 at 180° F and 200° F.

Tests on type 309 SCb, 304 ELC, 347, and 440 stainless steels in 1 molar and 3 molar sulfuric acid were completed. Results of the tests show that most of these steels should give satisfactory service. Indications were that the rate of attack of dilute sulfuric acid on these steels was determined to a large extent by the surface roughness of the steel, and the duration of the test, and by the extent of exposure to oxidizing environments such as air.

Metallurgy of Plutonium

A work stoppage, now in its seventh week, on minor construction project MWI-38(1) has greatly hampered the work of the Plutonium Metallurgy group because a substantial part of the laboratory equipment has been rendered inactive. Work is expected to be resumed by the end of July with the completion date scheduled for August 19.

Installation of additional laboratory service lines proceeded under a minor construction work order. This work was completed and testing of the lines was started.

A work order to Project Engineering was issued by Separations Technology for preparation of a project proposal for additional office space for the 234-5 Development and Plutonium Metallurgy groups.

Receipt of two motor operated diaphragm valves permitted testing of the controlled atmosphere system for the hoods. Sealing of hoods against air leaks has been started. No serious difficulty is expected in obtaining a satisfactorily low leak rate.

A Precision metallographic polisher has been received and will be installed in Hood 15. Use of this polisher will eliminate shaft seals through the

[redacted]

1205517

floor of the hood which were necessary with the Fisher polishing machines. It is expected that the contamination problems will be simplified by eliminating shaft seals.

The laboratory received a Weldotron electronic sealer for sealing the plastic used in the plastic bag technique for transferring radioactive material.

Radiometallurgy

A small portion of a wafer cut from a slug having a type of bumps not previously observed was ground flat and examined. A cross section through approximately the center of one of the bumps revealed that the bump was solid uranium and that it came to a point rather than being rounded. The Al-Si layer was intact and conformed to the shape of the bump.

Tests were started to determine the recrystallization and recovery characteristics of irradiated process tubes. Initial results indicate that irradiation has a pronounced effect on the temperature of recrystallization and final grain size.

Metallographic sections from four process tubes which exhibited wall penetrations showed that the penetrations were caused by severe pitting on the internal walls of the tube. This effect has not been observed in previous process tube investigations.

A remotely operated tin can sealer for the canning of radioactive samples was installed in a cave with only four inches of lead as protective shielding. Irradiated samples were canned with this equipment before placing in dry storage.

Preparations for the examination of irradiated J-metal slugs were started. These preparations included modification of the slug examination cave by installing a roof as well as slug access ports and assembly of equipment for sampling the slugs by underwater cutting.

One of the high level transfer casks, designed for use in the Radiometallurgy building, has been received. It is to be used to transport slugs between the 100 Areas and the 222-S Building multi-curie cell.

The monochromating crystal holder for the double crystal X-ray spectrometer was completed. Work was started on both the grinding of a quartz crystal and the construction of the integrating sample holder.

Shielding experiments to further check the principles of the double crystal X-ray spectrometer were completed at the 111-B laboratory. A mock-up was made of that portion of the spectrometer which included the "hot" sample, the monochromating crystal, and the G.M. tube. Data were taken in an effort to determine the type of shielding geometry that would be necessary to minimize the background and secondary radiations. The results of the experiments indicated that the collimating hole through the shielding should have

1205518

a lucite liner in order to effectively reduce the beta radiation reaching the G.M. tube. No gamma activity, except for background radiation, was detected at the G.M. tube position.

Plant Services

Samples from Production Test 313-105-9-M were examined by X-ray diffraction methods to determine whether or not the salt bath heat treatment had effectively randomized the crystallographic orientation existing in the as-rolled slugs. The data obtained showed that a preferred orientation existed in all samples examined, indicating that salt bath heat treatment employed was not effective in randomizing the as-rolled structure.

Mechanical and metallographic tests were made of sample welds taken from welded joints of the new 105-C downcomer. The weld deposits proved to have good physical properties. Metallographic examination showed a considerable amount of ferrite in the austenite matrix of the weld deposit, but the presence of the intermetallic phase, sigma, was not found. The weld joints exhibited a serious defect of incomplete penetration which formed sharp notches. These notches could cause a serious problem if the structure were subjected to impact and/or cyclic loading.

Recommendations on materials of construction were made in connection with the installation of a sulfuric acid addition system for the treatment of the raw water supply at 100-C Pile. Carbon steel pipe was recommended to convey the 93 per cent sulfuric acid to a Durimet pump. Lead lined pipe was recommended to convey the acid from the pump to the vessel in which the acid is to be used to treat sodium silicate-bearing water.

A metallurgical examination was made of the ruptured flexible metal hose assemblies which were scheduled for installation of 100-C Pile. The metal hoses were of two types; namely, red brass and phosphor bronze. Macroscopic examination of the red brass hoses revealed a large number of cracks while no such cracks were observed in the phosphor bronze hoses. Metallographic examination of the red brass showed that the failures were caused by stress-corrosion cracking. Mercurous nitrate tests showed that the red brass was susceptible to season cracking whereas the phosphor bronze was not.

INVENTIONS

All Applied Research Unit personnel engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during July, 1952 except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

[redacted]

1205519

[redacted]

HW-25227-DEC

Applied Research Unit

Inventor(s)	Title
RE Connally MB Leboeuf HR Schmidt	Two Crystal Photolelectric Gamma Ray Spectrometer
RE Connally	Anticoincidence Circuit for a Pulse Height Analyzer

Signed: F. W. Albaugh
F. W. Albaugh, Manager
APPLIED RESEARCH UNIT

FWA:ltc

[redacted]

Fd-17

1205520

[redacted]

[redacted]

TECHNICAL SERVICES UNIT

JULY 1952

DECLASSIFIED

8-4-52

VISITORS & BUSINESS TRIPS

There were no off-site visitors sponsored by this Unit during the month.

Business trips made by personnel of this Unit during the month were as follows:

D.C. Kaulitz spent July 1 at the Precision Machine Works, Tacoma, Washington, to advise their personnel on requirements on fabrication of laboratory equipment being constructed under lump sum contract. He returned to the vendor's plant to accept the equipment on July 15.

ORGANIZATION AND PERSONNEL

Personnel totals for the Technical Services Unit are summarized as follows:

	June	July
Laboratory Engineering	80	81
Technical Information	82	82
Administrative	3	3
Unit Totals	165	166

LABORATORY ENGINEERING SERVICES

Mechanical Shops (Bldgs. 1717-D, 3706 and 222-S)

[redacted]

1205521

Work volume statistics for the Mechanical Shops are as follows:

	Customer Unit or Program	June No. of Jobs	June Man-Hours	July No. of Jobs	July Man-Hours
Work Done on Jobs Completed	Applied Research	24	559	19	573
	Pile Technology	40	679	30	568
	Separations Tech.	18	422	15	338
	Technical Services	6	71	4	77
	Others	11	91	9	48
	Sub-Totals	99	1820	77	1604
Work Done on Jobs Not Completed	Applied Research	6	233	6	141
	Pile Technology	17	501	14	769
	Separations Tech.	6	56	5	85
	Technical Services	8	500	5	215
	Others	-	-	1	2
	Sub-Totals	37	1290	31	1212
Total Work Done			3110		2816
Work Backlog:					Man-Hours To Complete
Jobs Started	Applied Research	6	208	6	278
	Pile Technology	17	790	20	1166
	Separations Tech.	6	141	4	139
	Technical Services	8	629	6	997
	Others	-	-	1	8
	Sub-Totals	37	1764	37	2588
Jobs Not Yet Started	Applied Research	9	216	13	452
	Pile Technology	19	873	27	1209
	Separations Tech.	6	665	27	1656
	Technical Services	2	86	6	109
	Others	-	-	3	17
	Sub-Totals	36	1840	76	3443
Total Backlog			3608		6031

The shop is operating on a 6,031 man-hour backlog. Of this total, 18 jobs requiring 817 man-hours were cross-ordered to other plant shops. Six jobs requiring 959 man-hours are being completed by off-site shops. Five jobs requiring 71 man-hours have been cancelled. This leaves a net backlog of 4,184 man-hours which will require approximately 27 working days with present forces.

The following work was completed for the Technical Units:

Applied Research

Two remote manipulators and a bottle and cask sampler were completed for Analytical Research.

Special manipulator jaws and a service plug for the Metallurgy multicurie cell installation were completed. The X-ray monochromator mechanism was completed and work was begun on a "hot", integrating sample holder. Both of these units will be used in a new X-ray diffraction unit for the study of the metallurgical characteristics of slugs, immediately after their removal from the pile.

A newly designed fluorimeter was fabricated and will be delivered upon receipt and installation of a special photomultiplier tube. A pH measurement unit was fabricated and incorporated into a special heavily shielded, steel table. These units, along with the revised specific gravity apparatus, will be used in the revised Building 222-S analytical line.

Pile Technology

A second dry test channel apparatus was completed.

A remotely controlled television camera carriage and wire carriage were started. These will be used to study the possibility of using such a system for viewing the rear faces of the piles.

A bullet nose and container for the R-13 Program was cross-ordered to 100-B Area Maintenance.

In conjunction with the new canning studies, a centerless brusher similar in operation to a centerless grinder, along with several parts for a new hot press, was fabricated.

A device which utilizes a small Delta metal cutting band saw was fabricated for slitting process tubes prior to metallurgical examination of their interior surfaces. Work on the air weigher for slugs continued. The special hydraulically operated tongs required for the air weigher were completed.

An RF transformer and heating coil and a cap magazine feed attachment were fabricated for the 300 Area mechanization program. An associated slug transfer mechanism and a canned assembly transfer mechanism were started and will be delivered on or before August 1.

Separations Technology

A 12-stage miniature mixer settler using Homolite stage blocks was completed. This and other work in connection with the multicurie pulse column and the miniature mixer settler gloved box bank, including pressure valves, column base plates, pulse generators, pulse timers, metering pumps, check valves and modifications, column top and bottom plates, tank plates, and a special 9' gloved box and table were essentially completed and delivered by July 14. Considerable time has been required during the latter part of the month for the assembly and testing of this equipment. Much of this work was done on a lump sum contract as previously reported, but many small items and miscellaneous parts were fabricated by various plant machine shops. The lump sum contract work has proceeded to date without incident and in strict conformance with the contract.

The Technical Shops were requested to develop a technique for welding 1/8" thick sintered platinum discs to .005" platinum sheet. The shop was also requested

to construct a mold and fabricate 12 special rubber gaskets for use with Building 234-5 process boats. Studies have been completed and work will be started in the near future.

Technical Services

Work on the pH measurement unit, the "Hanford" slave manipulator, manipulator jaws, and 222-S multicurie cell service plug was processed under the direction of Technical Services personnel. This work was fabricated for other Technical units as indicated above.

The shops continued to provide routine machinist's and painter's assistance to Buildings 3706 and 222-S. Special protective coating service was extended to include all plant laboratory installations.

Preliminary investigations are underway regarding the possibility of using a carbon dioxide fire extinguisher as a source of compressed gas for paint spraying where explosive solvents are being used.

Preliminary work has been completed in regard to the fabrication of three 19-stage and one 17-stage miniature mixer settlers. Since formal blueprints are not available, it is not possible to send these units off-site for fabrication. Tentative plans have been made for Minor Construction forces to do this work. It is hoped that it can be started by August 1, 1952, and completed on or before September 1.

Glass Shops (Buildings 3706 and 222-S)

Work volume statistics for the Glass Shop are as follows:

	June	July
Jobs Completed		
New	79	74
Revisions	14	16
Repairs	18	8
Totals	111	98

Of this total, 16 jobs were fabricated of quartz or vycor. The shop has a backlog of 17 jobs which will require approximately eight days to complete.

Three large bell jars were repaired. Repair of these jars resulted in a considerable saving in time and expense over replacement. The new glass lathe handled these large jars effectively and permitted repair of this equipment which would not otherwise have been possible.

One glassblower continued on assignment to the 222-S Building and another to the 108-F Building.

The large annealing oven formerly located in the 108-B Building was obtained from Pile Technology and moved to the 222-S Building. Addition of this unit will complete the equipment necessary for high quality glass work in the outer areas. It will still be necessary that any glass fabrication requiring a lathe be completed in the 300 Area.

The increase in the amount of quartz work done is tangible evidence of the success of the quartz work training program.

Equipment Development

Work volume statistics for Laboratory Equipment Development, expressed in man-hours, are summarized as follows:

	June		July	
	Engineering	Drafting* & Misc.	Engineering	Drafting** & Misc.
Pile Technology				
Engineering	35	534	-	215
Pile Materials	29	146	-	113
Pile Fuels	143	253	-	191
Separations Technology				
Chemical Development	38	330	-	-
Chemical Research	274	254	242	481
234-5 Process	46	-	54	109
Applied Research				
Analytical Services	125	590	118	753
Analytical Research	-	118	-	88
Metallurgy Research	180	392	186	76
Physics Research	-	80	-	44
Technical Services				
Laboratory Engineering	530	1409	488	1124
Laboratory Equipment Development (RDA #TC-5)	48	230	144	396
Totals	1448	4336	1232	3590

*Includes 1840 hours of drafting time.
**Includes 1205 hours of drafting time.

The following work was done for the various customer groups, as indicated:

Pile Engineering

Drawings made included the graphite miner, horizontal bar seal mock-up, rib position test stand, resistance-to-ground monitor, modified gatling gun, horizontal rod washer seal, "B" shield plug guide, horizontal rod graphite machine, proposed fire-house alteration, slug breaker, and numerous charts and graphs.

Pile Materials

Drawings made included a wiring diagram, resistance device, lucite chamber film sampler, condenser, slug cross section, tank level indicator, test-hole assembly, and several graphs and diagrams.

Pile Fuels

Drawings made included the automatic X-ray cossette, slug X-ray mechanism, and photograph lettering. Design effort was devoted to the split die and the X-ray slug rotator.

Chemical Development

Only incidental services were required during July.

Chemical Research

Engineering effort was devoted primarily to the design and preparation of equipment for two laboratories at Bldg. 222-S, including a large gloved box, miniature mixer settler, and multicurie pulse column equipment. Drawings made included a miniature bath, a pulse test chamber, a teflon weighing bottle, a sampling cask and osmometer alteration.

234-5 Process Development

A dry-mixer assembly mock-up was made and design of detail mechanisms was in process.

Analytical Services

The development of the revised sampling station and falling drop specific gravity assembly continued in the shop-assembly stage. Numerous minor repair and assistance services were rendered at the Redox Laboratory. Drawings made included the modified falling drop assembly and a removable filter plug.

Analytical Research

Drawings made included a metering stop cock.

Metallurgy Research

Engineering effort was devoted to the design of the revised double crystal X-ray spectrometer and to the installation of multicurie cell accessories for slug examination at Bldg. 222-S. The fabrication of the complex micrometer stage sample manipulator for the spectrometer was completed in the shops. Drawings made included the target tube adjusting mechanism and other spectrometer parts.

Physics Research

Drawings made included a shield and nozzle for a gas generator, a frequency detector, and an automatic printer relay circuit.

Laboratory Equipment Development (RDA #TC-5)

Experimental equipment decontamination operations continued. A miniature vacuum sandblaster was in design and mock-up stages as a result of the easy decontamination achieved in sandblasting tests. Further sandblast operations were awaiting shop fabrication of the chamber sandblaster and accessories.

Development of the air alpha detector-recorder continued with stability tests of the integrator-recorder circuit.

New Laboratory Planning

Redox Analytical and Plant Assistance Laboratory - Proj. C-187-E, Phase II

The pipe installation in the pipe-chase is progressing satisfactorily. Two piping banks have passed preliminary pressure tests and the partition panels covering these chases have been installed. The floor tile has been laid. The furniture is on site and the scheduled completion date of August 29 is considered realistic.

Mechanical Development Building - Proj. C-406

Comments on the final drawings and specifications were sent to the Dix Steel Building Company for incorporation in the construction drawings and specifications. The designer is still being held in default pending contract completion.

Radiochemistry Building - Proj. C-381

The concrete work is complete except for the center corridor pad on the first floor and for two portions of wall, one at the front and the other at the rear of the building. The installation of air supply ducts is better than 50% complete, while the stainless steel exhaust duct fabrication has continued off-site. The metal siding is being erected, but the manufacturer of the metal interior partitions has requested directive assistance. This directive was held by the NPA because of the steel strike. The piping work has not as yet been slowed down by the shortage of small size stainless steel pipe. The revised AEC directive has been received which will permit procurement of the uninstalled equipment.

Outside Facilities & Utilities - Proj. C-394

This project continues to lose its advantage and is now only slightly ahead of schedule. Most of the waste lines and a good portion of the facility lines are in place but tie-ins and connections constitute a large part of the remainder. Fences and bumper logs are being placed in the parking lot. The concrete sample room shielding walls of the waste disposal building have been poured and the steel framework of the operating gallery has been erected and painted.

Radiometallurgy Building - Proj. C-385

The exterior siding has been completed. The fans and compressors were set in their pads in the equipment room. Progress continues with the heating and ventilation duct work. A large amount of the rough piping in the basement of the canyon is in place. The fluorescent light fixtures are being installed.

Building 326 - Proj. C-414

The concrete floor slabs for the first and second floor have been poured bringing the concrete work to about 90% of completion. The steel roof decking has been

laid completely but the welding is not complete. The ventilating duct work installation has started. The metal siding is fabricated but delivery is being held up by a strike. Switchgear delivery is still pessimistic.

Library & Files Building - Proj. C-421

This building has reached an estimated 75% overall completion. The installation of interior partitions and ceilings is better than 50% complete, while electrical, piping, and air conditioning are better than 90% complete. The transformer switch heretofore considered critical is now on the site. The air washer, another critical item, has a promised shipping date of August 18, 1952.

Building Services

Building 3706

Material control, work order control and miscellaneous services activity is summarized as follows:

	June	July
Purchase Requisitions		
Total number processed	137	133
Number requiring special expediting	137	119
Number requiring emergency handling	0	0
Work Orders Processed	77	79
Miscellaneous Services		
Number store orders processed	742	941
Store stock requests	0	0
Office furniture requests	5	12
Office machines sent in for repair	12	5
Precious metals transactions	8	29
Trips to 200-W for contaminated waste disposal	6	6
Photographic work requests	22	30
Special messenger trips	40	36

Filming of the construction operations of the 105-C facility was completed. Editing of the film to tie-in with the sound tract continued.

Room 52 of Building 3706 was remodeled to accommodate a calibration and standards laboratory which will be operated by Technical Services. Procurement of laboratory equipment, materials and chemicals is nearing completion and services will be available August 1.

Loss of space in Room 52 by photographic services will curtail some of the activities until additional space is secured. The new Linhof camera with its selection of various focal lengths has made possible "close ups" of contaminated equipment otherwise unobtainable.

Pile Technology personnel formerly assigned to Bldg. 3706 occupied several offices in the west end of the old McNeil Construction building now located in the Works Laboratory Area. This relieved some of the crowded conditions in Building 3706, however, no offices were made available for other Units.

Building 222-S

Laboratory Services-222-S activity may be summarized as follows:

	June	July
Material dispensed, 222-S stockroom	$4,258	$3,479
Withdrawals (customer orders)	1,905	1,571
Emergency trips (pick-up and delivery)	16	4
Work orders processed	28	17
"Hot" waste transferred to storage (219 to 202-S), gallons	4,045	4,733

Leaks caused by corrosion in the "hot" waste slurping lines continue. Procedures are being modified to include water and alkaline flushes and it is hoped to remove or neutralize the corrosive materials. Additional effort will be made to segregate waste with deleterious ions.

Chemical Development was assisted by Laboratory Services inspectors in decontaminating the cubicle in Room 1-E and a highly contaminated gloved box liner, manipulators, and equipment. These units had become contaminated with dissolver solution during use. Due to radiation levels, time limits were low and equipment required careful handling to prevent spread of contamination.

Major modification of laboratory 1-L has been initiated to accommodate a nine-foot gloved box and associated equipment required by Chemical Research personnel. A junior cave excessed by this modification has been purchased by KAPL and is being prepared for shipment.

A daily trip to the 300 Area for transfer of samples, equipment, special delivery, etc., was initiated by Laboratory Services. This has resulted in reducing the number of individual trips by operating groups and is a convenient and efficient method for all groups to obtain needed equipment and materials available in 300 or 700 Areas.

TECHNICAL INFORMATION SERVICES

Plant Library

Work in the Plant Library proceeded routinely during the period. Work volume and book statistics were as follows:

	June	July
Number of books on order received	424	358
Number of books fully cataloged	258	339
Number of bound periodicals processed but not fully cataloged	203	0
Pamphlets added to the pamphlet file	200	57
Miscellaneous material received, processed and routed (including reprints)	0	20
Books and periodicals circulated	4,023	4,108
Reference services rendered	1,317	1,459
Inter-library loans	34	26
Photostats from off-site	18	29
New periodical titles added to Kardex	5	9

	Main Library	W-10 Library	108-F Library	Total
Number of books	9,324	4,276	536	14,136
Number of bound periodicals	5,716	1	731	6,448
Totals	15,040	4,277	1,267	20,584

A sampling of typical reference questions handled by the library reference staff is as follows:

Characteristics of Saran tubing.
Filters for radioactive air contaminants.
Cavitation caused by the flow of water in tubes.
Safe unloading of tank cars with stuck valves.
Physical and chemical properties of CO_2.
Chlorosulfonic acid-a mixture? explosive? caustic? toxic? affected by sunlight? pressure? easily obtained?
The use of wood pipe lines for hot water.
Size range of particles of methylene blue smoke.
Cost of living index for 1926-1939.
Radio-telemetering equipment for beta and gamma radiation.
Temperature at which Cunife loses its magnetic properties.
The best angles and space measurements for layout of parking areas.
Ash and clinker characteristics of Washington coals.
Equivalent sizes of round and square mesh screen.
Specific heat of air.
Cost of electric house heating.
Manufacture and uses of quartz wool.
X-ray method of measuring Poisson's ratio.
Vacuum seals for long reciprocating shafts.
Self-cleaning storm sewer screens.
Job descriptions for architects.
Viscosities of aluminum nitrate, magnesium nitrate and other nitrates.
Acrylonitrile as a soil stabilizer.
Books on etching and lithography.
Vapor pressure of magnesium perchlorate.
Construction of molds from papier mache.

As in the past, the Library continued to obtain from numerous agencies reports of value to Hanford programs. A sampling of these is as follows:

Superintendent of Documents
Labor-Management Relations: A Bibliography, U.S. Federal Mediation and Conciliation Service, 1951

U.S. Bureau of Naval Research
Infrared Spectra of Fluorinated Hydrocarbons

Washington State Department of Labor & Industries
Safety Standards for Construction Work

Standard Oil of California
The Coordination of Motive, Men and Money in Industrial Research

Aluminum Development Association
Investigations into the Cracking of Aluminum Alloys during Fusion Welding.

U.S. National Advisory Committee for Aeronautics
Heat Capacity Lag in Gases

U.S. Coast Guard
Manual for Safe Handling of Inflammable and Combustible Liquids

U.S. Bureau of Mines
Flocculations of Aerosols by High Frequency Sound

Heppenstall Company
Effects of Alloying Elements and the Hardness Properties of Carbon and Alloy Steel

Scovill Manufacturing Company
Heat Exchanger Tube Manual

Bureau of Reclamation
The Columbia River: A Comprehensive Report, 1947

Tin Research Institute, Inc.
Notes on Soldering
Instructions for Electrodepositing Tin
Tin-Zinc Alloy Plating
How to Make Improved Chill Cast Tin-Bronzes
Babbitt Alloys for Plain Bearings
Fusible Alloys Containing Tin
Determining the Thickness of Tin Coatings
The Properties of Tin Alloys
Equilibrium Data for Tin-Alloys
The Preparation of Tin and Tin Alloys for Microscopic Examination
Corrosion Resistance of Tin and Tin Alloys
The Spectrographic Analysis of Tin and Tin-Lead Solders
Sampling and Analysis of Tin Ingots
Chemical Analysis of Tin-Bronzes

U.S. Bureau of Mines
Process for Recovering Gold and Silver from Activated Carbon by Leaching and Electrolysis

Syracuse University
Some Administrative Problems in Governmental Research

The Head of the Information Sub-Unit accepted an invitation to speak at the Library Section of the Institute of Government held on the University of Washington campus July 15. The talk was devoted to problems of organization of a large collection of technical documents for reference use. A meeting of the Washington State Library Commission, held in conjunction with the Institute, was also attended.

[redacted]

1205531

Classified Files

Work volume statistics for the Classified Files were as follows:

	June	July
Documents routed and discharged	19,828	22,635
Documents issued	7,638	9,241
Registered packages prepared for off-site	367	363
Inter-area mail sent via transmittal	33,399	45,385
Holders of classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	189	149
(b) Because of termination	4	1
(c) Because of transfer of work assignment	2	3
Inventory reductions:		
Copies of documents destroyed	1,372	695
Copies of documents downgraded to:		
RESTRICTED	0	0
CONFIDENTIAL	0	0
Copies of documents declassified	1	0
Classified documents located which were unaccounted for in previous inventory	21	26
Standard storage cartons of material retired to the Records Center:		
Unclassified and Official Use Only	0	2
Classified	0	5
Off-site originated reports requested by Hanford personnel	118	140
Hanford originated reports requested by off-site personnel	64	58

A sampling of reference questions worked on by Classified Files personnel is as follows:

Has there been a production test written on the Ink facility?
Telemetering equipment
Instrument development reports from Argonne National Laboratory
Recommendation report on mechanization of slug marking, cutoff and inspection
Early HW specifications for calcium
Development of can welding process in 313 Bldg.
Autoclave tests
Literature survey on pile production rates (and subsequent request for 300 documents)
The use of activated silica and aluminum sulphate in water treatment at ORNL and Savannah
Dimensional changes during thermal cycling of uranium
Specifications for machining uranium slugs
Physics research reports for August and September, 1944, from Argonne National Laboratory
Data on process tube leaks
Report from NAA on measurement of thermal neutron flux in a lattice cell
Material on boron fluorides
Chemical and physical properties of beryllium
Metallography of aluminum-lithium alloys

DECLASSIFIED

A proposed OPG centralizing control of drawings in Blueprint Reproduction was drafted after initial studies of the problem. The proposal is designed to solve a long-standing Classified Files problem, to tighten the control on classified drawings, and to improve the quality of the illustrations in the scientific and technical reports. Copies of the OPG have been routed to the Departments for review and comment. Initial response to the idea has been excellent.

A final draft of the OPG covering the procedure for off-site transmittal of "internal" classified documents was completed and forwarded for issuance. All "internal" reports, memoranda, and correspondence must be approved by supervision assigned this responsibility before being transmitted off-site. A supply of the required approval form (C-2982-DS 6-52) has been set up in Stores for immediate availability when the Guide is issued.

Work on the manual for the preparation and control of classified documents is now substantially completed. A final rewrite has been completed by Public Relations and approved by Technical Information. Work is going forward on the preparation of suitable illustrations. Plans are also being laid with the Training and Program Development Section for a series of meetings to introduce the manual to Hanford personnel.

Work has been underway for some time on a revision of the subject headings in use in the Classified Files. It appears that CA-1927 (Subject Headings for the Indexing of Reports) can be adapted to Files use. CA-1927 is the basic subject heading list developed by the AEC Technical Information Service and the contractors for the indexing of technical material. The present Hanford reports index, developed by the Abstracting and Indexing group, is set up under these headings. It is evident that these basic technical headings will have to be supplemented by a few strictly administrative headings in order to be usable. A staff committee in Technical Information is working on the adaptation.

The revision of the subject headings has resulted in a basic decision to make all filing strictly numerical in the Classified Files in future. Important reports will continue to be abstracted and indexed by the professional staff, and the index cards filed with the main reports index. Less useful material, previously marked for the subject file, will now be marked for the numerical file. At the time of issuance, author and subject cards only will be made. These will be filed in a separate file to avoid congesting the report index with material of little permanent value. Advantages to the numerical system are ease in filing, ease in locating documents, simplified inventory, and simplified cross-referencing.

The program for the centralized control of classified photographs is now underway and it appears that minor revisions will have to be made in OPG 15.32 to make it fully workable. Drafts of the revisions are being prepared. A further problem which developed almost at once is the need for a subject index to the photographic material. This has been studied at a number of staff meetings, and it is hoped that here, also, CA-1927 can be adapted for use. There are many advantages, obviously, in using one filing system for the entire Classified Files operation.

Procedures Analysis is continuing its study of procedures in the Classified Files and in interviewing personnel on the various jobs. They are working with Files supervision in the preparation of a combination cover sheet and title page for

use with semi-formal internal reports (as opposed to memoranda type internal reports) which should substantially reduce the typing load for secretaries where numerous copies of a report are prepared. It is planned to print the form on heavy paper which will serve as a firm anchor for the staples.

Discussions were held with the Public Relations Section regarding the work of the Technological Information Committee which met in Los Angeles June 20, 1952, as reported previously. This meeting drafted a tentative GM bulletin setting up a technological information officer at each site and defining his duties. These were examined and some suggested changes are being prepared for forwarding. It was agreed that Public Relations should maintain close liaison with Technical Information in order to locate report information which could be written up for the trade press. It was decided to write a brief brochure setting forth the complete procedure to be used in preparing unclassified information for publication in either trade or professional journals. Such a compilation will bring together in one package the requirements of a number of Departments that handle some phase of this matter.

A punched card index was received from the U.S. Atomic Energy Commission listing information regarding the Commission's programs which has been released to various public media. A classified key to the index was also provided. It is anticipated that the index will be of value to the Non-Technical Document Review Board, which has recently resumed its routine declassification meetings. The index should also answer many questions from individuals classifying documents who wish to know if certain specific information has been made available to the public by the AEC.

Consideration has been given for some months to closing out the 760 Branch Files and servicing the entire 700 Area from the 700 Area Classified Files. This appears to be practical, and meets with the approval of the Design and Project Sections. It will probably be possible to retire most of the file to the Records Center, since most of the material (excepting part of the INDC and HDC series) is duplicated in the 700 Area Classified Files. Space for the storage of the remaining files will be available when the new Library and Files Building is completed. Initial planning for the close-out is underway.

As indicated in previous reports, the establishment of the General Engineering Laboratory Document Control Unit has necessitated considerable work on the reconciliation of their records with those at Hanford. Lists of documents transmitted (1) direct to GEL personnel, and (2) to GEL through KAPL were submitted some months ago to the Nucleonics office in Schenectady. Results are now being received from the General Engineering Laboratory, and formal transfer of document accountability will be made as soon as all documents have been accounted for.

The Head of the Technical Information Sub-Unit attended a number of meetings with H.B. Lytz, Records Management Officer from the Vitro Corporation in New York, regarding the disposition of the Job 11 and Job 15 classified records. This meeting had been preceded by others with the Legal Department, etc., to firm up the position which GE should take on this matter. Those attending from GE were representatives of Blueprint Reproduction, Classified Files, Security, and Records Management. It was agreed that the Job 11 classified records would be retransferred to Vitro by receipt. This receipt would be based on the listing by which the records had originally been accepted by GE. No further inventory was deemed necessary.

DECLASSIFIED

[redacted]

It was also agreed that the accountability records for Job 15 should be audited in New York. This would involve examination of the basic records, examination of the substantiating receipts or certificates of destruction, and physical inventory of the documents in the Vitro files. After checking the accuracy of these records, GE will transfer to the Vitro Corporation those Job 15 records which Vitro wishes to retain permanently. The accountability records for the classified documents will be retained by Vitro in accordance with the terms of their contract.

Reports and Abstracting

The work statistics for the group were as follows:

	June	July
Formal Research and Development Reports	6	12
Formal reports in process	12	11
Reports abstracted	465	581

It should be noted that, in addition to the reported figures, 538 additional reports were reviewed in the 760 Branch Files for possible inclusion in the site reports index, but were not considered to have sufficient technical significance to merit this. It appears that the abstracting and indexing of the 760 Branch Files will be completed by the end of August.

Work is proceeding satisfactorily on two bibliographies: (1) slug canning, and (2) the 200 Series production tests. In connection with the former, the Argonne National Laboratory has supplied for inclusion a large number of reports covering early development work at the Metallurgical Laboratory. It is believed that this bibliography, when completed, will be definitive on the canning problem. The bibliography on graphite and the planned revision of the bibliography on the dimensional instability of uranium have been shelved due to lack of personnel.

During the month four literature searches were completed in response to off-site requests as follows:

1. "Criticality of Plutonium Solutions" - completed for B.F. Boardman, ARCO. 50 references were submitted and an additional 20 references were reviewed.

2. "Vapor-Liquid Equilibrium Data for Systems Involving T_2O, TDO, THO, D_2O, HDO and H_2O" - completed for P.S. Feinstein, Technical Information Service, Washington. 8 references were submitted and some 14 reports were reviewed.

3. "Oxidation of 'Metal' Sawdust" - completed for R.L. Morgan, TIS, Oak Ridge for NY Office of the AEC. 9 references were submitted and an additional 5 reports were reviewed.

4. "Dilatometer Measurements with Uranium Metal" - for R.L. Morgan, TIS, Oak Ridge for National Lead. 59 references were submitted and an additional 20 references were reviewed.

A study is being made to determine the feasibility of reproducing the catalog cards by the multilith process rather than by mimeograph stencil. Multilith masters, approximately 4x7", are available and would cost .005 each as compared with .0365

[redacted]

1205535

for the stencils. Other advantages would be faster duplication, elimination of slip sheeting, faster drying, elimination of storage problems, no offset, etc. This would necessitate assigning a 1250 model multilith machine exclusively for this purpose. Office Services are presently evaluating the situation and are preparing the necessary justification.

A new IBM electric typewriter, with special keyboard, has been ordered for the preparation of the catalog cards. It will result in easier proof-reading, a superior and more legible card, and better presentation of the technical information.

INVENTIONS

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records if any kept in the course of their work have been examined for possible inventions or discoveries.

Inventors	Title
D.C. Kaulitz & D.R. Sawle	The Counter Current Batch Extractor

Signed J.W. Underwood
J.W. Underwood, Unit Manager

DECLASSIFIED

DESIGN SECTION

July, 1952

VISITORS AND BUSINESS TRIPS

Harry Bowman, Prepakt Company, visited Hanford July 23 to discuss the high density concrete test program.

S. Blakeman, Haughton Elevator Company, visited Richland July 14 to discuss elevator design for "K" reactors.

J. E. Brown and K. E. Gilbert, General Engineering Laboratory, Schenectady, visited here July 2 to discuss the 300 Area canning machine report.

H. L. Hull, Argonne National Laboratories, visited Hanford July 17 to discuss television applications.

R. G. Hoff and L. E. Foster visited the Corvek Company, Portland, July 7-8 to inspect instrumentation for Hanford Works.

J. F. Mesbitt visited Alcoa, Pittsburgh, July 7-21 to review process tube fabrication problems.

J. R. Wolcott, J. H. Snyder and C. F. Quackenbush visited C. T. Main, Boston, July 7-13 to discuss 100-K Water Plant scope.

M. H. Russ visited C. T. Main, Boston, July 19-27 to review pump design for 100-K Water Plant.

G. L. Locke visited KAPL, Schnectady, July 16-17 to attend the heat transfer symposium.

B. R. Elder visited KAPL, Superior Tube, MIT, Westinghouse, AEC - Pittsburgh and Washington, Alcoa, Argonne National Laboratories, July 14-22 to review the zirconium program.

E. P. Peabody visited C. T. Main, Boston, July 9-11 to discuss 100-K Water Plant electrical problems.

R. C. Hoffman and C. F. Quackenbush visited C. T. Main, Boston, July 23-24 to review 100-K Water Plant electrical design.

A. J. Karnie visited Penberthy Instrument Company July 25 to discuss viewing window design.

E. S. Day, Jr. visited Pacific Scientific, Allied Physics Corporation, Carter Laboratories, and A. O. Beckman Company, Los Angeles Area, to inspect gas analysis equipment for Building 105-C.

ORGANIZATION AND PERSONNEL

Personnel Statistics:

	June 30			July 31		
	Exempt	Non-Exempt	Total	Exempt	Non-Exempt	Total
Design Management	5	2	7	5	2	7
Process Engineering Unit	49	14	63	51	18	69
Design Planning Unit	11	10	21	12	10	22
Design Engineering Unit	65	17	82	69	17	86
Total Section Personnel	130	43	173	137	47	184
Technical Graduates (Rotational)	—	20	20	—	31	31
TOTAL	130	63	193	137	78	215
Personnel on loan to Design Section			4			6

Accessions = 26
Separations = 4

Under terms of its contract with the AEC, the Vitro Corporation will assist in the development of scope information and in the preparation of preliminary design work for the Purex separations facility. Two process engineers had reported for work at the month's end to assist in the process design scope.

GENERAL

Design Section engineering effort for July was distributed approximately as follows:

	Man Months Expended	% of Total
Expansion Program	53.3	36
Research & Development	42.4	29
Other Projects & Design Orders	52.0	35
	147.7	100

DESIGN DEVELOPMENT

Statistics:

The total number of engineering man months expended on research and development during July was distributed as follows:

		Man Months Expended	% of Total
RDS-10	Reactor Design Development	7.0	16.5
RDS-11	Water Plant Design Development	7.8	18.5
RDS-12	Separations Design Development	16.5	38.9
RDS-13	Mechanical Design Development	8.4	19.9
RDS-14	Utilities & Services Design Development	—	—
RDS-15	Engineering Standards and Materials Development	2.7	6.2
	TOTAL	42.4	100.0

DECLASSIFIED

Design Section

[redacted]

DECLASSIFIED

Accomplishments:

RDS-10 - Reactor Design Development

Alcoa was consulted in connection with the proposed specifications for "K" pile 2S-72S clad aluminum process tubes. The principal problem reviewed was the formation of graphite streaks on the inside surface of the tubes from lubrication during the fabrication process. A test lot of 100 tubes was requisitioned in order to attempt to solve the graphite problem.

A reactor hazards study for the new "K" Area reactors was started during the month at the request of the Atomic Energy Commission. Calculations to determine the effect of four assumed catastrophies are progressing.

Several sites were visited by a member of the Design Section during the month in order to evaluate the status of the zirconium fabrication program. The information obtained indicates that zirconium tubes and zirconium clad slugs should be available by July, 1953.

Design criteria for the 105-K biological shield were changed to include the use of magnetite-limonite concrete in the right side and in the outer layers of the top shield. In this concrete mix, the expensive metallic aggregate is replaced with magnetite, which costs about one-fifth as much as steel punchings. Negotiations are in progress with an independent laboratory for the development of a workable mix utilizing fine limonite and coarse magnetite.

A test has been initiated to confirm the shielding properties of magnetite-limonite concrete.

RDS-11 - Water Plant Design Development

Cost estimates, tentative construction schedules and preliminary designs were prepared for a tentative project to test a complete 190 Building pumping unit. This test will be conducted at one of two alternate locations: (1) at the permanent location of the pump in the 190-KW Building, or (2) at a temporary location at the 182-H Building.

The preparation of design scope for modifications to B, D, F, DR and H water plants for utilization of the activated-silica alum treatment was completed during the month.

RDS-12 - Separations Design Development

The primary chemical flow sheet for the Purex process was approved by the Design Committee as a firm basis for the scoping of the Purex separations facility. Work was continued during the month on the preparation of the Material Balance Flow Diagrams and the write-up of the process description. Hydraulic schematics of the various process cascades were started in preparation for work on the Engineering Flow Diagrams.

[redacted]

1205539

A project proposal for increasing the Redox capacity to 150% of the design capacity (Phase I) was prepared. The estimated cost of revisions to the plant was $120,000 exclusive of approximately $50,000 of existing capital property to be transferred to the project.

Preparation of design criteria and descriptive engineering information for Recuplex was continued. The Engineering Flow Diagram for slag and crucible dissolving was revised.

The study on the protection of exterior buried waste lines has resulted in the adoption of the following general design bases:

a. All waste lines within the separations facility exclusion fence are to be protected by simplified concrete encasement.

b. Waste line routings outside the tank farm and exclusion areas may be buried directly in the ground with cathodic protection if an acceptable leak detection system is incorporated.

RDS-13 - Mechanical Design Development

A purchase order has been placed for all parts of the reactor vertical safety rod test model X-1. Required delivery dates call for receipt of all parts for this test model by August 15.

Further tests were conducted with the aluminum-coated boron glass balls during the month. Vertical safety rods utilizing a long tapered point were dropped full height on a partially filled hopper of balls. The amount of breakage was less than that experienced in previous tests run with short tapered points. The feasibility of glass balls for use in 100-K is subject to further study.

All test jumpers using the test model remote connectors have been fabricated and the necessary test procedures approved. Actual testing was started July 21 after a delay due to shortage of maintenance manpower.

Work was advanced during July on the mechanical improvements for the 234-5 production line conveyor. The design of improved conveyor arms was completed and a work order issued for fabrication of test models. Preliminary design of a new conveyor head was completed and issued for comment. A study report was issued presenting a method of providing conveyor dynamic braking to prevent overtravel.

RDS-15 - Engineering Standards and Materials Development

The following standards and design guides were approved by the HW Standards Committee during July:

Standards

C-1-1	Architectural Graphical Symbols
C-1-1a	Architectural Graphical Symbols
E-1-2	Rivet Symbols
E-1-3	Welding Symbols

Design Guides

DG-101-M HW Design Guide for Valves & Equivalents

The progress on standards and materials development for July is as follows:

a. The Mechanical Drawing Symbols were advanced 20% and are approximately 70% complete.

b. Revisions to the Electrical Drawing Symbols advanced 20% and are approximately 30% complete.

c. The specifications for welders qualifications being rewritten is approximately 65% complete, an advance of 15% during the month.

d. The study to develop a standard equipment piece numbering system advanced 5% and is approximately 65% complete.

e. The initial report on protective coatings for the steel retention basins and the steel effluent lines from 105 Buildings was issued during the month.

DESIGN ENGINEERING

Statistics:

Design Engineering effort for the month of July was expended in the following categories:

	Man Months Expended	% of Total
Expansion Program	53.3	50.6
Major Projects - Other than Expansion Program	32.8	31.2
Minor Projects and Design Orders	19.2	18.2
	105.3	100.0

The effect of the month's accomplishment on the design work load of the Design Engineering Unit in the several categories is given below.

DESIGN ENGINEERING UNIT
ENGINEERING MAN MONTHS

	Backlog Start of Month	Orders Received During Month	Time Spent During Month	Backlog End of Month
Expansion Program	468	—	19.4	448.6
Major Projects - Other than Expansion Program	100	—	21.9	78.1
Research & Development	82	16	12.6	85.4
Minor Projects and Design Orders	96	27	17.3	105.7
TOTAL	746	43	71.2	717.8

The backlog for the Design Engineering Unit as noted above is scheduled according to the following tables:

AVERAGE MAN MONTHS

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Balance
Expansion Program	19	26	26	26	26	26	299.6
Major Projects - Other than Expansion Program	21	18	15	6	6	6	6.1
Research & Development	11	9	9	9	9	9	29.4
Minor Projects and Design Orders	16	11	11	11	11	11	34.7
Available for Future Orders	0	5	12	20	20	20	

Present Total Backlog is distributed over the five engineering branches in terms of man months as follows:

	Authorized Projects	Anticipated Future Work	Total
Civil and Architectural	144.0	57.0	201.0
Mechanical	217.8	87.0	304.8
Electrical	172.0	68.0	240.0
Instrument	136.0	54.0	190.0
Standards	48.0	19.0	67.0
TOTALS	717.8	285.0	1002.8

1205542

DECLASSIFIED

Accomplishments:

CG-494 - "K" Reactor

Design of the 105-KW facility was approximately 29% complete at the month's end, an advance of 6% during July. Authorized funds for G.E. Design remained at $415,000. Expenditures to date are approximately $350,000. Of an estimated 1,384 drawings, 650 have been started, 481 issued for preliminary comment, 183 issued for final comment and 47 approved. Seventy-one requisitions have been written by the General Electric Company for procurement of equipment for the 105-KW and 105-KE facilities. The estimated value of this equipment is $3,450,000.

Development and approval of design criteria were accelerated during the month. Design criteria including the basic reactor requirements, basic building requirements, electrical system, architectural and structural features, and horizontal rods were approved by the Working and Design Committees.

"X" Water Plant

The Title I and Title II Water Plant design being performed by the architect-engineer was advanced 8% during July to 15% completion.

Design scope requirements of the General Electric Company were reviewed during the month with C. T. Main. Specific information for portions of the scope document to be furnished by C. T. Main was agreed upon.

Meetings were held with the Manufacturing Department to establish basic requirements for the pumps and other components at the 181 River Pump House.

A total of 65 construction drawings have been received from C. T. Main. Also, a total of 19 purchase requisitions, amounting to $6,300,000, and 8 specifications have been received. All drawings, requisitions, and specifications received to date have been issued for comment.

Separations Expansion

Design scope activity was started in July on the Purex separations facility. Preliminary design schedules were reviewed and are currently being revised to reflect the aid expected from the Vitro Corporation during the scoping period.

The Purex separations facility has been located in the south-east corner of the 200-East Area (HDC-2529).

Preliminary design criteria for the remote maintenance and "slave" cranes are being prepared to permit early negotiations for crane procurement on a design-and-fabricate basis. This method of procurement is deemed necessary because of long delivery schedules for this type of equipment.

1205543

C-431-A - 100-C Water Works

Design for conversion of the 100-C Filter Plant for utilization of the activated-silica alum process was advanced approximately 38% to 50% completion at the month's end.

CG-431-B - 100-C Area Production Facilities

General concurrence of the Working and Design Committees was obtained on the following project scope additions and changes:

a. Addition of hot water recirculation.
b. Temperature map printing device.
c. Sphincter seal on horizontal rods.

In addition, extensive additions are being designed for the gas system.

CG-482 - Pile and Pile Water Plant Improvement

Design was advanced approximately 25% during the month and is essentially complete. Thirty-four drawings have been completed and forwarded to the Project Section. Acceptance test procedures are 70% complete. Instrument design is approximately 85% complete.

CG-496 - Recuplex Installation - 234-5 Building

Design was advanced 4% during the month and is approximately 12% complete. Design information on fifty vessels was sent to drafting during the month. This represents approximately 50% of the total number of vessels required for this project.

Preliminary design was started on the chemical make-up room arrangement and on the slag and crucible hood layout. Preliminary design was completed on several items, including samplers, agitators, shaft seals, solution strainers and extraction columns.

CG-498 - Hanford Seismoscope System

Design was advanced approximately 50% during the month and is 95% complete. Drawings were issued for comment and are being revised to incorporate comment recommendations. Instrument design is estimated to be 90% complete.

CG-502 - Additional Indication of Moderator Temperature, 105-B, D, F and DR

The Manufacturing Department requested that requisitions be initiated for material on this project. Several detail designs were reviewed with representatives of the Manufacturing Department and the Technical Section. Recommendations were made by the Design Section as to type and size of wire and type of measuring instruments to be used. It is estimated that twelve drawings will be required for the project.

1205544

DECLASSIFIED

E.O. 010667, 010671, 010681 - Outside Development 700 Area

The above work is inter-related and is being developed concurrently. Design is approximately 80% complete, an advance of 20% during the month.

D.O. 100231 - Waste Gas Disposal 234-5 Building

Preliminary investigations of this proposal have been made and suggestions submitted for a method of improving the operation of the suggested conversion of Task II.

D.O. 100239 - Sample Gallery Ventilation - 202-S Building

Final design for ventilation of the 202-S Building sample gallery was advanced 20% during July and is approximately 25% complete.

D.O. 100253 - Operations Change House - 300 Area

Preliminary architectural design was completed. Electrical and mechanical design was started at the month's end.

D.O. 100264 - Gable Butte Railroad - Preliminary Design

A work request was received requesting preliminary survey work, calculations and preliminary design for a second track for the Gable-Butte section of the plant railroad. The survey was completed and work started on the preliminary design.

D.O. 100268 - 300 Area Administration Building

Design was started during July and is approximately 30% complete.

D.O. 100287 - Soundproof Operator's Booth - 234-5 Building

Design work was started on the booth which is intended to reduce the noise to a reasonable level in the vicinity of the operating panel in the 234-5 Building.

D.O. 100289 - Fire Protection, Filter Rooms - 234-5 Building

Preliminary design was started during the latter part of July on this work request. Approximately five drawings and one month's time will be required to complete the work.

DECLASSIFIED

1205545

DESIGN SECTION WORK IN THE CLOSING STAGES OR COMPLETED DURING JULY

CG-362 - Waste Metal Removal and Recovery
● CA-406 - Mechanical Development Building - Phase II
CG-413 - Expansion of 234-5 Capacity
* CG-433 - Addition to Building 384 Power House
CG-442 - Additional Shielding for Building 3745-A
CG-447 - Portable Meteorological Mast
CG-473 - New 100-B Area Automatic Dial Telephone Exchange
CG-475 - Cross Header Monitoring System, 105-B, D, F, DR and H
CG-481 - Semi-Trailer Unloading Winch
CG-495 - Outlet Tube Temperature Monitoring Spare Thermocouple 105-B, D & F
E.O. 010661 - Electrical Distribution Building - Process Area
● E.O. 011180 - Additional Facilities 189-D Building
D.O. 100094 - 700 Area As-Builts
* D.O. 100233 - Exhaust System Alterations 716 and 1131 Garages
* D.O. 100244 - Activated-Silica Alum Process - B, D, F, DR & H
● D.O. 100248 - Repair 105-DR Effluent Line Junction with 107-DR
* D.O. 100254 - Building 284-W Fifth Boiler Addition
* D.O. 100255 - Movable Partitions, Accoustical Tile Ceiling - New Wing 703 Building
D.O. 100262 - Heating Building 224-U Outside Process Lines
* D.O. 100263 - Auxiliary Civil Defense Headquarters
● D.O. 100267 - Addition to 202-S Building (PR Operating Area)
D.O. 100272 - Personnel Meter Gate House 200-W
D.O. 100273 - Water Pressure Decay Curve

INACTIVE PROJECTS

No active design work was performed during the month on the following assignments:

CA-192 - Biology Laboratory, 108-F Building
CG-442 - Additional Shielding - 3745-A Building
E.O. 010663 - Pile Technology Test and Storage Building
Job 015 - Civil Defense Control Center
Job 017 - Fireproof Graphite Storage Warehouse

INVENTIONS OR DISCOVERIES

All persons in the Design Section engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inv entions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

NONE

R K Beaton
MANAGER, DESIGN

*Design Section work completed during July

I. SUMMARY

A. ORGANIZATION

Following is a summary of personnel data, for the Project Section, July 1952:

	July 1, 1952	August 1, 1952	Net Change
Employees on Payroll	448	438	-10
Technical Graduates-Rotational	6	7	+1
Employees on loan to Section	1	0	- 1

The end-of-month status involved these changes:

	Project Section Personnel	Tech-Grad-Rotational
Payroll Additions	6	
Payroll Removals	13	
Transfers into Section	4*	2
Transfers from Section	7	
Transfers within Section	7	

*Includes assignment of one Technical Graduate.

B. SCOPE OF ACTIVITIES

Material projects advanced during the month and attained construction completion status as follows: CG-349, Hot Semiworks, 99%; CA-362 - Waste Metal Recovery (TBP), 92.8%; CA-431-A, 100-C Production Facility (Waterworks), 91%; CA-431-B, 100-C Production Facility (Reactor), 88%; CG-438, Ball Third Safety System, 9.5%; CG-483, Downcomer Repairs in 100-B,D,DR, and H; Replacement in 100-F, 5%.

C. MATERIAL PROCUREMENT

Delivery schedule for steel balls to be used in the Ball Third Safety System will be determined in the near future. Planning of outages for Ball 3X construction will be determined after information on steel delivery is definite. The first 29 hopper units for Ball 3X are delayed until late August. The boiler for CG-477 (Fifth Boiler Addition for 284-W Building) has been delayed because of the steel strike, and will probably extend the completion schedule. The Type AISI 502 steel for CG-483 (Downcomer Repairs) is scheduled for shipment in early August. The required assemblies of neoprene steam hose, which was substituted for brass rear face pigtails, have been received. The new 18,250 KVA transformer for the 151-B Substation arrived during July. A substitution of cadmium sheet is being made for boron carbide in the H.S.R. cans for the 100-C Process Unit.

D. CRAFT LABOR

The acute shortage of pipefitter-welders was not alleviated; so long-standing requisitions were cancelled. Labor relations were improved by the resignation of the plumbers' business agent, at the request of his international office. One work stoppage by about 100 millwrights, in protest against layoff of 10 millwrights, began July 28 and continued through the month. Other lesser

CRAFT LABOR (Cont'd)

stoppages and disputes had adverse effects on construction. Negotiating committees met to discuss union participation in the Master Agreement. They set August 4, 1952 as the beginning of formal negotiations. A new interpretation of the Hanford Works Addendum permitted maintenance plumbers to perform additional installations at the North Richland Camp. The new CPFF contractor (Kaiser) performs under national agreements with several crafts. Plumbers are to be employed directly; electricians are to be employed through a subsidiary.

E. SAFETY AND SECURITY

A total of 305 Project Section personnel attended 13 Safety and Security meetings. Personnel working in the areas attended meetings of other groups as visitors. Minor Construction supervisors continued the educational meetings to discuss special hazards. Emphasis was given to proper zoning, organization of the jobs, and accurate S.W.P. timekeeping. Special arrangements were made to provide additional S.W.P. protective clothing and equipment at job sites.

F. HIGHLIGHTS OF UNIT ACTIVITIES

Minor Construction Management Unit completed two work orders (BR and CR Farms) and accepted three new jobs. The extremely low acceptance was caused by the doubtful status of many jobs with regard to the 1953 Construction Rider. This condition caused the rejection of the project proposal for completion of the Minor Construction Shops. The proposal has been revised for submittal at the August A&B Committee meeting. Total value of work now assigned to the Unit and yet to be accomplished is $1,591,475. Stop-gap repair work on the east retention basin of 107-H was accomplished despite many adverse special hazards conditions. Repair of the west basin is progressing with a thirty-minute time limit for work in the basin.

Project Engineering Unit worked on 73 project items and 14 informal requests, totaling $20,757,700. Four project proposals were transmitted to sponsoring organizations. Six project proposals and five informal requests were approved by the A&B Committee. Six authorizations were granted by the AEC. The Unit received 10 engineering requests during the month. Completed work consisted of three projects and five engineering requests. Important projects now in progress include the Ball 3X Program, Pile and Pile Water Plant Improvements, Hot Semiworks, Downcomer Repairs, and Experimental One Tube Ink Facility.

Project Services Unit continued all its services in normal degree. Arrangements were made for weekly meetings with the Design Planning Unit to establish priorities and allocation of drafting manpower. Reproduction output decreased slightly. Five histories were issued, and 30 estimates were completed. The Field Services group completed soundings and additional field data necessary for Program X design. Project Control group continued a study on "Equitable Liquidation of Reproduction Expenses," and also began a detailed study of "Cost Control for Program X." A manual of operation for blueprint reproduction is being prepared.

HIGHLIGHTS OF UNIT ACTIVITIES (Cont'd)

Reactor Projects Unit completed its part in substituting neoprene steam hose for the brass rear face pigtails. The required assemblies have been received and are being installed. Despite a wildcat strike by millwrights, the testing and run-in of equipment has progressed. All parts of the 100-C waterworks are advanced to the stage of testing, instrumentation, adjustments, and connecting of electrical and piping work. The 181-B River Pump House has been turned over to operations. The basic 105-C structure was completed, and work was begun on clean-up details. The 105-C process unit was being fitted with monitoring systems, safety systems, and high pressure gas piping. Flushing of the process water system through the front-face cross-headers was completed July 19. Hydrostatic tests began July 29. Design on CA-406, Mechanical Development Building, was advanced 10%, but it is still deficient.

Separations Projects Unit resumed work on CA-362, Waste Metal Recovery (TBP) on July 28. A small force of 29 was assigned to the TXR Area, and work on the BXR Area was scheduled for re-opening about August 15, 1952. The AEC has not completed preparation of Revision No. V to the Project Proposal. Personnel of the Unit participated in two meetings with AEC personnel, and a tentative total cost of $52,500,000 was estimated. The increases were indicated in both the main CPFF contractor and Minor Construction work. Extensive study and tests were made of the slurry pumps which are installed in the large underground tanks. The second pump failed about mid-July. The causes have not been determined, but one precaution was established by issuing a work order to have all future units equipped with the impeller welded to the shaft.

G. MONTHLY REPORT OF INVENTIONS AND DISCOVERIES

All persons in the Project Section engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge, no inventions or discoveries were made in the course of their work during the period covered by this report, except as listed below. Such persons further advise that notebooks and records, if any, kept in the course of their work, have been examined for possible inventions and discoveries.

NONE

for J. S. McMahon, Manager - Projects

Date: July 31, 1952

[redacted]

II. STATISTICAL AND GENERAL

A. Significant Assignments

1. Initial Reporting

CA-511, Completion of Minor Construction Fabricating Shops

The project proposal was not approved by the A&B Committee in July, pending deletion of all new construction work. A revised project proposal for $97,000, excluding the new construction work, has been prepared for submittal to the A&B Committee in August.

CA-517, Fire Protection Buildings, 272-E and W

The project proposal has been completed and submitted to the A&B Committee.

IR-129, (Formerly ER-2722) Duct Level Elevator Stop, 234-5 Building

Completion status remains at design 100%, construction 75%. AEC approval of the informal request has been indicated. Since this work was begun on a work order, all drawings and materials are available to complete the job.

2. Final Reporting

CG-346, Facilities for Exponential Experiments (P-12)

Project was closed out as of July 1, 1952. The work contemplated is to be performed with Research and Development funds.

CG-410, In-Pile Controlled Atmosphere Experiment

Project was closed out, with exceptions, on July 1, 1952. Construction was 99% complete. The exceptions include installation of the heater in the pile and completion of operational testing of the gas analysis instrumentation.

CA-460, Installation of Asbestos Siding and Painting Wood Trim, 272-E and W

Final inspection and acceptance was accomplished July 25.

ER-A-673, Floor Coverings, 760 Area Permanent Buildings

Additional engineering information has been supplied to the sponsoring Department. The sponsor is submitting the project proposal.

ER-A-682, Underground Steam Line, 722-C and 707 Buildings

Because of high cost, the sponsor has requested that the work order be closed out. All preliminary work has been completed.

2. Final Reporting (Cont'd)

ER-A-708, Temperature Recording Stations

Final inspection and acceptance was accomplished July 25.

ER-2596, Remodel Former Laundry Building for Engineering Offices

This order was cancelled at request of the sponsor.

ER-6011, (M-135) 700 Area Steam Study

The report on this study was issued May 29, 1952. No further work is expected.

3. Current Projects

CG-349, Hot Semiworks

Design had been completed previously; construction progressed 1% to a total of 99%. The installation is scheduled for turnover to the sponsor about August 1. Financial problems hindered completion during July; so the necessary extra work is to be performed during the early occupational period, and as soon as the AEC makes funds available.

CA-362, Waste Removal and Recovery Facilities (TBP)

Design had been completed previously; construction progressed 1.9% to a total of 92.8%. Work by a small force (29) of CPFF contractor personnel was resumed July 28. This force was assigned to the TXR Area, and work was scheduled to begin in the BXR Area on August 15, 1952. Work being done in TXR Area consisted of sand blasting reinforcing steel, testing water lines, and electrical installations for control panels.

The AEC has not prepared Revision No.V to the Project Proposal, for which data was provided in June 1952 by the Separations Project Unit. Two meetings were held with AEC personnel, and agreement was reached on the basic costs for completion of construction by the main CPFF contractor and Minor Construction forces. A tentative total cost of $52,500,000 has been estimated.

A major problem arose about mid-July when the second slurry pump in the large underground tank failed. The exact causes of failure have not been determined. After exhaustive testing in the tank and further examination in the 231-U burial ground, one precaution was established by the issue of a work order to the Manufacturing Department. In the future all units will have the impeller welded to the shaft. Studies of possible causes are continuing.

1205551 DECLASSIFIED

3. Current Projects (Cont'd)

CA-406, Mechanical Development Building (Phase II)

Design progressed 10% to a total of 85%; construction has not begun. General Electric's comments on final design were submitted to the architect-engineer on the mechanical and electrical plans and specifications on July 9, and on the architectural plans and specifications on July 23. Architectural design was most deficient. The architect-engineer's design contract has been held in technical default since May 3, 1952.

The Using Department has insisted upon an overhead bus-duct system which would supply power to machines. This design work is to be done by General Electric forces.

CA-431-A, New Reactor, 100-C Plant (Waterworks)

Design had been completed previously; construction progressed 7.8% to a total of 91%. As-built drawings are being prepared. Sixteen Acceptance Test Procedures have been approved. Foundation drawings for the activitated silica water treatment have been issued, and the remaining drawings are scheduled during August.

The 181-B River Pump House, completed except for minor tests and adjustments, was turned over to operations. The 183-C Head House building is complete except for work on water treatment and instrumentation. Nine filters of the 183-C Basins and Filter Building are in service, without instrumentation. Equipment for the 183-C Pump House was installed and is being run-in.

The 190-C Pump House building and equipment are complete except for installation by the vendor of the re-designed first stage pump impellers. Some work remains in instrumentation, piping, and electrical services.

Switchyard work of the 151-B Substation is nearing completion, including installation of the new 18,250 KVA transformer which arrived during July.

The 187-C High Tanks were completed and are being painted. Valve pit piping and electrical work are progressing.

The main and process sewers and outfall sewers are complete and ready for testing.

CA-431-B, New Reactor, 100-C Plant (Reactor)

Design completion status remained at 99%; construction progressed 11% to a total of 88%. The basic structure of 105-C Building is substantially complete. Work during July consisted of installation of partitions, handrails on stairs, stair treads, dismantling of temporary air lock, and tests on equipment.

3. Current Projects (Cont'd)

CA-431-B (Cont'd)

The 105-C Process Unit was being fitted with monitoring systems, safety systems, and piping. The V.S.R. system was completed except for connection to the winches. The 115-B gas equipment piping was installed, and high pressure gas piping was 50% complete. Flushing of the process water system through the front face cross-headers was completed July 19. Hydrostatic tests began July 29.

CG-433, 384 Steam Plant Addition

Design had been completed previously; construction progressed 25% to a total of 61%. The rapid progress consisted of placing heavy equipment. Installation is over 50% complete for piping, electrical work, and boilers, including their auxiliaries and equipment. The contractor used an average daily force of 40 on a six-day schedule for July.

CG-438, Ball Third Safety System

Design had been completed previously; construction progressed 1.5% to a total of 9.5%. All batteries have been installed and are on charge in B, D, F, and DR Areas. Auxiliary acceptance tests have been made wherever possible. Preliminary construction and prefabrication of equipment and tools continued.

Delivery of the first 29 hopper units has been delayed until about August 20, 1952, by shielding inspection difficulties. Monitor panels were inspected at the factory and rejected, causing a delay of 30-days. It has been determined that the boron balls cannot be delivered sooner than 15 weeks after the steel mills resume operation. The tentative starting date for the main vendor is August 4, 1952.

CG-482, Pile and Pile Water Plant Improvements

Design progressed 5% to a total of 85%; construction has not begun. Revision II to the project proposal requesting construction and total design funds of $2,250,000 has been approved by the A&B Committee on condition that a minor revision be made. All critical materials have been placed on order. Aluminum pigtails having .065" walls were ordered, since their price was practically the same as that asked for lighter construction. By August 11, there should be enough information on supply of metal products to permit the scheduling of this work with the Ball Third Safety System program.

CG-483, Downcomer Repairs in 100-B,D,DR, and H, and Replacement in 100-F

Design progressed 4% to a total of 99%; construction progressed 4% to a total of 5%. The bracing of "B" downcomer is 60% complete, and one of the downcomers in "H" is completely repaired. The Type AISI 502 steel is scheduled for shipment from the vendor during the first week of August. Corrosion tests on this steel in high temperature pile water are continuing.

B. OTHER ASSIGNMENTS

CG-187-E, Conversion of Unassigned Space for Radiochemistry Laboratory

Design had been completed previously; construction progressed 10% to a total of 40%. Installation of partitions and tile work were practically complete. Piping work and electrical installations are progressing according to schedule.

CA-192, Biology Laboratory 108-F

Completion status remains at design 98%, construction 88%. This revised project proposal, which was sent to AEC on February 12, 1952, is still awaiting authorization.

CA-204, Extension to Existing Kadlec Hospital and Medical Arts Building

Both design and construction work had been completed previously. Formal closing papers are being prepared.

CG-404, Primary Power Lines for Hanford Works Laboratory

Completion status remains at design 100%, construction 83%. The contract was awarded by AEC on July 23. Work is being delayed by non-availability of funds for ER-A-713 (Substation Service Buildings).

CG-419, Induction Heating Unit, Building 3732

Completion status remains at design 100%, construction 0%. Shipment date of the heating unit was advanced from October, 1952, to early August. All other equipment has been received.

CG-420, CO_2 Bulk Storage Facilities

Completion status remains at design 100%, construction 42%. The AEC has approved the additional funds. Work is scheduled to begin immediately in the 105-B Area and to be ready for use in September. This schedule permits the 105-C reactor to tie in to the gas system and use the 100-B facilities for start up.

CG-424, Water Quality Experimental Facilities

Design had been completed previously; construction progressed 1% to a total of 97%. Final tie-ins were partially accomplished because the July shutdown occurred ahead of schedule and on a weekend. Completion of the tie-ins is scheduled for the August shutdown. The physical completion date has been extended by the AEC to September 15, 1952.

B. Other Assignments (Cont'd)

CA-430, Improved Lighting, 703 Building

Design had been completed previously; construction began on July 10 and progressed to 25% complete. Installation of fixtures was completed except in the east section of the first floor of the first wing where a new partition arrangement has necessitated a design change.

CA-434, New-Bio-Assay Laboratory

Completion status remains at design 50%, construction 0%. The revised project proposal is awaiting AEC approval. The Hanford Operations Office is compiling additional information for the AEC Washington Office.

CA-441, Solvent Building

Completion status remains at design 91%, construction 0%. The need for this facility is being reviewed by the Technical Section. Present indicated need is for only 1000 square feet of storage area.

CG-442, X-Ray Machine, 3745-A

Design completion status remains at 95%; construction progressed 3% to a total of 95%. The revised project proposal requesting additional funds for shielding is awaiting authorization by AEC. In an attempt to overcome operational difficulty, the High Voltage Engineering Corporation is shipping a new mercury diffusion pumping system to replace the existing vacuum system. A field engineer is being provided to install the new system.

CG-445, B-Y Telephone Exchange Additions and Changes

Completion status remains at design 100%, construction 73%. All equipment received to date has been installed, and undelivered telephone equipment is being expedited.

CG-447, Portable Meteorological Mast

Design progressed 2% to a total of 87%; construction progressed 10% to a total of 55%. Personnel changes have delayed development work. New personnel have been assigned to complete the development phase.

CG-451, Extension of 300 Area Underground Electrical Power Distribution System

Completion status remains at design 100%, construction 0%. A revised project proposal requesting a change in completion date to January 1, 1953 is being prepared. The contract was awarded by AEC on July 23. The Notice to Proceed was issued by the Project Section on July 31. Construction is scheduled to begin about August 15. All material and equipment to be furnished by General Electric is on the site.

DECLASSIFIED

B. Other Assignments (Cont'd)

CA-452, Meteorology Tower Elevator

Completion status remains at design 100%, construction 0%. The Notice to Proceed was issued on July 16. The contractor is expected to expedite this work.

CG-454, Spectrometer Shielding

Completion status remains at design 98%, construction 65%. The AEC has issued a directive approving the scope change and extension of time. Construction is scheduled to begin before August 15, 1952.

CA-455, Replace Two Elevated Water Tanks in 200-E Area

Completion status remains at design 70%, construction 0%. The rough draft of the bidding specifications remains unapproved by the AEC. However, policy problems are being resolved so that the project can be performed as originally scoped.

CA-473, 100-B Automatic Dial Telephone Exchange

Design progressed 10% to completion; construction has not begun. Minor revisions requested by the AEC have been made to the drawings and specifications. All approvals have been obtained. The information is being transmitted in early August to the AEC for incorporation into a bid assembly.

CG-477, Building 284-W, Fifth Boiler Addition

Design progressed 30% to a total of 80%; construction progressed 1% to a total of 2%. Designs and specifications are progressing satisfactorily. Field foundation work has begun.

Procurement of steel for the boiler equipment was delayed indefinitely by the steel strike. The entire job is to be rescheduled as soon as a delivery is established.

CA-478, Area Fence and Minor Repairs Excess Material Warehouse-North Richland

Design had been completed previously; construction was advanced 90% to completion. A final inspection is scheduled for early August.

CA-479, Replacement of Docks and Outside Stairs, 700 Area Permanent Buildings

Completion status remains at design 100%; construction 0%. This AEC-managed project requires additional funds which have not been authorized to date. Bid award is being held pending the authorization.

B. Other Assignments (Cont'd)

CA-480, Remodeling 722-C Building for Office Equipment Repair

Completion status remains at design 100%; construction 0%. This AEC-managed project required additional funds which have not been authorized to date. Bid award is being held pending the authorization.

CG-489, Positive Ion Accelerator

Completion status remains at design 100%, construction 0%. The project proposal, which was sent to the AEC on March 10, 1952, is still awaiting authorization.

CA-491, Metallurgy Laboratory, 300 Area

Design had been completed previously; construction was begun on July 14 and progressed to a total of 5%. The contract requires completion within 90 calendar days.

CG-492, Experimental One-Tube Ink Facility

Design progressed 1% to a total of 99%; construction progressed 5% to a total of 10%. The bayonet tube and nozzle have been fabricated. Pumps, tanks, and piping are being moved into 105-DR for final installation. The AEC is requesting September 15, 1952 delivery of instruments which are being purchased from outside vendors.

CG-493, Duct Level Safety Showers, Building 234-5

Completion status remains at design 100%, construction 0%. The field release to Minor Construction has been issued. Further work on this project is being delayed pending clarifications of the Construction Rider. Arrangements are being made to increase funds authorized to Minor Construction.

CG-496, Recuplex Installation, 234-5 Building

Design progressed 2% to a total of 15%; construction has not begun. A directive authorizing $1,135,000 was issued June 30, 1952. The expenditure of funds was held pending clarification of the Construction Rider.

During July the tankage arrangements were revised extensively to accommodate critical mass aspects of the process. Detailed design on about one-half of the tanks is in progress. Scope changes have delayed layout work; so concentrated effort on these phases has been requested. The current drawing schedule calls for completion of drawings in early 1953.

CA-497, New Substation Fences and Grounding of Existing Fences

Completion status remains at design 40%, construction 0%. Issue of the Work Authority is awaiting legal interpretation of the Construction Rider.

B. Other Assignments (Cont'd)

CA-500, Lubrication Pits, 1716-D and 1716-F Garages

Work Authority is being held by the AEC because this project may be affected by the Construction Rider.

CG-501, Repair of 105-DR Effluent Line Junction with 107-DR

Design progressed about 38% to a total of 98%; construction has not begun pending clarification of the project status regarding the Construction Rider.

CG-503, Waste Storage Entment, 234-5 Building

Design had been completed previously; construction progressed 65% to a total of 85%. The metal shelving has been ordered and received. Most construction is scheduled for completion by September 1, 1952.

CG-506, Repairs to the 107-B, D, F, and DR Retention Basins

Design progressed 2% to a total of 4%; construction began and progressed to a total of 2%. The AEC modified the contract to include engineering consulting services for this project. On July 15, Minor Construction forces performed stop-gap repairs, during a scheduled pile outage, in the inlet section of the east basin of 107-H. Stop-gap repairs to the west side of this retention basin were begun, with completion scheduled for early August 1952.

IR-96, Replacement of Air Lock Doors, 234-5 Building

Completion status reached design 100%, construction 38%. A new estimate has been prepared, and a new informal request for more funds is being developed.

IR-112, Building 224 Waste Diversion, 224-E and W

Both design and construction work have been completed. A revised informal request covering the scope revisions was submitted.

IR-113, Pile Technology Metallurgical Laboratory Alterations, 234-5 Building

Design had been completed previously; construction progressed 10% to a total of 80%. Jurisdictional disputes hindered work. Because shortage of funds, a verbal stop-work order was issued by Project Engineering. Completion is scheduled for about August 20, 1952.

IR-115, Radiation Monitoring Addition to 105-D

Design had been completed previously; construction progressed 45% to a total of 55%.

DECLASSIFIED

DECLASSIFIED

[redacted]

B. Other Assignments (Cont'd)

IR-116, Combined Civil Defense and Plant Disaster Control Center

Completion status remains at design 5%, construction 0%. Design is still being postponed at request of Civil Defense authorities. A study is being made of mobile trailer units as possible control centers. If approved, they would replace a permanent building.

IR-121, Exhaust System Alteration, 716 - 1131 Buildings

Final design and specifications have been completed and have been forwarded to the AEC for use in obtaining lump sum bids. General Electric's work on this AEC-managed job is essentially complete.

* * * * * *

The following studies and engineering requests, involving preparatory work and scoping of future projects, were active during the month:

ER-E-477, Remote Supervisory Control 100 Area Water Plants

Design progressed 1% to a total of 4%; construction has not begun. The informal request letter for design funds is awaiting approval by the AEC. Work Order funds for preliminary work have been expended.

ER-E-478, Inter-plant Telephone System, Hanford Expansion Program

Preliminary design funds have been made available. The project proposal is being prepared.

ER-E-479, Hanford Works Official Telephone Exchange

This work comprises the establishment of a separate telephone exchange in the 700 Area to handle official plant telephone traffic only. Space for the official exchange is to be made available in the new administration building which is planned for the 700 Area. All necessary telephone equipment as well as extensive rerouting and reconnection of the cable plant in the 700 Area is included. Preparation of the project proposal is scheduled to begin about August 1, 1952.

ER-A-661, Central Distribution Headquarters

A project proposal has been completed for submittal to the A&B Committee in September, 1952. The proposed type of construction is poured concrete.

ER-A-663, Pile Technology Test and Storage Building

The AEC has concurred in the proposed design and construction of a reinforced concrete building.

[redacted]

1205559

ER-A-667, Water Drainage Around 700 Area Buildings

Preliminary design has been completed. An estimate is being made, and the sponsor is being consulted.

ER-A-669, Parking Lot on 720 Building Site

Further work is awaiting the request of the sponsoring Department.

ER-A-671, Crushed Rock and Oil Covering, 700 Area

No further work was done during the month.

ER-A-681, Roads and Walks, 700 Area

Preliminary designs have been completed. Estimates based on several alternates are being made.

ER-A-686, Painting High Tanks, 105-B and 105-F

The project proposal was prepared on the basis of work performance by a lump sum contractor. Radiological Sciences has objected to this method; so a review of work performance and estimated cost is being made.

ER-A-703, Sanitary Facilities, Surplus Sales Yard

This informal request has not been re-submitted because this work is affected by the Construction Rider.

ER-A-704, Addition to Kadlec Hospital

A rough draft of the project proposal and an estimate have been prepared. The sponsor has requested additional work which necessitates preparation of a new estimate. The project proposal is to be submitted to the A&B Committee in September, 1952.

ER-A-706, Area First Aid Buildings

A rough draft of the project proposal has been prepared for submittal at an early date.

ER-A-709, Replacement of Fire and Sanitary Water Tank, 100-D

Preliminary scoping is proceeding, and more information is being secured from the sponsoring department.

ER-A-712, Richland Air Raid Shelter Study

The Informal Request RCD-4 for $18,000 was submitted to the AEC March 21, 1952, and is still awaiting authorization.

1205560

[redacted] DECLASSIFIED

DECLASSIFIED

ER-A-713, Substation Service Building 1100 - 300 Area

Design has been completed; construction has not begun. Additional funds have been obtained, and the work is being contracted with CG-451(300 Area System) and CG-404 (Power for Hanford Works Laboratory). Work is to be accomplished by means of work orders written against Budget Items 2012 and 2014--Miscellaneous Service additions.

ER-A-715, Fireproof Graphite Storage Warehouse

A project proposal for a 70,000 square foot fireproof warehouse to cost about $850,000 was completed. Submittal is being held pending a possible new 101 facility in connection with Program X.

ER-A-717, Drafting Room Expansion, 760 Building

All preliminary design and estimates have been completed. This information has been forwarded to the sponsor for preparation of the project proposal. All responsibility was transferred to the sponsor.

ER-A-718, Extraordinary Maintenance, 101 Building

This project was submitted to the A&B Committee in July. It is being held for possible developments in the 101 Area.

ER-A-719, Administrative Building, 300 Area.

Preliminary design is progressing. An estimate is being obtained for three possible alternate methods of construction.

ER-A-720, Operations Change House, 300 Area

Preliminary design is progressing. A project proposal is scheduled for completion within 30 days.

ER-A-721, Additions to 202-S (PR Operating Area)

Preliminary design was completed, and a project proposal estimate is being prepared for work to be done by Minor Construction forces.

ER-A-722, Gable-Butte Railroad

Preliminary surveys and design work are progressing. This project is part of Program X.

ER-A-723, Personnel Meter Gatehouse Facility Improvements

Preliminary scoping and design are progressing.

[redacted]

1205561

ER-A-724, Soil Science Laboratory Facilities

Work is being delayed by higher priority jobs.

ER-A-725, Particle Problem Animal Exposure Equipment

Work is being delayed by higher priority jobs.

ER-A-1179, High Pressure Water Supply to Front Face, 100-B,D,F,DR, & H Areas

The rough draft of the project proposal is still under review by the Manufacturing Department.

ER-A-1180, Additional Facilities in 189-D Building

Completion status remains at design 10%, construction 0%. The informal request has been approved by the AEC, and design work is being accelerated.

ER-A-1182, P-13 Pressure Assembly Removal

The approved project proposal has been forwarded to the A&B Committee which will decide the question of the status of the project regarding the Construction Rider.

ER-A-1184, Replacement of 100-D Reactor Effluent Line

Completion status remains at design 20%, construction 0%. The approved project proposal has been forwarded to the A&B Committee which will decide the question of the status of the project regarding the Construction Rider. An additional study of the comparative advantages of wood and steel pipe was made. The original decision for steel replacement pipe was affirmed.

ER-A-1185, Car Puller and Car Shake-out

Design progressed 3% to a total of 10%; construction has not begun. The final draft of the project proposal is being prepared.

ER-A-1186, Revisions to Charge Machines in the 100 Areas and Installation of a Third Charging Machine-B,D,F,DR, and H Areas.

The rough draft of the project proposal is still under review by the Manufacturing Department.

ER-A-1187, Metal Examination Facility, 105-C

Design was 20% complete; construction has not begun. A project proposal is being prepared for the design, fabrication, procurement and installation of special remote-operation equipment in the 105-C storage basin for the purpose of examining discharged slugs.

ER-A-1188, Xenon Generator

The preliminary scope of this work is being developed in preparation for a project proposal. The work includes fabricating a specially-shielded facility for the "X" test hole at 105-DR to receive a special slug with gas tubing lines attached to it. Other shielding, gas lines, control panels, and wiring are to be included.

ER-2718, Fire Protection, 200-E and-W Spare Parts Warehouse

Completion status remains at design 50%, construction 0%. An informal request covering execution of the work under a lump sum contract has been prepared. Further work is being held pending clarification of status regarding the Construction Rider.

ER-2720, Fire Protection Equipment, Building 234-5 Filter Rooms

Design progressed to a total of 20%; construction has not begun. A scope covering the CO_2 fire extinguishing system was forwarded to Design Section Drawings are being made for the purpose of obtaining estimates.

ER-2721, Water Quality Laboratory, 108-B

Design progressed 25% to completion; construction has not begun, although the AEC has indicated approval.

ER-2723, Steel Handling System, 272-W

Design progressed 10% to a total of 20%; construction has not begun. Work was postponed pending receipt of more information from the sponsor.

ER-2724, Insulation of Powder Handling Facilities, 224-U

Design progressed 10% to a total of 20%; construction has not begun.

ER-2725, Modification of Exhaust System, 202-S

Operations and technical personnel are conducting a study of the most desirable course of action. The Project Section is merely following developments.

ER-2726, Adaption of 200-W Laundry Building to Branch File Use

It is proposed that the vacant laundry building in 200-W be partially utilized for a classified file depository and control office. Scope and floor plan data are now being prepared.

ER-2727, 235-Building Laboratory Revisions

Scope information is being obtained for an addition to the 234-5 Building. The addition is to have 2000-3000 square feet of floor space for office and change house facilities.

1205563

[redacted]

ER-6012, Hanford Works Standards Evaluation

The report on this study was reviewed by the Standards Committee and is being revised in part to include additional items and examples of savings.

ER-6016, Equipment Price Standardization

The report is still awaiting approvals before publication.

DO-100288, Miscellaneous Items----Program "X"

Data was collected from Department Managers, and a letter was written to the AEC stating items which were to be included as miscellaneous items in the Hanford Works Expansion Program.

C. RELATED SERVICES

Drafting work-load remained heavy, with Projects CG-494, CA-431, and the silicate addition for 100 Areas being the largest jobs. Total production was 268 new drawings, 13 charts and graphs, and 29 revisions. Arrangements were made for weekly meetings with the Design Planning Unit to establish priorities and allocation of drafting manpower.

Reproduction output decreased generally from the June level. About 200,000 square feet of prints were produced. The largest orders processed were 3,656 prints for Projects C-198 and C-413; 2,452 prints for CA-431-B, and 1,029 prints for CA-431-A. Preparations are being made for the editing and production of an operations manual for blueprint reproduction.

Of the 50 estimates scheduled, the Estimating Services group completed 30. Estimating personnel attended a series of meetings in connection with negotiating a fixed fee with a CPFF contractor for a portion of the work included under Program X. The Field Services group spent its major effort on completing soundings and additional field data necessary for Program X design.

The Project Control group performed its routine functions, plus some additional work on Projects C-178 and C-230. The group continued the study, "Equitable Liquidation of Reproduction Expenses", and began a detailed study of cost control for Program X.

The History Group issued five histories during the month.

D. CRAFT LABOR

The acute shortage of pipefitters and welders continued to have adverse effects on the construction program. When it became evident during the month that sufficient craftsmen would not be supplied, long-standing requisitions for six pipefitters and 60 welders were cancelled. There was a net loss of 46 plumbers and three welders during the month. On July 31, there were six welders on requisition.

D. Craft Labor (Cont'd)

The number of voluntary terminations of CPFF construction contractors' personnel decreased greatly during the month. Percentage of terminations in July was 3.7% compared with 5.9% for June. Information gathered from 147 exit interviews given by the main CPFF contractor showed that 85% of the terminations were because of job dissatisfaction.

At the request of the international organization, the business agent of Plumbers' Local 598 resigned, thus concluding a long and turbulent career in the Pasco area. Two of his assistants also resigned. The ex-business agent was replaced by a former General Construction Superintendent for a piping subcontractor at Hanford Works. Relations with the plumbers' craft have improved considerably since the new business agent took office.

The business representative for the Pasco Laborers' Local resigned to accept a position in the Washington State Building Trades Council. He was replaced by the assistant business agent.

A work stoppage involving approximately 100 millwrights on the main CPFF contractor's payroll occurred July 28 and continued through the month. The stoppage was allegedly in protest against the layoff of 10 millwrights who were performing inspection work at 100-C. On July 29 the matter was referred to the Davis Panel which issued a request to the millwrights' International President for them to return to work, and expressed willingness to take jurisdiction. Instructions to return to work were forwarded by the International to the Local on July 30, but there was no action by the end of the month.

Four lesser stoppages and disputes occurred on Project CA-362 (TBP), three of which were settled during the month.

A meeting was held July 16 between the Project Negotiating Committee and the Union Negotiating Committee. The parties agreed to delay any discussion of terms in the Master Agreement and to concentrate on obtaining participation of all Local representatives. On July 29, representatives of all crafts except boilermakers and boilermaker-welders met with the Project Negotiating Committee. Two representatives of the new CPFF construction contractor also attended. Formal negotiations were scheduled to begin August 4, 1952. A new Union Negotiating Committee was appointed.

Under a new interpretation of the Hanford Works Addendum, the definition of maintenance plumbing was expanded to include minor changes, extension, and installation of minor appliances and equipment. This agreement makes possible a more economical operation of the North Richland Construction Camp.

A CPFF contract for construction of new plant facilities in the 100 Area was executed on July 25 between the Atomic Energy Commission and Kaiser engineers.

The new CPFF contractor performs under national agreements with several crafts, including plumbers and electricians. The contractor plans to employ plumbers direct and to procure electricians through the Foothills Electrical Company which is Kaiser-owned and operated.

MEDICAL DEPARTMENT

JULY 1952

General

Personnel Changes

The roll increased from 277 to 283. It was 281 a year ago.

Visits

Mrs. Turner, Chief Nurse, attended an institute on "In-Service Programs" at the University of Washington, Seattle, on July 18th.

Industrial Medicine

Employee physical examinations decreased from 1946 to 1561, largely due to decline in preplacement examinations. Dispensary treatments increased from 7399 to 8231. One General Electric employee was treated for a major injury and one for a sub-major injury. Contractor employees were treated for 14 major and 15 sub-major injuries. Medical physical requirements for drivers of passenger-carrying vehicles have been made more stringent, particularly with respect to vision and hearing. Written standing orders for nurses prepared and signed by industrial physicians, have been placed in all dispensaries.

Preliminary results of the Calcium EDTA treatment for ridding the body of deposited plutonium indicate a five-fold increase in the urinary excretion rate, years after the original deposition.

Reports on Nitrogen Oxides, CAL Solvent, Xerox Film Remover, Solvent F. O. 136, Valentine DB Duplicating Fluid, and Degreasing Units were issued by the Chemical Hazards Committee during the month.

"Fatigue", the health topic of the month, was discussed in the Health Activities Committee meeting and publicized in Health Safety meeting.

The sickness absentee rate for July was 1.38% as compared to 1.39% for June. The total absentee rate was 2.02 as compared to 2.20% for June. The total absentee rate was 2.08% a year ago.

Kadlec Hospital

The average daily census increased from 80.2 (70 adult, 10.2 newborn) to 88.9 (73.8 adult, 15.1 newborn). The census was 87.8 a year ago.

The occupancy rate for mixed services (all services except obstetrics) was 69.1%. Nursing hours per patient day were 4.1 for the mixed services and 3.9 for obstetrics. The ratio of in-patient hospital employees to patients for June was 2.43.

Public Health

The incidence of communicable disease was greatly reduced. However, there was one case of bulbar polio which was fatal.

Approval was given to use chlorinated Columbia River water for drinking purposes without benefit of filtration or other treatment. This water may be used on a temporary emergency basis and only if certain sanitary criteria continue to be met.

1205566

DECLASSIFIED

MEDICAL DEPARTMENT

JULY 1952

General (Continued)

Costs-June

Medical Department costs before assessments to other departments, were as follows:

	May	June	June Budget
Industrial Medicine (Oper.)	$ 37,577	$ 37,578	$ 37,062
Public Health (Oper.)	11,744	12,445	12,163
Kadlec Hospital (Net)	25,934	32,972	30,473
Hospital Expense Credits	3,580	3,244	2,180
Sub-total-Medical Dept. (Oper.)	78,835	86,239	81,878
Construction Medical (Industrial and Public Health)	13,947	12,034	18,443
Total-Operations and Construction	92,782	98,273	100,321

The net cost of operating the Medical Department before assessments to other departments was $98,273, an increase of $5,491 and $2,048 below the budget.
The increased net cost was largely due to decreased revenue from Kadlec Hospital, a seasonal cause.
Net cost for operating the Medical Department during fiscal year 1952 was $966,687. as compared with a budget of $1,058,677. The net cost for fiscal year 1951 was $1,009,000.

Detailed financial summary and including unit costs are shown on following pages.

1205567

COST SUMMARY - FISCAL YEAR 1952
KADLEC HOSPITAL

	(Amounts in Thousands)		
	FY 1952 Actual	FY 1951 Actual	FY 1952 Budget
Expenses			
Administration	$ 185	$ 190	$ 185
Dietary	125	103	119
Household & Property	162	130	152
Professional Services	608	529	623
Total expenses	1 080	952	1 079
Expense Credits	(41)	(50)	(31)
Net expenses	1 039	902	1 048
Revenue			
Room & Board	318	264	315
Other	433	361	414
Total revenue	751	625	729
Net Costs	$ 288	$ 277	$ 319
In-Patient Statistics - Adults			
Number of patient days	30 908	29 010	30 399
Cost per patient day	$ 31.44	$ 29.24	$ 32.05
Revenue per patient day	$ 21.70	$ 18.81	$ 20.84
Average stay(number of days per patient)	4.8	5.0	5.0
Average daily census	84.7	79.5	83.3
Nursing hours per patient day -			
Mixed services (Med.,Surg.,Ped.)	3.52	3.35	
Obstetrical service	4.19	4.67	
Newborn	2.98	3.15	
Employees per patient (exclnding newborn infants)	1.97	1.85	

Net hospital operating costs were $11 000 greater in FY 1952 than in FY 1951. Revenue was $126 000 greater and total expenses were $137 000 higher than in FY 1951.

Gross costs increased $137 000 in FY 1952 over FY 1951 due to (1) 8 additional employees to staff the hospital (2) salary increases during the year approximating 10% and (3) higher costs of services and materials purchased.

Revenue increased $126 000 during the same period due to a higher average adult patient day census of from 79.5 in FY 1951 to 84.7 in FY 1952 and to an upward revision of hospital rates which became effective 1-1-52.

1205568

COST SUMMARY - FISCAL YEAR 1952
PUBLIC HEALTH-RICHLAND

(Amounts in Thousands)

	FY 1952 Actual	FY 1951 Actual	FY 1952 Budget
Administration	$ 45	$ 43	$ 47
Household & Property	15	22	17
Professional Services	71	70	74
Total expenses	131	135	138
Less: Revenues	-0-	1	-0-
Expense Credits	3	3	4
Net Cost	$ 128	$ 131	$ 134

Cost per Capita		
General Public Health	$ 2.76	$ 2.60
Bedside Nursing	.15	.45
Mosquito Control	.63	.62
Milk Sanitation	.07	.12
School Nursing	.45	.44
Health Education	.32	.36
Welfare	1.07	1.11
Total	$ 5.45	$ 5.70

Note - Unit factor based on a population of 23 500 in Richland in FY 1952 and 23 000 in FY 1951.

Net Public Health Costs decreased from $131 000 in FY 1951 to $128 000 in FY 1952, a difference of $3 000. Public Health Costs per Capita reduced $.25.

The decreased costs in FY 1952 were due primarily to (1) reduced charges for Janitorial and Laundry services as a result of a study which was made giving a more equitable distribution of costs and (2) a reduced rate of accrual for Continuity of Service.

1205569

COST SUMMARY - FISCAL YEAR 1952
INDUSTRIAL MEDICAL - OPERATIONS AND CONSTRUCTION

(Amounts in Thousands)

	FY 1952 Actual	FY 1951 Actual	FY 1952 Budget
Administration	$ 104	$ 128	$ 110
Household & Property	70	83	82
Professional Services	438	409	460
Total expenses	612	620	652
Less: Revenues	14	19	12
Net Cost of Operations	$ 598	$ 601	$ 640
Average number of Employees	16 519	14 083	
Cost per Employee per year	$ 36.20	$ 42.68	

Note - Employee figures include General Electric Company employees, Contractor employees, and Atomic Energy Commission employees.

Gross Costs decreased $8 000 during FY 1952 as compared to FY 1951. This is represented by a decrease of $24 000 in Administrative Costs, $13 000 decrease in Household and Property Costs, and an increase of $29 000 in Professional Services. The decrease in the Administrative and Household and Property Costs are due primarily to changes in Accounting procedures whereby the Industrial Medical (Operations) section is no longer charged with services rendered them by the Financial Department and the Radiological Sciences Department and also to a reduced rate of accrual for Continuity of Services expense. The increase in costs as reflected under Professional Services is due (1) to salary increases during the year approximating 10%, (2) the Construction program working on a 6 day week basis, and (3) higher costs of materials purchased.

Revenue decreased $5 000 in FY 1952 as compared to FY 1951 due primarily to pre-employment examinations given by the Industrial Medical section to employees of Holmes and Narver Company and Woole-Camplin Company during FY 1951 and for which the Industrial Medical section was reimbursed directly by these companies.

1205570

MEDICAL DEPARTMENT

JULY 1952

Industrial Medical Section

Medical examinations decreased from 1946 to 1561 primarily due to a decrease in pre-placement examinations on both operations and construction. Dispensary visits increased from 7399 to 8231. The MJ 4 First Aid Station discontinued service on 7-11-52. General Electric employees sustained 1 major injury and 1 submajor injury. Contractor employees sustained 14 major injuries and 15 submajor injuries.

Medical standards for drivers of passenger carrying vehicles have been revised to more closely correspond to commercial bus company standards. The requirements for vision and hearing were increased and all employee drivers medical records were reviewed and drivers re-examined where necessary. About 12 reassignments to other jobs will result from this change.

The recommendations of the AMA Council on Industrial Health regarding standing orders for nurses in industry have been carried out. These recommendations provide that written standing orders for nurses be prepared and signed by physicians and located in each dispensary.

Preliminary results of the EDTA treatment for plutonium displacement indicate that the urinary excretion rate was increased at least 5 times during the course of the treatment.

The Chemical Hazards Committee has been in the process of preparing safety bulletins on hazardous or potentially hazardous chemicals which will be issued for inclusion in the safety manual. Reports on nitrogen dioxide fumes, "CAL" solvent, xerox film remover, Solvent F.O. 136, Valentine DB duplicating fluid and degreasing units were issued during the month.

The Health Activities Committee met on July 17th and the health topic on "Fatigue" was presented and material on this subject has been prepared for distribution and discussion throughout the plant. The Manufacturing Department representation on this committee will be increased. The combined sickness absenteeism for all employees was 1.38% for the month of July as compared to 1.39% for June.

The gross costs totaled $38,774 in June as compared to $38,209 in May, an increase of $565. These costs may be summarized as follows:

	June	May	Increase (Decrease)
Salaries	$26,914	$28,335	$ (1,421)
Continuity of Service	2,700	2,801	(101)
Laundry	286	262	24
Utilities, Transportation, Maintenance	4,301	4,109	192
Supply & Other Costs	4,573	2,702	1,871
Gross Operating Costs	38,774	38,209	565
Less: Revenue	1,196	632	564
Expense Credits	7,266	5,227	2,029
Net Cost of Operations	30,312	32,350	(2,038)

The decrease of $1,421 in salaries is due to a shorter work month.

Maintenance costs increased $192 due to more work orders processed during the month.

Industrial Medical Section (Continued)

The increase of $1,871 as shown for supply and other costs result from (1) $700 increased travel expense due to the hiring of a new Industrial Physician and paying the expense of his moving, and to a trip taken by Dr. Fuqua to attend a meeting of Industrial Physicians in Rochester, N.Y. (2) $450 increase in x-ray supplies purchased, which was primarily film and (3) $700 increased purchase of other miscellaneous medical supplies.

Industrial Medical - Construction

Gross costs for June were $11,341 as compared to $12,974 for May, a decrease of $1,633. These costs are summarized as follows:

	June	May	Increase (Decrease)
Salaries	$ 9,081	$ 10,490	$ (1,409)
Continuity of Service	910	1,037	(127)
Laundry	59	54	5
Transportation & Maintenance	35	31	4
Supply and Other Costs	1,256	1,362	(106)
Total Gross Costs	$11,341	$ 12,974	$ (1,633)

The reduction of $1,633 in costs which is primarily salaries is due to a shorter work month.

1205572

MEDICAL DEPARTMENT

JULY 1952

Industrial Medical Section (Continued)	June	July	Year to Date
Physical Examinations			
Operations			
Pre-employment	232	141	890
Rehire	37	23	121
Annual	263	265	1927
Interim	101	77	609
A. E. C.	54	66	371
Re-examination and rechecks	109	103	586
Termination	185	139	1134
Sub-total	981	814	5638
Contractors			
Pre-employment	102	64	1083
Rehire	153	101	1254
Recheck	29	24	364
Termination & Transfer	679	542	5039
Interim	2	16	39
Sub-total	965	747	7779
Total Physical Examinations	1946	1561	13417
Laboratory Examinations			
Clinical Laboratory			
Government	283	308	1703
Pre-employment, Termination, Transfer	3702	1583	22212
Annual	1376	1419	11040
Recheck (Area)	651	472	4023
First Aid	45	15	280
Clinic	314	283	3761
Hospital	4009	4629	31721
Public Health	13	8	137
Total	10393	9440	74877
X-Ray			
Government	45	59	299
Pre-employment, Termination, Transfer	534	317	3316
Annual	275	289	2052
First Aid	220	188	1628
Clinic	247	233	1998
Hospital	246	297	2318
Public Health	10	1	40
Total	1577	1384	11651
Electrocardiographs			
Industrial	33	35	205
Clinic	1	2	39
Hospital	23	44	308
Total	57	81	552

1200873

MEDICAL DEPARTMENT

JULY 1952

Industrial Medical Section (Continued)	June	July	Year to Date
First Aid Treatments			
Operations			
New Occupational Cases	381	395	2901
Occupational Case Retreatments	1350	1387	9935
Non-occupational Treatments	2750	2764	21042
Sub-total	4481	4546	33878
Construction			
New Occupational Cases	541	670	5557
Occupational Case Retreatments	1827	2359	21720
Non-occupational Treatments	514	626	6357
Sub-total	2882	3655	33634
Facility Operators	36	30	266
Total First Aid Treatments	7399	8231	67778
Major Injuries			
General Electric	2	1	8
Contractors	9	14	113
Total	11	15	121
Sub-major Injuries			
General Electric	2	1	15
Contractors	4	15	87
Total	6	16	102
Absenteeism Investigation			
Total No. calls requested	3	5	82
Total No. calls made	3	5	82
No. absent due to illness in family	0	0	1
No. not at home when call was made	1	2	16

1205574

MEDICAL DEPARTMENT

JULY 1952

Hospital Section

General

The Medical Department's roll increased from 277 to 283.

The average daily adult census increased from 70.0 to 73.8 as compared to 75.0 a year ago. This represents an occupancy percentage of 67.7%, broken down as follows: Mixed Service (Medical, Surgical, Pediatrics) 69.1%; Obstetrical Service 61.9%. The minimum and maximum daily census during the month ranged as follows:

	Minimum	Maximum
Mixed Service	42	84
Obstetrical Service	7	18
Total Adult	55	101

The average daily newborn census increased from 10.2 to 15.1 as compared to 12.8 a year ago.

Nursing hours per patient per day:

Medical, Surgical, Pediatrics	4.1
Obstetrical	3.9
Newborn	2.3

The ratio of in-patient hospital employees to patients (excluding newborn) for the month of June was 2.43. When newborn infants are included, the ratio is 2.12.

The net expense for the operation of Kadlec Hospital for June was $32,972 as compared to $25,934 for May. Summary is as follows:

Kadlec Hospital net expense $32.972
This is an increase of $7038 over May due to decreased patient census which resulted in less revenue. Gross costs actually decreased $68, but revenue decreased $6770 and expense credits decreased $336.

Mrs. Helen Turner, R.N., Chief Nurse, attended an institute on "In-service Programs in Nursing" at the University of Washington in Seattle on July 18. This institute was sponsored by the University of Washington's School of Nursing.

1205575

MEDICAL DEPARTMENT

JULY 1952

Hospital Section (Continued)	June	July	Year to Date
Kadlec Hospital			
Average Daily Adult Census	70.0	73.8	84.2
Medical	23.4	22.0	26.7
Surgical	28.2	29.9	31.2
Pediatrics	6.5	8.9	13.5
Mixed	58.1	60.8	71.4
Obstetrical	11.9	13.0	12.8
Average Daily Newborn Census	10.2	15.1	12.0
Maximum Daily Census:			
Mixed Services	76	84	95
Obstetrical Service	19	18	23
Total Adult Census	90	101	110
Minimum Daily Census:			
Mixed Service	43	42	42
Obstetrical Service	6	7	6
Total Adult Census	52	55	52
Admissions: Adults	435	533	3862
Discharges: Adults	444	514	3860
Newborn	76	83	564
Patient Days: Adult	2098	2290	17927
Newborn	306	468	2562
Total	2404	2758	20489
Average Length of Stay: Adults	4.7	4.4	4.6
Medical	5.4	4.0	5.1
Surgical	5.0	5.2	4.5
Pediatrics	4.0	3.7	4.7
Mixed	4.9	4.5	4.4
Obstetrical	3.7	4.5	4.2
Newborn	4.0	5.6	4.5
Occupancy Percentage: Adults	64.2	67.7	77.2
Medical	63.2	59.5	72.2
Surgical	88.1	93.4	97.5
Pediatrics	34.2	46.8	71.1
Mixed	66.0	69.1	81.1
Obstetrical	56.7	61.9	61.0
Newborn	39.2	58.1	46.2
(Occupancy Percentage based on 109 adult beds and 26 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics	4.1		
Obstetrics	3.9		
Newborn	2.3		
Avg. No. Employees per Patient (excluding newborn)	2.12		
Operations: Major	85	96	583
Minor	69	101	632
E.E.N.T.	34	33	475
Dental	1	2	9
Births: Live	73	91	572
Still	2	2	14

1205576

MEDICAL DEPARTMENT

JULY 1952

Kadlec Hospital (Continued)	June	July	Year to Date
Deaths	9	3	37
Hospital Net Death Rate	.96	.33	.41
Net Autopsy Rate	66.6	33.3	56.8
Discharged against advise	0	0	7
One Day Cases	76	114	861
Admission Sources:			
Richland	76.8	78.4	76.4
North Richland	9.9	11.3	11.5
Other	13.3	10.3	12.1
Admissions by Employment:			
General Electric	71.6	73.2	71.5
Government	2.5	1.5	2.2
Facility	7.6	5.6	6.4
Contractors	11.0	11.8	13.5
Schools	2.0	1.7	1.9
Military	1.5	.9	.9
Others	3.8	5.3	3.6
Hospital Outpatients Treated	483	433	3150
Physical Therapy Treatments			
Clinic	245	214	1709
Hospital	106	115	909
Industrial: Plant	152	181	1545
Personal	5	2	45
Total	508	512	4208
Pharmacy			
No. of Prescriptions Filled	2694	2832	21799
No. of Store Orders Filled	593	617	4982
Patient Meals			
Regulars	3367	3743	27796
Children under 8	253	340	4103
Specials	1319	943	9715
Lights	3	18	29
Softs	705	1015	6271
Tonsils	66	41	891
Liquids	208	220	1285
Surgical Liquids	81	124	624
Total	6002	6444	50714
Cafeteria Meals			
Noon	1783	1957	12949
Night	250	253	1802
Total	2033	2210	14751

1205577

MEDICAL DEPARTMENT

JULY 1952

Public Health Section

General

The incidence of communicable disease was materially reduced. However, we had the unfortunate experience of having one case of bulbar polio reported with subsequent death.

The number of home visits of public health nurses has increased approximately 45% due to return of staff nurses from their vacations.

A major accident was charged to this section, brought about by a head-on collision by a public health nurse with a truck-trailer on U.S. highway #410 on the way from Prosser to Richland. This nurse had been attending to public health business in that area and had, in some manner, caused this accident. It was brought out that a 700 area car was being used. The nurse had two unauthorized persons as passengers. Instructions have been made to the staff and it has been re-emphasized that this is contrary to all regulations and corrective steps have been taken. A safety investigation was made and the report is on record.

The pilot study of absenteeism of weekly paid employees continues. A statistical review reveals that 95% of the employees fall in the group from 1 to 19 days absence with 2½% of the employees having no days absent and 2½% having more than 19 days of absence. This pilot study was made of the Medical Department employees over the past 5 years. Further reports will be forthcoming together with a final write-up.

Because of the increased use of water, Public Works Section proposed use of Columbia River water direct and contacted this section as to advisability. Samples taken reveal that 750 B-coli MPN (most prominent number) and a 6 ppm turbidity in a 48-hour growth test in the laboratory. A further check with the Chief Engineer of the State of Washington Health Department revealed that this water could be used on an emergency basis if there was a 10 minute contact period with chlorine, and a residual of .4 to .5 ppm of chlorine to the point of delivery.

Routine inspection of foodhandling establishments were made with the degrading of one establishment to "B" classification.

One milk distributor was reported to the State Department of Agriculture because of unsatisfactory grade of milk.

A rodent extermination program in 200E and 200W areas was satisfactory.

Mosquito control operations were intensified due to numerous small breeding places in yards, compounds, and streets. As in the past, the problem of breeding is due to excess use of water for lawns and gardens. 1175 gallons of DDT and oil was sprayed by truck and aircraft. 500 gallons of DDT emulsion was sprayed in residential areas. Other breeding spots were found in the well field, and shelter belt irrigation channels.

During July the Social Service Counselors assisted with a training program for the persons serving as counselors at the Campfire Girls Summer Camp.

The social service facilities were used by Crime Prevention in an attempt to solve the problems of several adolescent girls.

MEDICAL DEPARTMENT

JULY 1952

Public Health Section (Continued)	June	July	Year to Date
Education			
Pamphlets distributed	11,489	10,989	120,160
News Releases	3	1	22
Staff Meetings	2	2	9
Classes	3	6	42
Attendance	48	41	1,109
Lectures & Talks	6	4	63
Attendance	168	63	2,040
Films Shown	5	3	114
Attendance	93	62	6,146
Community Conferences	25	16	145
Radio Broadcasts	3	0	10
Immunizations			
Diphtheria	7	5	91
Diphtheria Booster	203	7	637
Tetanus	4	10	204
Tetanus Booster	207	7	616
Pertussis	4	5	47
Pertussis Booster	202	5	232
Smallpox	70	24	175
Smallpox Revaccination	139	229	1,484
Tuberculin Test	0	0	5
Typhoid	0	12	12
Typhoid Booster	0	4	4
Rocky Mountain Spotted Fever	0	0	2
Immune Globulin	8	7	87
Other	0	0	7
Social Service			
Cases carried over	79	89	518
Cases Admitted	23	22	139
Cases closed	13	8	106
Remaining case load	89	103	551
Activities:			
Home Visits	6	13	51
Office Interviews	266	274	1,674
Conferences	70	55	444
Meetings	7	4	45
Sanitation			
Inspections made	177	194	1,002
Conferences held	31	35	233

MEDICAL DEPARTMENT

JULY 1952

Public Health Section (Continued)	June	July	Year to Date
Bacteriological Laboratory			
Treated Water Samples	193	233	1,368
Milk Samples (Inc. cream & ice cream)	10	37	105
Other bacteriological tests	182	214	1,697
Total	385	484	3,170
Communicable Diseases			
Amoebic Dysentary	0	0	4
Chickenpox	26	6	100
Erysipelas	0	0	1
German Measles	14	5	568
Gonorrhea	3	1	13
Impetigo	0	0	3
Influenza (U.R.I.)	0	0	1
Infectious Mononucleosis	0	0	3
Measles	5	1	11
Mumps	101	34	328
Pediculosis	0	0	1
Pinkeye	0	0	24
Poliomyelitis	0	1	1
Rheumatic Fever	1	0	2
Ringworm	1	1	12
Roseola	0	0	2
Scabies	0	0	1
Scarlet Fever	2	0	31
Thrush	0	0	1
Tuberculosis	0	3	5
Whooping Cough	0	0	2
Total	153	52	1,114
Total No. Nursing Field Visits	658	911	6,436
Total No. Nursing Office Visits	80	41	1,095

1205580

MEDICAL DEPARTMENT PERSONNEL SUMMARY

July 1952

		Physicians	Nurses	Anesthetists	Nurse Aides	Orderly & Am.Dr.	Tech.-Clin.Lab.	Tech. X-ray	Tech. Bact.Lab.	Tech. Phy.Ther.	Secretary	Steno-Typist	Office Mach.Opr.	Telephone Opr.	General Clerk	Pharmacist	Dietitian	Cook	Kitchen Worker	Soc.Serv.Couns.	Sanitarian	Health Educator	Janitors	Records Supv.	Adm.&Assistant	Others	TOTAL
3000 1100 Areas	Department Admin	2	2								2	1		3	4									1	2	1	18
	Industrial	4	8		1					1		1	1		11.4								4.4				31.8
	Hospital	2	*63	3	25	6	5.6	4	2	1		4			11.5	4	2	6	11				9.			8	167.1
	Public Health	1	7		1							2			2.1					3	2	1	.6				19.7
Outlying Areas	Industrial	2.7	1				1	1							8.								.7				14.4
	Public Health		2																				.3				2.3
	M.J. 4		1																								1.0
	100-B	.1	1												.2												1.3
	100-D	.1	4												.3												4.4
	100-F	.1	4				.2								.2												4.6
	100-H	.1	1												.3												1.4
	100-C	.2	3																								3.2
	200-E	.2	1				.4								.3												1.9
	200-W	.3	6				.8								.3												7.4
	300	.2	2												.4												2.5
	White Bluffs		2																								2.0
	TOTAL	13	108	3	27	6	8	5	2	2	2	8	1	3	39	4	2	6	11	3	2	1	15	1	2	9	283

*Includes three temporary and part-time nurses

Number of employees on roll:

Beginning of month	277
End of month	283
Net increase	6

1 2 6 5 3 8 1

[redacted]

HW-25227-DEL

Radiological Sciences Department

RADIOLOGICAL SCIENCES DEPARTMENT

JULY 1952

Summary

Five Class I radiation incidents were recorded. There was no Class II incident. Substantial emissions of ruthenium isotopes from the Redox stack occurred. In other phases of the hazard control program, there was no notable item.

Biophysics and biology research activities progressed satisfactorily.

DECLASSIFIED

[redacted]

1205602

DE[redacted]FIED

RADIOLOGICAL SCIENCES DEPARTMENT

JULY 1952

Organization

The month end force of 363 included 28 supervisors, 88 engineers and scientists, 15 clerical, and 232 other personnel. This represented a net increase of one.

General

During the period covered by this report, all persons in the Radiological Sciences Department engaged in work which might reasonably be expected to result in inventions, or discoveries, advised that to the best of their knowledge and belief no inventions or discoveries were made in the course of their work except as listed below. Such persons further advised that for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor	Title
None	None

1265603

[redacted]

HW-25227-Del.

Radiological Sciences Department

RADIOLOGICAL RECORDS AND STANDARDS SECTION

1. Radiation Monitoring Services

General Statistics

	June	July	1952 To Date
Special Work Permits	790	714	5337
Routine & Special Surveys	1393	1140	9412
Air Samples	2276	2061	12774
Skin Contamination cases	58	46	552

A fire in the 200 West burial ground on July 9, 1952 caused some spread of plutonium contamination to the area north of the Isolation building. No construction areas were involved.

Temporary repairs to the east side of the 100-H retention basin were completed. Contamination was spread during high winds, on one occasion, and resulted in some skin and clothing contamination. All skin contamination was removed.

A spill of dissolver solution in room 4-K of the Redox laboratory resulted in gross contamination of the hood and floor below. Skin contamination on two persons was easily removed.

2. Standards

There was no Class II radiation incident recorded. Five Class I incidents were investigated. These included a fire and resulting contamination spread at the 200-W burial ground; exposure of two operators to plutonium air contamination at the Purification building; possible radiation exposure and contamination of an Instrument Specialist in the 105-F Reactor building; and two involved uncontrolled radiation exposure in the rod room and on the wash pad in the 105-F Reactor building.

DECLASSIFIED
[redacted]

1205664

3. Exposure Records

(a) Personnel Meters, and Records and Photometry

General Statistics	June	July	1952 To Date
Gamma pencils read	219,218	215,058	1,463,406*
Potential overexposures	7	8	43
Confirmed overexposures	0	0	3
Slow neutron pencils read	1,004	908	6,520
Potential overexposures	0	0	1
Confirmed overexposures	0	0	0
Beta-gamma film badges processed	48,016	42,934	317,128
Potential overexposures	8	9	74
Confirmed overexposures	0	0	6
Fast neutron badges processed	457	453	2,911
Potential overexposures	0	0	0
Confirmed overexposures	0	0	0
Lost readings (all causes)	61	43	278

*Incorrectly reported last month. Should have read 1,248,348.

(b) Bioassay

1) Plutonium analyses:	June	July	1952 To Date
Samples assayed	437	446	3,703
Results over detection limit	1	1	17
Maximum d/m/sample	0.33	0.45	1.70
Results of previous months	2	4	12
Maximum d/m/sample	BDL*	BDL*	BDL*

* Below detection limit

2) Fission product analyses:			
Samples assayed	430	537	3,750
Results above 10 c/m/sample	0	0	0

[redacted] HW-25227 - Del

Radiological Sciences Department

3) Uranium analyses:

Results of 463 samples were as follows:

METAL PREPARATION - 300 AREA

Job description	End of 4th Day Exposure µg/liter Maximum	Average	Number Samples	End of 1 Day-No exposure µg/liter Maximum	Average	Number Samples
Canning	15	4	27	5	2	15
Machining	42	9	48	20	5	33
Melt Plant	35	9	57	30	7	48
Material Handling	24	8	37	18	8	30
Testing	21	5	23	7	3	13
305 Building	2	2	1	0	0	0
Clerical	0	0	0	0	0	0
Coverage	7	3	5	8	5	5
Car Unloading						

	Before Job Maximum	Average	Number Samples	After Job Maximum	Average	Number Samples
Car Unloading	180	20	12	4	2	11

	Miscellaneous Samples (µg/liter) Maximum	Average	Number Samples
Random samples	0	0	0
224-U Building	6	1	98

4) Tritium analyses:

	Activity Density (uc/cc x 10^3) < 2	2-5	5-20	>20	Total
Number of samples	59	5	1	0	65

(c) Thyroid Checks

All thyroid checks were below the warning level.

DECLASSIFIED

[redacted]

1205586

(d) Hand Score Summary

There were 39,515 alpha and 59,173 beta scores reported. About 0.5% of the alpha scores and 0.01% of the beta scores were above the warning levels. There was no attempt made to reduce one of the high alpha scores at the Redox laboratory. Where decontamination was attempted, it was successful.

4. Calibrations

	Number of Routine Calibrations		
	June	July	1952 To Date
Fixed Instruments	181	130	1,582
Portable Instruments	1,851	2,372	14,664
Personnel Meters	12,326	17,150	108,117
Total	14,358	19,652	124,363

[redacted]

[redacted]

HW-25227-22

Radiological Sciences Department

BIOPHYSICS SECTION

CONTROL UNIT

Regional Survey

The general findings are summarized in the following table:

SAMPLE TYPE AND LOCATIONS	Activity Type	Average Activity Density µc/cc
Drinking Water		
Benton City Water Co. Well	alpha	1.1×10^{-8}
Richland, N.Richland, Benton City Wells	alpha	9×10^{-9}
100 Areas	beta	$< 5 \times 10^{-8}$
Pasco, Kennewick, McNary Dam	beta	$< 0.5\text{-}1.9 \times 10^{-7}$
Backwash Solids-Pasco Filter Plant	beta	4.2×10^{-3} µc/gm
Backwash Liquids-Pasco Filter Plant	beta	1.1×10^{-6}
Sand Filter-Pasco Filter Plant	beta	2.0×10^{-5} µc/gm
Anthracite Filter-Pasco Filter Plant	beta	1.8×10^{-5} µc/gm
Other Waters		
300 Area Wells #1, 2, 3	alpha	$0.3\text{-}1.9 \times 10^{-7}$
300 Area Well #4	alpha	1.9×10^{-7}
Well #4 measured as uranium	U	2.3×10^{-1} µg U/cc
Miscellaneous wells on the reservation	beta	$< 5 \times 10^{-8}$
Columbia River-Hanford Ferry	beta	2.9×10^{-6}
Columbia River-Patterson to McNary	beta	2.7×10^{-7}
Columbia River-Shore Mud	beta	4.2×10^{-5} µc/gm
Raw Water-Operating areas	beta	$< 0.5\text{-}1.2 \times 10^{-7}$
Pile Effluent retention basins	beta	1.8×10^{-3}
Pile Effluent retention basins	alpha	$< 5 \times 10^{-9}$
I^{131} in farm wastes	I^{131}	1.6×10^{-6}
I^{131} in Columbia River-Hanford	I^{131}	$< 5 \times 10^{-8}$
Atmospheric Pollution		
Gross alpha emitters	alpha	$< 0.4\text{-}7.5 \times 10^{-14}$
Gross dose rate-Separations areas	beta-gamma	0.3-2.6 mrep/24 hrs.
Gross dose rate-Residential areas	beta-gamma	0.3-0.8 mrep/24 hrs.
Filterable beta-Separations areas	beta	$0.1\text{-}4.4 \times 10^{-12}$
I^{131}-Separations areas	I^{131}	$0.2\text{-}6.6 \times 10^{-13}$
I^{131}-Separations stacks	I^{131}	0.8 curies/day
Active particles-Wash.,Idaho,Ore.,Mont.	-	0.01-0.2 ptles/m^3
Active particles - Hanford Works	-	0.02-1.1 ptles/m^3
Tritium (as oxides)-Reactor Stacks	T	1.5×10^{-8}

1205508

[redacted]

DECLASSIFIED

Radiological Sciences Department

Regional Survey - continued

SAMPLE TYPE AND LOCATIONS	Activity Type	Average Activity Density μc/gm
Vegetation		
Environs of Separations areas	I^{131}	7×10^{-6}
Residential areas	I^{131}	$< 3 \times 10^{-6}$
Eastern Wash. and Oregon	I^{131}	$< 3 \times 10^{-6}$
Non-volatile beta emitters-Wash.and Ore.	beta	3.9×10^{-5}
Alpha emitters-Separations areas	alpha	$< 0.5\text{-}5.7 \times 10^{-7}$
Alpha emitters-300 Area	alpha	1.6×10^{-7}

In addition to the average measurements summarized in the foregoing table, the following results represented significant changes when compared with similar data obtained during previous periods.

Monitoring at the Redox Stack showed an average of 0.61 curies of ruthenium discharged to the atmosphere daily. In one extreme case over a 24-hour period ending at 10:00 A.M. on July 17, 4.1 curies of ruthenium were emitted. The ratio of ruthenium collected on filters to ruthenium collected in the scrubbers was approximately 200 to 1 throughout the period.

Daily monitoring at 3 selected locations in and adjacent to the Redox Area showed no significant change in particulate deposition after July 1. Results obtained from particle filters showed that the number of particles in the atmosphere at the Redox 614 Building exceeded 3.9 particles per cubic meter during the week ending June 27.

Eighteen air samples were collected near the 200 West Area burial ground during the fire on July 9. Only one of the samples showed detectable alpha activity, this being 2.6×10^{-12} μc/cc. A vegetation sample collected near the Meteorology Tower on the following day showed an activity density from alpha emitters of 1.5×10^{6} μc/gm. Resamples collected several days later did not confirm this result.

Off-gas sampling at the base of the TBP stack began during July. Initial measurements indicated the activity density from gross beta and alpha emitters to be negligible.

Sixteen hand scrubber samples were collected in the vicinity of the Redox Area during periods in which dilution ratios were less than 500:1. Only one sample showed detectable I^{131} activity of 2.8×10^{-9} μc/cc.

1205589

Radiological Sciences Department

ANALYTICAL CONTROL LABORATORY

Routine analyses were carried out as follows:

Laboratory	Analyses Completed	
		1952
Type Sample	July	To date
Vegetation	1188	10787
Water	1870	13843
Solids	354	2646
Air samples	155	2295
Fluorophotometer	477	3917
Special survey samples (RMU)	23	285
Special survey samples (RS)	4	404
Dow Background survey samples	-	177
Total	4071	34354
Counting Room		
Beta measurements (recounts included)	5980	45707
Alpha measurements (recounts included)	3925	26931
Control points (alpha and beta)	2921	20321
Decay curve points (alpha and beta)	3657	25703
Absorption curve points	134	1176
Total	16617	119838

Summary of past data from the radiochemical analysis of 100-F Pile effluent water shows that the alum treatment has effected an approximate 40% reduction in the concentration of Cu^{64}. The Mn^{56} concentration, however, is about twice that present in water treated with ferrifloc.

The analytical procedure for ruthenium in air filters was improved by the use of hydrochloric acid to remove the ruthenium from the filters.

Investigation of the measurement of Rh^{103} in a PC-2B proportional counter as a possible means of determining the parent Ru^{103} in Ru^{103}-Ru^{106} mixtures gave encouraging results.

Control Services

Comparisons were made between pile effluents to determine the major effects of changes in pile water treatment. Variations in the decay of the beta activity in pile effluent were studied and calculation curves were established for use by Regional Survey. The relation between iodine in the air and that on vegetation was studied. Calculations were begun to determine the errors in background counting measurements.

1205590

DECLASSIFIED

Radiological Sciences Department

Synoptic Meteorology

Forecasts	Number made	July Percent Reliability
Production	93	89.3
24-hour	62	92.2
Special	44	88.6

There were two heat waves during the month. The first of these was from the eighth to the sixteenth, inclusive, during which time daily maximum temperatures averaged 100.5° F. In the second heat wave, from the twenty-sixth to the thirty-first, inclusive, daily maxima averaged 99.3° F.

Outside of the two periods of heat, there were some abnormally cool days, principally during the first week, and from the twentieth to the twenty-fourth. The over-all monthly average temperature was 77.0° F, which was 0.7° above normal. The highest was 106° F on the ninth; the lowest was 49° F on the sixth.

There was no measurable precipitation during the month and no notable storm.

ENVIRONMENTAL HAZARDS AND GENERAL STUDIES UNIT

Experimental Meteorology

Analysis of the records of the meteorological field stations was continued.

Two field tests were conducted to determine the diffusion of an oil-fog plume during inversion conditions. Meteorological conditions for one of the tests turned out to be rather unfavorable, but the second test was successful.

Additional oil-fog samplers, making a total of 29, were obtained to help in the study of the behavior of puffs of oil-fog coming to the ground during periods of poor dilution.

Geology-Hydrology

There was no significant change in the ground water contamination patterns in the 200 Areas. The contaminated zones in areas near the Columbia River decreased as the level of the river decreased. The total movement inland at the 300 Area was less this year than in previous years due, apparently, to the reduced maximum of flow this year.

1205591

Radiological Sciences Department

Sudden deflections of up to 0.04 feet were noted on two water stage recorders on July 21, at 4:00 A.M. corresponding to the time of the Tehachapi earthquake.

The ground water table beneath the Redox area is now rising at the rate of two feet per month. Water tables in other 200 Area locations are increasing less than one-half foot per month.

Soil Science

Studies relating to the polarographic procedure for the determination of total exchange capacities of soil materials indicate that a centrifuge technique will probably be the most satisfactory method for the replacement of exchangeable cations, and that gelatin added to the polarographic cell will aid in producing more reliable polarographic curves.

The adsorption of cesium in soil obtained from a well in Area 2 is being studied. The soil is a composite sample in which the exchange capacity has been saturated with calcium ions. The results obtained to date indicate that:

(1) cesium is adsorbed rapidly in soil, especially when the cesium concentration is less than 1% of the total exchange capacity (T.E.C.);

(2) the percent cesium adsorbed varies inversely with the cesium concentration, ranging from 8.0% to 98% adsorbed as cesium concentration decreased from 1.0% to 0.01% of the T.E.C.; and

(3) the adsorption of cesium is not significantly influenced by the presence of sodium or hydrogen ions when the cesium concentration is less than 10% and the sodium or hydrogen ion concentration is as high as 90% of the T.E.C.

Additional studies of the 105-H basin sludge showed that as much as 90% of the radioactive fission products may be adsorbed or occluded in the particulate matter. Chemical analysis and microscopy studies indicate that the particulate matter is primarily natural earth materials together with various crystallized particles and some organic materials. Preliminary tests indicate that as much as 99% of the sludge and radioactive isotopes may be retained on a sand filter.

Industrial Hygiene

The basic design of an automatic stack particle sampler, comprised of

1265592

two cascade impactor jets and a filter stage, was completed. Also completed was the series of filter tests on Whatman paper #41, wherein results indicated that penetration increased from 1% to 5% with an increase in the superficial filter velocity from 14 to 150 ft/min.

A report was issued on the study of exposures to oxides of nitrogen at ground level in the 200 Areas. Maximum potential concentrations were calculated from Separations stack samples and upon the most adverse meteorological conditions. It was concluded from this study that a potential health hazard from the oxides of nitrogen emitted through the Separations process stacks does not exist.

At the request of Industrial Medical, surveys were made of Redox and TBP operations to determine if potential health hazards are associated with the chemicals in use there.

Methods

The constant monitor installation for Xenon^{133} in the 200 West Area stack was not completed during the period. The range changer on the I^{131} continuous monitor was moved to the Redox Plant to allow more accurate estimations of the peak concentrations emitted. A series of runs with the cold silver reactor, proposed for high volume off-area samples, indicated 25% to 50% removal of the iodine with difficulties encountered in removal of the iodine from the reactor.

The first test to determine the linearity between power level and pile effluent activity density was being arranged as a joint experiment with the Pile Technology Unit. Five tubes in various zones of the 100-D Pile will be fitted with sampling lines so that individual samples from each zone will be available for complete analysis.

A study on the possibility of replacement of the ethyl ether now used for plutonium and uranium analyses with tributyl phosphate was started during the month. Optimum conditions for extraction appeared to be 20% tributyl phosphate in a Shell Spray Base solvent and a 5N nitric acid solution. It is hoped that the use of a new solvent will permit more consistent results from the three-gallon water and large vegetation samples.

Difficulties were encountered with the filter-fluorophotometer technique for oil fog concentrations in the air due to failure of the photomultiplier tube used in the fluorophotometer. After replacement of this tube a consistent calibration curve could not be obtained. Studies of the possible causes were in progress.

Radiological Sciences Department

Procedures for analysis of waste samples for radio-barium and radio-technetium were investigated. Yields for the barium procedure, as determined by gravimetric techniques, averaged 94% with a 2% standard deviation. The separation of the barium from strontium was shown to be satisfactory. Procedures for technetium indicate poor reproducibility, presumably due to volatility since erratic results are obtained on direct plating of technetium solution if the samples are heated to too high a temperature. The ruthenium separation from vegetation by the present procedure continues to give low yields and erratic results. This procedure will be dropped until a better approach to the problem is found.

A preliminary design on a proportional sampler for waste lines, particularly those feeding the 200 Area cribs, was completed. The proposed method entails collection of a sample from one of a series of identical weirs.

A series of pile effluent water samples was taken for determination of noble gas content. When the gases were flushed into the proportional counters, poor tube characteristics were obtained. The apparatus was then revised to allow longer contact of the gases with the hot copper for oxygen removal. Also, additional drying capacity for the gas was added. Following these changes, test runs on blank samples and aged effluent samples gave satisfactory counter performance.

Radiochemical Standards

The study of factors involved in 2 π and 4 π proportional beta counters continued, and was extended to include isotopes of Rh^{103}, Fe^{59}, and C^{14}.

A set of beta standards of different energies, obtained from a commercial concern, were briefly tested and compared with mica window GM counters. An accuracy of $\pm$ 10% was quoted. None of the sources could be brought into agreement with the quoted disintegration rates using presently established factors.

The calibration of horizontal pig TWG tube counter standard sources was completed this month. The sources, counted for comparison on several units in the areas, were mutually consistent to $\pm$ 4%.

[redacted]

HW-25227

Radiological Sciences Department

RADIATION MEASUREMENTS

Physics

An apparatus for obtaining K fluorescence X-rays in conjunction with the X-ray machine in the 234-5 building was designed and under construction at the end of this period.

Further work on scintillators made of zinc sulfide in lucite showed optimum efficiency was attained at a weight ratio of phosphor to plastic of 0.3 and a thickness of 1/3 inch.

A sample of glass coated with zinc sulfide phosphor, much superior to anything produced locally, was obtained from the G.E. Research Laboratory. Attempts to detect scintillations from alpha or beta sources with this sample were unsuccessful.

Age tests on the Victoreen mica window counter were halted after about 2×10^9 counts. The threshold coefficient was still increasing linearly with age when the test was discontinued.

Instrument Development

The alpha energy analyzer was moved to the 231 building where a series of tests was conducted to examine the possibility of counting air samples directly. Work completed indicated that there was less spread of alpha energies in the 231 building than found in 300 Area, presumably because air in the former location has a much lower dust content. Some possibility of estimating plutonium content of a filter may exist since, in all background runs to date, there appears to be a constant ratio between the number of particles of energy greater than 5.14 Mev to particles of lower energy.

Design was completed on the scintillation type alpha survey probe mentioned in last month's report. The probe will use a 1P21 photomultiplier and will work into a conventional poppy, a semi-portable poppy or a portable circuit. Several methods of operating 1P21 photomultipliers in coincidence have been investigated. The most promising uses a 6BN6 gated beam tube.

The air monitor was operated in building 3614 during most of the month. Difficulties encountered were for the most part attributable to the condition of components which were scavenged for the purpose.

The characteristics of glow discharge decade scaling tubes were investigated. Tubes type GC10A were found operable up to nearly 200 cycles/sec with a simple drive circuit. Such a characteristic would be useful for a hand counter, but is too slow for most purposes.

1205595

[redacted]

DECLASSIFIED

Radiological Sciences Department

BIOLOGY SECTION

AQUATIC BIOLOGY UNIT

Biological Chains

Inactive, pending occupancy of new laboratory.

Ecology

Survey of the Columbia River

With receding river levels, collection of samples from the littoral zone was resumed but on a reduced scope. With increasing river temperatures and diminished flow, activity densities of all river organisms increased substantially. Average activity densities at Hanford were 4×10^{-3} μc/g of plankton, twice that of June, and 1.3×10^{-3} μc/g of small fish, about five times that of June. Maximum observed value for the month, 1.5×10^{-2} μc/g, occurred in the scales of a sucker caught immediately below the 100-F Area. Samples of fish muscle did not exceed 7×10^{-4} μc/g.

Effluent Monitoring

Routine monitoring of the area effluent with fingerling silver salmon continued without change. Cumulative mortalities since hatching amount to 8% in the river water controls, 10% in the 5% effluent, and 31% in the 10% effluent. The growth of all fish in dilutions of the warm effluent water exceeds that of the controls.

BIOLOGICAL SERVICES UNIT

Biological Monitoring

Waterfowl contained 7×10^{-3} μc P^{32}/g bone, presumably due to increased physiological demand for the element by birds in eclipse plumage, to decreased effluent dilution, and to an abundance of food organisms.

Maximum thyroid activity density observed was 0.002 μc I^{131}/g of thyroid in rabbits collected near the Meteorology Tower. In areas where comparison was possible, coyotes exhibited thyroid activity densities approximately one-half that of prey species. A feral goat present on the reservation for approximately 8 years was taken near 100-H Area. Its thyroid contained 9×10^{-4} μc I^{131}/g. This value checked very closely with that obtained by interpolation of data gathered through systematic collection of rodents in the same region.

1205596

[redacted]

Radiological Sciences Department

Clinical Laboratory

Nine hundred and nine determinations.

Microscopy

Routine histological preparations, photomicroscopy, and electron microscopy.

Radiochemistry Laboratory

Services included 274 TTA and other extraction determinations of plutonium in biological samples, the preparation of 25 isotope solutions, and the analyses of routine samples involving approximately 4,000 alpha and beta counts.

METABOLISM UNIT

Animal Metabolism

Analyses on the final and highest level group proceeded with results indicating no major change in the previously estimated absorption fraction of 0.003%.

A number of decontaminating agents were tested in various combinations for their ability to remove plutonium from living rat skin. The tests were conducted 15 and 30 minutes following application of the 10 N HNO_3 solution of plutonium. The agents were applied either as an irrigating solution (3 liters) or by swabbing with cotton soaked in the solution. Incomplete results indicated all agents to be more effective when used 15 minutes after the exposure. Of the agents on which analyses were completed, none showed superiority to any marked degree over the present [redacted] swabbing procedure.

Analyses on the various soft tissue fractions of 4 rabbits, sacrificed 12 days after receiving plutonium citrate intraperitoneally, were completed. Two of these rabbits received no treatment following plutonium administration. The other two received zirconium citrate in 10 doses over a period of 6 days immediately following plutonium injection. Total plutonium content of the soft tissues was about 30% lower in the rabbits which had received zirconium citrate. These findings contradict those previously obtained with rats under similar experimental conditions.

The pilot experiment comparing the metabolism of deuterium and tritium, reported last month, was extended to thirty-three rats during this period.

120559

DECLASSIFIED

Plant Nutrition

Experiments were conducted comparing the accumulation from nutrient culture media of Sr, Cs, Y, and I, on dead and living roots of bean plants. Only cesium demonstrated a marked increase in accumulation by the living roots as compared to the dead roots. These results point out the importance of non-physiological factors in the accumulation of activity on plant roots, and the necessity for considering these factors when comparing the efficiency of a plant in absorbing different elements from the root environment.

Leaves of 3 tomato plants growing in nutrient solution of pH 4.0 were exposed to I^{131} vapor. An average of 0.8% of the total activity in the plant parts was found in parts other than the exposed leaf. This represents a five-fold increase in translocation as compared with plants growing in a nutrient solution of pH 6.

Plant Metabolism

It was found that algae cultured in media containing various radioisotopes showed a greater growth retardation in subsequent subcultures on inactive medium than they did during the original growth in the presence of the radioactive emitters. This is the behavior one would expect if the primary effect of the radiation was on the genes rather than on enzymes or substrates.

TOXICOLOGY UNIT

Experimental Animal Farm (Toxicology of I^{131})

Daily I^{131} feeding began on July 21 for the 1952 ewe lambs, with seven receiving 0.15 μc, eight 5 μc, four 15 μc, and three 45 μc/day.

As in previous years, the mean thyroid activity is increasing in all levels. Histologic examination of thyroid glands from rams fed 480 μc/day shows damage is first apparent after about 24 days of feeding 480 μc I^{131}/day.

Physiology

Preliminary conclusions, without benefit of control animal data indicates there is no therapeutically significant variation between amounts of zirconium administered and excretion of plutonium, nor is there an increase of plutonium excretion during the day following zirconium injection.

FINANCIAL DEPARTMENT MONTHLY REPORT
JULY, 1952

Summary

The July 1, 1952 balance in Production Work In Progress inventory ($133,578,000) has been entered on the books, and statements for July and subsequent months will reflect changes in this account. The value of the inventory includes Hanford Works conversion costs, cost of fissionable materials received, and depreciation of Hanford Works facilities applicable to production. Details by components and production processes are maintained, and unit cost data are available for management control. The data with respect to Hanford Works conversion costs have been available on a memorandum basis (not entered on the books) since June 30, 1949.

P. D. Lee, together with J. S. McMahon and W. H. Clymer of the Engineering Department, attended a discussion in New York City on July 31 with representatives of National Carbon Company regarding a proposed contract for additional graphite.

The regular semi-annual review of employees' life insurance coverage, to make changes resulting from salary increases, resulted in increases in coverage aggregating $2,661,000 for approximately 3000 employees.

During the month twelve Business Graduates were participating in the Financial Department rotational training program. The program consists of nine assignments in sections or units of the department, and covers a period of approximately six months.

Statistics

A summary of cash disbursements and receipts (excluding advances from AEC) for the months of July and June, 1952 is shown below:

Disbursements	July	June
Payrolls (net)	$2 503 822	$2 438 418
Materials and Freight	1 797 878	2 406 846
Payroll Taxes	830 486	622 815
U. S. Savings Bonds	190 370	108 552
Pension Plan - Employees' Portion	59 822	80 045
Payments to Subcontractors	17 870	27 364
Payment to AEC of Interest Earned by Administrative Fund	-0-	36 875
Other	308 816	318 326
Total	5 709 064	6 039 241

1205599

Receipts	July	June
Rents	96 147	104 885
Hospital	62 [illegible]88	55 372
Refunds from Vendors	58 679	4 541
Miscellaneous Accounts Receivable	34 260	10 329
Sales to AEC Cost-Type Contractors	21 427	258 788
Telephone	19 497	20 395
Bus Fares	9 596	9 583
Scrap Sales	3 712	9 424
Interest Earned by Administrative Fund	-0-	36 875
Handling Charges on Surplus Sales During FY 1952	-0-	20 815
Other	5 715	8 952
Total	311 621	539 959
Net Disbursements	$5 397 443	$5 499 282

Advances from AEC decreased from $11,729,618 as of June 30 to $6,332,175 as of July 31, 1952. No advances were received during the month, and the amount of the reduction represents the net disbursements shown above. The advances may be summarized as follows:

	July 31	June 30
Cash in Bank - Contract Accounts	$6 157 175	$11 554 618
Cash in Bank - Salary Accounts	50 000	50 000
Travel Advance Funds	125 000	125 000
Total	$6 332 175	$11 729 618

Personnel and Organization

	Current Month	Prior Month
Personnel Changes During Month		
Employees at beginning	367	369
Additions and transfers in	5	17
Removals and transfers out	(14)	(19)
Employees at close	358	367
Personnel by Sections at Month-End		
General	10	10
General Accounting Section		
General Accounts	22	21
Plant Accounts	24	25
Accounts Payable	25	25
Accounts Receivable	20	19
General	2	2
	93	92

1205500

Personnel and Organization (Continued)

	Current Month	Prior Month
Payroll Section		
Payroll Preparation	38	42
Benefit Plans	12	15
Confidential & Salary Administration	14	13
Payroll Records	8	9
Statistical & Tax Reports	2	2
General	7	7
	81	88
General Cost Section		
Consolidated Costs and Budgets	5	5
Utilities & General Services	16	16
Community Real Estate & Services	14	14
Radiological Sciences and Other	7	7
Medical	3	3
General	2	2
	47	47
Manufacturing Cost Section		
Costs and Budgets	33	34
General	6	6
	39	40
Engineering Accounting Section		
Project Section Costs	18	17
Design Section Costs (includes General Ledger Work)	9	9
Technical Section Costs	7	6
Accounts Payable	20	23
Budgets	8	8
General	3	3
	65	66
Internal Audit Section	11	12
Rotational Trainees	12	12
Total	358	367

Sections' Reports

The monthly reports of the six sections of the Financial Department, as listed below, are shown on the following pages.

General Accounting Section	Ia - 1 through Ia - 9
Payroll Section	Ib - 1 through Ib - 9
General Cost Section	Ic - 1 through Ic - 2
Manufacturing Cost Section	Id - 1 through Id - 2
Engineering Accounting Section	Ie - 1 through Ie - 4
Internal Audit Section	If - 1 through If - 2

1205581

GENERAL ACCOUNTING SECTION
MONTHLY REPORT - JULY, 1952

ACCOUNTS PAYABLE

In July, 2,246 vouchers totaling $1,797,042 were recorded, as compared with 2,893 totaling $2,384,013 in June. This decrease is due to the fact that vouchers covering June shipments received through July 7 were recorded in June.

Disbursements continued at a high rate, with the issuance of 1,609 checks amounting to $2,015,203, as compared with 1,681 checks amounting to $2,008,103 issued last month.

Receipt of new purchase orders remained at an unusually high dollar level due to issuance of new orders for process materials and general maintenance items. The 1,183 orders received in July totaled $887,539, as compared with 1,260 orders totaling $800,094 received in June.

As of July 31, the number of paid vouchers on hand over ninety days but not fully documented for final audit was reduced to only five, totaling $1,100.51.

Outstanding deposits on containers, reels, etc., to be returned to vendors totaled $27,971 at July 31, 1952. These deposits apply to approximately 175 purchase orders and vary in amount from $3.00 to $40.00 per item. Detail of outstanding deposits, showing year paid, appears below:

Year Paid	Amount
1947	$ 150
1949	210
1950	1 194
1951	6 423
1952	19 994
Total	$27 971

ACCOUNTS RECEIVABLE

The accounts receivable balance at July 31, 1952, amounted to $534,830, an increase of approximately $133,000 from the balance at June 30, 1952. This increase is primarily due to increased sales to Atomic Energy Commission cost-type contractors, and the booking of charges for Residential and Commercial electricity bills for the month of July.

1205602

General Accounting Section

ACCOUNTS RECEIVABLE (CONTINUED)

Follow-up was made by letter to General Electric employees who had previously authorized rental payments through payroll deduction and who failed to return revised authorization covering rental rates effective July 1, 1952.

Considerable time was expended in July coordinating procedures with the Electrical Distribution and Telephone Section and the Statistical and Computing Services Section with regard to electricity billings.

Eight accounts, totaling $310, were referred to collection agencies in July. Five accounts, totaling $14, were deemed uncollectible by the agencies and were returned. Seven accounts were collected in full and five accounts were partially collected by them in July, totaling $79, half of which was remitted to General Electric. At July 31, 1952, 210 accounts, in the total amount of $17,096 were in the hands of collection agencies.

Permanent deduction files relative to rent and dormitory accounts which are deducted by Weekly Payroll were established in July. These files are maintained by Weekly Payroll, and changes are made from change lists submitted by Accounts Receivable covering new lease assignments and lease cancellations. This procedure has eliminated the former practice of submitting the entire list of accounts each month for payroll deduction. Similar files will be established for rent and dormitory accounts deducted by Monthly Payroll at such time as Monthly Payroll converts to the IBM system.

Kadlec Hospital out-patient invoices numbered 1,951 amounting to $9,861, as compared to 1,906 invoices amounting to $8,655 in June. In-patient revenue increased $8,040 in July as compared to June, primarily as a result of increased patient day census from 70.0 to 73.8 and one additional calendar day in July . Sales of $67,715 were booked in July, and cash receipts amounted to $67,601.

GENERAL ACCOUNTS

Advances from the Atomic Energy Commission at July 31, 1952, amounted to $6,332,175, a decrease of $5,397,443 from the amount at the end of last month. The balance in the advance account at June 30 was high as it included an advance of $7,000,000 to cover July disbursements. No additional advance was booked in July and the present balance represents the June 30 balance less net disbursements in July.

Considerable time was spent this month in drafting a procedure manual on Cash Controls. It is expected that this manual will be completed by August 31, 1952.

Machine posting of Travel and Living Expense Variation Account and Travel Advance Account subsidiary ledgers was discontinued on June 30, 1952. These detailed ledgers are now hand posted, resulting in considerable savings in manhours. Hand posting

1205503

General Accounting Section

GENERAL ACCOUNTS (CONTINUED)

made it possible to combine both accounts onto one ledger card for each employee incurring travel expense resulting in only one posting operation for each expense account received. Also, hand posting simplified month-end reconciliations and made it possible to balance ledgers at an earlier date so that reports can be issued earlier.

The balance of the Travel Advance account increased from $23,303 as of June 30, 1952, to $27,924 as of July 31, 1952. A total of 143 expense reports were processed during July as compared to 329 in June. In June every effort was made to process all expense accounts covering travel prior to June 30 and to reduce open Travel Advances to a minimum. This resulted in an unusually large number of accounts being processed in June as compared to July.

Due to the establishment of earlier closing dates, consolidated reports and financial statements at the end of fiscal year 1952 were issued more than a week earlier than at the end of fiscal year 1951.

In connection with revised cost accounting procedures providing for the establishment of work in process inventories and the transfer of production costs of SF materials and weapons components between contractors and Operations Offices receiving such materials for further processing and assembly, the following general ledger accounts were established in July:

11.1	Inventories - Work in Process
11.9	Inventories - Research and Development SF Material
70.20	Government Cost Transfers - 3000 Conversion Costs
70.22	Current Account - Production Shipments (Excluding 3000 Conversion Costs)
70.24	Current Account SF Material Received

Entries were made in July to establish the above inventory accounts and to reflect the July activity in the above investment accounts resulting from the transfer of SF materials.

PLANT ACCOUNTS

In July, subaccounts were established in the account Costs - Undistributed Depreciation as follows: Production, Stand-by and Start-up, Research and Development, Community, Medical, Minor Construction, and Atomic Energy Commission. Of the total monthly depreciation of $2,433,991, that portion applicable to Production ($1,977,436) was transferred to Inventories - Work in Process.

1205504

General Accounting Section

PLANT ACCOUNTS (CONTINUED)

The plant-wide inventory of shop equipment was completed during the month.

Projects completed and unitized during fiscal year 1952 and distributed to Classified Accounts in June were transmitted to Plant Accounts field crews for verification of units of property contained therein.

During fiscal year 1952 plant valued at $18,494,280 was classified and entered in appropriate Plant and Equipment accounts. At the beginning of the year, the unclassified balance exceeded $8,000,000, whereas at the beginning of this fiscal year the unclassified balance was reduced to $556,361.

Net Book Value of Plant and Equipment accounts as maintained on General Electric books at June 30, 1952, indicates a decrease of $77,014,000 during fiscal year 1952, which resulted primarily from the elimination of amounts included on Atkinson-Jones books, $44,738,000, transfer of Construction Camp facilities to the Atomic Energy Commission, $25,866,000 and net additions and retirements of $22,663,000, and depreciation accruals of $29,073,000.

1205505

General Accounting Section

	July	June
Accounts Payable		
Balance at Beginning of Month	$ 742 477	$ 269 539
Vouchers Entered	1 797 042	2 384 012
Cash Disbursements	2 015 203 DR	2 008 102 DR
Cash Receipts	724	1 644
Other -1)	95 384 DR	95 384
Balance at End of Month	$ 429 656	$ 742 477

(1- In June accrual was made for material received but not billed. This accrual was reversed in July.

Number of Vouchers Entered	2 246	2 893
Number of Checks Issued	1 609	1 681
Number of Freight Bills Paid	562	1 470
Amount of Freight Bills Paid	$ 74 960	$ 342 383
Number of Purchase Orders Received	1 183	1 260
Value of Purchase Orders Received	$ 887 539	$ 800 094
Cash Disbursements		
General Accounting	$4 709 395	$4 555 074
Engineering Accounting	999 669	1 484 167
Total	$5 709 064	$6 039 241
Material and Freight	$1 797 878	$2 406 846
Payrolls (Net)	2 503 822	2 438 418
Payroll Taxes	830 486	622 815
Lump Sum and Unit Price Subcontracts	17 870	27 364
United States Savings Bonds	190 370	108 552
Pension Plan - Employees' Portion	59 822	80 045
All Other	308 816	355 201
Total	$5 709 064	$6 039 241
Number of Checks Written		
General Accounting	1 609	1 681
Engineering Accounting	617	646
Total	2 226	2 327

1205006

General Accounting Section

	July	June
Cash Receipts		
General Accounting	$ 253 944	$13 557 405
Engineering Accounting	57 677	13 965
Total	$ 311 621	$13 571 370
Detail of Cash Receipts		
Rents	$ 96 147	$ 104 885
Hospital	62 588	55 372
Refunds from Vendors	58 679	4 541
Miscellaneous Accounts Receivable	34 260	10 329
Sales to AEC Cost-type Constractors	21 427	258 788
Telephone	19 497	20 395
Bus Fares	9 596	9 583
Scrap Sales	3 712	9 424
Utilities	952	5 821
Advances from AEC	-0-	12 802 511
Refund from Administrative Fund	-0-	228 899
Interest Earned by Administrative Fund	-0-	36 875
Handling Charges on Surplus Sales	-0-	20 815
Other	4 763	3 132
Total	$ 311 621	$13 571 370
Bank Balances at End of Month		
Chemical Bank & Trust Company - New York		
Contract Account	$ 2 390 788	$ 1 380 289
Seattle - First National Bank - Richland		
Contract Account	2 943 295	9 315 369
United States Savings Bond Account	174 015	167 078
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	96 384	101 696
Seattle - First National Bank - Seattle		
Escrow Account	5 875	5 875
National Bank of Commerce - Richland		
Contract Account	823 092	858 959
Total	$ 6 483 449	$11 879 266

1205607

General Accounting Section

	July	June
Accounts Receivable		
AEC Cost-type Contractors	$ 207 858	$ 99 779
Hospital	129 578	128 792
Rents	63 188	62 034
Utilities	51 933	4 229
Equipment Sales to Facilities	42 426	42 977
Miscellaneous Services	27 023	51 703
Telephone	12 331	11 715
Safety Shoes	493	666
Sub-total	534 830	401 895
Reserve for Bad Debts	44 342 CR	42 549 CR
General Ledger Balance	$ 490 488	$ 359 346
AEC Cost-type Contractors		
Number Invoices Issued	85	6
Amount of Invoices Issued	$ 129 506	$ 25 452
Cash Received	21 427	248 234
Hospital		
Number Out Patient Invoices Issued	1 951	1 906
Charges During the Month	$ 67 715	$ 58 469
Collections - Cash	62 588	55 372
- Payroll Deductions	5 013	5 550
Rents		
Houses		
Number Houses Occupied	6 049	6 037
New Leases and Lease Modifications	83	88
Lease Cancellations	44	78
Charges During the Month	$ 223 859	$ 274 139
Collections - Cash	37 588	45 916
- Payroll Deductions	181 121	215 070
Dormitories		
Number Room Occupied	1 075	1 069
New Assignments	121	79
Removals	115	96
Charges During the Month	$ 14 959	$ 14 923
Collections - Cash	2 423	4 226
- Payroll Deductions	12 749	12 000
Facilities		
Number Facility Leases	135	135
Revenue	$ 56 135	$ 54 332

1205608

General Accounting Section

	July	June
Accounts Receivable		
Miscellaneous Services		
Number Invoices Issued	345	290
Amount of Invoices Issued	$ 8 499	$ 4 845
Cash Received	34 230	10 150
Telephones		
Working Telephones (Excludes Official Telephones)	5 518	5 504
Telephone Work Orders Processed	323	252
Charges During the Month	$ 45 790	$ 45 262
Collections - Cash	19 497	20 395
- Payroll Deductions	24 392	23 509

	Number	Amount
Uncollectible Accounts (Total to Date)		
Accounts Forwarded to Collection Agencies	431	$ 39 629
Accounts Returned as Uncollectible	92	15 973
Collections	158 -1)	6 560 -2)
Balance at Collection Agencies July 31, 1952	210	$ 17 096

(1- Includes 129 accounts collected in full and 29 accounts partially collected.

(2- Represents total collections, half of which is remitted to General Electric.

	July	Total To Date
Scrap Sales		
Number of Sales	6	519
Revenue (Excluding Sales Tax)		
Scrap Sales	$ 3 712	$ 533 061
Tract House Sales		
Revenue to AEC	-0-	34 148
Revenue to GE	-0-	14 673
Total	$ 3 712	$ 581 882

1205609

General Accounting Section

	July	June
Travel Advances and Expense Accounts		
Cash Advances - Beginning of Month	$ 23 303	$ 33 984
Advances During the Month	29 004	35 384
Expense Accounts Submitted	15 426 CR	30 709 CR
Cash Refunded	8 957 CR	15 355 CR
Cash Advances - End of Month	$ 27 924	$ 23 304
Outstanding Cash Advances		
Current	$ 23 951	$ 21 489
Over 30 Days	3 973	1 815
Total	$ 27 924	$ 23 304
Traveling and Living Expenses		
Paid Employees	$ 15 422	$ 33 093
Billed to Government	14 730	30 366
Balance in Variation Account at End of Month	692 DR	30 978 DR -1)

(1- Transferred to Administrative Fund as of June 30, 1952.

1205510

PAYROLL SECTION MONTHLY REPORT

JULY 1952

With a month's experience with the IBM system. Payroll supervisors saw many difficulties encountered in the first week's operation eliminated and most of the work on the payroll for the week ending July 27 (payable August 1, proceeded on the basis of the originally planned schedule for the new IBM system. For example, the Payroll Preparation group's calculations on time cards were finished by 4 p.m. on Monday and went to the Statistics and Computing Services Section slightly ahead of schedule; the IBM room completed its work on time, returning checks, earnings statements and registers to the Payroll Preparation group at 8 a.m. Wednesday, and detailed listings of individual deductions on Wednesday afternoon.

Checks for retroactive payments due active employees in connection with the 1.03% cost-of-living salary adjustment effective in March, 1952, were issued on July 25. The payment to 6 515 active employees aggregated $66 362. Approximately 450 man hours of work were consumed in computing the retroactive portion of the general salary adjustment. Payments due terminated employees are to be made on August 8, 1952. Payment of the new rate on a current basis began with earnings for the week ending June 22, so that the retroactive payments represented approximately three months' adjustment.

An increase of $2 661 000 in life insurance coverage for approximately 3 000 employees resulted when the Employee Benefit Plans group reviewed the insurance program in July to reclassify all employees who were entitled to additional coverage under the G. E. Insurance Plan. Employees' contributions were also increased in accordance with the Plan, the new rates being effected July 1 for those employees who received additional insurance coverage. Approximately 150 man hours were required to make this review.

Two time clocks were removed from the 720 Building and installed in the first-floor corridor between the old 703 Building and the new addition for the use of Purchasing and Stores Section employees who moved into the new wing in July. Other employees who moved into the new addition were already using clocks in the 703 Building.

A "Request for Reimbursement Authorization" covering the revision of the vacation plan to provide a new basis for determining vacation payments to employees working extended schedules was submitted to the AEC in July.

A two-page "spread" on the IBM payroll system was prepared for the Hanford Works News, with photographic and cartooning assistance from its staff. Two other articles, on group insurance and payroll deductions, were also written for the News.

Federal and State Payroll Tax Reports for the second quarter of 1952 were prepared and mailed to the Social Security Accounts Division, Schenectady for distribution to the various Tax Commissions.

As of July 31, 1952, there were 8 894 employees on the payroll. This represents a net decrease of 7 employees since June 30, resulting from 151 removals from the payroll during the month including 9 leaves of absence, 37 illness removals, and 1 for lack of work; and 144 additions to the payroll including 20 employees reengaged with continous service and 5 transfers in from other divisions of the Company.

Due to transfer or reclassification of employees, preferential rates were eliminated in 6 cases of weekly paid employees during the month. This left approximately 840 weekly paid employees having preferential rates as of July 31, 1952.

1205611

Payroll Section (Continued)

A total of 1 284 weekly paid employees were scheduled to begin their 1952 vacations in July. To date, 4 318 vacation notices have been received for weekly paid employees or 68.5% of the total number of weekly paid employees eligible for vacations.

In the month of July, 738 benefit claims were processed and forwarded to Metropolitan Life Insurance Company. A total of 1 042 checks in the amount of $72 369 covering 858 benefit claims were received from the Insurance Company and forwarded to employees, hospitals, and surgeons during July. Since December 1, 1950, the effective date of the new insurance plan, employees of the Nucleonics Division have received $1 126 129 in benefits under the terms of the health insurance portion of the plan.

In July, 233 newly eligible employees were canvassed for participation in the General Electric Pension Plan. Of these, 153 employees elected to participate, 48 employees elected not to participate, and replies have not been received from 32 employees. Applications for 2 optional retirement pensions and 3 normal retirement pensions were prepared and forwarded to the Pension Department during the month.

Payroll Section delivered approximately 900 checks directly to employees rather than through supervision. Of these, 500 salary checks were for area employees whose days of rest were Thursday and Friday; these checks were held in Payroll at the request of the employees' supervision. Termination checks, suggestion awards, etc., accounted for 338 checks, and the remaining 62 checks were mailed to employees who have been removed from the roll for various reasons. In addition, approximately 25 salary checks were picked up by a representative of Employee and Public Relations for delivery to employees absent due to illness.

Garnishments against nine employees were received during July; three were released without payment to the court, and six are pending. Three garnishments are still pending from June, thereby making a total of nine garnishments pending as of July 31.

In the month of July, 61 suggestion award checks in the aggregate amount of $1 045 were prepared and forwarded to the Secretary of the Suggestion Committee for delivery to Nucleonics Division employees.

Military Duty Allowances were paid to eight employees during the month of July. As of July 31, 1952, 247 employees of the Nucleonics Division had entered military service.

During July, 14 employees were added to the list of those authorized to pick up salary checks, U.S. Savings Bonds and Custody Receipts. As of July 27, 1952, 817 employees are authorized to receive these items for their respective departments.

At the request of Employment and Employee Services Section, a listing was prepared showing name, payroll number, and department code of all employees who have waived or discontinued participation in the General Electric Pension Plan.

A special analysis of insurance claims submitted during July, was made in order to acquire information pertaining to one day hospitalizations. The analysis will show the reason for admittance and whether or not there was X-ray or surgery involved.

Payments in the aggregate amount of $560 covering classes for the month of June were made in July to instructors who teach in the Graduate School of Nuclear Engineering.

1205612

United States Savings Bonds having a maturity value of $47 675 were withdrawn from the Stock Bonus Plan by 122 employees during the month of July.

United States Savings Bonds purchased under the Stock Bonus Plan during the years of 1948, 1949, and/or 1950 were withdrawn by 12 participants. Checks covering the income earned at December 31, 1951 on the forfeited stock which had been contingently credited to their accounts were delivered to the employees.

Total gross payments as of July 31, to the General Electric Company employees performing construction work for the period September 1, 1947 through September 30, 1951, is $132 825.63 for 1 111 employees, excluding 49 checks in the total gross amount of $1 853.49 which are being held by Payroll because addresses of these former employees are not available, and 2 checks totaling $1 099.69 for deceased employees which have not been prepared due to legal requirements. Total retroactive payments after the remaining 51 checks are disbursed will be $135 778.81 for 1 162 employees. As of July 31, 1952, 52 checks in the net amount of $622.69 are outstanding.

During July, one salary check was reported lost. No lost salary checks were replaced in July. As of July 31, 1952, nine lost check cases are pending.

Bank reconciliations completed in July were:

Weekly Salary through #303, week ended June 15, 1952.
Weekly Salary Vacation through #303, week ended June 15, 1952.
Bond Account - June, 1952.
Monthly Payroll #69, May, and #70, June, 1952.

Payrolls reimbursed were as follows:

Weekly Salary through July 20, 1952.
Monthly Salary through July, 1952.

1205613

Payroll Section

STATISTICS

Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on Payroll at beginning of month	8 901	2 090	6 811
Additions and transfers in	144	17	127
Removals and transfers out	(151)	(11)	(140)
Transfers from weekly to monthly payroll		60	(60)
Transfers from monthly to weekly payroll		(3)	3
Employees on payroll at end of month	8 894	2 153	6 741

Number of Employees	July	June
Bargaining group - HAMTC	3 503	3 502
Bargaining group - Building Services	71	70
- Two Platoon Firemen	51	52
- Hanford Guards	577	584
Other weekly - non-bargaining	2 590	2 655
Executive, administrative and operating	1 598	1 540
Professional	490	483
Other Monthly	14	15
Total	8 894	8 901

Number of Employees		
Engineering	1 546	1 619
Manufacturing	3 114	3 110
Utilities & General Services	2 315	2 342
Community	228	234
Real Estate & Services	310	316
Financial	358	367
Employee & Public Relations	108	110
Radiological Sciences	363	372
Medical	283	277
General	30	26
Law	7	7
Accountability	19	20
Technical Personnel	213	101
Total	8 894	8 901

Overtime Payments		
Weekly paid employees	$65 348	$59 772
Monthly paid employees	17 193 (a)	14 719 (b)
Total	$82 541	$74 491

Number of Changes in Salary Rates And Job Classifications		
	1 597	1 666

(a) Payments cover period July 1 through July 31, 1952 except in the case of Patrolmen in the Plant Security & Services Section of the Utilities & General Services Department who were paid for the period June 1 through June 30, 1952. Includes overtime for the month at the rate of time and one-half on the first $7 500 of annual base compensation.

(b) Payments cover period June 1 through June 30, 1952, except in the case of Patrolmen in the Plant Security & Services Section of the Utilities & General Services Department who were paid for period May 1 through May 31, 1952. Includes overtime for the month at the rate of time and one-half on the first $7 500 of annual base compensation.

Payroll Section (Continued)

Gross Amount of Payroll	July	June
Engineering	$ 692 535	$ 696 564
Manufacturing	1 311 787	1 313 803
Utilities & General Services	847 147	834 437
Community Real Estate & Services	207 324	211 444
Other	485 467	446 495
Total	$3 544 260 (a)	$3 502 743 (b)

Annual Going Rate of Payroll		
Base	$41 222 492	$41 096 460
Overtime	1 192 163	1 141 586
Isolation Pay and Area Differential	1 528 289	1 492 193
Shift Differential	490 551	480 872
Other	19 708	27 885
Total	$44 453 203	$44 238 996

Average Hourly Base Rates		
Bargaining group - HAMTC	$2.120	$2.114
- Building Services	1.635	1.637
- Two Platoon Firemen	2.089	2.083
- Hanford Guards	1.858	1.854
Other weekly - non-bargaining	1.805	1.808
Executive, Administrative and operating	2.999	3.014
Professional	3.130	3.116
Other monthly	2.298	2.301
Total	$2.221	$2.213

Average Earnings Rate Per Hour (c)	July			June		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	$1.950	$3.120	$2.518	$1.968	$3.149	$2.485
Manufacturing	2.334	3.126	2.482	2.310	3.142	2.459
Utilities & General Services	2.000	2.881	2.123	1.991	2.870	2.112
Community Real Estate & Services	2.051	2.633	2.238	2.035	2.630	2.223
Other	1.865	3.276	2.156	1.830	3.243	2.141
Total	$2.100	$3.066	$2.328	$2.086	$3.072	$2.312

(a) Includes payments for four-week period ended July 20, 1952 in the case of weekly paid employees. Includes $1 486 retroactive general salary increase of 1.03% for the period March 15, 1952 through May 31, 1952 in the case of monthly paid employees, and $65 916 for the period March 17, 1952 through June 15, 1952 for weekly paid employees.

(b) Includes payments for four-week period ended June 22, 1952 in the case of weekly paid employees. Includes $26 957 retroactive general salary increase of 1.03% for the period March 15, 1952 through May 31, 1952 in the case of monthly paid employees.

(c) Includes shift differential and isolation pay in the case of weekly paid employees and area differential in the case of monthly paid employees. Excludes overtime premiums, commissions, suggestion awards, etc.

1205615

Payroll Section (Continued)

Employee Benefit Plans	July	June
Pension Plan		
Number participating at beginning of month	7 045	6 862
New participants and transfers in	144	254
Removals and transfers out	(73)	(71)
Number participating at end of month	7 116	7 045
% Of eligible employees participating	92.7%	92.7%

Employees Retired	July	Total To Date
Number	7	212 (a)
Aggregate Annual Pensions Including Supplemental Payments	$1 358	$50 157 (b)
Amount contributed by employees retired	3 396	48 249

(a) Includes 8 employees who died after reaching optional retirement age but before actual retirement. Lump sum settlements of death benefits were paid to beneficiaries in these cases.

(b) Amount before commutation of pensions in those cases of employees who received lump sum settlement.

	July	June
Number who became eligible for participation	233	343
Number who applied for participation	153	225
Number who elected not to participate	48	84
Replies not received	32	34

Insurance Plan (c)		
Personal Coverage		
Number participating at beginning of month	9 022	8 910
New participants and transfers in	132	242
Cancellations	(42)	(20)
Removals and transfers out	(88)	(110)
Number participating at end of month	9 024	9 022
% of eligible employees participating	98.5%	98.3%
Dependent Coverage		
Number participating at beginning of month	5 638	5 617
Additions and transfers in	99	79
Cancellations	(16)	(3)
Removals and transfers out	(36)	(55)
Number participating at end of month	5 685	5 638

Claims - Disability Benefits (d)		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	88	125
Daily Hospital Expense Benefits	122	170
Special Hospital Services	139	201
Surgical Operations Benefits	114	127

) - The new insurance Plan was made effective on December 1, 1950.

) - Statistics cover only claims paid and not all claims incurred during the month.

1205616

Payroll Section (Continued)

Employee Benefit Plans (continued)

Claims - Disability Benefits (continued)	July	June
Dependent Benefits		
Daily Hospital Expense Benefits	253	199
Special Hospital Services	325	261
Surgical Operations Benefits	295	228
Amount of claims paid by insurance company:		
Employee Benefits	$28 066	$33 327
Dependent Benefits	44 303	26 842
Total	$72 369	$60 169

Number of Disability Claims Forwarded to Insurance Company		
Hospital Benefits		
Kadlec Hospital	457	612
Other Hospitals	146	127
	603	739
Weekly Sickness and Accident Benefits	135	143
Total	738	882

Claims - Death Benefits (a)	July	Total to Date
Number	3	93
Amount	$27 000	$539 500

Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of July 31, 1952, 4 employees who are absent due to total disability are still participating in the Group Life Insurance Plan. They were not actively at work December 1, 1950, and therefore were not eligible to participate in the new Insurance Plan. However, they will become eligible upon their return to work.

Vacation Plan

Number of employees granted permission to defer one week of their 1952 vacation to 1953

	July			Total to Date		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	2	9	11	42	41	83
Manufacturing	9	7	16	158	50	208
Utilities and General Services	5	4	9	151	30	181
Community Real Estate and Services	5	4	9	32	18	50
Financial	1	0	1	15	2	17
Employee and Public Relations	0	1	1	1	2	3
Radiological Sciences	0	2	2	4	6	10
Medical	1	0	1	6	1	7
General	0	0	0	0	1	1
Total	23	27	50	409	151	560

(a) Total to date includes all claims under the old and new Insurance Plans and 6 deaths on which accidental death benefits were paid.

1205617

Payroll Section (Continued)

Employee Benefit Plans (continued)	July	June
S. Savings Bonds		
Number participating at beginning of month	4 289	4 298
New authorizations	85	76
Voluntary cancellations	(49)	(53)
Removals and transfers out	(20)	(45)
Transfers in	-	13
Number participating at end of month	4 305	4 289
Percentage of Participation		
G. E. Employees Savings and Stock Bonus Plan	42.7%	42.6%
G. E. Savings Plan	10.4%	10.4%
Both Plans	48.4%	48.1%
Bonds Issued		
Maturity value	$233 500	$241 475
Number	4 276	4 250
Refunds issued	75	90
Revisions in authorizations	70	46
Annual going rate of deductions		
G. E. Employees Savings and Stock Bonus Plan	$1 612 984	$1 634 124
G. E. Savings Plan	443 278	443 331
Total	$2 056 262	$2 077 455

Withdrawal of U. S. Savings Bonds from G. E. Employees Savings and Stock Bonus Plan	July	Year to Date
Number of participants withdrawing Bonds	122	866
Maturity value of U. S. Savings Bonds withdrawn	$47 675	$ 297 330

Employees Who Have Entered Military Service

	Called to Duty	Total to Date Volunteered for Duty	Total
Reserve Officers	27	3	30
Enlisted Reserve	51	6	57
National Guard	6	-0-	6
Selective Service	53	-0-	53
Voluntary Enlistments	-0-	101	101
Total	137	110	247

1205618

Payroll Section (Continued)

Number of Rent, Telephone and Hospital Deductions from Salaries	July	June
House Rent	4 904	5 057
Dormitory Rent	1 006	862
Barracks Rent	180	158
Trailer Space Rent	137	104
Telephone	3 711	3 754
Hospital	546	598
Total	10 484	10 533

Annuity Certificates (For DuPont Service)	July	Total to Date
Number Issued	2	92

Suggestion Awards		
Number of awards	61	1 582
Total amount of awards	$1 045	$30 265

Employee Sales Plan	July		
	Major Appliances	Traffic Appliances	Total
Certificates issued	28	190	218
Certificates voided	0	3	3

Salary Checks Deposited	July		June	
	Weekly	Monthly	Weekly	Monthly
Richland Branch - Seattle-First National Bank	830	869	758	854
North Richland Area Office - Seattle-First National Bank	15	6	9	6
Richland Branch - National Bank of Commerce	549	335	477	313
Out of state banks (Schenectady Staff)	-0-	1	-0-	1
Total	1 394*	1 211	1 244**	1 174

*Week ended 7-27-52
**Week ended 6-15-52

Special Absence Allowance Requests	July	June
Number submitted to Pension Board	3	8

% Absenteeism		
Weekly - Men	2.09%	2.12%
Weekly - Women	3.16	3.25
Total Weekly	2.36%	2.41%
Monthly	1.08	1.39
Grand Total	2.02%	2.20%

1205619

GENERAL COST SECTION
MONTHLY REPORT
JULY, 1952

Operating cost reports for the month of June which included final costs covering FY 1952 were issued about July 18, 1952. Supplementing these reports, analyses letters were issued to managers affording comparison of June costs with similar expenses incurred in the previous month and explaining major variations. Considerable emphasis was placed on total costs for the fiscal year as compared with budgeted amounts as provided in the Mid-Year Budget Review.

The Summary of Operating Costs report was issued on July 18 including detailed schedules of Production and Research & Development costs as well as the General Overhead expenses. On July 23 a letter was issued to the General Manager which summarized Production Costs incurred during FY 1952 as compared to the budget and which included a brief narrative of changes in cost which occurred during the fiscal year.

Bogey estimates through December, 1952 were made available to Plant Management on July 25.

Consolidated Cost and Budget

A special review of the General Electric portion of the 7000 Program budget was made in connection with a letter from the Atomic Energy Commission relative to a proposed reduction of operating funds for this program.

During July at the request of the Director, Medical Services, a comprehensive study of revenue and expense in connection with radiology and pathology work at Kadlec Hospital was started.

Work in connection with formulating a unified coding system was continued during the month. It is expected that a consolidated cost code book will be completed during August in time for distribution well in advance of the revised target date of October 1, now established for conversion to a unified cost coding system throughout the plant.

A special report was completed during the month covering an analysis of clerical routines in the Transportation Section to determine possible duplication of services by both Transportation and the General Cost Section.

Utilities and General Services Cost

Reviews were made during July of rates used in liquidating costs of the various units. Several revisions of rates resulted from these reviews, the most significant of which were an increase in Plant Telephone rates and decreases in rates used to liquidate area bus costs. In addition, changes were made in the methods of liquidating cost of Janitor Service and road maintenance within the area barricade. The method of distributing Operational Stores overhead was changed and will henceforth be accomplished by adding a percentage to the cost of materials withdrawn from inventory.

1205520

Coincident with the establishment of the new Addressograph Unit, a standard rate per productive hour was developed and will be used in liquidating costs of this unit.

Community Real Estate and Services Cost

A considerable amount of time was spent in bringing present procedures up to date with necessary revisions for use in the forthcoming fiscal year. Among the reviews completed were (1) liquidation procedures, (2) assessment distribution procedures, (3) inventory accounting procedure, and (4) miscellaneous supplies warehousing procedure. Also complete was a study of the distribution of domestic water revenue.

A study was made of 7000 Program expenditures for FY 1949 - FY 1952 inclusive in order to provide adequate basis for comparative cost analysis.

The preparation of the report for the 6 months ended June 30, 1952, covering Landlord Responsibilities of the Community Real Estate and Services Department was progressing favorably.

Staff Departments Cost

A change in coding of Research and Development Program costs for the Biology Section of Radiological Sciences was introduced effective July 1, 1952, by means of which costs previously accumulated under 21 separate codes were consolidated into three codes. It is anticipated that this change will considerably reduce detail ledger posting and report typing required in connection with cost reporting for these programs.

A major change in the method of accounting for salary expense of Rotational Trainees was introduced in July whereby such salary costs will be charged to the Technical Personnel Office as a direct expense and will in turn be liquidated at a standard rate per trainee to the departments to which they are assigned.

A schedule of payroll accruals for FY 1953 was prepared consistent with the theory established last year by means of which payroll costs are adjusted to an average number of days for each month. This has the effect of leveling off the marked fluctuations in salary cost which arise from an unequal number of working days in the various months.

Arrangements were made to accumulate all plant costs incurred in training personnel of the Dow Chemical Company so that proper billing can originate from one central source.

1205521

MANUFACTURING COST SECTION
July, 1952

PRODUCTION COST ACCOUNTING

To integrate the "Production Cost Accounting" System with financial accounts, General Ledger Accounts for production inventories, shipments and receipts of fissionable materials, were opened during July.

Initial entries were made to these accounts setting up book balances of Work In Process Inventory, and Research & Development - SF Materials Inventory as of July 1, 1952. Sub-accounts maintained in the Production Cost Accounting records give details of Work In Process Inventory by type of product, and individual elements of cost including S.F. Material, conversion and depreciation.

Standard unit cost values for billing purposes were established for products. Product Cost Transfer Vouchers were issued for off-plant shipments. Receipt of SF materials from other contractors were recorded through Product Cost Transfer Vouchers received. All receipts and shipments affect the Work in Process Inventory and entries were made to general ledger recording these transactions.

BUDGETS AND SPECIAL REQUESTS

Work is continuing on the write-up of the budget procedure. Additional time required incorporating the changes in the first quarter breakdown delayed the completion of this write-up until August.

Special Request Unit prepared a breakdown of all charges billed out on Government Cost Transfers and Billing Direct to A.E.C. Cost-Type Contractors from September 1950 to date for use by Accounts Receivable Unit.

The Special Request Program continues to increase in activity with 71 invoices prepared in July. These invoices totaled $47,001 billed as Special Request Services.

MAINTENANCE & PLANT IMPROVEMENT

Expense account numbers for preventive maintenance in the Separations "T" Plant were opened. These accounts, as experience is gained in the "T" Plant, will be used to cover maintenance in other process buildings. This will reduce the volume of normal work orders now being written.

Arrangements were made with the area representatives to obtain copies of work orders issued to the Engineering Department. This will be of considerable assistance in processing billing from Engineering.

A revised Work Order Authorization List was issued July 1. A Landlord Report for Separations Section was issued itemizing all costs for each building. Metal Preparations Report (Landlord) was prepared. A similar report for Reactor will be completed as soon as possible.

Work Order Overrun Reports were issued to all Sections and Units within the Manufacturing Department in addition to the reports to Department Managers.

1205522

REPORTS AND RECORDS

Effective July 1, 1952, 20% was applied to all stores disbursements to liquidate stores indirect costs. This charge had formerly been included in the General and Administrative Cost, but will now be largely reflected in an approximate increase of $300,000 per year in the Manufacturing Department Materials Cost.

Deadline dates were established for July reports and entries that will provide Cost information to Management and Field Supervision at earlier dates. These dates were moved ahead with the cooperation of the Computing Unit and Payroll Section as well as other sections of the Financial Department.

Effective with the July report, isolation pay to exempt personnel will be reported as such.

As a result of correspondence between the Manufacturing Department and Utilities & General Services Department, the Maintenance of Area Roads is no longer charged to Manufacturing General but is distributed to each Unit on basis similar to Area Bus Service.

The Space Occupancy or Landlord Accounts in the month of July reflect the total charges for Landlord services. Liquidations are made on a basis of space occupied by all Departments. In previous months this was done only in the Metal Preparations Section.

Methods of billing the electricity to Manufacturing Department was revised effective July 1, 1952. Previously, we were billed on the basis of KWH consumption. July and future months will be based on the KW demand established by each Department or Area during the period on which the Hanford billing from B P A is based.

REACTOR SECTION ACCOUNTING

The Process Unit was determined by Operating Management to be strictly a service for the Operation's Unit and therefore, should be shown in its entirety as a line indirect expense item on the Operations Unit Operating Report. The only exception would be work performed for other departments or sections. An account class, for analysis purposes, was set up to segregate work done for the Power Unit from that done for Operations Unit.

METAL PREPARATION SECTION ACCOUNTING

Standard rates for maintenance of portable radiation monitoring instruments are being established for each type of instrument used throughout the Area. It is anticipated that this program will be in operation on September 1, 1952.

Standard costs for some items prepared to fill Special Requests for other AEC installations are being developed. It is felt that improvement in accuracy and reduction in labor required will be the benefits derived.

CER 8/11/52

1205523

ENGINEERING ACCOUNTING SECTION
MONTHLY REPORT FOR JULY, 1952

DESIGN SECTION COST

The Rotational Trainee Assessment based on a standard rate charge per employee assigned to the Design Section was billed for the first time this month. The charge in the amount of $12,346 covering 33 employees was recorded as follows:

Design Engineering Unit	$ 3,741
Process Engineering Unit	7,857
Design Planning Unit	748
	$12,346

Detail budget figures are shown on the monthly cost statements with the exception of Research and Development, which are being prepared and will be reflected in the statements for August, 1952.

The following Research and Development Studies were established effective July 1, 1952 under the responsibility of the Design Section Management:

RDS No.	Study	Program
RDS-D-10	Reactor	Reactor
RDS-D-11	Water Plant	Reactor
RDS-D-12	Separations	Separations
RDS-D-12	Separations	234-5
RDS-D-13	Mech. Development	Reactor
RDS-D-13	Mech. Development	Separations
RDS-D-13	Mech. Development	Metallurgy
RDS-D-13	Mech. Development	234-5
RDS-D-14	Utilities & Services	Reactor
RDS-D-14	Utilities & Services	Separations
RDS-D-14	Utilities & Services	Metallurgy
RDS-D-15	Standards	Reactor
RDS-D-15	Standards	Separations
RDS-D-15	Standards	Metallurgy
RDS-D-15	Standards	234-5

A graphic comparison of cost and budget was issued with the July operating reports. It is planned to expand the use of graphs in future reports.

PROJECT COST

During July, Pansy M. Clark submitted a suggestion recommending a change in the method of handling Reproduction liquidations. This suggestion was adopted and placed in effect July 14, 1952 by Project Services and Engineering Accounting. The adoption of this suggestion has materially reduced the cost and time consumed in the preparation and billing of reproduction liquidations.

1205524

ENGINEERING ACCOUNTING SECTION

PROJECT COST (Con't.)

Financial Closing Statements were issued covering the following projects:

CG-456 Additional 13-Quad Telephone Cable from the B-Y Exchange to Point "I"
CG-461 Maintenance Hot Machine Shop 108-D
CG-468 Horizontal Rod Mock-up Facilities
CG-474 Relocation of Facilities for Exponential Experiments
M-613 Minor Construction Fire Clean-up - Material, Stores and Shops White Bluffs
MMI-30 Painting Buildings in the Administration Area - North Richland

Unitization Reports were prepared on the following projects:

C-172 Dismantle Equipment - Demineralizing and Deaerating Plant
C-177 115 KV Transmission Line
C-276 Installation of Overall Plant Telephone Facilities
C-289 Additional Laundry Facilities - 200 West
C-337 Dissolver Off-Gas Filtration - Building 221 T & B
C-340 Critical Mass Program
C-341 Additions to Richland Electrical Distribution System
C-369 Evaporation Facilities for Waste Solution - 200 W Area
C-378 Iodine Removal Facilities for Dissolver Off-Gas
C-380 Electric Metering, Village of Richland
C-390 Removal of Equipment from Building 108-D
C-398 Experimental Costing Hood, Building 234-5
C-409 Riverland Elevated Water Tank
C-411 P-10-X "J" Slug Storage and Shipping Facilities
C-423 Additional Waste Evaporation Facilities - 200 E Area
C-440 Alterations to 712-A Building
C-444 Additional Unit to Supplement Operation of Hood #26
C-446 Additional Effluent Disposal Facilities
C-485 Experimental Activated Silica Additional Equipment
IP-106 Induction Heating Facilities for Corrosive Studies (E-20)
MMI-31 Special Ventilation - 111-B Building
M-607 H.F. Filters for Hood and #8 Exhaust System - Building 234-5
M-772 Improved Decontamination Facilities, 222-T & B

Considerable time was spent in developing new standard Engineering rates for Project Engineering Unit, Reactor Unit and Separations Unit. Also, the Reproduction group has been divided into two groups, Production and Services, in order to establish more realistic Reproduction costs.

TECHNICAL COST

Excluding time required to prepare routine monthly reports, the major portion of July was spent in preparing a draft of the uniform cost coding system now being planned for the Nucleonics Division. The draft embodied only those ideas which materially affect Technical Section.

1205525

ENGINEERING ACCOUNTING SECTION

TECHNICAL COST (Con't.)

At the request of the Manager - Technical, studies were begun to determine standard rates to be used for liquidating costs of Technical Section.

Near the end of July, it was announced that report schedules had been moved up considerably; making July Unit Cost Statements due on August 12. To meet this deadline, costs in the amount of $79,000 were accrued rather than to wait for actual July charges. The items accrued were for those routine monthly charges from other sections which are usually the same amount each month. It is expected that the practice of accruing costs will be carried on each month in the future.

A number of new cost accounts were established July 1. All new accounts are in line with the uniform cost system to be proposed. Their establishment July 1 will avoid the necessity for extensive recasting of costs later on.

Also a complete new list of Research and Development codes was issued corresponding to the new authorizations for Research and Development Programs and Studies which were effective July 1.

All existing cost report forms were reviewed and revised as required for July reports.

ACCOUNTS PAYABLE

There were 1,020 vendor's invoices amounting to $960,549 processed during the period as compared to 1,057 invoices totalling $1,400,284 for the month of June.

Cash disbursed during July is summarized below:

Material and Freight	$ 978 732
Lump Sum Subcontracts	17 870
Miscellaneous	3 067
	$ 999 669

At the close of the month, there were 619 invoices on hand in Accounts Payable in the aggregate amount of $1,204,275 of which $1,150,168 had been paid but billing to the Commission is being held in abeyance pending receipt of additional supporting documents. Invoices on hand and the documents required are summarized on the following page.

1205626

ENGINEERING ACCOUNTING SECTION

ACCOUNTS PAYABLE (Cont'd)

	Number	Amount
Purchase Order Alteration	29	$ 199 169
Receiving Report	106	59 003
Fabrication Receiving Report	5	30 161
Material Exception Report	5	32 488
Claims	18	268 712
Engineers' Approvals	18	273 893
Others (Includes Photo copies of letters, freight bills, etc., and unpaid invoices)	343	298 514
Total Vouchered Invoices	524	$1 161 940
Unvouchered Invoices	95	42 335
Total On Hand	619	$1 204 275

There were 302 freight bills received which amounted to $15, 120.

1205627

INTERNAL AUDIT SECTION
MONTHLY REPORT
JULY, 1952

A report was issued covering the findings and recommendations resulting from fiscal year-end audits of 65% of the authorized cash funds and from confirmations of the funds on deposit subject to withdrawals by outside organizations. The report also covered the results of a review of all cash receipt books issued since September 1946, together with recommendations to strengthen controls over issuance and use of cash receipt books.

A report was issued covering an audit of Accounts Receivable - Kadlec Hospital which was made to determine (1) whether the general ledger controlling account was in agreement with the subsidiary ledger maintained at Kadlec Hospital by Accounts Receivable, Medical, (2) whether the accounts were bona fide and, (3) whether records and procedures provide satisfactory control over billing and collection for services and supplies furnished patients.

A review of the compilation of the State of Washington Business and Occupation Taxes for the period September 1, 1946 through June 30, 1952 was completed. A report was issued showing an additional amount of tax due, as determined by a comparison of the amount of the reported tax with the amount which should have been reported as developed by the audit. The report also presents a revised procedure for compiling taxes which will provide (1) uniform reporting of taxable amounts, (2) reduction of work in preparing returns, and (3) determination of the tax on a cash basis rather than a combination cash and accrual basis.

Several audit letters reporting errors in requests by Inventory and Audit personnel for adjustment to inventory accounts, based on physical inventory results, were prepared. These letters were transmitted to the Manager of Purchasing and Stores Section with a request, that corrective action be taken to eliminate causes of the errors, and that information upon which the adjustments were based be made available to the internal auditors.

An estimate was prepared indicating that an inventory of General Maintenance and Spare Parts Inventories can be taken at one time with less than 1000 man days. At present, the Purchasing and Stores inventory group spends approximately 2500 man days a year (equivalent to the time of 9½ employees) on inventory work, and during the twelve month period ended May 31, 1952, they were able to take a physical inventory of approximately 30 of the 53 subaccounts of General Maintenance and Spare Parts inventories. It has been agreed by management that a complete physical inventory at one time would be taken of these two accounts either as of May 31, 1953, or as of June 30, 1953. Inventorying by subaccounts will be discontinued and employees taking inventories will be used during the next few months on the excessing program.

Field inspections made of several areas disclosed that unrecorded inventory materials had not been turned over to Stores by departments operating in the areas. As a result, the area storekeepers do not have sufficient work while other employees are performing Stores functions in the same areas.

1235120

Field inspections made of excess material indicated that it would be impractical to take an inventory at this time. However, it has been agreed by management that an inventory will be taken by June 1953, by which time the following steps will have been taken to facilitate the taking of an inventory:

1. Consolidation of all excess materials to be inventoried in one location at North Richland.

2. Reduction in amount on hand by disposal.

3. Identification of all materials.

4. Consolidation of materials and records for excess materials in Excess Inventory and Inventories Held for Possible Future Use.

5. Establishment of control over stores documents.

At the request of the Technical Services Unit a cost study was begun of the operation of the Mechanical Development shops in the 100 D Area.

1205529

PLANT SECURITY AND SERVICES SECTION

MONTHLY REPORT - JULY 1952

SUMMARY

One major injury occurred during the month bringing the year's total to eight with a frequency rate of 0.78.

There were nine industrial fire alarms. Losses were estimated at $36.00.

The 200-West Laundry volume remained near the same low level as the preceding month indicating the necessity for force reduction. Notices were given five employees all of whom were placed in other positions prior to the effective date.

The Office Equipment Utilization Survey was approximately 60% complete at the end of the period. The survey had resulted in 178 office machines being picked up for reissue valued at approximately $30,000.

Procedures Analysis and Forms Control activities resulted in savings of $5,909. Accumulated savings for the year to date now total $87,769.

1205630

PLANT SECURITY AND SERVICES SECTION

MONTHLY REPORT - JULY 1952

ORGANIZATION AND PERSONNEL:

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	7	6		1 (a)
Patrol and Security	634	630		4 (b)
Safety and Fire Protection	150	146		4 (c)
Office Services (Laundry and Building Services, Clerical Services, Records Control and Procedures Analysis)	352	348		4 (d)
TOTALS	1,143	1,130		13

NET DECREASE: 13

(a) - Staff

1 - Termination

(b) - Patrol and Security

2 - New Hires
1 - Reactivated
1 - Transferred from another Section
3 - Deactivated
2 - Transferred to another Section
3 - Terminations

(c) - Safety and Fire Protection

1 - Transferred from another Department
1 - Transferred to another Department
1 - Deactivated
3 - Terminations

(d) - Laundry and Building Services

1 - Transferred from another Section
1 - Reactivated
4 - Transferred to other Departments
1 - Deactivated
3 - Terminations

1205531

Clerical Services

11 - New Hires
1 - Deactivated
5 - Transferred to other Departments
5 - Terminations

Procedures Analysis

1 - Transferred from another Unit

SAFETY AND FIRE PROTECTION

Injury Statistics

	JUNE	JULY	YEAR TO DATE	COMPARATIVE PERIOD 1951
Major Injuries	2	1	8	4
Sub-Major Injuries	2	1	15	11
Minor Injuries	347	361	2,661	2,150
Exposure Hours	1,407,326	1,416,340	10,293,460	9,766,934
Major Injury F/R	1.42	0.71	0.78	0.40
Major Injury S/R	0.018	0.005	0.057	0.045
Penalty Days	0	0	375*	450
Actual Days Lost	25	7	215	4
Minor Injury F/R	2.47	2.55	2.59	2.20
Estimated Medical Treatment Time Required	1,404 hours	1,452 hours	10,764 hours	8,688 hours

* 300 days penalty taken on Major Injury No. 83 which occurred in June. (Amputation of left great toe.)

Industrial Fires Department	Area	No. of Fires	Cause	Loss
Manufacturing Reactor Section	100-F	1	Spontaneous Ignition	$30.00
Manufacturing Separations Section	200-W	1	Electrical	None
Manufacturing Separations Section	200-W	1	Spontaneous Ignition	None
*Manufacturing Metal Preparations Section	300	1	Spontaneous Ignition	None
Comm. Real Estate & Serv. 700-1100-3000 Serv. Section	700	1	Burning and welding	None
Comm. Real Estate & Serv. 700-1100-3000 Serv. Section	700	1	Spontaneous Ignition (coal)	None

1205632

Industrial Fires (Cont.) Department	Area	No. of Fires	Cause	Loss
Utilities & Gen. Serv. Transportation Section	1100	1	Smoking material	None
*Utilities & Gen. Serv. Purchasing & Stores Section	3000	1	Smoking material	$ 6.00
Not chargeable to a Dept.	Outer	1	Lightning	None
TOTAL FIRES		9	TOTAL LOSS	$36.00

*Fires occurred in June too late for monthly report.

Safety Activities

Good progress is being made in the study and analysis of the safety meetings held and material discussed at same during July.

Emphasis is being placed on the value of safety orientation meetings for all new employees in the 300 Area.

The revival of safety activity throughout the 3000 Area is probably responsible for the increase in reporting minor injuries as the number of injuries during July was out of bounds.

The Good Housekeeping Contest being conducted by all units throughout the 100 Areas was won by the 105-F Operation Unit during the month of June.

Plans are about complete for the forthcoming safety contest in the 200 Areas. It is scheduled to start on September 2 with a special launching activity. A complete program and descriptive breakdown will be published in the Works NEWS on August 29.

Arrangements are being made to transfer all prescription lenses in plastic frames to excess metal frames for employees who are required to wear the new all purpose gas mask. The first shipment of these gas masks is expected in the early part of August. They can be worn over prescription safety glasses (in metal frames) and various canisters may be used with the same face piece.

The Ramset Model #122-M Jobmaster Tool, which was altered to meet safety requirements was submitted and found safe to be used on this plant. Approval was sent to Purchasing Section.

Fire Protection Activities

Fire Protection surveys were completed on Buildings 284-W, 3745 and 3746.

Forty new employees were given fire orientation in the 300 Area during the month.

1205633

Permission was denied the 300 Area Power and Mechanical Maintenance Unit to move the 75,000 gallon high tank from the 300 Area to the 200-West Area.

Work was done with the 200-W Laundry to improve the fireproofing of coveralls.

The large propane storage tanks on the plant are equipped with unapproved valves and vaporizers. Information on the identification of approved equipment is being obtained.

A procedure was established to control welding by Construction in the 384 coal conveyor area.

New "Emergency Fire Phone 5301" signs were placed in prominent locations in the 100-F, 100-H and 100-D Areas.

Further discussions were held with representatives of the Walter Kidde Company, Project Engineering and Building Engineering to discuss the 234-5 filter room fire extinguishing equipment.

Locations were suggested for fire hydrants and fire alarm boxes for the K Area.

Two prints of the 105-K Building were reviewed and approved.

The fire alarm system of the Hot Semi-Works was inspected and placed in service.

The 1939 Holbird Fire Truck was sent to garage the first of the month with a defective clutch. Transportation has been unable to obtain necessary parts due to obsolescence. They expect delivery of the parts will not take place in less than ninety days.

Number of training drills held during the month: 265

OFFICE SERVICES

Laundry and Building Services

Plant Laundry - 200-W Area	June	July
Pounds Delivered	177,241	178,303
Pounds Rewash	7,270	7,409
Total Dry Weight - Lbs.	184,511	185,712
700 Laundry		
Flatwork - Pounds	43,308	32,790
Rough Dry - "	18,251	17,288
Finished - "	2,741	2,256
Estimated Pieces	84,233	68,558
Total Dry Weight - Lbs.	64,300	52,334

Monitoring Section - 200-W Area	June	July
Poppy Check - Pieces	152,371	136,879
Scaler Check - "	168,080	196,228
Total Pieces	320,451	333,107

Clerical Services

Vacations have been heavy this month, thus creating critical manpower conditions when coupled with sickness and terminations. Most Clerical Services operations are now somewhat settled in new quarters and functioning quite smoothly. Absenteeism and handling of automotive equipment were thoroughly discussed in a staff meeting held July 31.

Central Mail

Volume of mail handled for July was slightly lower than the previous month.

Types and Pieces of Mail Handled	July	June
Internal	1,211,231	1,288,039
Postal	77,498	85,406
Special	1,602	1,863
Total Mail Handled	1,290,331	1,375,308
Total Postage Used	$2,431.82	$2,727.42
Total Teletypes Handled	3,107	3,386
Total Store Orders Handled	278	365

Addressograph

	July			June		
Type of List	Number of Runs	Total Copies	Plates Changed & Added	Number of Runs	Total Copies	Plates Changed & Added
Plant Name List	85	94,486		82	85,182	
Housing List	11	64,682		8	40,000	Not
Payroll List	6	24,582	3,542	6	24,500	Recorded

Office Equipment

Two Model "80" Multigraphs were delivered for Stores use after inspection and check-out by vendor. One truckload of furniture was sent to McNeil Island for refinishing and one truckload was received. A carload of combination, fireproof files were received to round out FY 1952 procurement of file cabinets.

The utilization survey was completed for the Manufacturing Department and the Financial Department during the month.

1205635

Office Machine Repair	July	June
Office Machines repaired in shop	195	184
Office Machine Service Calls	434	464
Machines picked up by survey	23	Not Recorded
Total Machines Serviced	652	648

Furniture Moving and Repair		
Maintenance calls completed	88	29
Office Moves	10	8
Pickups for Records Center	35	45
Store Orders filled	271	192
Pieces of furniture delivered	519	388
Property Transfers Completed	51	117
Exchanges Made	40	22
Furniture Sent to McNeil Island	108	
Furniture returned from McNeil Island	51	

Central Printing

The volume of work increased sharply this month and was handled promptly in spite of a heavy vacation schedule. Minor improvements were made by relocating the entrance counter, moving the folding machine and bindery equipment, and painting the developing sink. Several thousand pre-printed masters were prepared for use by Purchasing in their new system of duplicating purchase orders.

Work Completed	July	June
Orders Received	385	317
Offset orders completed	325	269
Offset Copies	932,612	725,020
Letter Press Completed	53	28
Letter Press Copies	53,535	7,083
Orders on Hand	78	70
Negatives Masked	347	350
Negatives Processed	646	675
Zinc Plates Made	554	389
Photo Copy Prepared	160	298

Stenographic Services

A large job was completed for Salary Administration this month. Several of our new employees are minors who cannot be sent to the areas to fill loan requests. This results in an oversupply of employees in the Steno Pool and a shortage available for loan requests in the areas. This ratio should gradually change, however, and is not too critical at this time.

Stenographic Services (Contin)

Breakdown of Hours	July	June
Dictation and Transcription	26.5	6.5
Machine Transcription	110.0	.0
Letters	39.5	80.5
Rough Drafts	18.5	25.5
Stencils, Dittos, Duplimats	474.0	301.5
Miscellaneous	479.0	685.5
Meeting Time	2.0	.0
Training Time	611.5	752.5
Absentee Time	8.0	4.0
Holiday and Vacation Time	136.0	112.0
Unassigned Time	48.0	151.0
Total Hours	1,953.0	2,119.0
Employees Loaned to Other Departments	1,075.5	909.0
Total Hours Available	3,028.5	3,028.0

Area Mail and Duplicating Services

Negotiations are being conducted for more adequate working space in the 200-West Area for mail and duplicating operations in conjunction with the Technical Services Section.

The work load fell off somewhat this month due to heavy vacation schedules and lack of funds for FY 1953.

Area Mail Statistics	July	June
Total Internal Mail Handled	205,527	258,075
Duplicating Statistics		
Orders Received	2,499	2,786
Orders Completed	2,379	2,456
Orders on Hand	148	59
Offset Plates	10,984	11,693
Offset Copies	570,305	674,726
Stencils	1,098	1,982
Stencil Copies	55,791	62,709
Ditto Masters	1,539	1,610
Ditto Copies	43,658	43,304
Xerox Plates	2,792	1,933

1205537

Records Control

Quantity of records received, processed and stored:

Community Real Estate & Services Department	2	Standard	Storage	Cartons
Engineering Department	72	"	"	"
Employee & Public Relations Department	6	"	"	"
Finance Department	61	"	"	"
Manufacturing Department	32	"	"	"
Medical Department	25	"	"	"
Radiological Sciences Department	64	"	"	"
	262	Standard	Storage	Cartons

Persons provided records service: 490

Records Cartons Issued: 326

Records cartons replaced: 30

Records destroyed: 30 cartons

Percentage of the Records Service Center Vault occupied by records is 92% excluding Civilian Defense portion.

Uniform filing was established in 21 offices during the month. A total of 317 offices have installed the uniform filing system to date.

Twenty-two requests for file cabinets were received. Forty-three requests were filled. Five combination locked cabinets were exchanged by substituting key locked cabinets resulting in a savings of $625.00. ($200.00 cost of combination cabinet minus $75.00 cost of key locked cabinet equals $125.00 saving per cabinet exchanged)

Twelve evaluations of records for disposal were completed with General Electric internal approval. Ten additional evaluations of records for approval were developed and submitted to the various departments for approval.

A series of meetings were held with Vitro Corporation and interested General Electric personnel concerning the disposal records created by Vitro under Subcontract G-148 with General Electric which was assigned to the AEC.

Procedures Analysis	June	July
Printing orders received	260	501
Printing orders rejected	8	20
New form numbers assigned	66	134
Forms designed	55	71
Suggestions processed	3	5

1205338

There were 106 new permanent forms and 28 new temporary forms established during the month of July.

An analysis study reviewing photo identification procedures and technique was completed July 22. The purpose of the analysis was to compare the cost of identification work when using the two systems; 2¼ x 3¼ Crown Graphic Press type camera and the 35 mm. Graflex identification unit. The annual recurring savings are briefly described as follows:

Cost using present Crown Graphic	$9,092.50
Cost using recommended 35 mm.	4,453.59
Net Savings	$4,638.91

The new procedure recommended to the Purchasing group for preparing purchase orders via offset reproduction has been put into practice as of July 31. Reference is made to this survey in the March 1952 Monthly Report, stating that an annual savings of $17,800 will be realized the first year and $19,800 each year following. Additional savings will be calculated after the group has had some actual practice in using the new systems application.

The analysis of Receiving and Stores procedures has been discontinued temporarily. This survey will be resumed when the Stores Unit moves to the new facilities near the 3000 Area.

Savings Realized for July	One Time	Annual Recurring
Forms Control	$1,066.	$ 204.
Analysis		4,639
Total savings for previous month:	$ 3,659.	
Total savings for July	5,909.	
Accumulated savings from 1-1-52:	87,769.	

SECURITY AND PATROL

Document Report

Number of technical and scientific documents classified "confidential" or higher reported unaccounted for July 1:	400
Documents (technical and scientific) reported found during July:	17
Number of technical and scientific documents unaccounted for July 31:	383
Number of non-technical documents unaccounted for July 1:	14
Documents (non-technical) reported unaccounted for during July:	1
Documents (non-technical) reported found during July:	7
Number of non-technical documents unaccounted for July 31:	8

Total number of non-technical and technical and scientific documents unaccounted for July 31: 391

Number of classified documents reported missing by E. I. du Pont de Nemours and Company personnel during the period of April, 1943 through August 1946, now subtracted from the 391 documents declared missing: 54

Total number of non-technical and technical and scientific documents, minus the du Pont documents, unaccounted for July 31: 337

During the month of July, the Non-Technical Document Review Board held two meetings and reviewed 49 documents. Of this number

24 were declassified
10 were downgraded to "Restricted"
3 were not within the scope of the Board
12 had classification retained and
4 were referred to the Coordinating Organization Director

There were ten security violations during July committed by General Electric personnel involving improper storage of classified material.

Security Education

There were 246 security meetings held and attended by 3,367 General Electric employees during the month.

The following security films were shown at security meetings during the month:

"Sabotage" at two meetings with an average attendance of 20 employees.

"The Case of the Smokeless Chimney" at five meetings with an average attendance of 20 employees.

"The Man on the Left" at ten meetings with an average attendance of 20 employees.

"Only the River" at 39 meetings with an average attendance of 25 employees.

GE Security Bulletin No. 65 entitled "One Way Traffic" was issued on July 30.

The following posters and pamphlets were distributed during the month:

100 posters with the slogan "Sabotage, Today's Menace to Industry" were posted in all the areas.

1,000 pamphlest with the above slogan were given plantwide distribution.

300 copies of the poster with the slogan "You are Responsible for Security" were posted throughout the plant during the month. 85 posters with the same slogan were posted in the plant busses and 90 copies were to the AEC Construction Security Office for distribution.

1205640

1,500 "A-B-C" pamphlets with the slogan "Travelin' - Leave Your Job at Home" were distributed in the plant areas, and 300 copies were given to the Atomic Energy Commission Security Division for distribution.

8,000 A-B-C pamphlets with the slogan "Security is a Family Responsibility" were mailed to the residences of our employees.

One hundred and twenty-six employees of the General Electric Company received a "Q" security orientation talk from either a representative of the Security Unit or an Area Patrol Captain during the month of July.

The names of eight employees were submitted to the AEC for emergency clearance processing during the reporting period.

Statistical Report of Security Patrol activities:

	100-B	100-D	100-F	100-H	200-E	200-W	300
Pat Searches	93	93	93	93	85	148	9
Escorts	26	19	16	52	130	143	58
Ambulance Runs	2	4	4	4	1	6	2
Passes Issued:							
One day temporary	2	13	14	5	7	114	33
Travel	0	0	0	0	0	0	74
Red Tag	146	166	259	50	37	1,108	300
Telephonic	0	8	0	1	0	0	9
Supervisors' post contacts	501	355	311	338	315	1,438	611

Buildings and doors opened:	185
Railroad Gates opened:	182
Master System keys issued:	52
Operation gas pumps	94

Arrest Report

Violations	Number of Violations	Cont. Cases from June 1952	Cases Cleared	Pending	Fined
Speeding	1	0	1	0	1

Citation tickets issued:	1
Warning tickets issued:	25
Verbal Warnings issued:	4

Training courses received by 269 Security Patrolmen at the Training School during the month were as follows:

.30 caliber carbine	1 1/2 hours
.30 caliber machine gun	2 "
.38 revolver	1 1/2 "
Safety Film	1/2 hour
Safety	1/2 "
Security	3/4 "
Public Relations	1 1/4 hours

Security Patrol Post Changes

On July 14, the 700 Area Patrol added the Reception Desk, located in the new South wing of the 703 Building, as a post to be operated on the day shift Mondays through Fridays only.

On July 22, Gate No. 5, located on the south side of the 300 Area was activated and will be manned from 7:40 AM to 4:30 PM, Monday through Friday only.

Effective July 28, the 241 CR Tank Farm Badge House, 200-E Area, was discontinued due to construction work being completed.

Effective July 31, the 241 BR Tank Farm Badge House, 200-E Area, was discontinued due to construction work being completed.

Security Field Inspection Activities

Contacts made to located unaccounted for documents:	21
Searches conducted to locate unaccounted for documents:	13
Classified documents located:	24
File combinations overdue, custodians advised to change them:	19
File combinations changed:	16

General

Effective July 21, the temporary fence line fencing off the North Construction Area was removed, making all of the 181-C and 107-C Construction part of the 100-B Area proper. All construction personnel who have to work in that area will now clear through the 100-C Badge House.

Production was completed on July 22 on the new security film entitled "Defense Rests". The original title selected for this picture and mentioned last month was "Trial By Jury".

Effective July 30, the installation of the "Linedex" system for maintenance of badge house records was completely installed at the 100-H Area. Work has started to install the same system in the badge house at 100-F Area.

An order was issued July 31 for the Transportation Section to procure and install dry powder fire extinguishers in twenty-seven Security Patrol radio vehicles. This order was issued on a recommendation by the Safety and Fire Protection Unit that all emergency vehicles at Hanford Works should be equipped with this new type fire extinguisher.

1205642

[redacted]

HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING JULY 31, 1952

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
DESIGN SECTION-ENGINEERING DEPARTMENT							
I. Visitors to this Works							
R. J. Myers Allen B. Du Mont Company Los Angeles, California	Participate in television tests	H. M. Parker G. S. Cochrane	6-4-52	7-3-52	X		221-U
R. K. Patterson Charles T. Main, Incorporated Boston, Massachusetts	Consultation on contract	J. R. Wolcott	6-30-52	7-3-52	X		
H. L. Hull Argonne National Laboratory Chicago, Illinois	Consultation on design engineering problems	V. D. Nixon W. B. Webster J. M. Frame	7-16-52	7-20-52	X		221-U 200-W 234, 235 Redox
R. L. Tower Tower Equipment Company Seattle, Washington	Inspect damage on the temperature monitor system	E. S. Day B. E. Woodward	7-1-52	7-3-52	X		105-C
II. Visits to other Installations							
C. O. Clemetson to: Knolls Atomic Power Lab. Schenectady, New York	Job interview	C. A. Hansen, Jr.	7-14-52	7-16-52	X		
C. O. Clemetson to: Charles T. Main, Inc. Boston, Massachusetts	Consultation on instrumentation for Project CG-494	E. A. Barnard C. S. Starrett	7-16-52	7-21-52	X		

[redacted]

DECLASSIFIED

Ja-14

DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
B. R. Elder to: Knolls Atomic Power Lab. Schenectady, New York	Engineering consultation on zirconium	A. U. Seybolt C. E. Lacy	7-14-52	7-14-52	X		
B. R. Elder to: Superior Tube Company Norristown, Pennsylvania	Engineering consultation on zirconium	A. M. Bounds	7-15-52	7-15-52	X		
B. R. Elder to: Mass. Inst. of Technology Cambridge, Massachusetts	Engineering consultation on zirconium	A. R. Kaufmann	7-16-52	7-16-52	X		
B. R. Elder to: U. S. Atomic Energy Comm. Pittsburgh, Pennsylvania	Engineering consultation on zirconium	Dr. Geiger	7-17-52	7-17-52	X		
B. R. Elder to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Engineering consultation on zirconium	W. E. Shoupp	7-18-52	7-18-52	X		
B. R. Elder to: U. S. Atomic Energy Comm. Washington, D. C.	Conference on zirconium and its use in future piles, its feasility and status	M. Dalvalle	7-18-52	7-18-52	X		
B. R. Elder to: Aluminum Co. of America Edgewater, New Jersey	Engineering consultation on aluminum alloy process	F. R. Marshall	7-21-52	7-21-52	X		
B. R. Elder to: Argonne National Lab. Chicago, Illinois	Engineering consultation on zirconium	F. Foote	7-22-52	7-22-52	X		
R. C. Hoffman to: Charles T. Main, Inc. Boston, Massachusetts	Confer on Design Criteria for "K" Water Plant facilities	R. K. Patterson	7-23-52	7-25-52	X		

[redacted]

1205644

Ja-15

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
W. P. Ingalls to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Gather information for design improvements of HW installations similar to those at Los Alamos	R. D. Baker	7-28-52	8-1-52	X		
W. P. Ingalls to: Rocky Flats Laboratory Denver, Colorado	Gather information for design improvements of HW installations similar to those at Rocky Flats	I. B. Venable	7-28-52	8-1-52	X		
G. L. Locke to: Knolls Atomic Power Lab. Schenectady, New York	Attend heat transfer meeting on heat transfer problems	R. W. Lockhart R. G. Kennison	7-16-52	7-17-52	X		
E. P. Peabody to: Charles T. Main, Inc. Boston, Massachusetts	Confer on design criteria for "K" Water Plant facilities	R. K. Patterson	7-9-52	7-14-52	X		
C. F. Quackenbush to: Charles T. Main, Inc. Boston, Massachusetts	Attend meeting on design scope for Coyote Rapids Water Plant	R. K. Patterson	7-9-52	7-12-52	X		
J. H. Snyder to: Charles T. Main, Inc. Boston, Massachusetts	Engineering consultation on water plant design	R. K. Patterson	7-8-52	7-12-52	X		
J. R. Wolcott to: Charles T. Main, Inc. Boston, Massachusetts	Engineering consultation on water plant design	R. K. Patterson	7-7-52	7-10-52	X		

PROJECT SECTION-ENGINEERING DEPARTMENT

I. Visitors to this Works

O. H. Woolford Bumstead-Wolford Seattle, Washington	Discussion regarding partial payment and estimates on contract AT-612	W. C. Armstrong	7-30-52	7-30-52		X	700 762 B1

1206645

[redacted]

UNCLASSIFIED [redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
II. Visits to other Installations							
C. E. Love to: Precision Spring Company Seattle, Washington	Discussion regarding order HWC 19556	- -	7-1-52	7-2-52		X	
D. A. Conley to: University of Washington Seattle, Washington	Recruit draftsmen and designers	- -	7-23-52	7-25-52		X	
W. C. Armstrong to: Bumstead-Wolford Seattle, Washington	Design and procurement consultation	S. J. Judson	7-24-52	7-25-52		X	
RADIOLOGICAL SCIENCES DEPARTMENT							
I. Visitors to this Works							
L.R. Gibbs RCA Services, Incorporated San Francisco, California	Service electron microscope	R. F. Foster	7-23-52	7-28-52		X	100-F 108-F
LAW DEPARTMENT							
I. Visits to other Installations							
D. S. Cameron to: Knolls Atomic Power Lab. Schenectady, New York	Confer on legal matters at KAPL	H. B. Scott	7-28-52	8-8-52		X	
MANAGEMENT							
I. Visitors to this Works							
H. O. Allen Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on analytical methods and analysis of material handling	L.B. Bradley F. W. Albaugh H. W. Murray [redacted]	7-14-52	7-18-52	X		700; 300-XXX 200-W 231, 234,235

Ja-17

1205046

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Restricted Data Areas
J. M. Cleveland, Jr. Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on analytical methods and analysis of material handling	L. B. Bradley F. W. Albaugh H. W. Murray	7-14-52	8-1-52	X		700 200-W 231, 234, 235
M. Virginia Del Monte Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in Health Physics Laboratory methods, procedures and study of materials	L. B. Bradley H. M. Parker H. A. Meloeny	7-14-52 7-21-52	8-1-52 8-1-52	X X		700; 221-U, 222-U 300 XXX
V. L. Easterly Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in statistical quality control required on "49"	L. B. Bradley B. F. Butler	7-14-52	10-24-52	X		700; 300-XXX 200-W 234, 235
J. G. Epp Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on analytical methods and analysis of material handling	L. B. Bradley F. W. Albaugh H. W. Murray	7-14-52	7-18-52	X		700; 300-XXX 200-W 231, 234, 235
G. E. Lundin Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training for operations related to Bldg. 71 and 234-5	L. B. Bradley R. Ward R. S. Bell	7-28-52 8-7-52	8-24-52 8-9-52	X X		700; 300 XXX 200-W 231, 234, 235 100-B 105, 111-B
J. W. Pringle Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training as Chemical Superintendent	L.B. Bradley J. B. Work C. Groot O. V. Smiset	6-24-52 7-2-52	7-2-52 7-2-52	X X		700 200-W 231, 234 300 XXX
Patricia J. Robbins Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in personnel meter work and health physics work	L. B. Bradley H. A. Meloeny	6-23-52	7-11-52	X		300 XXX; 700

[redacted]

DECLASSIFIED

1205647

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
R. W. Sorensen Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training relative to operation of Building 71 at Rocky Flats Laboratory	L. B. Bradley R. S. Bell O. V. Smiset	7-7-52	7-27-52	X		700 200-W 231, 234, 235
R. B. Tandy Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in techniques of application of measuring devices to measurement and recording of temperatures, vacuum, leak detection, process	L. B. Bradley R. S. Bell 234-5	7-14-52	7-25-52	X		700 200-W 231, 234, 235
H. W. Vaughan Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on analytical methods and analysis of material handling	L. B. Bradley F. W. Albaugh H. W. Murray	7-14-52	8-29-52	X		700 200-W 231, 234, 235
W. M. Wright Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training relative to operation of Building 71 at Rocky Flats Laboratory	L.B. Bradley R. S. Bell O. V. Smiset	7-14-52	7-27-52	X		700 200-W 231, 234, 235

II. Visits to other Installations

J. H. Julien to: Aircraft Nuclear Propulsion Project Lockland, Ohio	Training of personnel at Hanford for Lockland operations	R. C. Mark	7-7-52	7-7-52	X		

MANUFACTURING DEPARTMENT

I. Visitors to this Works

S. N. McDonald National Lead Company Fernald, Ohio	Study metal handling	E. W. O'Rorke	7-8-52	7-10-52	X		300 303

[redacted]

Ja-19

1205098

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Restricted Data Areas
W. P. Gibbons National Lead Company Fernald, Ohio	Study metal handling	E. W. O'Rorke	7-8-52 7-18-52	7-18-52 7-18-52	X X		300 303 100-D 105
A. J. Mangold National Lead Company Fernald, Ohio	Study metal handling	E. W. O'Rorke	7-8-52 7-18-52	7-18-52 7-18-52	X X		300 303 100-D 105
P. H. Siegel National Lead Company Fernald, Ohio	Study metal handling	E.W. O'Rorke	7-8-52 7-18-52	7-18-52 7-18-52	X X		300 303 100-D 105
D. A. Tippenhauer National Lead Company Fernald, Ohio	Study metal handling	E.W. O'Rorke	7-8-52 7-18-52	7-18-52 7-18-52	X X		300 303 100-D 105
M. R. Myers International Business Machines Richland, Washington	Service IBM equipment in 105-H Area	L. T. Hagie	7-29-52	7-29-52		X	100-H 105
K. A. Jones Travellers Insurance Company Seattle, Washington	Inspect 100 Area, 200 Area and 300 Area Boilers	A. Frew	7-15-52	7-18-52		X	100-B 184 100-D 184 100-F 184 100-H 184 101 200-E 284 200-W 284 300 384 700

II. Visits to other Installations

O. F. Beaulieu to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Discuss purification and fabrication	R. D. Baker	7-28-52	7-30-52	X		
O. F. Beaulieu to: Rocky Flats Laboratory Denver, Colorado	Discuss purification and fabrication	I. B. Venable	7-31-52	8-1-52	X		

[redacted]

DECLASSIFIED

DECLASSIFIED [redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
PURCHASING AND STORES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT							
I. Visitors to this Works							
G. Zank Lee and Estes Kennewick, Washington	Deliver material on order 93029-M	H. L. Morgan	7-1-52	7-1-52		X	100-D 105-D, 100-F 105
M. Brill Lee and Estes Kennewick, Washington	Deliver material on order 83029-M	H. L. Morgan	7-3-52	7-3-52		X	100-B 105 100-F 105
J. R. Laird West Coast Fast Freight Kennewick, Washington	Deliver material on order 83029-M	H. L. Morgan	7-7-52	7-7-52		X	100-D 105
	Deliver material on order 83029-M	H. L. Morgan	7-10-52	7-10-52		X	100-F 105
	Deliver material on order 83029-M	H. L. Morgan	7-11-52	7-11-52		X	100-B 105 100-D 105
	Deliver material on order 83029-M	H. L. Morgan	7-14-52	7-14-52		X	100-D 105 100-F 105
	Deliver material on order 83029-M	H. L. Morgan	7-17-52	7-17-52		X	100-B 105 100-F 105
	Deliver material on order 83029-M	H. L. Morgan	7-21-52	7-21-52		X	100-B 105 100-D 105
	Deliver material on order 83029-M	H. L. Morgan	7-25-52	7-25-52		X	100-D 105 100-F 105
	Deliver material on order 98674	H. L. Morgan	7-28-52	7-28-52		X	100-D 105 100-F 105
R. Bagby West Coast Fast Freight Kennewick, Washington	Deliver material on order 83029-M	H. L. Morgan	7-8-52	7-8-52		X	100-F 105
	Deliver material on order 83029-M	H.L. Morgan	7-23-52	7-23-52		X	100-D 105 100-F 105
B. Knickey West Coast Fast Freight Kennewick, Washington	Deliver material on order 83029-M	H. L. Morgan	7-9-52	7-9-52		X	100-B XXX

[redacted]

1205150

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
G. Hixon Inland Motor Freight Kennewick, Washington	Deliver material on order 93659	H.L. Morgan	7-28-52	7-28-52		X	300 XXX
D. A. Westermeyer Consolidated Freightways Kennewick, Washington	Deliver material on order 98674-M	H. L. Morgan	7-30-52	7-30-52		X	100-B 105

STATISTICAL AND COMPUTING SERVICES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT

I. Visitors to this Works

V. L. Easterly Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Discuss quality control and accountability problems	C. A. Bennett W. C. Healy	7-14-52	10-24-52	X	700	
C. H. Weldon National Lead Company Fernald, Ohio	Discuss quality control and accountability problems	B. F. Butler C. A. Bennett L. G. Waters	7-17-52	7-17-52		X	
F. Corazza International Business Machines Richland, Washington	Service IBM equipment	P.M. Thompson	7-1-52	7-31-52		X	722-A
D. F. Crumb International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	7-1-52	7-31-52		X	722-A
C. G. Kruse International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	7-1-52	7-31-52		X	722-A
M. R. Norby International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	7-1-52	7-31-52		X	722-A

1205551

DECL[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. C. Warren International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	7-1-52	7-31-52		X	722-A
II. Visits to other Installations							
P. M. Thompson to: Employment Agency Seattle, Washington	Recruit personnel	- -	7-22-52	7-24-52		X	
C. A. Bennett to: New Hampton School New Hampton, New Hampshire	Participate in Gordon Research Conference	- -	7-28-52	8-1-52		X	
PURCHASING AND STORES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT (cont'd)							
I. Visitors to this Works							
A. McDonald General Electric Company Seattle, Washington	Supervise installation and start up of turbine sets	L. Pihlfeldt	7-7-52	7-31-52		X	100-C 1 -C
A. F. L. Anderson American Blower Corporation Detroit, Michigan	Work on American Blower Fluid Drive Units on order HWC 12941	G. J. Hayward	7-15-52	7-22-52		X	100-C 190-C
K. A. Jones Travellers Insurance Company Seattle, Washington	Inspection of boilers	G. J. Hayward	7-15-52	7-18-52		X	100-B 184 100-D 184 100-F 184 100-H 184 101 200-E 284 200-W 284 300 384; 700
K. E. Atwood Bailey Meter Company Seattle, Washington	Calibration of pumping plant instrumentation on order HWC 16390	G. J. Hayward	7-15-52	8-1-52		X	100-C 190-C

1205552

[redacted]

DECLASSIFIED

DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
L. N. Bird Apparatus Division General Electric Company Seattle, Washington	Supervise installation of power transformers supplied on order HWC 13537	G. J. Hayward	7-14-52	8-1-52		X	100-C 190-C
H. L. Burnell Allis-Chalmers Mfg. Company Seattle, Washington	Supervise revisions required to switchgear furnished on order HWC 19944	G. J. Hayward	7-22-52	7-29-52		X	100-C 181
J. S. Lucich American Blower Corporation Detroit, Michigan	Work on American Fluid Drive Units furnished on order HWC 12941	G. J. Hayward	7-16-52 8-1-52	7-23-52 9-1-52		X X	100-C 190-C 100-C 190-C
O. P. Martell Northern Pacific Railroad Kennewick, Washington	Claim adjustment	J. A. McSwigan	7-1-52	7-1-52		X	100-C
T. V. Megy Union Pacific Railroad Kennewick, Washington	Claim adjustment	J. A. McSwigan	7-8-52	7-8-52		X	221-U
F. M. Mehle Bailey Meter Company Seattle, Washington	Calibration of pumping plant instrumentation on order HWC 16390	G. J. Hayward	7-15-52	8-10-52		X	100-C 190-C
C. H. Sandal Westinghouse Electric Corp. Portland, Oregon	Inspect and supervise installation of equipment furnished on orders HWC 19841 and HWC 14038	G. J. Hayward	7-21-52	7-27-52		X	100-C 181-B 100-B 181-B
II. Visits to other Installations							
L. G. Jones to: K-Plastix San Francisco, California	Inspection of material	Mr. Kebely	7-21-52	7-28-52		X	

Ja-24

1205653

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
L. G. Jones to: Food Machinery & Chem. Corp. SanJose, California	Inspection of material	Mr. Hait	7-21-52	7-28-52		X	
L. G. Jones to: viking Electric Los Angeles, California	Inspection of material	V. Wood	7-21-52	7-28-52		X	
L. G. Jones to: Pachmayr GunWorks Los Angeles, California	Inspection of material	D. Wood	7-21-52	7-28-52		X	
J. F. Spease to: American Can Company Seattle, Washington	Procurement for design	J. C. Carr	7-29-52	7-31-52		X	
J. F. Spease to: American Can Company Portland, Oregon	Procurement for design	L. P. Byrne	7-29-52	7-31-52		X	
J. F. Spease to: Continental Can Company Seattle, Washington	Procurement for design	W. W. Hodgson	7-29-52	7-31-52		X	
J. F. Spease to: Smith Cannery Machine Co. Seattle, Washington	Procurment for design	D. Corbett	7-29-52	7-31-52		X	
G. H. Wright to: Worthington Pump & Mach. Harrison, New Jersey	Investigate facilities and discuss design of our special pump requirements	R. M. Watson	7-21-52	7-23-52		X	

ENGINEERING DEPARTMENT

Administration Section

I. Visits to other Installations

Ja-25

[redacted]

1265394

DECLASSIFIED

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Restricted Data Areas
W. H. Clymer to: National Carbon Company New York, New York	Negotiating contract G-5	C. D. Kleinsmith W. A. Steiner	7-29-52	8-2-52		X	
TECHNICAL SECTION-Visitors to this Works							
A. H. Barnes Argonne National Laboratory Chicago, Illinois	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-15-52	X		100-D 105-D 300 303
G. Beyer Ames Laboratory Ames, Iowa	Discuss jacketing operations and extraction operations	E. A. Eschbach	7-10-52	7-11-52	X		100-D 105-DR 300 303
E. J. Boyle Oak Ridge National Laboratory Oak Ridge, Tennessee	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-15-52	X		100-D 105-D 300 303
O. N. Carlson Ames Laboratory Ames, Iowa	Discuss jacketing operations and extraction operations	E. A. Eschbach	7-10-52	7-11-52	X		100-D 105-DR 300 303
W. L. Doe Argonne National Laboratory Chicago, Illinois	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-17-52	X		100-D 105-D 300 303
E. J. Donahue U. S. Atomic Energy Commission Wilmington, Delaware	Attend fueld slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-19-52	X		100-D 105-D 300 303
	Discuss new developments in metallurgy of uranium and plutonium	R. D. Richards P. E. Collins	7-15-52	7-17-52	X		200-W 234, 235
F. E. Farris North American Aviatinn Company Downey, California	Radiation damage survey	J. B. Lambert	7-17-52	7-18-52	X		100-B 105 100-D 105 100-F 105 100-H 105
W. C. Fernelius Pennsylvania State College State College, Pennsylvania	Lectures in 300 Area	D. W. Pearce	7-7-52 7-7-52	7-8-52 7-7-52	X		300 3703, 3702 Redox

Ja-26

1205355

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. W. Halley Argonne National Laboratory Chicago, Illinois	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-16-52	X		100-D 105-D 300 303
(consultant for Argonne from Inland Steel Company Los Angeles, California	Consultation on Pu metallurgy discussions	R. B. Richards	7-15-52	7-17-52	X		200-W 234
H. L. Hull Argonne National Laboratory Chicago, Illinois	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-17-52	X		100-D 105-D 300 303
	Inspect laboratory and plant facilities	P. E. Collins R. B. Richards	7-15-52	7-17-52	X		200-W 234, 235
	Remote control equipment use and inspection	L. D. Turner R. Ward R. G. Wheeler	7-18-52	7-18-52	X		100-B 108-B
	Inspection of plant facilities	V. D. Nixon	7-18-52	7-18-52	X		100-D 105-D 200-W 234, 235 300 303
W. H. Keller Mallinckrodt Chemical Works St. Louis, Missouri	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-16-52	X		100-D 105-D 300 303
L. R. Kelman Argonne National Laboratory Chicago, Illinois	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-16-52	X		100-D 105-D 300 303
	Discuss Pu production facilities	P. E. Collins	7-15-52	7-17-52	X		200-W 234, 235
W. B. Kirby Consolidated Engineering Corp. Los Angeles, California	Install instruments particularly mass spectrometer	R. J. Brouns	7-13-52	9-1-52	X		300 XXX Redox
W. M. Leaders Mallinckrodt Chemical Works St. Louis, Missouri	Attend fuel slug test meeting	R. B. Socky	7-14-52	7-16-52	X		100-D 105-D 300 303
W. K. McCarty North American Aviation Downey, California	Discussion on in-pile experiments	H. L. Henry	5-9-52	9-15-52	X		100-B 105 100-D 105 100-F 105 100-H 105 300 303, 3706

Ja-27

1235166

UNCLASSIFIED [redacted]

[redacted]

Name - Organization	Purpose of Visit	PersonContacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Restricted Data Areas
W. J. McGonnagle Argonne National Laboratory Chicago, Illinois	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-15-52	X		100-D 105-D 300 303
F. W. Schonfeld Los Alamos Scientific Laboratory Los Alamos, New Mexico	Discuss plutonium technology	R. Ward O. J. Wick	7-2-52	7-2-52	X		300 303 200-W 234, 235
S. M. Tuthill Mallinckrodt Chemical Works St. Louis, Missouri	Attend fuel slug test meeting	R. B.Socky F. B. Quinlan	7-14-52	7-16-52	X		100-D 105-D 300 303
S. A. Wenk Battelle Memorial Institute Columbus, Ohio	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-15-52	X		100-D 105-D 300 303
G. W. Wensch U. S. Atomic Energy Commission Wilmington, Delaware	Attend fueld slug test meeing Discuss new developments in metallurgy of uranium and plutonium	R. B.Socky F. B. Quinlan R. B. Richard P. E. Collins	7-14-52	7-19-52	X		100-D 105-D 300 303 200-W 234, 235
R. H. Vanderlaan E.I. du Pont de Nemours Wilmington, Delaware	Attend fuel slug test meeting	R. B. Socky F. B. Quinlan	7-14-52	7-15-52	X		100-D 105-D 300 303
F. W. Hurd Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss production specifications	R. B. Richards	7-1-52	7-1-52	X		300 221-U; Redox
B. H. Thompson Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss production specifications	R. B. Richards	7-1-52	7-1-52	X		300 221-U; Redox
J. A. Philosopleos E. I. du Pont de Nemours Savannah River Ordnance Aiken, South Carolina	Discuss analytical methods	A. H. Bushey W.W. Marshall	7-9-52	7-10-52	X		300 3706

DECLASSIFIED

[redacted]

Tp-28

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. E. Brown, Jr. General Engineering Laboratory Schenectady, New York	Consultation on water examination facility	R. M. Fryar G. E. McCullough	7-1-52	7-4-52	X		700; 300-XXX 100-B 108 100-D 105-DR
K. E. Gilbert General Engineering Laboratory Schenectady, New York	Consultation on water examination facility	R. M. Fryar G. E. McCullough	7-1-52	7-4-52	X		700; 300-XXX 100-B 108 100-D 105-DR
J. W. Moyer Knolls Atomic Power Laboratory Schenectady, New York	Consultation on thermal conductivity of graphite experiment and KAPL creep of metal and slug coatings project	H. L. Henry R. H. Leyse	7-1-52	7-7-52	X		100-B 105 100-F 105 100-H 105 100-D 105 300
E. E. Hamer Argonne National Laboratory	Consultation on irradiation of samples	M. D. Fitzsimmons	7-31-52	7-31-52	X		100-H 105
H. O. Allen Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Discuss analytical methods	A. H. Bushey	7-18-52	7-19-52	X		300 3706
J. G. Epp Dow Chemical Company RockyFlats Laboratory Denver, Colorado	Discuss analytical methods	A. H. Bushey	7-18-52	7-19-52	X		300 3706
II. Visits to other Installations							
G. J. Alkire to: American Cyanamid Company Areo, Idaho	Discuss isotope analyses of uranium	R. J. Francel	7-16-52	7-17-52	X		
M. Altman to: General Engineering Lab. Schenectady, New York	Attend classified heat transfer meeting	N. Bigelow	7-16-52	7-18-52	X		

[redacted]

DECLASSIFIED

1205056

Ja-29

DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. W. Benoliel to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Purification and fabrication consultation	R. D. Baker	7-28-52	8-1-52	X		
M. Altman to: Knolls Atomic Power Lab. Schenectady, New York	Attend classified heat transfer meeting	R. G. Kennison	7-16-52	7-18-52	X		
R. W. Benoliel to: Los Alamos Scientific Lab. Los Alamos, New Mexico (Dow Chemical Company Rocky Flats Laboratory Denver, Colorado)	Purification and fabrication consultation Sub-Unit of Los Alamos	I. B. Venable	7-28-52	8-1-52	X		
H. C. Carney to: RadiationLaboratory Berkeley, California	Confer on chemical engineering development	T. Hicks	8-4-52	8-5-52	X		
A. B. Carson to: U. S. Atomic Energy Comm. Arco, Idaho	Attend materials testing program	J.B. Phillipson	7-14-52	7-16-52	X		
J. C. L. Chatten to: U. S. Atomic Energy Comm. Arco, Idaho	Attend materials testing program	J.B. Phillipson	7-14-52	7-16-52	X		
F. Clagett to: Carbide & Carbon Oak Ridge, Tennessee	Process consultation	F. Hurd	7-18-52	7-18-52	X		
F. Clagett to: U. S. Atomic Energy Comm. Cleveland, Ohio	Process consultation	E. C. Sargent	7-15-52	7-17-52	X		
J.W. Culvahouse to: Phillips Petroleum Co. Arco, Idaho	Discuss sample exposure	W. B. Lewis	7-25-42	7-24-52	X		

1205059

[redacted]

Jp-30

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
E. A. Eschbach to: Cal. Research & Development San Francisco, California	Consultation on fuel element development	F. Powell	7-21-52	7-23-52	X		
H. L. Henry to: U. S. Atomic Energy Comm. Arco, Idaho	Attend materials testing program	J.B. Phillipson	7-14-52	7-16-52	X		
M. W. Hulin to: U. S. Atomic Energy Comm. Arco, Idaho	Attend materials testing program	J.B. Phillipson	7-14-52	7-16-52	X		
W. T. Kattner to: Simonds Saw & Steel Lockport, New York	Observation of metal fabrication	A. D. Potts C. H. Emery	6-18-52	12-31-52	X		
R. L. Knecht to: Simonds Saw & Steel Lockport, New York	Observation of metal fabrication	A. D. Potts	6-18-52	12-31-52	X		
W. L. Lyon to: Iowa State College Ames, Iowa	Study latest techniques and hydrofluorination of uranium	F. H. Spedding	7-17-52	7-18-52	X		
E. B. Montgomery to: North American Aviation Downey, California	Discuss exponential exponential experiments	A. T. Biehl	7-7-52	7-11-52	X		
P. J. Pankaskie to: Knolls Atomic Power Lab. Schenectady, New York	Discuss fuel element development program	A. U. Seybolt	7-14-52	7-14-52	X		
P. J. Pankaskie to: Superior Tube Norristown, Pennsylvania	Observe tube reduction	A. M. Bounds	7-15-52	7-15-52	X		

[redacted]

DECLASSIFIED

Ja-31

1205560

DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
P. J. Pankaskie to: Mass. Inst. Technology Cambridge, Massachusetts	Discuss fuel element development program	A. R. Kaufmann	7-16-52	7-16-52	X		
P. J. Pankaskie to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Discuss fuel element development program	W. E. Shoupp	7-17-52	7-17-52	X		
P. J. Pankaskie to: U. S. Atomic Energy Comm. Pittsburgh, Pennsylvania	Discuss fuel element development program	Dr. Geiger	7-18-52	7-18-52	X		
P. J. Pankaskie to: U. S. Atomic Energy Comm. Washington, D. C.	Attend Zr meeting	Mr. Dalzell	7-18-52	7-18-52	X		
P. J. Pankaskie to: Aluminum Co. of America New Kensington, Pennsylvania	Discuss fuel element development program	F. R. Marshall J. B. Smith	7-21-52	7-21-52	X		
P. J. Pankaskie to: Argonne National Lab. Chicago, Illinois	Discuss fuel element development program	F. Foote	7-22-52	7-22-52	X		
R. E. Peterson to: Phillips Petroleum Co. Arco, Idaho	Discuss sample exposure	W. B. Lewis	7-24-52	7-24-52	X		
J. W. Riches to: Chalk River Ontario, Canada	Attend joint USA-Canadian Committe on dimensional stability	I. Langmuir	7-30-52	7-30-52	X		
T. F. Robinson to: Charles T. Main, Inc. Boston, Massachusetts	Confer on "tie-in" work with Hanford	R.K. Patterson F. Hall	7-16-52	7-19-52	X		
M. H. Russ to: Charles T. Main, Inc. Boston, Massachusetts	Consultation on water pump design studies	R. K. Patterson	7-23-52	7-24-52	X		

1205061

Ja-32

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
M. J. Sanderson to: U. S. Atomic Energy Comm. Chalk River, Ontario, Canada	Conference on joint U.S. Canadian metallurgy program	I. B. Langmuir	7-29-52	7-31-52	X		
D. F. Snoeberger to: U. S. Atomic Energy Comm. Arco, Idaho	Attend materials testing program	J.B.Phillipson	7-15-52	7-16-52	X		
M. J. Szulinski to: U. S. Atomic Energy Comm. Cleveland, Ohio	Process consultation	E. C. Sargent	7-15-52	7-17-52	X		
M. J. Szulinski to: Carbide & Carbon Oak Ridge, Tennessee	Process consultation	F. Hurd	7-18-52	7-18-52	X		
A. T. Taylor to: Knolls Atomic Power Lab. Schenectady, New York	Discuss fuel element development program	C. E. Lacy A. U. Seybolt	7-14-52	7-14-52	X		
A. T. Taylor to: Superior Tube Co. Norristown, Pennsylvania	Discuss fuel element development program	A. M. Bounds	7-15-52	7-15-52	X		
A. T. Taylor to: Mass. Inst. Technology Cambridge, Massachusetts	Discuss fuel element development program	A. R. Kaufmann	7-16-52	7-16-52	X		
A. T. Taylor to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Discuss fuel element development program	W. A. Shoupp	7-17-52	7-17-52	X		
A.T. Taylor to: Battelle Memorial Inst. Columbus, Ohio	Discuss fuel element development program	H. R. Nelson	7-18-52	7-18-52	X		
R. Ward to: Chalk River, Ontario, Canada	Conference on joint Canadian-U.S. metallurgy program	I. B. Langmuir	7-29-52	7-31-52	X		

1205652

DECLASSIFIED [redacted]

DECLASSIFIED

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
L. D. Turner to: Knolls Atomic Power Lab. Schenectady, New York	Metallurgy consultation	T.J.N. Glasson	7-1-52	7-1-52	X		
J. T. Stringer to: Vickers, Inc.	Technical consultation on mechanical equipment	- -	7-3-52	7-25-52		X	
J. T. Stringer to: Sundstrand, Inc.	Technical consultation on mechanical equipment	- -	7-3-52	7-25-52		X	
J. T. Stringer to: Dennison Engr. Co.	Technical consultation on mechanical equipment	- -	7-3-52	7-25-52		X	
O. F. Hill to: Knolls Atomic Power Lab. Schenectady, New York	Discussion on separations methods	J. Marsden	6-30-52	7-2-52	X		
J. J. Cadwell to: National Carbon Company Cleveland, Ohio	Consultation on experimental graphite production	V. C. Hamister	7-15-52	7-19-52		X	
J. F. Music to: National Carbon Company Cleveland, Ohio	Consultation on experimental graphite production	V.C. Hamister	7-15-52	7-19-52		X	
L. P. Bupp to: National Carbon Company Cleveland, Ohio	Consultation on experimental graphite production	V. C. Hamister	7-15-52	7-19-52		X	

Ja-34

[redacted]

1205003

PURCHASING AND STORES SECTION
UTILITIES AND GENERAL SERVICES DEPARTMENT
SUMMARY - JULY, 1952

Although a basic agreement was reached between the Steel Industry and the C.I.O. Steelworkers Union on July 25, no information is available regarding delivery of boron steel wire for the balls used in the third safety systems or the type 502 stainless steel on order for the pile downcomers.

A decision was reached to purchase all engineered equipment and materials for the new construction program on Atomic Energy Commission purchase orders instead of General Electric Company purchase orders.

Inspection action was completed on the following major components:

Winches for VS Rods for Project C-431-B Trip Gate Mechanisms and Ball Hoppers for the Ball 3X System.
Dry storage cells for the Radio-Mettalurgy Building.

E-3 allotments of controlled material and authority to apply DO-E-3 priority rating to purchase orders have been forwarded to National Carbon Corporation for use in procurement of material for their extensive additions to graphite production facilities.

General supplies valued at $81,402 were declared excess from General Maintenance Inventory due to obsolescence and inactivity.

Three A.E.C. Surplus-Salvage Sales resulted in a total revenue of $40,820.

Savings of approximately $60 per railroad car and $40 per truckload of machinery from San Francisco and Los Angeles to Hanford will result from reduced rates and reduced minimum weight requirements.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for July of $1,563.83.

Steam coal contracts totalling 725,000 tons for FY 1953 were awarded. Tonnage figure is based on a coal of 10,000 BTU/LB.

The settlement of the West Coast Maritime Strike released a number of shipments of chemicals and will improve our position with regard to such items as Ferrous Ammonium Sulphate, Sodium Nitrate, and Sodium Dichromate.

Organization and Personnel:

	6-30-52	7-31-52	Change
Employees on Roll	404	398	-6

In order to strengthen procurement and facilitate delivery of material expediting functions and personnel were transferred from the Inspection and Expediting Unit to the Operations and Construction Procurement Units effective July 1, 1952.

During the month plans were completed to transfer custody and accountability of Automotive Parts to the Transportation Section which already had responsibility for this material. Final transfer will not be completed until August.

It was also decided to disband the Inventory Audit Group during August. Employees affected will be absorbed for most part within the Section.

1205664

PURCHASING AND STORES SECTION
GENERAL

Statistical and General

E-3 allotments of controlled material and authority to apply DO-E-3 priority rating to purchase orders have been forwarded to National Carbon Corp., for use in procurement of material requirements for their extensive additions to graphite production facilities.

An estimated 90% of the suppliers receiving our wires and letters advising them of the preferential action accorded our orders under direction 4 to CMP Regulation 3, have replied and indicated that the requested action would be taken.

To assure having information available for controlled material allotment requests as required for proposed expansion, the Engineering Section was asked to develope forecasts early in July. Request for inclusion of these figures in the regular quarterly Bulletin 17, controlled materials forecast, was received from the Commission July 14th and figures were included in forecasts dated July 21, 1952.

Instructions for disposition of virgin tin, excess to Hanford needs, have been requested of the Commission.

Five interpretations of ceiling price regulations with potential effect on our scrap surplus and salvage operations were prepared and forwarded to the stores unit.

One request for information and recommendation regarding a request for defense loan was received. Investigation was completed and reply transmitted to the Commission.

One special assistance case which had been closed pursuant to a satisfactory promise date obtained by NPA, was reopened due to failure of supplier to deliver as promised. Reopened case is pending NPA action.

8 Requests for NPA Directive or DX action were received.

6 Cases were submitted to the Atomic Energy Commission for directive or DX action.

Erection Engineers were brought in from nine companies to supervise installation of equipment in the areas.

Vendor Contacts	338
Claims Processed	15
Accts. Payable Requests Handled	125
Difference Slips Processed	89
Over & Short Reports Processed	10
Clearance Slips and Letters	173
Material Exceptions Reports	119
Return Orders Issued	111

Requisitions On Hand 7-1-52	G	D	TOTAL
Operations Procurement	614	198	812
Construction Procurement	1	93	94
A.E.C. Procurement	139	26	165
Total	754	317	1071

Requisitions Assigned During July			
Operations Procurement	1564	458	2022
Construction Procurement	0	192	192
A.E.C. Procurement	195	33	228
Total	1759	683	2442

Requisitions Placed During July			
Operations Procurement	1591	460	2051
Construction Procurement	1	228	229
A.E.C. Procurement	256	40	296
Total	1848	728	2576

Requisitions On Hand 7-31-52			
Operations Procurement	587	196	783
Construction Procurement	0	57	57
A.E.C. Procurement	78	19	97
Total	665	272	937

Purchase Orders Placed	HW	HWC	AEC	D
Operations Procurement	1331	419		
Construction Procurement	0	190		
A.E.C. Procurement			169	42
Total	1331	609	169	42

Value Purchase Orders Placed				
Operations Procurement	$938,760.30	$121,953.10		
Construction Procurement		75,714.78		
A.E.C. Procurement			$89,271.38	$23,301.65
	$938,760.30	$197,667.88	$89,271.38	$23,301.65

Alterations Issued	Increase	Decrease	No Change	Total
HW Operations	61	37	4	102
HWC Operations	15	18	1	34
HWC Construction	24	19	6	49
Total	100	74	11	185

Value Alterations Issued	Increase	Decrease	Total
HW Operations	$13,229.08	$18,334.73	$ 31,563.81
HWC Operations	2,781.67	4,408.69	7,190.36
HWC Constructions	15,338.38	317,806.42	333,144.80
Total	$31,349.13	$340,549.84	$371,898.97

Government Transfers	OR	ORC
	0	1

1205666

The following schedule reflects total allotments received from the Atomis Energy Commission and allotments used and extended to suppliers and contractors through July. Top figures under each item number indicate allotment received from the Atomic Energy Commission. Lower figures under each item number reflect material allotment used or allotted for the quarter indicated.

OPERATIONS

CONTROLLED MATERIAL	UNIT MEASURE	3 Q 52	4 Q 52	1 Q 53
Carbon Steel (including	Short	30.00	110.00	80.00
wrought iron)	Tons	17.87	0	0
Alloy Steel (excluding	Short	2.00	3.00	2.00
Stainless Steel)	Tons	.01	0	0
		5000	12000	12000
Stainless Steel	Lbs.	738	4751	0
Copper & Copper Base Alloy		3200	1000	3000
Brass Mill Products	Lbs.	1673	0	0
		4000	10000	5000
Copper Wire Mill Products	Lbs.	749	40	0
Copper & Copper Base Alloy		200	150	100
Foundry Products & Powder	Lbs.	0	0	0
		191342	154000	115000
Aluminum	Lbs.	143705	98689	9600

CONSTRUCTION

CONTROLLED MATERIAL	UNIT MEASURE	3 Q 52	4 Q 52	1 Q 53
	Short	31.00	160.00	0
Carbon Steel Plate	Tons	19.25	0	0
Carbon Steel	Short	24.00	30.00	15.00
Structural	Tons	6.35	0	0
	Short	50.00	250.00	30.00
Other Carbon Steel	Tons	.41	0	0
Alloy Steel (excluding	Short	4.00	3.00	2.00
Stainless Steel)	Tons	.05	0	0
	Short	12000	85000	700
Stainless Steel	Tons	2948	38323	0
Copper & Copper Base Alloy		2150	500	50
Brass Mill Products	Lbs.	1169	0	0
		2500	4000	500
Copper Wire Mill Products	Lbs.	1213	0	0
Copper & Copper Base Alloy		0	0	0
Foundry Products & Powder	Lbs.	0	0	0
		11750	4000	0
Aluminum	Lbs.	3641	2889	0

Organization and Personnel

	6-30-52	7-31-52	Change
Employees on Roll	65	65	-0-

A decision was made to disband the Inventory Audit group in August. Employees affected will be absorbed for the most part within other units of the Section.

PURCHASING AND STORES SECTION
CONSTRUCTION PROCUREMENT UNIT
JULY 1952

Statistical and General

Effective July 1, the Purchasing Agent was made responsible for both purchasing and expediting functions. All personnel formerly reporting to the Supervisor, Expediting, now report to the Purchasing Agent.

Although a basic agreement was reached between the Steel Industry and the C.I.O. Steelworkers Union on July 25, only a few steel companies resumed work by the end of the month. No information regarding delivery of boron steel wire for the balls used in the third safety systems or the type 502 stainless steel on order for the pile downcomers is available.

Preliminary contacts were made with several pump manufacturers regarding the procurement of large pumps for the new production facility. These contacts chiefly involved securing engineering information and the locating of possible manufacturing sources.

The Inquiry requesting bids on the design and fabrication of steel shielding doors for the new expansion program was not received with much enthusiasm by any of the vendors selected. Of the seven fabricators receiving the inquiry, six submitted "No-Bids" and one has not as yet replied.

A decision was reached to purchase all engineered equipment and materials for the new construction program on Atomic Energy Commission purchase orders instead of General Electric Company purchase orders. Procedures for using the AEC "Invitations to Bid" and "Purchase Order" forms are being prepared for approval.

The meeting with Apex Steel Corporation originally set up for July 21, 1952 was postponed by Apex until August 16 because of a vacation schedule. This meeting is to discuss our claim for reimbursement for costs incurred due to receipt of material not in accordance with our purchase order.

New order received by Expediters totaled 239. Orders completed totaled 413.

Organization and Personnel

	6-30-52	7-31-52	Net Change
Employees on Payroll	13	23	+ 10

Net increase due to transfer of Expediting personnel and functions to this Unit.

PURCHASING AND STORES SECTION
OPERATIONS PROCUREMENT UNIT
JULY - 1952

Statistical and General

The workload of the unit increased slightly during the month; total orders placed being 1750, as against 1617 during the previous month. This level is a little subnormal and is due to the effort that has been made to reduce the Stores inventories, which results for a short period in less buying and more use of material in stock. As this situation levels off and the excess stocks are disposed of, the total requisition load of the unit should climb back to normal. The beginning of the new construction expansion and its effect on the operational service organizations should increase the buying load slowly over the next few months to a level considerably above that which we now consider normal.

The successful bidder on our requirements for Tributyl Phosphate was Commercial Solvents Corporation, and a contract presently is being negotiated with this company.

Contracts were awarded on our requirements for fiscal year 1953 of steam coal as follows: 100,000 tons, for delivery via the CMSTP & P, to the Sheridan Wyoming Coal Company, Inc., Roundup, Montana; 100,000 tons, for delivery via the Northern Pacific Railroad, to the Continental Coal Company, Spokane, Washington; 525,000 tons, for delivery via the Union Pacific Railroad, to The Kemmerer Coal Company, Frontier, Wyoming. The tonnage figures above are based on a coal of 10,000 BTU/LB., and the exact tonnage awarded to each company is adjusted, based on the actual BTU/LB. content of the coals offered. The first shipments were received late in the month.

The settlement of the West Coast maritime strike released a number of strike-bound shipments of chemicals and will materially improve our position with regard to such items as Ferrous Ammonium Sulphate, Sodium Nitrate, and Sodium Dichromate.

Organization and Personnel

	6-30-52	7-31-52	Changes
Employees on roll	25	31	+6

Total personnel reflects the addition to the Operations Procurement Unit of seven employees absorbed from the old Expediting Unit (five exempt and two non-exempt). Both the buying and expediting functions are now considered part of Purchasing.

1235669

PURCHASING AND STORES SECTION
INSPECTION UNIT
JULY 1952

Statistical and General

An Inspection Procedure was approved during the past month for issuance to members of Purchasing and Stores and other interested departments.

Practically all personnel of the Inspection Unit will complete their vacation during August and September. Due to the necessity of reassigning inspectors during this period, the work load of this unit is slightly higher per inspector than the previous month.

In order to handle the increased work load of the Inspection Office when the flow of requisitions is started for new programs, plans have been made to bring one or more field inspectors into the Office for assistance.

Major components on which inspection activity was completed during the month included:

1. Winches for VS Rods for Project C-431-B. The inspector assigned to this job was returned to the Project to assist construction forces, in lieu of the vendor sending an erection engineer.

2. Trip Gate Mechanisms and Ball Hoppers for the Ball 3X System for C-431-B. These units required considerable rework during fabrication to provide necessary clearances for making installation with step plug assemblies.

3. Dry storage cells for Radio-Met. Building. Several problems regarding indexing of the unit and establishment of shielding valves were worked out during fabrication to enable vendor to produce a satisfactory product.

The Inspection Supervisor completed a trip to visit West Coast Inspectors to discuss the recently revised Inspection Procedure and to assist in establishing acceptance criteria for polyethylene-lead shielding process being used on Ball 3X Systems.

Number of open orders requiring inspection	93
Number of open orders being inspected	86
Number of new orders requiring inspection	15
Number of open requisitions requiring inspection	82
Number of completed orders (cancelled, waived, etc.)	47
Number of open orders requiring inspection - sub-vendor	10
Number of open orders being inspected - sub-vendor	8
Number of completed orders - sub-vendor	2

Organization and Personnel

6-30-52	7-31-52	Change
48	30	-18

Reduction in personnel due to transfer of Expeditors to the Operations Procurement and Construction Procurement Units.

1205070

PURCHASING AND STORES SECTION
STORES UNIT
JULY, 1952

Statistical and General

Materials and equipment disbursed from Stores Unit Inventories, General Supplies (Account 10.2), Standby (Account 10.1) and Spare Equipment Held in Storage (Account 29) were valued at $208,818.12, $27,252.70, and $490,112.50 respectively for a total valuation of $726,183.32.

General supplies valued at $81,402.21 were declared excess due to obsolescence and inactivity. In addition to the foregoing, materials valued at $44,889.06 were transferred from 10.2 Accounts to 10.1 Accounts. Stainless steel valued at $14,948.78 was shipped from the project as directed by the Commission, resulting in a total reduction of Account 10.2 during July of $141,240.05 through excessing and authorized transfers. Materials valued at $20,683.80 were transferred from Account 930 to Standby.

Purchase requisitions processed through screening totaled 2,364 with 401 items being furnished from Stores Unit Inventories.

Materials and equipment disbursed from the 10.20 Account (Construction Materials Held for Future Use) for use on the project were valued at $16,305.91. In addition to the foregoing, materials valued at $29,301.30 were shipped as directed by the Commission. Materials declared excess from this account totaled $265,713.74. The total value of materials disposed of during the month was $311,320.95.

Materials and equipment valued at $19,983.80 were withdrawn from the 10.10 Account (Excess) for use on the project. Excess materials and equipment valued at $418,322.72 were shipped from the project as directed by the Commission. Total value of excess material disposed of this month was $438,306.52.

During the month 39 formal excess lists with a total value of $441,286.95 were submitted to the Commission for disposition.

182 representatives of Government and private businesses were escorted through our warehouses and yards for the purpose of negotiating the sale of scrap and surplus materials and the transfer of excess property. Three scrap sales were completed this month for a revenue of $2,664.18.

Three A.E.C. Surplus-Salvage Sales conducted by Stores Unit personnel during July resulted in a total revenue of $40,820.50.

Organization and Personnel

	6-30-52	7-31-52	Change
Employees on Roll	241	237	-4

Plans were completed for transferring accountability and custody of Automotive Parts to the Transportation Section which already has responsibility for this material.

1205671

PURCHASING & STORES SECTION

TRAFFIC UNIT

July 1952

STATISTICAL AND GENERAL:

Negotiations with the railroads resulted in a reduction in rates and minimum weight requirements on machinery or machines from San Francisco and Los Angeles Groups to Hanford Works which will effect savings of approximately $60.00 per car from San Francisco and $125.00 per car from Los Angeles.

The motor carriers at our request reduced their minimum weight requirements and have published reduced rate on machinery or machines from Los Angeles to Hanford Works which will effect savings of approximately $40.00 per tuckload.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of July amounting to $1,563.83. This makes a total savings from September 1, 1946 to date of $1,720,112.25.

Savings Report

1. Rate reductions obtained from carriers:

Commodity	Origin	Savings for July, 1952	Savings from 9-1-46 thru June 1952	Savings from 9-1-46 to date
Crude Salt, Undried	Newark, Calif.	$ 125.96		
Silicate of Soda	Tacoma, Wash.	268.21		
Sulfamic Acid	Graselli, N. J.	1028.42		
Compressed Gases	Yakima, Wash.	143.24		
		$1565.83	$1,718,546.42	$1,720,112.25
2. Freight Bill Audit		2907.24	92,199.46	95,106.70
3. Loss & Damage & Overcharge Claims		1058.79	115,685.21	116,744.00
4. Ticket Refund Claims		276.63	25,764.99	26,041.62

1205672

PURCHASING & STORES SECTION
TRAFFIC UNIT
July 1952

Savings Report (Cont.)

5. Household Goods Claims		15,470.32	16,470.32
	$5,808.49	$1,968,666.40	$1,974,474.89

Work Volume Report

Reservations Made	Rail	82
	Air	129
	Hotel	146
Expense Accounts checked		145
Households Goods & Automobiles	Movements Arranged Inbound	7
	Movements Arranged Outbound	3
	Shipments Traced	1
	Insurance Riders Issued	1
	Insurance Bills Approved	2
	Requests for Claim Billing	2
	Claims Filed	1
Ticket Refund Claims	Filed	19
	Collected - Number	14
	Collected - Amount	$276.63
Freight Claims	Filed	14
	Collected - Number	11
	Collected - Amount	$1,058.79
	Over and Shorts Processed	7
	Damage reports Processed	9
Freight Bill Audit Savings		$2,907.24
Freight Shipments Traced		114
Quotations	Freight Rate	163
	Routes	261
Bills Approved	Air Express	25
	Boat	2
	Carloading	85
	Express	205
	Rail	491
	Truck	434
Carload Shipments	Inbound	429
	Outbound	40

1205673

PURCHASING & STORES SECTION
TRAFFIC UNIT
July 1952

Report of Carloads Received

	CMSTP&P	NP	UP	TOTAL
General Electric Company				
Aluminum Ingots		1		1
Aluminum Sulphate	1	2	1	4
Asphalt	8			8
Cabinets			1	1
Carbon, activated			1	1
Castings	1			1
Caustic Soda	7	8	7	22
Chlorine	1		2	3
Coal	32	33	288	353
Ferrous Ammonium Sulfate	1			1
Hydroflouric Acid	1			1
Lime	1	2		3
Nitrate of Soda	2			2
Nitric Acid		2	8	10
Oxalic Acid			1	1
Salt		1		1
Silicate of Soda		1	1	2
Sodium Bichromate			1	1
Steel Balls, Plated	1			1
Steel Desks		2		2
Steel Drums		1		1
Sulfamic Acid			1	1
Sulphuric Acid	1		1	2
Transformers			1	1
Transformer Oil		2		2
Merchandise Cars		2	1	3
Total	57	57	315	429

Organization and Personnel

	6-30-52	7-31-52	Change
Employees on Roll	12	12	0

1205674

[redacted]

HW-25227-Dec

TRANSPORTATION SECTION
MONTHLY REPORT
JULY 1952

GENERAL

Transportation Section personnel forces increased from 522 to 530 employees during the month by 12 new hires, 6 transfers in, 2 reactivations - personal illness, 5 terminations, 5 transfers out and 2 deactivations - personal illness.

RAILROAD ACTIVITIES

Commercial cars handled during July decreased 38.4% over June as coal receipts were substantially lower because of the National Coal Miners Annual Holiday. Train crew forces were maintained at a minimum during the three weeks that coal shipments were suspended by granting vacations and personal business absences (without pay) thus making it unnecessary to furlough any personnel. Regular receipts of coal were resumed on July 28.

Process service returned to a normal level and increased 136% over June.

Car movements including process service totaled 1,433 in July compared to 2,141 in June; 2,272 in May; 2,639 in April; 3,282 in March; 2,803 in February; and 2,909 in January.

The following recapitulation indicates the number of commercial cars handled:

Carload Movements -	Loads In	Empties In	Loads Out	Empties Out
General Electric Company	442	38	40	487
Atkinson-Jones Construction Co.	13	-	-	13
E. J. Bartel & Co.	1	-	-	1
Bryan W. Bertch Co.	0	-	-	1
Bumstead & Wolford	3	-	-	2
Coates Electric Mfg. Co.	0	-	-	2
Erwen Construction Co.	1	-	-	1
E. F. Hauserman Co.	1	-	-	2
L. H. Hoffman Co.	8	-	-	3
Industrial Electric Company	1	-	-	1
Minnis Schilling Co.	1	-	-	1
Sound Construction Co.	2	-	-	2
U. S. Army	19	14	18	17
	492	52	58	533

Work train service was provided for Track Maintenance forces during the week of July 7 to handle steel for the 200-East lead relay program.

DECLASSIFIED

1235575

Major repairs to 120-ton diesel electric locomotive, removed from service on June 27, are virtually completed and this unit will be returned to duty early in August. The wheels were sent to the Northern Pacific Railroad Shops in Auburn, Washington for turning and the traction motors were reconditioned by the 200-East Electrical Shop.

Contaminated decking from flat car 10A 3625, which has been stored south of the Riverland Roundhouse since this unit was rebuilt in October 1951, was removed to the 200-West burial ground.

Railroad track maintenance and rehabilitation work continued on a routine basis. Lining, surfacing and dressing of track required 2,411 man-hours. Installation of ties, rail and other track materials required 3,131 man-hours. Distribution and handling of track materials required 723 man-hours.

AUTOMOTIVE ACTIVITIES

The Plant Bus System transported 2.17% more passengers in July than in June. The following statistics indicate the magnitude of service rendered:

Passenger volume	145,350
Revenue - bus fares	$ 7,267.50
Earnings - transit advertising (June)	161.30
Bus trips	7,316
Bus miles - passenger carrying	188,097
Passenger miles	4,574,545

The following is a comparative breakdown of average daily round trips to the Plant Areas:

Passenger buses - 100-B	10
Passenger buses - 100-C	1
Passenger buses - 100-D	12
Passenger buses - 100-F	12
Passenger buses - 100-H	9
Passenger buses - Hanford	3
Passenger buses - 200-West	32
Passenger buses - 200-East	4
Passenger buses - 300 Area	6
Passenger buses - Riverland	2
Passenger buses - Pistol Range	2
Passenger buses - North Richland	7
Passenger buses - White Bluffs	3
700-300 Area Shuttle Service	21
Inter-Area Passenger Service	2
Inter-Area Express Service	1

Effective July 7 shuttle service in 200-West Area was re-routed past the 284-W Power House because of construction activities.

Transportation Section

Effective July 10 shuttle service in 200-East Area was extended to serve the 271-CR Building on the No. 2 Shift, Monday through Friday.

Effective July 22 shuttle service in 100-C Area was established around-the-clock, seven days a week.

Special bus transportation was furnished to the Atomic Energy Commission on July 14 for a tour of the Plant Areas by a group of twenty official visitors.

Special bus transportation was scheduled effective July 28, for two weeks, for employees attending the PMS Training Program at the Hanford High School. Employees are returned to their respective areas at the close of the training program each day.

The Richland Bus System transported 5% fewer passengers in July than in June. The following statistics indicate the volume of service rendered:

Total passengers including transfers	29,846
Revenue - bus fares	$ 2,381.64
Earnings - transit advertising (June)	25.87
Bus trips	3,600
Bus miles - passenger carrying	19,800
Passenger miles	108,000

Effective July 28 the Richland Bus System began transporting employees of the Electrical Distribution Unit free of charge upon presentation of a "Meter Reader's Pass". Twelve such passes have been issued to Meter Readers for performance of their duties throughout the village.

A revision of bus work schedules has made it possible to retire from the Richland Bus System five K-7 International 37 passenger buses which will be assigned to evacuation service in the Manufacturing Areas.

Off Plant chauffeured automobile trips (Company business and/or official visitors) totaled 123 and were rendered as indicated to the following locations:

Hinkle, Oregon	7
Kennewick, Washington	9
McNary Dam, Washington	1
Pasco, Washington	62
Pendleton, Oregon	36
Sunnyside, Washington	3
Walla Walla, Washington	3
Yakima, Washington	2

Transportation Section

The following tabulation indicates the volume of Drivers Test Service rendered:

Applicants:	Male	80	Number tests given	98
	Female	18	Number rejected	1

Permits issued:	Limited to driving with glasses	40
	Unlimited	57

Permits reissued:	Routine	11
	New AEC	100
	New AEC to date	6100

The following tabulation indicates the volume of fuel distribution by Equipment Maintenance personnel:

	Gasoline	Diesel Fuel	50 Cetane	Kerosene	White Gas
Stock at start of month	16,133	10,453	17,819	1,256	214
Received during month	122,400	24,909	24,400	800	0
Dispensed during month	108,184	24,516	26,358	1,851	8
Stock at end of month	30,349	10,846	15,861	205	206

The following tabulation indicates the volume of inspection and maintenance service rendered to Hanford Works automotive and heavy equipment by Equipment Maintenance personnel:

Motor overhauls	29
Class A Inspections and Repairs	101
Class B Inspections and Lubrications	1042
Other routine maintenance repairs and service calls	2070
Tire repairs	598
Wash jobs	513

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	353	570,995
1B	Buses	161	231,838
1C	Pickup Trucks	464	271,853
1D	Panel, Carryall, Sta.Wagon	129	147,009
1E	Armored Cars	4	103
1G	Jeeps	2	911
68 Series	Trucks	262	82,622
		1,375	1,305,331

Transportation Section

Received, inspected and serviced six new 500 watt light plants to be assigned to Civil Defense.

New tires were installed on fork lift trucks 63-4546, 63-4547 and 63-4556 in the 300 Area under special work permit regulations.

The operation of the Hanford Ferry was transferred to the U. S. Army by the Atomic Energy Commission and most of the assigned HO equipment was returned to the Transportation Section for reassignment.

The maintenance of the Marine equipment assigned to the Aquatic Biology Unit has been assigned to the Equipment Maintenance Unit of the Transportation Section.

A survey of unauthorized travel from the outer areas to Richland was completed by Transportation Section Equipment Control personnel. Approximately 300 letters requesting details regarding incidents of unauthorized use were sent during the course of the survey. The results were tabulated in report form for Management.

A detailed investigation was made to determine the requirements for a crane to be used at the 241 Tank Farm. A Request for Appropriation will be processed requesting the transfer of a crawler type crane from the Atomic Energy Commission.

LABOR ACTIVITIES

The following tabulation indicates in gallons the volume of road asphalt material handled by Transportation Services personnel:

	MC 1	MC 3	MC 4	MC 5
Stock at start of month	0	3,902	5,161	1,598
Received during month	0	9,479	0	65,756
Dispensed during month	0	0	0	67,005
Stock at end of month	0	13,381	5,161	349

DECLASSIFIED

[redacted]

1205679

Transportation Section

DECLASSIFIED

The following tabulation indicates the volume of road aggregate materials handled by Transportation Services personnel:

	3/4" to 0 Pre-mix Tons	¼" to 0 Pre-mix Tons	3/4" Crushed Rock Cu. Yd.	5/8" Chips Cu.Yd.	1/4" Chips Cu.Yd.
Stock at start of month	26	237	11,505	6,725	7,315
Made during month	330	0	0	0	0
Used during month	354	204	14	2,856	477
Stock at end of month	2	33	11,491	3,869	6,838
Transferred to Standby Account 904-X-3			11,491		

Maintenance of primary roads required 268 man-hours. Blading fire breaks around the 230 and 66 KV lines required 123 man-hours.

Seal coating of 17.4 miles of Plant roads (based on 20 foot roadway) at Riverland and the 200-East Area required 1,590 man-hours, 248 cubic yards of 1/4" chips, 2,856 cubic yards of 5/8" chips, 56 cubic yards of 3/4" crushed rock and 62,470 gallons of MC 5 oil.

Handling of materials and equipment for the Stores Unit at White Bluffs, Hanford, 700, 1100 and 3000 Areas included 98 carloads and 339 truckloads and required 7,022 man-hours.

Area deliveries of operational supplies required 1,725 man-hours; office furniture, equipment and records 1,559 man-hours; vegetation control 549 man-hours; mosquito control 348 man-hours and ice deliveries 56 man-hours.

[redacted]

HW 25227-~~B~~ Ba D

Copies #1 - #13-Plant Monthly Report
#14-F. E. Baker
#15-F. J. Mollerus
#16-A.E.C. J. I. Thomas
#17-700 File
#18-300 File
#19-H. A. Remaly
#20-H. A. Carlberg

ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION

JULY 1952

August 6, 1952

GENERAL

The Section work backlog totaled 3,868 man days as of July 31, 1952 distributed as follows:

	Days Per Craftsman	Total Man Days	Net Change Man Days
Line Maintenance	41	1,317	43 Decrease
Substation Maintenance	21	362	83 Decrease
Telephone Unit	56	2,189	142 Decrease

Section total work force was reduced from 183 to 182.

Electrical power peak demands for July were:

Date	July KW Demand	Comparative June KW Demand
Process Load 7-7-52 (10:30 am - 11:00 am)	81,073	79,933
Richland Load 7-28-52 (5:00 pm - 5:30 pm)	13,120	16,000

Process area demand is at a new all time peak, 1,140 KW above the previous peak established in June 1952. Control of 100-C Area testing prevented a substantially greater peak. The area is now approaching startup and controls will be removed in August to permit full load testing.

Richland Village demand and energy consumption increased 9.8% and 5.5% respectively, with a 5% increase in number of housing units, as compared to July 1951. Additional experience with customer service metering will be necessary before analyzing its effect on electrical energy consumption.

Local amateur radio operators will be organized for Richland civil defense in accordance with RACES rules, which are effective August 15, 1952. This type organization has been recommended by the Federal Civil Defense Administration.

It has been agreed with the Manufacturing, and Financial, Departments to bill process areas for electrical energy on the basis of KW demand, effective July 1, 1952. This is more equitable than the former basis of KWH consumption, and is consistent with the method employed by B.P.A. for billing Hanford Works.

[redacted] UNCLASSIFIED

1205581

ELECTRICAL DISTRIBUTION UNIT

Maintenance and Operation

A Midway Substation breaker on B.P.A.'s 230-KV Big Eddy line opened twice within a short period of time on July 15, 1952. The first interruption also caused a relay operation on the Hanford Works system which opened circuit breaker No. A-322 at 151-B Substation. Opening of breaker No. A-322 should not have occurred and it has not been possible to determine the cause. This further emphasizes the desirability of considering a change from the present directional relay method to more reliable phase comparison relay protection for the Hanford system.

Billing Richland customers for electric service on the basis of actual metered consumption required the initial reading of all Richland meters (5,900) on July 1, 1952. This was accomplished by working eight man hours overtime, without employment of temporary assistance.

Fuses were blown on the 291-U Building power transformer bank on Saturday, July 19, 1952. Fuse failure was caused by simultaneously starting two large motors. An operating procedure has since been established to prevent a recurrence from this cause.

A previous recommendation was made to discontinue use of a leased telephone line providing direct communications between Hanford Works Electrical Dispatcher and B.P.A.'s Ross Substation. This was approved by the A.E.C. and reduces annual expenditures by approximately $10,000.

System Expansion and Planning

Installation was completed of all new 13.8 KV switchgear at 151-B Substation, for power supply to 100-C Area, and equipment was accepted for operation and maintenance.

Phase comparison relay protection was recommended for the Program "Y" extension of the Hanford Works 230-KV system, following detailed discussions with interested departments. Design of Building No. 165 bus was discussed with various engineers and a decision reached to provide a double bus for the generator section.

Construction of a new parking area at the Greenway in Richland necessitates relocation of electric power and telephone lines. Plans were completed and the A.E.C. was requested to procure a lump sum contract for performance of the work.

TELEPHONE UNIT

Maintenance and Operation

The MJ-4 PBX telephone switchboard was removed and installed at White Bluffs Central Shops. Sixty-five (65) lines were removed from the White Bluffs dial exchange and connected to this PBX. Thirty-five (35) lines, originally connected to the switchboard at MJ-4, were connected to the 200-E-W dial exchange.

1205082

[redacted]

[redacted]

Maintenance and Operation (Continued)

Inter-exchange trunks and miscellaneous circuits were re-routed in trunk cables T-1 and T-5 and cable terminals and tie-in cables installed at four locations. Work was performed as specified on A.E.C. Work Order No. 0655 to provide connection to the U. S. Army telephone system.

A summary of telephone subscriber service is as follows:

	Subscriber Stations in Service	Lines Available for Service	Sides Available for Service	Exchange Lines in Service
Richland	4,975 Residence 1,011 Official 423 Misc.	86	337	3,876
North Richland	514	149	35	451
Process Areas	1,328	482		1,270
TOTAL	8,251	717	372	5,597

Richland Exchange four-party service:

	July 31, 1952	Last Month
Number of lines, complete fill	24	18
Partial fill with three subscribers	13	6
Subscribers	226	164

All work was completed in the Richland Exchange for providing four-party service. As of July 31 a backlog existed of 349 requests for residential telephone service.

System Expansion and Planning

The Richland Exchange "emergency" group allocation was thoroughly reviewed and a decision made to release the 4300 series of numbers from this category. This will make twenty-five lines available for general use.

It has been agreed to locate the official telephone exchange (Budget Item B-1889) in the new Administration Building basement. A project proposal is in preparation for immediate purchase of equipment.

[redacted]

DECLASSIFIED

1265603

[redacted]

System Expansion and Planning (Continued)

Equipment installation (Project C-443) has been completed in the Richland Exchange for improving the quality of service. A general observation is that there has been considerable improvement.

Preliminary plans provide for locating the Program "X" telephone exchange in Building 1704 vault, with an underground entrance.

Wiring and equipment were installed for approximately seventy-five (75) lines in the new addition to Building 703.

[redacted]

DECLASSIFIED

1205104

DECLASSIFIED

[redacted]

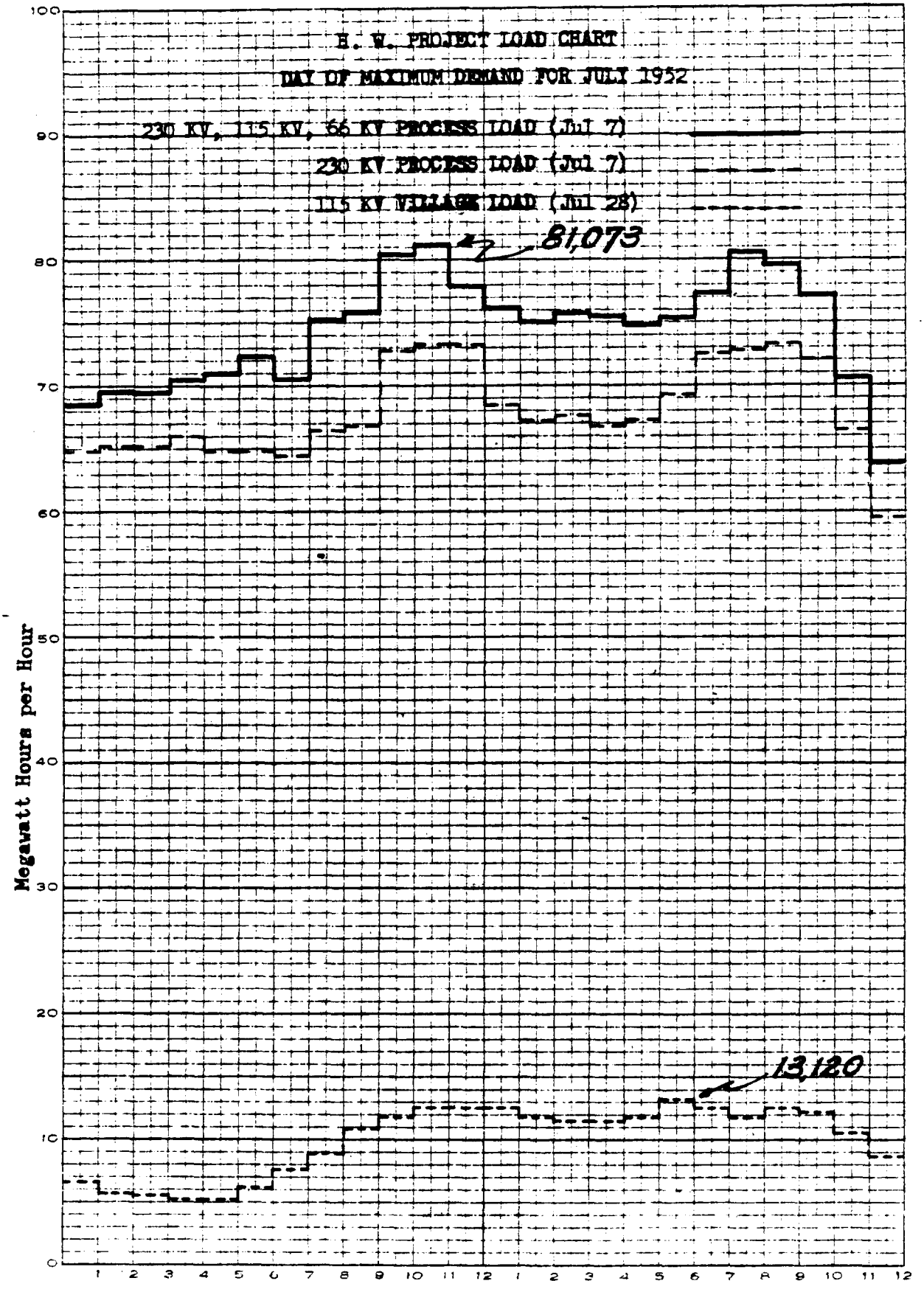
POWER STATISTICS
ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION
FOR MONTH ENDING JULY 31, 1952

ITEM	ENERGY - MW HRS. June	ENERGY - MW HRS. July	MAX DEMAND - KW June	MAX DEMAND - KW July	LOAD FACTOR - % June	LOAD FACTOR - % July
230-KV SYSTEM						
A-2 Out (100-B)	8,090	9,055	18,300	20,700	61.4	58.8
A-4 Out (100-D)	15,355	16,020	23,500	24,300	90.7	88.6
A-5 Out (100-H)	8,712	8,820	13,800	13,500	87.5	87.8
A-6 Out (100-F)	7,085	7,565	12,500	13,100	78.7	77.6
A-8 Out (200 Area)	4,824	4,968	9,000	9,000	74.4	74.2
TOTAL OUT	44,066	46,428	77,100**	80,600**	79.4	77.4
MIDWAY IN	44,738	47,290	73,600*	74,400*	84.4	85.4
Transm. Loss	672	862				
Per cent Loss	1.5	1.8				
115-KV SYSTEM						
B1-S4 Out (N. Rich.)	1,689	1,790	3,341	3,053	70.2	78.8
Richland	6,914	6,626	16,000*	13,120*	60.0	67.9
BB3-S4 Out (300 Area)	864		2,000	2,000	60.0	59.7
TOTAL OUT	9,467	9,304	21,341**	18,173**	61.6	68.8
Benton In	1,060	880	21,200*	2,400*	06.9	49.3
So. Richland In	8,740	8,520	19,200*	16,400*	63.2	69.8
TOTAL IN	9,800	9,400	40,400**	18,800**	33.7	67.2
Transm. Loss	333	96				
Per cent Loss	3.5	1.0				
66-KV SYSTEM						
B9-S11 Out (100-C)	497	419	1,300	1,150	53.1	49.0
B7-S10 Out (W. Bluffs)	303	321	1,215	1,013	34.6	42.6
Hanford Out	269	246	600**	600**	62.3	55.1
TOTAL OUT	1,069	986	3,115**	2,763**	47.6	50.0
HANFORD IN	1,116	821	2,600*	2,400*	59.6	46.0
Transm. Loss	47	+165				
Per cent Loss	4.4	+20.1				
Project Total						
230 KV Out	44,066	46,428	77,100**	80,600**	79.4	77.4
115 Kv Out	9,467	9,304	21,341**	18,173**	61.6	68.8
66 KV Out	1,069	986	3,115**	2,763**	47.6	50.0
TOTAL OUT	54,602	56,718	101,556**	101,536**	74.7	75.1
230 KV In	44,738	47,290	73,600**	74,400*	84.4	85.4
115-KV In	9,800	9,400	40,400**	18,800**	33.7	67.2
66-KV In	1,116	821	2,600**	2,400**	59.6	46.0
TOTAL IN	55,654	57,511				
Transm. Loss	1,052	793				
Per cent Loss	1.9	1.4				

*Denotes Coincidental Demand
**Denotes Non-Coincidental Demand

Average Power Factor - 230-KV System 92.4
Average Power Factor - 115-Kv System 85.6
Average Power Factor - 66-KV System 86.1

[redacted]


H. W. PROJECT LOAD CHART
DAY OF MAXIMUM DEMAND FOR JULY 1952
230 KV, 115 KV, 66 KV PROCESS LOAD (Jul 7)
230 KV PROCESS LOAD (Jul 7)
115 KV VILLAGE LOAD (Jul 28)
81,073
13,120
Megawatt Hours per Hour
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12

1205686

UTILITIES AND GENERAL SERVICES DEPARTMENT
STATISTICS UNIT

MONTHLY REPORT - JULY, 1952

GENERAL - C. A. Bennett

On July 14 the Statistics Unit was reorganized along functional lines into three sub-units. Mr. L. G. Waters is in charge of Business Statistics, and will be responsible for the application of statistical methods to economic and personnel problems. Mr. R. F. Cell is in charge of Precision and Quality Control, and will be responsible for the application of statistical methods to the control of precision and quality and to problems of accountability. Dr. F. H. Tingey is in charge of Research and Development Statistics, and will be responsible for the application of statistical methods to the various experimental and development programs. Mr. W. C. Healy has been placed on special assignment. Under the new organization, personnel are summarized as follows:

	As of 7-31-52		
	Ex	Non-Ex	Total
Business Statistics	2	0	2
Precision & Quality Control	2	2	4
Research & Development Statistics	2	3	5
Staff	2	1	3
TOTAL	8	6	14

The total personnel of thirteen as of June 30, 1952, was increased by one due to the addition of a technical graduate on first assignment.

Dr. C. H. Weldon of the Fernald Works, National Lead of Ohio, visited with members of the Unit on July 17 to discuss quality control and accountability problems.

Mr. Verald L. Easterly of the Accountability and Production Control Department, Rocky Flats Plant, Dow Chemical Company, has been assigned to the Unit as a trainee for a period of twelve weeks to study the application of statistical methods to problems of accountability.

BUSINESS STATISTICS - L. G. Waters

An analysis of absenteeism data is being made for the Medical Department. A distribution known as the "Polya Eggenberger" (first applied to sickness and accident statistics in Sweden) was found to fit the data very well from both a physical and theoretical standpoint. Based on this distribution 95 percent probability limits were computed. These limits indicated that any individual with less than one day per year or greater than 19 days per year absence should be commended or investigated, respectively. It is of interest to note that these limits are identical

DECLASSIFIED

1205607

[redacted]SSIFIED

with company policy and are probably to some extent dictated by it. It was also found that individuals with six months or less service have significantly less absences than individuals with longer service, which again is undoubtedly a reflection of company policy.

A study was undertaken for the Safety and Fire Protection Unit to (1) compare accident costs for Hanford Works with those of an average chemical industry of similar size, (2) determine the relationship between and trends in major, submajor, and minor injury frequency rates for the period 1947 to the present, (3) determine whether the causes of minor injuries are directly or indirectly related to the operation in order to guide the accident prevention program, and (4) determine whether the safety program is optimum. At present cost and injury data are being gathered for the study.

Assistance was afforded the Public Relations Section in designing a survey to ascertain opinions of Works News' readers in order that the Section can make the paper more interesting and informative. Assistance was given in designing a questionnaire and a representative group of people from each Hanford Works Department was randomly selected. Questionnaires will be sent to the homes of the 500 people in the sample group by the first of August. Analysis and tabulation of the results will be made as soon as a sufficient number of questionnaires are returned.

Several statistical analyses were made in conjunction with the work performed by the Computing Unit for Salary Administration. One participating company submitted its salary information in total rather than by individual amounts. For each profession, it reported a maximum, minimum, and average salary for a given number of employees. To have included all the employees at the average salary would have seriously biased the analysis, since the spread or range of salaries was a prime consideration. The individual salaries contributing to the total were obtained by hypothesizing that the individuals conformed to a normal curve, estimating the standard deviation from the range of salaries, and then predicting the number of employees who would have particular salaries. These predictions ranged from the minimum to the maximum salaries submitted by the participating company, and the average of these predicted salaries agreed with the submitted average. In addition, the Statistics Unit has been responsible for the actual fitting of the salary curves, including comparisons of actual Hanford curves to a properly weighted combination of those determined by the survey.

PRECISION AND QUALITY CONTROL - R. F. Cell

A survey of the lot system of following metal quality from the Mallinckrodt Chemical Works and Simonds Saw and Steel Company through Hanford Works was made in conjunction with the Pile Technology Unit and the Metal Preparation Section. It was determined that a higher degree of coordination is evidently necessary on the part of the vendors. A letter (HW-24860) was sent to the Mallinckrodt Chemical Works covering recommendations for improvement of the system so that Hanford Works may assign lot numbers to homogeneous groups of metal. Conversations were also held with Pile Technology Unit and Metal Preparation Section representatives concerning the installation and maintenance of a satisfactory lot system for metal to be received from the Fernald Works, National Lead of Ohio. Data presently available

[redacted]

1205108

on homogeneous Hanford Works lots are being placed on I.B.M. cards, and a compilation will soon be prepared for further study.

Informal conferences were held with Pile Technology Unit personnel concerning the gathering of additional data related to the lot system from irradiated slugs in the 105-C basin. When these data are available, it will be possible to compile the following information on each Hanford Works lot: metal constitution including impurities; rolling data; machining, canning and autoclave yields; reactivity values; dimensional stability during irradiation; slug failure rate; and other data which may be of interest.

The installation of control charts on machining operations by the Metal Preparation Section was partially reviewed from a statistical standpoint. Statistical assistance of a minor nature was given in support of the program.

From data furnished by the Pile Fuels group, a statistical study was made to ascertain if it would be possible to distinguish between shipments of rolled uranium rods received from Simonds Saw and Steel Company on the basis of metallurgical properties. The purpose of this was to assist in setting up a quality control program on some or all of the following properties: ultimate strength, yield strength, modulas of elasticity, proportional limit, percent elongation, percent reduction in area, Rockwell "B" hardness, percent recrystallization, size of recrystallization grains, transverse coefficient of thermal expansion, longitudinal coefficient of thermal expansion, and evaluation of orientation for various planes. The first phase of study was to determine sample sizes necessary to represent a shipment, and charts were drawn for each of the properties showing the sample size required to detect a given percentage difference from average values. Analyses are being made to see if values for certain of the properties can be predicted from known values of the others.

In view of the fact that the responsibility for the application of statistical methods to SF accountability procedures has been placed under one person, a conference has been scheduled with Accountability representatives to determine as nearly as possible the role that the Statistics Unit should play in support of the program. It is felt that much better service can be offered through this concentrated responsibility than was formerly possible.

Statistical analyses of duplicate samples of H-7 metal solution were continued. These indicate an improvement in sampling technique and this improvement is reflected in a bettering of precision for this sample ($\pm$ 4 percent for an average of two determinations as compared with $\pm$ 5.2 percent previously).

Considerable effort was expended in an attempt to determine sources of the large variation in determination of Redox plutonium product before concentration (E-3), after concentration (PR) and upon receipt at the 231 Building (R-1). Analysis showed no relation between filter hold-up and nitric acid concentration. Filter hold-up was not a major source of variation; R-1 - PR differences were no worse for runs with filters than for runs in which the filter was by-passed. Data for the month showed nearly equal precision for each of the three determinations, but the measurements at R-1 were higher than at either of the other two points. Statistical assistance was given in determining the source of this bias.

[redacted]

1205169

DECLASSIFIED

[redacted] DECLASSIFIED

A survey has been undertaken to determine what steps are necessary for the issuance of a prompt and accurate monthly report on machining, canning and autoclave yields in the 300 Area manufacturing process, including also scrap losses and other items of a quality control nature. The mutual cooperation of Manufacturing, Accountability, and Statistics and Computing personnel is being solicited; the objective of the survey is to permit the elimination of the duplication of monthly reporting activities which has taken place in the past.

An experiment to determine the copper content of the bronze baths in the 300 Area canning process was re-designed and analyzed. The variables involved were pots, samples, chemists, and determinations. A report is being prepared for the Metal Preparation Section.

The comparison of the rejects obtained among slugs processed by sawing off the excess cap to those obtained among slugs processed by the present facing method was completed for the Plant Engineering Services group. The results showed that the two methods of processing compare very favorably in this respect. Of particular interest were the differences between the percentage of rejects obtained by the two crews who performed the experiment. Apparently there are considerable differences either in the performance of the crews or in the assigned inspectors, or both, not only on an overall basis but for individual reject causes. (Document No. HW-25118, "Statistical Analysis - Saw Facing Canned Slugs", L. G. Waters to A. D. Holben, July 17, 1952).

Discussions were held with the Process Unit on the setting up of a precision control of billet wafer analyses in the laboratory. The Analytical Control group is gathering data for statistical analysis.

In order to segregate and give separate mathematical treatment to Mallinckrodt Chemical Works lots made up of billets recast from billet croppings, a letter was written to the St. Louis Area Atomic Energy Commission office requesting the identity of these lots (Document No. HW-25125, "Lot System - Billets Recast from Billet Croppings", R. F. Cell and L. G. Waters to J. J. Koenig, July 25, 1952).

A statistical report was issued on Metal Preparation Section results from machining pickling, canning and autoclave, test pile, melt plant, and oxides (Document No. HW-25011, "Statistical Quality Report - 300 Area, June, 1952", L. G. Waters to W. W. Windsheimer).

RESEARCH AND DEVELOPMENT STATISTICS - F. H. Tingey

Work has begun on a series of problems relating to plant water quality. One major problem is the determination and analysis of pile and header differences over varying periods of time with regard to the chemical properties of the pile coolants. Specifically, it would be desirable to determine whether the pile coolants for each pile all have essentially the same chemical and physical properties. Furthermore, it is proposed to ascertain whether or not the total efficiencies of pile coolants can be maximized by using individually different coolants for each pile. If such is the case it will be necessary to find the combination of treatments of the

[redacted]

1265690

coolants such that the efficiency of the coolant is maximized for each pile. Preliminary statistical analyses have been carried out, experimental designs considered, and data are being collected pertinent to these problems.

Statistical assistance is being given in the evaluation of the pressure drop-film buildup of the individual tubes of the various piles. At present, past production data are being analyzed to obtain general information concerning the factors affecting this buildup. A fundamental problem being investigated is the pressure drop-time functional relationship. A study has also begun regarding the comparative reliability of the different physical methods available for measuring this buildup.

A study has been started covering the variations in panellit pressure gauge readings and Heise gauge readings. One of the primary problems of this study is the evaluation of the nature and the amount of variation of the gauge readings over different periods of time (ranging approximately from ten minutes to a month). The data will be obtained during periods of negligible pressure drop-film buildup. The main purpose of this study is to verify the feasibility of calculating control limits on the panellit pressure readings. Such limits would be furnished to the Pile Technology Unit for the purpose of maintaining water quality.

Assistance was given to the Pile Technology Unit in deriving a new procedure for estimating the final failure rate for a particular group of metal charged in the reactors. The primary purpose of this study was to develop a method which does not have the inherent disadvantage of a considerable time lag between charging and the gaining of sufficient experience data to make an accurate estimate, as is the case in the method currently used. Experience with past data gives promise that the developed method yields a fairly accurate estimate and rapidly converges to the true value as more and more of the tubes are discharged.

A problem dealing with the determination of the equilibrium impurity concentration for various input and bleed rates in a contaminating circulatory system was considered. The mathematical solution to the problem has been derived and at the present time data are being collected relevant to the determination of the functional form of the contaminating equation.

A review of previous studies concerning the relationship of blistering to the position of the slug in the tube was made. It is anticipated that this problem will be reconsidered in view of the subsequent data that has been compiled since these initial studies were made.

An analysis of data on minimum residual can wall thickness (penetration) of slugs canned with loose and tight fitting sleeves was completed for the Pile Fuels group. The results showed the average penetration and variation of the two methods to be practically identical.

Two computational problems were considered for the Pile Technology Unit. The one was of a sufficiently minor scope to be feasible for manual computation by desk calculator. The second dealing with lattice design involved a slowly converging series of Bessel Functions and thus did not seem economically adaptable to manual computation. It was therefore turned over to the Computing Unit for solution by I.B.M. techniques.

DECLASSIFIED

1255591

[redacted] DECLASSIFIED

Discussions were held with the Uranium Metallurgy group with regard to the reliability of the method described in document No. HW-12821 for determining the preferred orientation in rolled uranium rods. At the present time data is being collected with the intent of a reanalysis of this problem.

The probability of an alpha-beta pile up of sufficient energy to activate an A.S.P. Counter was determined for the Analytical Research sub-unit. Assistance was also given in the determination of the precision associated with the expected volume of a liquid moved for various settings of percent of full stroke of a pump piston. The functional relationship was determined and the variation of the points about this curve served as an estimate of the precision.

Further consultory services were afforded to Plant Engineering Services on the long range problem dealing with the determination of the thermal efficiency of 100 Area combustion engineering boilers at various steaming rates and optimum firing with Kemmerer coal. The principle problem being considered at this time is the correct calibration of all the gauges that are to be used in the main experiment.

An investigation has been undertaken for the Toxicology Unit of the Radiological Sciences Department to ascertain the nature and degree of experimental errors associated with Protein Bound Iodine (PBI) laboratory analyses. There is considerable evidence that the functional relationship between colorimeter reading and PBI present is not linear but is adequately represented by a polynomial of degree two. From the analysis of the original data available, several conclusions can be drawn regarding the behavior, with respect to time, of the standard curve associated with this experiment. It is anticipated that the analysis of a further set of data available shortly will substantiate the preliminary conclusions.

An extensive study was made of certain sampling statistics designed to increase the accuracy and precision of the determination of population parameters by means of routine chemical analyses of samples from the population.

The exact sampling distribution of the proposed statistics was derived for various families of distributions and determinations made of the variance. In one particular case it was not possible to obtain the exact distribution in a closed form. In cooperation with the Computing Unit, a Monte Carlo technique was devised to empirically construct the distribution of the proposed statistic by randomly selecting samples from a deck of normal random deviates, computing the statistic, and then tabulating the results of a sufficient number of determinations that the convergence of the empirical distribution to the true sampling distribution is established. With the excellent I.B.M. installation which we have, it is felt that fruitful use could be made of these machines on such statistical problems as the above.

Assistance was given in the general theory and procedure for determining a distribution which best reflects absentee statistics (see Business Statistics). Various distributions were considered, the most successful (in the sense of best fit) being the "Weibull" and the "Pólya-Eggenberger". The "Weibull" distribution yielded the slightly smaller Chi-square value in the goodness of fit test, but since the physical aspects of the problem are more consistent with the "Polya-Eggenberger", and because of the marked success that the Swedish statistician O. Lundberg has had in the

[redacted]

125[illegible]2

application of this distribution to sickness and accident statistics, this distribution was used to fit the existing data.

Consultation was also provided in determining the most efficient and expeditious method of fitting salary adjustment curves. It is felt that in view of the great quantities of data and the magnitude of the problem that a more expeditious method than the conventional least squares method could be used with little loss in precision.

As requested by the Atomic Energy Commission, work has continued on the computation of Kr-85 releases from Hanford Works month by month since startup employing plutonium assay data. During July the necessary monthly tabulations of plutonium and irradiation data were essentially completed, so that the computations are now ready for I.B.M. processing. Meanwhile the regular semi-monthly reports of Kr-85 releases were completed and forwarded.

DECLASSIFIED

[redacted]

[redacted]DECLASSIFIED

UTILITIES AND GENERAL SERVICES DEPARTMENT
COMPUTING UNIT

MONTHLY REPORT - JULY, 1952

Following is the month end summary of personnel:

	As of 6-30-52			As of 7-31-52			Net Change		
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
Staff	2	2	4	2	2	4	0	0	0
Planning	8	5	13	8	5	13	0	0	0
Operations	4	38	42	5	37	41	+1	-1	0
Rot. Training	0	2	2	0	4	4	0	+2	+2
Total	14	47	61	15	48	63	+1	+1	+2

The position of Supervisor of IBM operations was filled by promotional transfer within the Unit.

One mathematician with a PhD., degree was added to the staff of the consulting group. The increased demand upon the Unit for theoretical advice and applications of advanced mathematical theory to the IBM system of computation dictated this new hire. One machine operator was transferred to Project Engineering at the request of that group. Two Technical Graduates were assigned to the Unit and are being utilized for machine operations and accuracy control of computing.

Descriptions, by departments, of the numerous and diverse services performed by the Unit during the month of July are as follows:

NUCLEONICS DIVISION STAFF:

A voluminous amount of reporting and computing was done for Salary Administration on the annual national salary survey conducted by that group. An IBM card was punched and verified for each employee represented by reports. Adjustments were made to the data after key punching to convert the various reporting methods of the participating companies to a common basis. All rates were put on a monthly basis, experience was represented by years since first degree, etc. Adjustments of rates were made as increases were established by the contribution so the entire survey was current at the time the final computations were made.

Within each of the twelve professions represented by the survey, calculations were made, and listings submitted, for each participating company, giving the maximum salary, minimum salary, number, and average of the salaries for each year since receiving degree. Thus, with twelve professions, approximately forty companies, twenty different years since degree and both PhD's., and BS-MS employees under consideration, 19,200 results were obtained and

[redacted]

presented.

Using the same data, composite frequency distributions of salaries were calculated. Within each profession, the number of employees falling in ranges of salaries were computed for each year since receipt of degree. Approximately 480 frequency distributions of this type were made. At the request of several reporting companies who desired additional information on the trend of salaries in the higher years since degree, three additional groups - 23 to 27 years, 28 to 32 years, and 33 to 37 years - were added to the computed frequency distributions, although this data was not considered in calculation of curves done by the Statistics Unit.

A complete listing of all employees represented by the survey was made for the Salary Administrator. Weighting was introduced to bring the percentage of the total represented by each profession in the survey, to the same percentage as each profession comprised the Hanford total. Thus, if chemists, for example, represented 5% of the survey data, and yet 10% of the Hanford data was comprised of chemists, the survey cards were weighted by a factor of 2. After weighting, the complete listing gave progressive totals of the number and total salaries to enable study of decile, centile, or percentile trends within each profession.

The same reports as enumerated above in describing the professional survey were also made on the survey of executive, administrative and operating positions. A total of 40 positions were reported upon, the only change in procedure being that years since first degree were not taken into consideration.

From the executive, administrative, and operating IBM cards, a special study will be run as a West Coast Salary Survey in selected positions.

FINANCIAL DEPARTMENT:

Preparation of the weekly payroll by IBM machines continued during July. Following are the major weekly reports prepared:

(1) "Detail Listing of Hours" - A complete list of employees with information as to hours worked, premium hours, shift hours, premium shift hours, sick hours, absent hours, carry over hours, Saturday and Sunday hours, shift differential, isolation hours, and isolation pay.

(2) "Proof Tabulation of Earnings" - Tabular totals, by control groups, of regular earnings, premium earnings, absent and sick pay, shift differential, isolation pay, and gross pay.

(3) "Proof Tabulation of Current Accumulated Taxes and Pension" - To the accumulated taxes and pension figures of the previous week are added taxes and pension for the week under consideration to arrive at amounts representing year to date totals. These totals must equal the accumulated totals on the new accumulative cards.

(4) "Final Register" - A complete salary roll listing all information used in compiling checks for each employee. All types of earnings are totaled to

DECLASSIFIED

reach gross pay figures, from which are subtracted taxes, pension, and deductions to arrive at a net pay. This roll serves as the official register for the Paymaster and the Payroll Section.

(5) "List of Checks" - After checks are printed, they are sorted into three groups for distribution, two groups being sorted to local banks, and one group for individual distribution on site. The latter group is further broken down by plant location to facilitate handling.

(6) "Force Report" - Information is listed in this report of the individual employees for which the various departments are charged and are responsible. Employees are segregated by job classification and hourly rate.

(7) "Cost Distribution Report" - Labor costs for each section are listed for distribution to the proper accounting cost code. A listing and tabulation of departmental totals is also made.

(8) "Sick and Absent Hours Report" - A listing is forwarded to the Payroll Section of the sick and absent hours accumulated within each department to allow statistical investigation and analysis.

(9) "Master File Listing" - A complete listing of the master file, which is forwarded to the Payroll Section to serve as a basis for adjustments, and to give information of current wage rates.

(10) "Deductions Listings" - Lists and totals of each type of deduction to be used in preparation of weekly payroll. Both deductions used, and those unapplied because of overdrawn pay are itemized weekly for the Payroll Section.

In addition to the above named reports, weekly time cards were made for each employee, and then sorted by a location designation for distribution by the Paymaster. Throughout the machine preparation stages, money amounts must continuously equal the control totals built up from the time card figures to insure balance at each step of the operation before undertaking the next. For each check that is issued, a punched card is reproduced to permit a reconciliation of outstanding checks when returns are forwarded from the banking system.

The extreme flexibility and adaptability of the punched card system is vividly illustrated by the diverse statistical and special assignments handled by the Computing Unit since adoption of payroll preparation. The innumerable requests for information and reports include the following:

(1) Wage rates for each employee were adjusted in accordance with the 1.03% cost of living increase granted to all General Electric employees working at Hanford Works. This change was effected the first week of machine preparation by changing the rates in the master cards.

(2) To enable an efficient and speedy investigation of overtime hours worked by each department, double time hours and premium hours were listed and tabulated within section suffix.

(3) A list of all employees and their number of dependents was prepared for the

Financial Department for the purpose of checking tax statements and dependent insurance.

(4) Semi-annual adjustments of the General Electric Insurance Plan were handled by the Computing Unit. The amount of coverage and corresponding contributions are adjusted only on January 1 or July 1 of any year, and in accordance with that procedure, increases in contributions were made for those employees whose increased annual basic salary placed them in higher coverage ranges.

(5) Federal Form 914-A - Quarterly Report of Taxable Wages - was completed.

(6) Another use of the information contained on IBM payroll cards was made in calculating a premium for Dupont annuities. First, a list of all employees having at least 15 years service with General Electric and Dupont as of December 31, 1952 was prepared. To these persons, varying rates, depending upon age of nearest birthday on date premium is due, were applied, and a premium computed. In addition to a sliding scale based upon age, rates also differed for male and female employees.

(7) An alphabetical listing of all weekly employees was made.

(8) Retroactive payments for the 1.03% cost of living increase were made.

(9) A listing of all technical employees, by departments, was made for the Technical Cost Section.

(10) Payroll statistical reports are in process of being established at the request of the Financial Department. The following weekly information will be prepared:

(a) Premium pay to straight day workers for Saturday and Sunday, including hours and money.

(b) Actual overtime hours worked, plus premium hours and amount paid.

(c) Isolation pay.

(d) Shift differential.

(e) A count of people working overtime.

(f) Amount of payroll (regular roll, vacation roll, and number paid).

(g) Number of hours paid for, excluding premium overtime hours.

(h) Amount of premium overtime paid.

(11) Complete listings were made for the Payroll Section of cancelled and new rent deductions, earnings, accumulative cards for June 15, 1952, insurance deduction file, employees who have signed waivers for pension plan, the vacation master file, and the stock bonus and savings deduction files.

(12) An alphabetic listing of all Patrolmen was made.

(13) Tax calculations were revised to prevent application of Social Security Tax

DECLASSIFIED

on sick isolation pay.

Under the direction of the Staff Assistant, work is in progress to utilize the newer and more complicated types of IBM equipment for accounting work. An example of this application is the present procedure for calculating and checking the vacation payroll. Since separate calculations must be made for each pay period, the standard weekly methods cannot efficiently be employed. A procedure has been devised whereby the electronic calculators complete all of the payroll calculations in two passes through the machines. A third pass through the calculator and one through the multiple line accounting machine make a thorough accuracy check of all computations and summarizations made for each employee. Each time the accounting machine detects an error, it prints the payroll number involved and names the error found, i.e., gross, net, taxable and 5 kinds of accumulative totals. This is an outstanding example of efficient machine usage through high level control circuit design. The control panels for these operations are now being altered so that direct adjustments can be included in these operations. It may be possible to gain in speed and accuracy control by using these same calculating and checking operations for the main payroll.

Routine work for the Financial Department during the month included preparation of Exempt Salary Distribution, Technical Cost Distribution, Manufacturing Work Order Cost, Manufacturing Payroll Distribution, Community Work Order Cost, General Work Order Cost, General Motorized Equipment Cost, and General Payroll Distribution.

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT:

The quarterly manpower survey was completed during July, as required by the Atomic Energy Commission. Data was received from the Personnel Records and Investigations Unit, representing information on all employees, for both the General Electric Company and the Atomic Energy Commission, who had been added to the roll, had terminated, or had changed their status.

After key punching, the change cards were substituted for the old cards on the respective employees, the new cards were added to the file, and the cards for terminees were pulled from the file. Listings of each of these groups were made, and then a final revised listing of all employees as of July 1, 1952 was run for the Atomic Energy Commission in Washington, D.C., and the Personnel Unit.

UTILITIES AND GENERAL SERVICES DEPARTMENT:

Monthly motorized equipment reports were routinely reported to the Transportation Section. An application of the CPC (card programmed calculator) is being studied on motorized equipment reporting. Investigation indicates that additional historical information can be made available on the reports, as well as an indicated elimination of considerable clerical work each month by use of more advanced machines and procedures.

A new IBM application to summarizing of procurement activities is being established for the Stores and Purchasing Section. Each purchase order is being key punched so that required information can be presented to the Atomic Energy Commission. Two types of purchases are under consideration, fixed price actions, and cost-type actions. For each, information must be presented to give the number and amounts of purchases from government agencies, big

DECLASSIFIED

business, small business, educational agencies, and others. In addition, the descriptions of purchases must be subdivided by the method of acquisition. These categories include advertised purchases, competitively negotiated purchases, non-competitively negotiated purchases, governmental schedule purchases and intra-company or inter-department purchases. Also, purchase actions are summarized on a price basis, a frequency distribution being prepared on ranges of amounts, i.e., $0-$9.99, $10-$499, $500-$9,999, and $10,000 up.

ENGINEERING DEPARTMENT:

A history of all ruptured slugs since May 30, 1948 has been placed on punched cards for the Pile Technology Unit. This data includes such items as failure number, tube number and pile, charging date, failure date, tube and slug exposure, canning information, and other information pertinent to the problem of rupture. Listings are now possible of any items contained in the cards, and in any desired order. To date, seven of these listings have been made. Also, correlations will now be available to assist in analysis by the Pile Technology Unit and/or the Statistics Unit.

Several new problems were handled for the Engineering Department. The average outlet water temperature for the near and far halves of the DR pile was calculated at the request of the Pile Technology Unit. These temperatures were then compared with the average outlet temperature of the pile as a whole. From the poison pattern, a table of quantities to be used during the startup of C pile was prepared. Also at the request of Pile Technology, an exposure time factor for each pile was calculated for the time interval of startup to the present. This information will be used to study the pile gas atmosphere.

Work on long range problems, and those which were in process, continued as follows:

The calculation of thermal neutron flux in the region of a hollow slug was completed. Involving several bessel functions, complex boundary conditions, and a wide range of arguments, the important solutions will be used to decide upon the optimum dimensions of a hollow slug.

For each of twelve cases, the temperature and heat flux in the slug and end cap have been computed for the Heat Transfer Group in connection with slug temperature distribution. A variation of the original equation has been introduced, programmed, and calculated for two of the cases.

The Mechanical Development Group of Separations Technology Unit requested a calculation of the temperature at the corner of graphite blocks in the pile. Using an equation supplied by the customer which consisted essentially of an infinite series of terms, each having the difference of products of bessel functions in the numerator and denominator, the series was evaluated, and the computations begun. Thus far, the calculation has been completed for 195 combinations of values of the parameters.

Group 8 fringe tube power calculations were enlarged this month to include power and exposure calculations for the months of March through July, 1952. Distributions of power in several orifice zones were also made. All metal charged in June, 1952 was included in a report on metal studies for the Pile Technology

Unit. Approximately 1/3 of all metal in the piles is included in this study which is being enlarged monthly.

Several sets of data were analyzed for the Engineering Department in solving a dilatometer equation. Measurements of the dimensions of a slug were made as a slug was subjected to extreme changes in temperature. The study was made in connection with work on crystal orientation of various types of rolled metal.

Routine work during July for the Engineering Department included; least squares cosine fit, poison transient tables, ruptured slug data, tube exposures, temperature maps for H pile, and graphite temperature data for D pile.

RADIOLOGICAL SCIENCES DEPARTMENT:

An extension of the study on isotopic buildup and decay has been requested by the Environmental Hazards and General Studies Unit, to obtain results more applicable to situations at Hanford. The amounts of activity of the many isotopes produced in the fission process are to be studied for different exposure periods, and varying time intervals. Irradiation time up to 500 days, and "out" times up to 5000 days will be taken into consideration.

Routine work during July for the Radiological Sciences Department covered the following items; weather calculations for May and June, wind calculations for June, aquatic biology studies and thyroid and radioanalysis calculations.

MANUFACTURING DEPARTMENT:

A new metal quality study is in progress of programming. The problem consists essentially of making a punched card history of each Hanford Works metal lot. This history will include, (1) chemical impurity data as reported by the metal vendor, and which will be taken from the regular metal quality study cards, (2) slug processing data, such as machining yields, canning yields, pickling and autoclave inspection reject percentages, which will be taken from the regular metal preparation study cards, and (3) test pile experimental data to be furnished by the Pile Technology Unit. With these histories on record, it will be possible to make correlation analyses of vital interest to the Atomic Energy Commission, Manufacturing Department, and Engineering Department. About 40 Hanford Works lots are ready for processing, and a comparable number will be handled each month on a routine basis.

Routine work for the Manufacturing Department during the month includes film buildup study for 100-D water flow laboratory, metal quality, and metal preparation studies.

ATOMIC ENERGY COMMISSION:

The quarterly reports on motorized equipment usage were completed during July. Also, the annual reports required for the fiscal year 1952 were forwarded to the Atomic Energy Commission.

DECLASSIFIED

[redacted] DECLASSIFIED

	NEW CARD VOLUME	MACHINE UTILIZATION REPORT	NUMBER OF REPORTS
FOR THE FINANCIAL DEPARTMENT:			
Exempt Salary Distribution	13,040	115	2
Technical Cost Distribution Report	9,130	106	7
Manufacturing Payroll Distribution	61,109	573	10
General Payroll Distribution	20,258	347	9
Manufacturing Work Order Cost	28,714	580	45
Community Work Order Cost	10,838	260	12
General Work Order Cost	21,950	733	34
General Motorized Equipment Cost	27,389	346	14
Electrical Billing	5,070	94	0
	197,498	3,154	133
FOR THE MEDICAL DEPARTMENT:			
Public Health Activities	500	1	5
FOR THE EMPLOYEE & PUBLIC RELATIONS DEPT:			
Manpower Survey Quarterly	12,275	37	8
FOR THE ATOMIC ENERGY COMMISSION:			
A.E.C. Quarterly Motorized Equipment	5,360	382	1
FOR THE MANUFACTURING DEPARTMENT:			
Metal Quality Data Preparation	1,900	23	1
Metal Preparation Data Reduction	100	26	3
Evaluation of Beta Integral	500	1	1
	2,500	50	5
FOR THE RADIOLOGICAL SCIENCES DEPARTMENT:			
Monthly Meteorological Study	7,176	109	2
Weather Station Wind Study	13,820	289	4
Zoology Thyroid Counts	2,275	26	2
Sheep Radioanalyses	975	23	2
Aquatic Biology	745	16	4
Zoology Sheep Blood Record	565	3	1
	25,556	466	15

[redacted]

	NEW CARD VOLUME	MACHINE UTILIZATION REPORT	NUMBER OF REPORTS
NUCLEONICS DIVISION STAFF:			
Exempt Salary Statistics	2,705	117	6
Exempt Salary Curve Fitting & Survey	9,030	173	30
	11,735	290	36
FOR THE ENGINEERING DEPARTMENT:			
Pile Graphite Temperature Calculations	750	78	1
Ruptured Slug Correlation Study	0	52	1
Film Buildup Calculation 100-D Flow Lab.	5,000	105	9
Lattice Conductance Studies	400	72	0
Project Bluenose	5,000	44	1
Least Square Cosine Curve Fitting	300	492	3
Poison Transient Tables	7,950	804	0
Temperature Maps for H-Pile	1,200	22	1
Transfer Project	226	88	0
Slug Temperature Distribution	1,172	159	2
Impedance Calculations	980	121	2
Thermal Flux of Hollow Slug	200	236	2
Front Back Traverse Fit	0	143	1
Graphite Conductivity	8,005	184	2
Average Outlet Temperature	0	3	1
Startup Buckling Calculations	800	38	1
Exposure Time Factor	138	13	2
	32,121	2,654	29
FOR PAYROLL:			
Payroll Preparation	109,450	3,500	140
Payroll Statistics	15,200	650	25
	124,650	4,150	165
GRAND TOTALS	412,195	11,184	397

DECLASSIFIED

[redacted]

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

SUMMARY -- JULY, 1952

The number of applicants interviewed in July was 1,500 as compared with 1,430 in June. Of these applicants, 428 were individuals who applied for employment with General Electric for the first time. In addition, 126 new applicants applied by mail. Open, nonexempt, nontechnical requisitions increased from 184 at the beginning of the month to 185 at month end. Total Plant roll decreased from 8,914 to 8,901 with total separations including 6 laid-off for lack of work. Turnover rate decreased from 1.98% in June to 1.75% in July. During July, 68 new requests for transfer to other type work were received by Employment and 22 transfers were effected. Attendance recognition awards were distributed for 164 employees who qualified for one-year awards during May, for exempt personnel, and June. Awards were also distributed for 97 employees who qualified for two-year awards during May, for exempt personnel, and June.

For the purpose of becoming better prepared to assist in initiating the GE Selection Program for Supervisors at the Hanford Works, a representative of the Employment office attended a training conference in New York during July. This week long conference emphasized the techniques of the modified patterned interview which is one of the primary phases of the Selection Program. Other phases such as testing and job evaluation were covered. The conference was conducted by Dr. John Foley of the Psychological Corporation under the sponsorship of the Employee and Plant Community Relations Services Division.

Three employees died during the month, and nine employees retired. One hundred and eighteen visits were made to employees confined to Kadlec Hospital and 22 checks were delivered to employees confined either at home or the hospital. At month end, participation in the Pension Plan was 92.7%, in the Insurance Plan 98.5%, and in the Employee Savings and Stock Bonus Plan 48.4%. At month end there were 1009 registered under Selective Service, and 757 military reservists were on the roll. Since August 1, 1950, 224 employees have terminated to enter military service, of which 24 have returned, leaving 200 still in military leave status.

At month end, a total of 7900 cards have been received in connection with the membership drive for establishment of the Good Neighbor Fund, of which 4079 signed up for the plan, which represented 51.6% of those cards received. With a total force of about 8900, an additional 380 participants in the fund were required to assure establishment of the fund in that the minimum goal was established as 50% of all employees. At month end, membership cards were being returned at a very slow rate and plans were being made to furnish the various departments with lists of their employees who had not yet turned in their cards.

EMPLOYEE AND PUBLIC RELATIONS
SUMMARY

For the purpose of consolidating responsibility for the promotion by way of participation and administration of the Employee Benefit Plans, effective July 1, 1952, responsibility for presentation of the Orientation Program for new employees was shifted from the Training and Program Development Section to the Employment and Employee Services Section.

Orientation of new employees was presented daily throughout the report month. A total of 131 new employees attended this program. Of this number, 86.2% signed up to participate in the Pension Plan, and 97% in the Insurance Plan.

Training and Program Development objectives scheduled for July, 1952, and other training activities were completed as follows: Management Orientation was presented on Monday, July 7. Basic Economics was presented on Wednesday and Thursday, July 9 and 10. New Supervisor's 40-Hour training program was presented during the week of July 21-25. You and Labor Law was presented on Thursday, July 31. Principles and Methods of Supervision (PMS) Conferences were started on July 28 by two additional groups of supervisors. Conference Leading Technique Manual is currently being re-edited. Introductory Program for 1952 Technical Graduates was reduced to a three weeks course. Training and Program Development Section was responsible for business courses presented during this period. Management Conferences on Human Relations is progressing on actual development of conference content material. The Hanford Works "Supervisor and General Electric" (SAGE) bulletins were issued three times on a bi-weekly basis throughout July. Good Neighbor Fund informative meetings were attended by approximately 3500 Hanford Works employees during a total of 190 informative meetings.

A decertification election was held on July 29 and 30, 1952, in connection with the Hanford Guards Union, Local 21. Results were: 363 votes in favor of retaining the union and 174 opposed. The union contract between the Company and the Building Service Employees International Union, Local 201, and the contract with Community Firemen (HAMTC), have been extended another year.

Formal negotiations of a uniform Project Agreement are scheduled to begin on Monday, August 4. All crafts, with the exception of Boilermakers, have agreed to participate. A cost-plus-fixed-fee contract for construction of new plant facilities in the 100 Area was executed on July 25, between the Atomic Energy Commission and Kaiser Engineers. V. H. Larish resigned as Business Agent of the Pasco Plumbers Local and was replaced by Rudell Beames, formerly General Construction Superintendent for the Project's cost-plus-fixed-fee mechanical subcontractor. An agreement was reached with the Plumbers Local liberalizing the interpretation previously placed upon the contractual provision for maintenance work which has heretofore caused the Project much inconvenience and additional expense. Effective July 21, the Construction Union Relations office was moved from North Richland to the 703 Administration Building. A work stoppage involving approximately 100 Millwrights on Atkinson-Jones' payroll occurred on Monday, July 28, in protest over a force reduction involving ten

1205704

EMPLOYEE AND PUBLIC RELATIONS
SUMMARY

Millwrights performing inspection work at 100-C for General Electric. At the request of the Construction Contractor, the Davis Panel has requested the International President of the Union to instruct the Millwrights to return to the job and offering to hear any grievance the Millwrights wish to present. No evidence of a return to work has been forthcoming.

No approval has been received from the Wage Stabilization Board on our petitions for increased isolation pay and double time holiday pay to Community Firemen, and it is now believed that until a new Board is appointed and swings into action, there will be further delays.

A total of 58 releases were distributed during the month. Of these, 35 were sent to the "local list", two to the "weekly list", four to the "daily list", and 17 received special distribution.

The Oregon Journal sent a photographer and a special edition editor to Richland to obtain pictures to be used in a full-page spread in the paper's 50th Anniversary edition which will come out in September.

Community leaders in Pasco and Kennewick were added to the Works NEWS mailing list.

A total of 11 papers for presentation and publication were presented for review and clearance this month.

A Civil Defense parade float and exhibit, as a part of Richland's annual "Frontier Days" celebration, was planned and coordinated with the cooperation of the assistant deputy director of civil defense.

CD movies were shown to 204 members of community clubs and organizations, and to 234 G-E employees.

Tours of the civil defense control center were completed by 47 people.

Two civil defense talks were given by the Chief Warden during July.

A total of 6,291 prints were produced during the month. Of the total prints produced, 4,967 were for employee identification and area admittance badges.

Six programs of the Richland Community Council "Council Talks", series, have been recorded, edited, copied, and released to the three local stations.

1265705

EMPLOYEE AND PUBLIC RELATIONS
SUMMARY

A Hanford Works NEWS readership survey was initiated during July with the help of the Statistics Unit.

An information letter concerning the Hanford Guards Union decertification election conducted by the NLRB was prepared for the signature of the Manager, Employee and Public Relations Department, and mailed to all members of that bargaining unit.

The Safety Topic of the Month for July and the July Health Bulletin were written, produced and distributed.

1205706

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

JULY, 1952

ORGANIZATION AND PERSONNEL

General

There were no organizational changes during July.

Employment and Employee Services

Effective July 11, 1952, Betty L. Cameron, Motor Messenger, terminated voluntarily.

Effective July 16, 1952, Creta Knapp, General Clerk D, was added to Employment.

Effective July 18, 1952, Dixie E. Esper, General Clerk C, was deactivated due to personal illness.

Training and Program Development

There were no organizational changes during July.

Public Relations

There were no organizational changes during July.

Union Relations

There were no organizational changes during July.

Number of Employees on Roll	July, 1952
Beginning of Month	109
End of Month	108
Net Change	-1

1205167

Employee and Public Relations

ACTIVITIES

Employment and Employee Services

Employment	June, 1952	July, 1952
Applicants interviewed	1,430	1,500

428 of the applicants interviewed during July were individuals who applied for employment with the Company for the first time. In addition, 126 applications were received through the mail.

Open Requisitions	June, 1952	July, 1952
Exempt	0	0
Nonexempt	184	185

Of the 184 open, nonexempt, nontechnical requisitions at the beginning of the month, 90 were covered by interim commitments. Of the 185 open, nonexempt, non-technical requisitions at month end, 106 were covered by interim commitments. During July, 121 new requisitions were received requesting the employment of 156 nonexempt, non-technical employees.

	June, 1952	July, 1952
Employees added to the rolls	288	143
Employees removed from the rolls	178	156
NET GAIN OR LOSS	110	-13

Of the 156 employees removed from the rolls, 6 were removed due to lack of work, 3 of which were in Bargaining Units.

Turnover:

	June, 1952		July, 1952	
	Male	Female	Male	Female
Including employees who were laid off for lack of work	1.38%	4.42%	1.34%	3.39%
Excluding employees who were laid off for lack of work	1.35%	4.42%	1.26%	3.39%

Over-all Turnover:

	June, 1952	July, 1952
Including employees who were laid off for lack of work	1.98%	1.75%
Excluding employees who were laid off for lack of work	1.95%	1.68%

Employee and Public Relations

During July, 36 employees left voluntarily to accept other employment, 9 left to enter military service, and 9 left to enter business for self.

Transfer Data

Accumulative total of requests for transfer received since 1-1-52	348
Number of requests for transfer received during July	68
Number interviewed in July, including promotional transfers	77
Transfers effected in July, including promotional transfers	22
Transfers effected since 1-1-52, including promotional transfers	173
Transfers effected in July for employees being laid off	1
Number of stenographers transferred out of steno pool in July	2
Transfer requests active at month end	156

During July, 20 people whose continuity of service was broken while in an inactive status were so informed by letter.

For the purpose of becoming better prepared to assist in initiating the GE Selection Program for Supervisors at the Hanford Works, Zane Wood attended a training conference in New York during July. This week long conference emphasized the techniques of the modified patterned interview which is one of the primary phases of the Selection Program. Other phases, such as testing and job evaluation were covered. The conference was conducted by Dr. John Foley of the Psychological Corporation under the sponsorship of the Employee and Plant Community Relations Services Division.

A total of 20 responses were received from advertisements for Designer-Draftsmen placed in newspapers in Portland, Denver, San Francisco, Seattle and Spokane on June 29, 30, and July 1. Advertisements were placed in a Seattle newspaper, July 22, 23, and 24, for Plumber Steamfitter Journeymen, Ironworker Rigger Journeymen, I.B.M. Operators, and Designer-Draftsmen. A representative of the Employment Office interviewed respondents to this advertisement at the Employment Security Department office in Seattle, on July 23 and 24. Seventy applicants were interviewed, including 16 Plumber Steamfitters, and 6 Designer-Draftsmen. In addition, 6 I.B.M. candidates were interviewed in Olympia. A sufficient number of Ironworker Rigger Journeymen were recruited through this effort to satisfy current needs. A representative from the Statistical and Computing Section and from the Project Section, assisted in the recruitment effort.

Employment Statistics

Number of employees on rolls	6-30-52	7-31-52
Exempt - Male	1,970	2,030
Female	57	57
	2,027	2,087
Nonexempt - Male	5,119	5,053
Female	1,714	1,708
	6,833	6,761
Community Firemen	54	53
TOTAL	8,914	8,901

Employee and Public Relations

ADDITIONS TO THE ROLLS

	Exempt	Nonexempt	Community Firemen	Total
New Hires	8	109	--	117
Re-engaged	1	--	--	1
Reactivations	1	18	1	20
Transfers (from other Divisions)	5	--	--	5
Actual additions	15	127	1	143
Payroll exchanges	66[a]	5[b]	2	73
GROSS ADDITIONS	81	132	3	216

TERMINATIONS FROM THE ROLLS

Actual Terminations	13	94	2	109
Removals from rolls (deactivations)	4	43	--	47
Payroll exchanges	5[c]	66[d]	2	73
Transfers (to other Divisions)	--	--	--	--
GROSS TERMINATIONS	22	203	4	229

GENERAL

	6-1952	7-1952
Photographs taken	338	195
Fingerprint impressions (taken in duplicate)	307	192

PERSONNEL SECURITY QUESTIONNAIRES PROCESSED

	6-1952	7-1952
General Electric cases	160	130
Facility cases	38	44
TOTAL	198	174

INVESTIGATION STATISTICS

	6-1952	7-1952
Cases received during the month	190	221
Cases closed	557	198
Cases found satisfactory for employment	197	167
Cases found unsatisfactory for employment	3	4
Cases closed before investigation completed	16	14
Special investigations conducted	2	9

[a]Transferred from Weekly Payroll
[b]Transferred from Monthly Payroll
[c]Transferred to Weekly Payroll
[d]Transferred to Monthly Payroll

PRIVACY ACT MATERIAL REMOVED

mployee and Public Relations

PERFECT ATTENDANCE RECOGNITION AWARDS

otal one-year awards to date	3,131
ne-year awards made in July for those qualifying in May (exempt) and June	164
otal two-year awards to date	802
wo-year awards made in July for those qualifying in May (exempt) and June	97

mployee Services

he following visits were made with employees during the month:

mployee contacts made at Kadlec Hospital	118
alary checks delivered to employees at Kadlec Hospital	19
alary checks delivered to employees at home	3
isability checks delivered to employees at home	0

t month end participation in Benefit Plans was as follows:

ension Plan	92.7%
nsurance Plan	98.5%
mployee Savings and Stock Bonus Plan	48.4%

ree employees died during July, namely:

, Manufacturing
, Utilities and General Services
Terminated 6-20-52

wenty-six letters were written to deceased employees' families during July, concerning payment of monies due them from the Company, and also to answer their questions.

ince September 1, 1946, 93 life insurance claims have been paid totaling $539,500.00.

ine employees retired during July, namely:

Ralph B. Curl, W-3130-VRH, Normal Retirement
C. J. Johnson, W-5070-ZO, Normal Retirement
Bruce P. Cole, W-4279-SJ, Normal Retirement
Charles Solomon, W-8644-SJ, Normal Retirement
A. E. Vuillot, Sr., W-6638-VGP, Normal Retirement
Nellie W. Funk, W-2377-HO, Normal Retirement
Inez W. Austin, W-9188-813, Normal Retirement
Bernice A. Meals, W-9559-B, Optional Retirement
Eustace T. McGrath, W-2015-C, Optional Retirement

uring July, 26 letters were written to retired employees providing them with information f general interest. To date 204 employees have retired at Hanford Works, of which 99 are ontinuing their residence in the vicinity.

PRIVACY ACT MATERIAL REMOVED

1205711

Employee and Public Relations

For the purpose of consolidating responsibility for the promotion by way of participation and administration of the Employee Benefit Plans, effective July 1, 1952, responsibility for presentation of the Orientation Program for new employees was shifted from the Training and Program Development Section to the Employment and Employee Services Section.

Orientation of new employees was presented daily throughout the report month. A total of 131 new employees attended this program. Of this number, 86.2% signed up to participate in the Pension Plan, and 97% in the Insurance Plan.

At month end, a total of 7900 cards have been received in connection with the membership drive for establishment of the Good Neighbor Fund, of which 4079 signed up for the plan, which represented 51.6% of those cards received. With a total force of about 8900, an additional 380 participants in the fund were required to assure establishment of the fund in that the minimum goal was established as 50% of all employees. At month end, membership cards were being returned at a very slow rate and plans were being made to furnish the various departments with lists of their employees who had not yet turned in their cards.

Military Reserve and Selective Service

Statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on the rolls	757
Number of reservists classified in Category A	121
Number of reservists classified in Category B	48
Number of reservists classified in Category C	62
Number of reservists classified in Category D	526
Number who returned to active duty to date	104
Number who returned to active duty in July	4
Deferments requested to date	[illegible]
Number of reservists classified in Category B	3
Number of reservists classified in Category C	3
Number of reservisits classified in Category D	45
Deferments granted	102
Deferments pending	0
Deferments denied	5
Deferment requests withdrawn	3

The statistics with respect to employees registered under Selective Service are as follows:

Employees registered	1009
Employees registered who are veterans	421
Employees registered who are non-veterans	588
Deferments requested to date (including renewals)	[illegible]

Employee and Public Relations

Deferments granted	473
Number of employees for which deferments have been requested	273
Number of employees classified in Category B	5
Number of employees classified in Category C	17
Number of employees classified in Category D	251
Deferments denied and appealed at state levels	9
Deferments denied and appealed at local levels	16
Deferments denied and pending at national level	0
Deferments denied by local board and not appealed	2
Deferments denied by state board and not appealed	11
Deferments denied at national level (by Gen. Hershey's office)	1
Deferments denied at national level (by President)	2
Deferments denied by local and state boards and pending for review	0
Deferments requested, employees later reclassified	60
Deferments requested, later withdrawn	41
Deferments pending	60

Military terminations since 8-1-1950 are as follows:

Reservists recalled	104
Selective Service	117
Female employees enlisted	3
TOTAL	224

Employees returned from military service:

Reservists	19
Selective Service	5
TOTAL	24

Number of employees still in military leave status	200

1235713

Employee and Public Relations

TRAINING AND PROGRAM DEVELOPMENT

Training and Program Development Objectives scheduled for July 1952 and other training activities were completed as follows:

MANAGEMENT AIDS:

MANAGEMENT ORIENTATION was presented on Monday, July 7, for new exempt employees to welcome them officially to the "management team" and to acquaint them with some of the management tools that will be made available to assist them in their new responsibilities. A total of 20 new exempt employees attended this program.

BASIC ECONOMICS was presented on Wednesday and Thursday, July 9 and 10, with five supervisors in attendance. This program, presented on a bi-monthly basis, is designed to bring about a better understanding of every day economics and as a management aid to assist new supervisors in the application of every day economics in relation to their responsibilities with employees.

NEW SUPERVISOR'S 40-HOUR training program was presented to 12 new supervisors during the week of July 21-25. This established Management Aid program endeavors to bring about an over-all high level attitude on the part of new supervisors and includes many proven successful techniques essential in the performance of supervisory human relations. The members of this group together with Mr. H. E. Callahan, Manager of Employee and Public Relations Department, were guests at a company luncheon on Friday during the program week.

YOU AND LABOR LAW was presented on Thursday, July 31, with 36 members of exempt personnel in attendance. In addition to familiarizing supervisory-management with the basic content of labor laws and providing information to help them gain understanding of our legal responsibilities, a member of the Union Relations Section discusses current labor-management problems of a local nature. This program is always well received by all participants.

MANAGEMENT SKILLS:

PRINCIPLES AND METHODS OF SUPERVISION (PMS) CONFERENCES were started on July 28 by two additional groups of supervisors. Group #28, which meets in Richland, is attended by 24 supervisors from the inner areas. Group #29, which meets at the Hanford High School, is attended by 19 supervisors from the outer areas. As a result of a suggestion made by previous PMS groups these two current groups are attending sessions on a four hours a day for two weeks basis. This arrangement time-wise has met with the greatest acceptance to date since it permits participants while attending PMS to have the other half a day throughout this period to attend to their regular responsibilities. These two groups will complete the PMS conferences on Friday, August 8. A dinner meeting will not be held for these two groups until two additional groups complete this study in September, when all four groups will be combined for the dinner meeting.

1205714

TRAINING AND PROGRAM DEVELOPMENT

CONFERENCE LEADING TECHNIQUE MANUAL, a brochure which was basically prepared many months ago, is currently being re-edited with the thought in mind that it will be issued and distributed to all exempt personnel that may participate in Management Development Conferences in the near future.

INTRODUCTORY PROGRAM FOR 1952 TECHNICAL GRADUATES was reduced to a three weeks course instead of the planned five weeks. This was done because 35 of the 76 persons participating were assigned on June 30 directly to the rotation process to assist in solving an urgent metallurgy problem. The last two weeks of the program were cancelled also because "Q" clearances were received in less time this year than last, which permitted the remaining 45 Tech Grads to be assigned on rotation by July 14. However, the 45 Tech Grads remaining during the first two weeks in July were divided into small groups to attend two-hour daily classes of technical and business administration subjects. Training and Program Development Section was responsible for business courses presented during this period.

MANAGEMENT DEVELOPMENT:

MANAGEMENT CONFERENCES ON HUMAN RELATIONS prospectus was submitted in June, setting forth the objectives and pattern for a series of development conferences. This prospectus was discussed with several department managers to learn that "open-ended" conferences are not deemed advisable and, therefore, the prospectus has been withdrawn. Currently, work is progressing on actual development of conference content material for presentation at an early date, which will be termed Management Conferences on Human Relations.

THE HANFORD WORKS "SUPERVISOR AND GENERAL ELECTRIC" (SAGE) bulletins were issued three times on a bi-weekly basis throughout July. This quick communicator includes items of interest about human relations, current event economics, leadership techniques and successful supervising.

OTHER TRAINING AND PRODUCTION:

SUPERVISOR'S HANDBOOKS are being issued to new supervisory personnel as requested by senior management. Summary of Handbook distribution to date includes:

Number of handbooks issued prior to July 1, 1952	- 1324
Number of handbooks issued during July	- 24
Number of handbooks returned during July	- 7
Number of handbooks issued to date	- 1341
Number of handbooks on hand	- 159
Total number of handbooks	1500

ADDITIONS AND REVISIONS TO SUPERVISOR'S HANDBOOKS include a total of 86 pages sent to printing. It is planned that approximately one half of these will be mailed to handbook holders early in August. The balance will be mailed as soon as printed, to keep the handbook current.

GOOD NEIGHBOR FUND informative meetings were attended by approximately 3500 Hanford Works employees during the two-week presentation ending July 3. A

1205715

total of 190 informative meetings were conducted to acquaint employees with a better understanding of how this Nucleonics Employees Good Neighbor Fund might operate. The fact that employees who might participate in this plan have a choice both of how much to give and what charitable organizations might be recipients of their contributions was brought to the attention of employees both through these informative meetings and other communication channels. This was done to reveal that this Fund is not in any way associated with the unethical drives which have received considerable publicity in recent expose articles.

CUSTOMER RELATIONS meetings recently conducted for a group of Tenant Relations inspectors has been requested by additional departments to be presented to employees who constantly deal with the public. Through a meeting arranged by T. S. Lisberger in conjunction with contacts with American Tel and Tel in New York, arrangements were made for three members of the Training Section to discuss customer relations training with representatives of Pacific Tel and Tel in Seattle on July 24. This conference revealed much of the activity that AT&T has developed in disseminating information to telephone employees throughout the nation to assist them to better represent their company's business with the public. The basis of such training and rating of employees on these characteristics are grouped together under a term "overtones", used by all telephone companies. "Overtones" is defined as the attitude, cooperation, loyalty and human relations in contact activity over and above that which is required. Currently, this program is being re-edited to incorporate some of the highlights learned from telephone representatives during this contact and will be disseminated to additional groups at Hanford Works in the near future.

The Washington State Training Directors Society, affiliated with the American Society of Training Directors, sponsored a week long institute during the week of July 21 on human relations and training activities at the University of Washington in Seattle. Three members of the Training Section participated in the WSTDS panel on Friday, July 25, at which time members of the institute directed questions pertaining to training activities to those persons participating on the panel. The regular monthly meeting of the WSTDS was held at the Edmund Meany Hotel, near the University of Washington, during the evening of July 25 and was attended by these same three members of the Training Section.

MATERIAL REQUESTED—During the current month seven copies of "Men and Volts" were sold to employees and cash paid to Hanford Works cashier; 200 Pension Plan booklets were furnished to Weekly Payroll Unit of Finance Department; 15 Training Objectives Management Aid Schedules were furnished to manager of Community Real Estate and Services Department; transcripts for exempt personnel were furnished to Design Section of Engineering Department, Project Section of Engineering Department, Community Real Estate Section of Community Real Estate and Services Department, and 700-1100-3000 Areas Services Section of Community Real Estate and Services Department.

1265716

Employee and Public Relations

TRAINING AND PROGRAM DEVELOPMENT

A member of Training Section suggested that the outdated G.E. films entitled "Adventures in Science" which are currently being used in the Tri-City theatres are not building good customer relations. It was suggested to our public relations people that, since they may result in adverse publicity, steps be taken to remove these films from active lists.

During the report period several Management Aid training programs presented on a bi-monthly basis were reviewed and re-edited where necessary to keep these programs current.

BBM manuals were reviewed during this report period and letters of recommendation regarding their possible use at Hanford Works submitted to manager of Employee and Public Relations Department.

1265717

Employee and Public Relations

Union Relations

UNION RELATIONS - OPERATING PERSONNEL

The Company received from the National Labor Relations Board on July 2, a Direction of Election in the case of members of Hanford Guards Local 21, who had petitioned for a decertification election. The election was scheduled and conducted on July 29 and 30, 1952. Results were: 363 votes in favor of retaining the union and 174 opposed. The election was significant in that there was a total of 539 votes cast out of 579 eligible voters.

The union contract between the Company and the Building Service Employees International Union, Local 201, and the contract with Community Firemen (HAMTC), have been extended another year. The deadline date for renewal of both of these agreements was July 14 and 15, respectively.

The Union Relations Section's participation in the Good Neighbor Fund approximated 85 per cent of the total personnel in this section. Chiefly, those opposed to this plan were female employees due to leave the rolls because of pregnancy.

The unions brought considerable pressure to bear during the past few weeks in an effort to secure payment for lunch periods incidental to call-in or emergency overtime. Numerous meetings were held to resolve this issue but the Company has made no formal commitment to reimburse employees except for work performed.

The Medical Department recently conceived new standards of health and physical condition to which Company Bus Drivers will be subject. In applying these new standards, it developed that five or more employees who had been Bus Drivers of long standing were now unable to meet the physical requirements of this job. The Company negotiated a plan with the HAMTC by which these disqualified men could exchange jobs with Heavy Truck Drivers with no resulting loss of pay to either group.

As indicated in last month's report, the HAMTC advised that it was taking two grievances to arbitration. One involves an alleged misclassification of a Truck Driver's job and the other states that the Company was in violation of the GE-HAMTC Contract when it placed certain straight day employees on a swing shift schedule. Several discussions have been held with Company and union members with regard to these cases and it is hoped that it will not be necessary to process these at the arbitration level.

Grievance Statistics:

Status of Grievances

	1952 Unit	1952 Nonunit
Received this month	36	2
Received this year	185	7
Settled at Step I this month	11	3
Settled at Step I this year	76	5

1265718

Employee and Public Relations

	1952 Unit	1952 Nonunit
Pending settlement at Step I at end of month	1	2
Settled at Step II this month	2	0
Settled at Step II this year	35	0
Pending settlement at Step II at end of month	145*	1
Brought to arbitration during the month	2	0
Pending settlement by arbitration	7**	0
Total number pending settlement	153	3

*Includes 67 bargaining unit grievances brought to Step II by the Union prior to January 1, 1952, merely to avoid automatic settlement at Step I by time limits established by bargaining agreement. Most such grievances, after being reviewed by the Union, are never scheduled for Step II processing. Discussions are taking place with the Union to have grievances in this category withdrawn from Step II and thereby settled.

**Includes four grievances brought to the arbitration level by Union prior to January 1, 1952, to avoid automatic settlement at Step II by time limits established by bargaining agreement. In each of these cases, the Union has not taken any further action. Discussions intended to settle these cases are presently taking place with the Union.

Analysis of Grievances Received this Month

Department	Unit	Nonunit
Manufacturing Department		
Reactor Section	14	0
Separations Section	10	0
Metal Preparation Section	4	0
Total for Department	28	0
Utilities and General Services Department		
Plant Security & Services Section	2	0
Transportation Section	2	0
Purchasing & Stores Section	2	0
Total For Department	6	0
Community, Real Estate and Services Department		
Community Real Estate Section	1	0
Community Services Section	1	0
Total for Department	2	0
Medical Department	0	1
Engineering Department		
Design and Construction Management Section	0	1
Law Department	0	0

1205719

Employee and Public Relations

	Unit	Nonunit
Financial Department	0	0
Employee and Public Relations Department	0	0
Radiological Sciences Department	0	0
GRAND TOTAL	36	2

SUBJECT UNIT GRIEVANCES		SUBJECT NONUNIT GRIEVANCES	
Recognition	1	Discrimination	2
Jurisdiction	12		
Overtime Rates	1		
Holidays	1		
Sick Leave	2		
Seniority	16		
Information to Council and Employees	1		
Subject not covered by Contract	2		
TOTAL	36	TOTAL	2

Three meetings were held during the month for the purpose of processing grievances at the Step II level.

CONSTRUCTION LIAISON

All crafts with the exception of the Boilermaker and Boilermaker-Welder Locals replied to the Project Negotiating Committee's invitation to participate in discussions looking toward a uniform project agreement, and were present at a meeting on July 29, at the Desert Inn. Substantial progress was made and formal negotiations are scheduled to begin on Monday, August 4.

A CPFF contract for construction of new plant facilities in the 100 Area was executed on July 25, between the Atomic Energy Commission and Kaiser Engineers. Kaiser will perform under National Agreements with several crafts including Plumbers and Electricians. Plumbers will be employed directly and Electricians through the Foothills Electrical Company, which is Kaiser-owned and operated.

V. H. Larish resigned as Business Agent for the Pasco Plumbers Local at the request of the International. His successor is Rudell Beames, formerly General Construction Superintendent for the Project's cost-plus-fixed-fee mechancial subcontractor. Two Assistant Business Agents also resigned. A significant improvement has been experienced in relations with this craft during the three weeks of Mr. Beames' tenure of office.

1205720

Employee and Public Relations

An agreement has been reached between the cost-plus-fixed-fee mechanical subcontractor and the Plumbers Local liberalizing the interpretation previously placed upon the contractual provision for maintenance work. The understanding now permits Plumbers to perform all necessary work for the operation of the North Richland Camp, including any changes and extensions and the installation of minor appliances and equipment.

Effective July 21, the Construction Union Relations office was moved from North Richland to the 703 Building, Room 106 B.

Distribution of the Construction Labor Log was changed from an approximate daily to weekly basis and will continue on that basis unless incidents of particular interest to the Company make more frequent distribution desirable. Mr. Tyvoll (Atomic Energy Commission) has assumed the responsibility for a daily summary of construction events, a copy of which is furnished this office.

Work Stoppages - Actual or Threatened:

A work stoppage involving approximately 100 Millwrights on Atkinson-Jones' payroll occurred on Monday, July 28, in protest over a force reduction involving ten Millwrights performing inspection work at 100-C for General Electric. As a result of a request from Atkinson-Jones that they take jurisdiction over the matter, the Davis Panel has wired the International President of the Union requesting that he instruct the Millwrights to return to the job and stating that the Panel would hear any grievance the Millwrights wish to present. Such instructions were received from the International by the Local Union on July 30, 1952, but no evidence of a return to work has been forthcoming. Minor Construction forces have not been affected by the walkout.

WAGE RATES

A request was submitted to the Atomic Energy Commission for reimbursement for the following three additional classifications:

Tabulating Machine Operator A
Tabulating Machine Operator B
Tabulating Machine Operator C

A final review and minor revisions were made on the nonexempt phase of the proposed Appendix C, prior to its being forwarded to the New York Office.

A request was made to the AEC to revise Reimbursement Authorization No. 64, to reflect a change in our transfer rules involving upgrades and horizontal transfers to unrelated jobs. The changes do not involve further reimbursement but will allow greater flexibility in the assignment of more equitable rates to transferred employees.

Letters announcing the change in transfer policy were sent to those responsible for the control and administration of transfers. The necessary revisions of the Employment and Policy Guides were made.

1205721

Employee and Public Relations

The Wage Stabilization Board has assigned Case Numbers 17-444, 17-446 and 17-447 to our petitions for increased isolation pay and 17-448 to the request for approval to pay double time holiday pay to the Community Firemen. Several attempts were made during the month to expedite the Board's approval before its demise on July 31, 1952. No approval has been received, and it is now believed that, until a new Board is appointed and swings into action, there will be further delays.

A countrywide survey to determine the prevailing rates paid technical and graphic illustrators was completed and the averages computed.

Prevailing rates as determined by the above study were used in connection with the submission to the Atomic Energy Commission of a request for reimbursement for six new illustrating classifications. The proposed classifications are as follows:

Graphic Designer A
Graphic Designer B
Graphic Illustrator A
Graphic Illustrator B
Graphic Illustrator C
Graphic Illustrator D

Six hundred and twenty-four (624) automatic and 13 merit increases were processed during the month of July, 1952. Investigation of 243 permanent reclassifications, 172 temporary upgrades and 140 transfers were made before approval was given.

A total of 200 employees were hired or reactivated, each necessitating a check to determine the proper classification and rate of pay. Requisitions for 149 new employees were also reviewed and approved.

SUGGESTIONS AND INSURANCE

Suggestion System:

	June, 1952	July, 1952	Total Since 7-15-47
Suggestions Received	125	153	9287
Investigation Reports Completed	144	265	
Awards Granted by Suggestion Committee	35	59	
Cash Awards	$ 895.00	$ 1,150.00	
Estimated Net Savings	7,855.50	8,726.68	

The highest award of $145 was made to an employee in the Community Real Estate and Services Department for his suggestion concerning a change in the method of painting "No Parking" zones by the use of a "curb painter cart." Considerable savings was realized from the adoption of this suggestion in manhours and material.

1205722

Employee and Public Relations

An employee in the Community Real Estate and Services Department received the second highest award of the month for his suggestion in which he proposed that a silk screen process method be used for lettering government vehicles on the plant site instead of decals.

Workmen's Compensation:

Four cases under litigation were closed during the month of July.

Life Insurance:

Code information which is known only to Home Office Life Underwriters Association has been furnished 67 insurance companies and investigation agencies during the month of July, 1952. This is in accordance with an arrangement with the Underwriters whereby employees on this project might be insured on the same basis as those working elsewhere.

Insurance Statistics:

	June, 1952	
	Long Forms	Short Forms
Claims reported to the Department of Labor and Industries	109	828
	July, 1952	
	194	973

Total since September, 1946 - 9801

	June, 1952	July, 1952
Claims Reported to Travelers Insurance Company	8	11 *

Total since September, 1946 - 637

*All claims reported to Travelers Insurance Company during the month were property damage claims.

1205723

PUBLIC INFORMATION

A total of 58 releases were distributed during the month. Of these, 35 were sent to the "local list", two to the "weekly list", four to the "daily list", and 17 received special distribution.

The two stories to the weekly list were re-writes of longer stories sent to the daily list. They were on subjects of special interest to agricultural communities and were slanted to be more adaptable to weeklies than our normal daily list stories. This is part of the effort of the News Bureau to get more space in weekly papers by sending them stories written especially for weeklies. One of the stories was on the sheep farm and the other concerned experiments with farm crops.

Arrangements were made for the Tri-City HERALD reporter to interview W. E. Johnson. He then wrote and published a very satisfactory personality sketch.

The Oregon JOURNAL sent a photographer and a special edition editor to Richland to obtain pictures for a full-page spread in the paper's 50th Anniversary edition which will come out in September. They were furnished 15 stock pictures and also conducted on a tour of Richland and North Richland so that they could supplement the stock photos with pictures of their own. They wound up with considerable material that will go in their files for future use.

Community leaders in Pasco and Kennewick were added to the Works NEWS mailing list. A letter from the editor that introduced the paper - discussed its purpose and objectives - was mailed with the first issue distributed.

A total of 11 papers were presented for review and clearance this month. The following oral presentations were given during the month: "Atomic Energy's Contribution to Plant Science", by Dr. J. H. Rediske, presented to the Richland Kiwanis Club, July 16; "The Absorption and Translocation of Fission Elements by Plants", by A. A. Selders, 6597th Research and Development Group, Organized Reserve Corps, Pasco Engineering Depot, August 4; "Increasing the Precision of Measurements", by C. A. Bennett, American Association for the Advancement of Science, Gordon Research Conference on Statistics in Chemistry, at New Hampton, New Hampshire, July 28, 1952; "River Studies of the Columbia River," by Jared J. Davis, Richland Rotary Club, July 29, 1952.

A Science Forum talk on "Plant Biochemistry", by John W. Porter was reviewed and cleared for recording and release at a later date.

A type-script was produced of excerpts from George R. Prout's address to the Sunnyside Chamber of Commerce, which is on permanent file in our tape-recording library.

A Civil Defense parade float and exhibit, as a part of Richland's annual "Frontier Days" celebration, was planned and coordinated with the cooperation of the assistant deputy director of civil defense. Float design, production of arm-bands for visitors to the exhibit, a "giveaway" pamphlet for visitors, art work and other publicity projects were handled by the Public Relations Section.

1 2 0 0 7 2 4

A layout was completed and copy written for a CD poster that features the public air raid warning signals. Following necessary approvals and production, it is planned to place the posters at various locations throughout the plant and community.

New residents of Richland will be furnished copies of past civil defense bulletins by Newcomer Service, Inc., This organization was contacted on the matter, and volunteered to distribute the bulletins, free-of-charge.

CD movies were shown to 204 members of community clubs and organizations, and to 234 G-E employees.

Tours of the Civil Defense control center were completed by 47 people.

Production of a Civil Defense News Letterhead, the "Hanford District Monitor" was initiated.

Two civil defense talks were given by the Chief Warden during July, one to the Reactor Group, and one to a group of men from the Richland Lutheran Church.

The Chief Warden gave a lecture and showed a film to the Lions Club, and to a group of women from the Reorganized Church of the Latter Day Saints, during the month.

All of the names of individuals who will serve as wardens and alternates in the facilities in Richland and North Richland have been obtained. Any training for this group can await the completion of the training of the Richland residential wardens or can be handled simultaneously through correspondence.

A display advertisement for Designer Draftsmen placed in daily newspapers in five Western cities at the request of Employment pulled 15 responses. It was necessary to develop mats of this advertisement in order to place it as display matter in the daily newspapers.

Employee recruitment advertisements for a Forms Analyst were placed in "Methods Management" and "Office Executive" magazines, and for a Systems Analyst in the West Coast edition of the "Wall Street Journal" and "The Office" magazine.

A classified advertisement for Plumber-Steamfitters, IBM Operators, Ironworker-Riggers and Design Draftsmen was placed in three issues of the two Seattle daily newspapers at Employment's request.

PHOTOGRAPHIC SERVICES

A total of 6,291 prints were produced during the month. Of the total prints produced, 4,967 were for employee identification and area admittance badges.

A new method in procedure of taking and making photographic identification pictures was presented for approval. Annual savings amounting to $4,638.91 will be realized. Approximately $3,398.00 would be expended Public Relations and Security for equipment if this system is adopted.

Approximately 50 portraits were taken of G.E. management at Hanford Works. These

will be used on special information forms. Negatives are filed for future use.

See attached Statistical Report.

PROGRAM DEVELOPMENT

The film, "Corrosion in Action", has been requested from the International Nickle Company for showing to various sections of the Manufacturing Department as well as the Drafting Section. This film will be on the plant September 8 to 19.

Letters were written to the Ogden Air Material Area, Ogden, Utah, to procure a series of training films for use by the Procedures Analysis Unit. The first of these films, "Office Letters", has been received and shown to the requesting unit.

The Hanford Works Science Forum is in its thirteenth week of broadcast. Recordings are being made each Monday evening for later broadcast, maintaining a safe backlog to insure continuous broadcast. This month's recordings included talks by Dr. G. Charles Sutch, Dr. W. D. Norwood, Dr. E. C. Pitzer, Lt. Colonel Lester R. Moffatt, and a special recording by Maurice Lambert.

Six programs of the Richland Community Council "Council Talks" series have been recorded, edited, copied, and released to the three local stations. This month's productions included the following persons as guest members of the council: Mr. Minor Baker, Economist, Seattle First National Bank; Mr. Willard Parker, Parker's Hardware, Richland; Mr. Roland Miller, Assistant Publisher, Walla Walla Union Bulletin; Mr. Merritt Smythe, Standard Oil Company, Pasco, and Mr. Owen Hurd, Benton County P.U.D.

Arrangements for the production of a new 13-week radio broadcast series of Health Programs are now under way for Public Health Section. The program is being formulated in cooperation with the Benton-Franklin County Medical Association and employs a new technique to stimulate listener interest through interviews with doctors and nurses.

"Hometown...Richland", the sound slide film being produced for Community Services Section, is nearing completion with the story and script approved by the Manager.

Eight additional slide films and two 16mm motion pictures are on the agenda of Public Relations for completion by January, 1953. The subjects included are a sales presentation for prospective merchants and investors on Richland properties, training and educational matters and laboratory safety hazards.

The A.E.C. is sanctioning the development of the second slide film that would be produced for Community Real Estate Section in conjunction with their desire to present a visual story on the advantages of lease properties in Richland to nationwide investors.

Numerous complimentary comments have been received from Management and special groups who have attended showings of the sound motion picture "Radiation Hazards Control", produced by Public Relations for the Reactor Section. Excellent response is already noticeable in the first week of regular training sessions.

It was suggested by the Chief of Security, A.E.C., that some other method of processing classified motion picture films be arranged. He feels that it is not security-wise to carry these films off the project and to have people who are not properly cleared, nearby while films are being processed. Motion picture processing, as a new service of Photographic Services, is being investigated.

EMPLOYEE INFORMATION

A Hanford Works NEWS readership survey was initiated during July, in conjunction with the Statistics Unit. A questionnaire with a letter of explanation and self-addressed envelope were mailed to the homes of 500 employees. This sample group represents various segments of employees from all Hanford Works departments. Works NEWS publicity included a news story, editorial cartoon and special announcement, all urging response to the survey. The survey will reveal the opinion of such specific employee groups as bargaining unit vs. non-bargaining unit, technical vs. non-technical and monthly vs. weekly.

Employees are being urged to register to vote in a continuous Works NEWS publicity campaign, in cooperation with the Richland League of Women Voters. News stories were supplemented by an editorial cartoon and news features. Publicity will be continued through the deadline for registering on August 8.

Announcement of increased responsibilities of Vice President and General Manager G. R. Prout was made in the Works NEWS. The story prepared in New York was edited to give it a local touch.

The employee participation in the Red Cross blood program was emphasized in a full page feature story which listed names of all donors and those assisting at the blood drawing in Richland.

Hanford Works Suggestion award winners were highlighted continuously during the month with news and feature type stories.

Participation of employees in Richland's Atomic Frontier Days celebration was emphasized throughout the month. Pictures of all queen contestants were published, six of the seven contestants being Company employees. Additional publicity is planned to aid in promoting employee interest in the three day celebration.

The new Hanford Works payroll system utilizing automatic IBM machines and payroll procedures was explained to employees in a double page Works NEWS feature. The liberally illustrated article was prepared with the help of the Finance Department.

Opening of the new 703 Building wing was announced with a full page feature. The excellent working conditions, including improved lighting, more room and functional planning were emphasized.

Promotion of a special Separations safety campaign was started by the Works NEWS through publishing teaser type cartoons. Once the teaser campaign has been completed, the campaign among Separation's people will be revealed. In addition to producing the feature cartoons, life size wooden Indians were designed and are being produced for display in the Areas.

Accomplishments of the Hanford Works Standards Committee were published in a Works NEWS story, together with a photo of the Committee. This was the initial action in a program designed to acquaint employees with the work of the Standards Committee.

Employees Good Neighbor Fund promotion activities during July included news stories and photos in each issue, and a full page feature story explaining the work of participating agencies.

Odd-Even Watering Plan was published throughout the month via Hanford Works NEWS stories and news features. The stories included information about the new reservoir now being constructed. Visuals of six Odd-Even Watering Plan posters were developed by the Public Relations Illustrator.

An informational letter concerning the Hanford Guards Union decertification election conducted by the NLRB was prepared for the signature of the Manager, Employee and Public Relations Department, and mailed to all members of that bargaining unit.

A letter replying to a criticism of the use of telegrams in investigating prospective employees was written at the request of Personnel Records and Investigations Unit. The letter explained that approximately 87% of all investigations are handled by mail, but that under certain emergency conditions, telegrams are used.

The Safety Topic of the Month for July, "Electrical Hazards" and the July Health Bulletin, "Good Health--Why Bother?" were written, produced and distributed. In addition, the August Safety Topic of the Month, "Too Hot to Be Safe?" was written and placed in production, and copy for the August Health Bulletin on "Fatigue" was completed.

Final draft of the copy material for a stenographers handbook on handling of classified documents was approved by Technical Information.

Production and distribution of a Hanford Works Records Management brochure, "Records Disposal at Hanford Works," to firms and organizations which previously had shown an interest in the Records Management Program here was completed this month.

One thousand copies of a four-page supplement to the General Electric Insurance Plan booklet were produced for Employee Services.

1205728

Hanford Works Photo House
Month of July, 1952

	2 x 2	2 x 4	5 x 7	8 x 10	Neg.	35MM	3¼ x 4	4 x 5	8 x 11	Processed Ektachrome	Mounted 35MM Slides	Contraband Exposed
COMMUNITY REAL ESTATE & SERVICES												
Commercial Services				11								
Police			106	5	49			14				
Municipal			108		38							
EMPLOYEE AND PUBLIC RELATIONS												
Employment	582	694			361							
News Bureau			109	68	57							
Special Programs				12	12			6				
Radio & Special Events			3		1							
Works News	30		294	13	116			5				
ENGINEERING												
Analytical					2			2				
Project Section			4	20	10							
Technical						17						
Rotational Training								70				
Pile Technology				159	17			71		6		
Project Services									5			
MEDICAL						8						
MANUFACTURING												
Plant Engineers				15	12							
R.M.U.				90	21							
RADIOLOGICAL SCIENCES												
Operational - Records & Standards											31	
Survey - Biology							3					
Biophysics Section				36	20							
UTILITIES & GENERAL SERVICES												
Security	3660											
Fire & Safety												6
Transportation				15	5							
MISCELLANEOUS												
Civil Defense			12		2							
AEC Safety & Security				37	16			10				
AEC Engineering			10	14	14							
Totals	4272	695	646	495	753	25	3	178	5	6	31	6

	May	June	July
Total Prints	5922	6943	6291
Total Negatives	880	534	753
Total Assignments	155	145	105

COMMUNITY REAL ESTATE AND
SERVICES DEPARTMENT
JULY - 1952

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Suffix	Beg. of Month	End of Month
General Administration	310	22	7
Community Services Section		230½	
Administration	320		5
Public Works	321		107
Engineering	326		9
Recreation & Civic Affairs	327		8
Library	327		10½
Fire (Richland)	328		47
Police (Richland)	329		42
		Sub-Total	228½
Community Real Estate Section		187	
Administration	330		3
Housing Rental	331		26
Maintenance	333		138
Engineering	335		5
Commercial Property	337		12
		Sub-Total	184
700-1100-3000 Area Services Section		110	
Administration	340		2
Commercial Facilities	343		3
Fire (North Richland)	341		31
Patrol (North Richland)	342		20
Maintenance	344		57
		Sub-Total	113
Civil Defense Program	360		2
GRAND TOTALS		549½	534

Due to the new suffix assignment the above figures are set forth in a slightly different manner than previously, which accounts for the redistribution of some of our personnel. There was a decrease of fifteen employees in the Department during the month of July, 1952.

GENERAL

The following establishments opened for business during the month of July, as sub-lessees in the following buildings:

C. D. Joseph Bldg. #2
- American Engineering Company
- W. E. Scheyer (Ice Cream Store)

Frank Berry's Bldg.
- Sowell's Ice Creamery

The Mart
- ATA Aircoach Company, Inc.

1205730

Spencer-Kirkpatrick Building
C. V. Adams (Engineering Office)

Total housing applications pending -695.

HARoot/Jak
8/11/52

1205731

CONTRACT SECTION

Contract No.	Contractor	Title and Status	Project No.
AT-(45-1)-608	Associated Engineers, Inc.	Site Grading Irrigation, Landscaping, Construction of Rest Room, Sewer Lines, Water Lines and Shelterbelt. Contract is approximately 97% complete.	C-425 C-408 L-262 K-562
AT-(45-1)-613	Anderson Brothers, Inc.	Exterior Painting 329 Conventional Houses, Two Tract Houses and Three Non-Commercial Buildings. Contract is approximately 94% complete. Close out papers and final payment estimate submitted to AEC July 22, 1952.	S-909 K-913
AT-(45-1)-617	Associated Engineers, Inc.	Additional Fire Protection Desert Inn and Richland Theater; Fire Hydrant Installation Birch Avenue; Sewer Line Installation Along Gillespie from Duane Avenue to Gillespie Property Line. Contract completed July 24, 1952.	S-552 L-641 AEC W/O 0219
AT(45-1)-618	Sprague McDowell Co.	Site Grading, Top Soiling, Lawn Seeding and Related Work. Close out papers and final payment estimate submitted to AEC July 14, 1952.	C-426
AT-45-1)-619	--	Elimination of Odors at Sewage Lift Station. Contract services requested July 9, 1952.	L-608
AT-(45-1)-620	Cecil O. Mill[illegible]	Repair of Fire Damaged Prefab and Repair of Damaged "A" Type House. Close out papers and final payment estimate submitted to AEC July 7, 1952.	S-922 L-921
AT(45-1)-635	--	Street Improvements, Parking Lots and Related Wor. Bid opening was held July 22, 1952. Recommendation to award to L. E. HOffman on the basis of his low bid.	CA-499 CG-486 L-911 L-662

Payments were made to contractors in the amount of $44,306.38 during the month.

1205732

COMMUNITY SERVICES SECTION

SUMMARY

JULY, 1952

ORGANIZATION & PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
ENGINEERING	7	3	6	3
FIRE	48	0	47	0
LIBRARY	4	6½	4	6½
POLICE	16	26	16	26
PUBLIC WORKS	15	95	14	93
RECREATION & CIVIC AFFAIRS	4	6	4	4
	94	136½	91	132½

Because of the demand by residents upon the domestic water system during the hot summer period, it was necessary to reduce water pressure in order to assure an adequate reserve supply, in the event of possible emergency. In order to assure an adequate supply of water to the people at a satisfactory pressure, the odd-even watering plan, which requests residents in homes with "even" numbers to water on "even" days and those in homes with "odd" numbers to water on "odd" days, was put into effect on July 9, 1952.

1205733

COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT
PUBLIC WORKS UNIT
JULY 31, 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Employees Beginning of Month	15	95
Transfers In	--	3
Transfers Out	--	3
New Employees	--	-
Terminations	1	2
Total - End of Month	14	93

SANITATION

Collections were suspended on Independence Day, and in accordance with policy, routes normally scheduled for this day were collected only once during the holiday week.

Total weight of waste material collected during July was 1577 tons.

ROADS AND STREETS

Bid openings on Projects CC-486, Improvement of Thayer Drive, and L-622, Improvement of Mansfield Street, were held on 7-22-52, and in both cases the bid prices were considerably higher than authorized funds. A request for additional funds for CC-486 has been processed and L-622 may be scoped down to come within the authorized monies.

Routine seasonal maintenance of streets, street drainage systems, and street marker signs was continued.

PUBLIC GROUNDS MAINTENANCE

Routine maintenance of all parks' grounds, planting, equipment and buildings, and shelter belt plantings was continued. The "merry-go-round" at Riverside Park was altered to eliminate a safety hazard existant in the original installation which had caused several injuries. The revolving table was raised above the ground sufficiently to eliminate a pinch point between the table and surrounding area.

Maintenance of all lawn grass and plantings assigned to the care of this group by other sections was also carried out.

1205734

PUBLIC GROUNDS MAINTENANCE (Continued)

All grassed areas were sprayed with 2-4-D during July in a continuation of our dandelion and weed control program.

The irrigation crew which was assigned to the midnight shift on 6-16-52 is still performing the major portion of irrigation work. This shift will be continued into September.

DOMESTIC WATER

Normal operations and maintenance were continued. The average daily consumption for July was 20.97 million gallons. Peak usage for the month occurred on 7-30-52 when 23.18 million gallons were consumed.

The river pump assembly at Columbia Field was moved to its low base and a high head pump was substituted for the normal low head pump on 7-18-52. This installation has provided the means whereby it would be possible to pump approximately 5000 gpm of chlorinated Columbia River water directly into the distribution system, should an emergency arise during the critical water consumption season. The pressure in the system reached dangerously low points in the early part of July but through the institution of the "Odd-Even" irrigation plan, and the manipulation of isolating valves, pressures have been brought to a reasonably satisfactory level. Past experience indicates that consumption will decrease during the remainder of this season, and that it will not be necessary to utilize the emergency source referred to above.

Production and consumption records for July are as follows:

Domestic Water

	Well Production Million Gallons	Avg. Daily Production	Total Consumption Million Gallons	Avg. Daily Consumption
Richland	224.3964	7.2386	507.6243	16.3750
North Richland	256.8390	8.2851	107.2434	3.4795
Columbia Field	170.2640	5.4924		
200 Area			34.8646	1.1246
TOTAL	651.4994	21.0161	650.9323	20.9791

SEWERAGE

Normal operation and maintenance of the collection systems, lift stations and treatment plants were continued and daily flow through the treatment plants averaged 3.81 million gallons during July.

1205735

SEWERAGE (Continued)

Flow statistics for the month are as follows:

SEWERAGE

	Total Sewage Flow Million Gallons	Average Daily Flow Million G. P. D.	Average Rate of Flow Gals. per Minute
Plant No. 1	32.440	1.046	127
Plant No. 2	85.518	2.759	1916
TOTAL	117.958	3.805	2643

IRRIGATION SYSTEM

Normal operation and maintenance of the irrigation canals, lines, pump houses and distribution grids were continued.

The canal into Richland was treated with aquatic weed killer, which was introduced at the Penstock on 7-11-52. "Chaining" of canal sections which are provided with access roads was also carried out in furtherance of weed elimination.

A peak consumption of irrigation water occurred on 7-16-52 when 11.57 million gallons were pumped through the irrigation grids.

1205736

RECREATION AND CIVIC AFFAIRS UNIT

MONTHLY REPORT

JULY, 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Beginning of Month	4	6
New Hires	0	1
Terminations	0	2
Transfers - IN	0	0
OUT	0	1
	4	4

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of July 31, 1952:-

Administration	6
Principals & Supervisors	14
Clerical	23
Teachers	0
Health Audiometer	0
Cooks	0
Nursery School & Extended Day Care	12
Bus Drivers	0
Maintenance	9
Operations	43
	107

CLUBS AND ORGANIZATIONS

As of July 31, 1952, the employees of the listed organizations, exclusive of those included in the Real Estate, Commercial and Other Properties Unit Report, include:-

Youth Council - Chest	1
Boy Scouts	1
Camp Fire Girls	1
Hi-Spot Club	2
Girl Scouts	2
Justice of the Peace	1
Y.W.C.A.	2
Chamber of Commerce	1
	11

On July 4, 1952, the American Legion Post 71 sponsored its annual Fourth of July Celebration in Richland. Assistance was given to the American Legion by the Recreation and Civic Affairs Unit in the planning of this event and during the celebration.

1205737

Recreation and Civic Affairs Unit (Continued)

Arrangements have been made by the Unit for the procurement of materials and equipment to be loaned to the Junior Chamber of Commerce for use during the Atomic Frontier Days which they are sponsoring on August 8, 9 and 10th.

Eleven sections of portable bleachers were made available to the Richland Pony League for use during the Regional Tournament held at Carmichael Playground on July 25, 1952.

On July 17, 1952, the regular monthly meeting of the Parks and Recreation Board was held at the Community House. Mr. W.A. Mischley, representing Community Management of A.E.C., reported that the trees along the Columbia River bank which will be affected by the normal back water height of 340' will be removed by the U.S. Corps of Engineers. The next regular meeting of the Board is scheduled for August 14, 1952.

The number and types of organizations presently served by the Recreation and Civic Affairs Unit include:-

Business and Professional Organizations		23
Churches and Church Organizations		27
Civic Organizations		19
Schools		13
Fraternal Organizations		25
Political Organizations		5
Recreation & Social Clubs -	Alumni	3
	Art, Music, Theater	10
	Bridge	3
	Dance	5
	Garden	3
	Hobby	10
	Social	11
	Sports	19
Veteran & Military Organizations		14
Welfare Groups		7
Youth -	Boy Scouts	20
	Girl Scouts	49
	Camp Fire Girls	36
	Miscellaneous	15
		317

RECREATION

Continuing construction at Columbia Playfield made necessary the postponement of the scheduled opening and use of facilities at that playground.

1265138

Recreation and Civic Affairs Unit (Continued)

Community Band Concerts were held on July 9 and July 23 at the Riverside Park Bandstand with large crowds in attendance.

Special events in the summer playground program held during the month at Riverside Park included the Pet Parade, the Jump Rope Contest and the Table Tennis Ladder Tournament.

Approximately 200 boys have been participating regularly each week in the Play-For-Fun League sponsored by our division.

Below is a cumulative attendance report of the Athletic and Playground Program being conducted by the Unit:-

	Children	Adults	Totals
General Attendance	17,436	13,504	30,940
Special Events - Participants	1,272	651	1,903
Spectators	504	432	936
Assisted Activities	3,293	4,067	7,360
Totals for Month	22,485	18,654	41,139

Organized groups and classes conducted or assisted by the Recreation and Civic Affairs Unit during July, 1952, are as follows:-

Organized Groups or Classes	Children	Adults	Totals
Picnic (22 Bookings)	722	2,165	2,887
Burlin Camp (5 Bookings)		225	225
Ball Fields (236 Bookings)	2,571	1,677	4,248
Wellsian Lake (0) - Closed Area			
Triple "O" Softball League		540	540
Pet Parade	100	70	170
Jump Rope Contest	42	7	49
Summer Band Concerts (July 9 & 23)	245	455	700
Table Tennis Tournament	116		116
TOTALS	3,796	5,139	8,935

COMMUNITY HOUSE

The Civilian Defense Organization of Richland is utilizing the South Games Room of the Community House for their Atomic Frontier Days' Celebration display.

The Rec-A-Teers, social business association of young adults, have sponsored one of their members for the Atomic Frontier Day Queen Contest.

Due to continuing construction and non-readiness for area usage at Columbia Playfield, community house groups scheduled for summer outdoor meetings have continued with their facilities usage at the Community House.

1205739

Recreation and Civic Affairs Unit (Continued)

A newly constructed, enclosed cabinet to house the Public Address System and the Record Player was installed in the northeast corner of the Social Hall during the month of July.

Attendance - Community House

	Children	Adults	Total
General Attendance	1,787	1,325	3,112
Special Events - Participants		175	175
Spectators		350	350
Totals for Month	1,787	1,850	3,637

Organized Groups and Classes - Community House

	Youth	Adults	Total
Craft Classes (22)	366	42	408
Hi Spot (7)	1,325	16	1,341
Rec-A-Teers (9)		711	711
Senior Citizens (2)		53	53
Permit Groups (29)	96	598	694
Totals	1,787	1,420	3,207

1205740

RICHLAND PUBLIC LIBRARY

JULY 1952

ORGANIZATION AND PERSONNEL	Exempt	Non-Exempt
Employees - Beginning of Month	4	6½
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	0	0
End of Month	4	6½

GENERAL

Circulation		
Books	14,115	(Adult - 7,585; Juvenile - 6,530)
Magazines	301	
Pamphlets	0	
Records	789	
Special Loans	62	
Interlibrary Loans	46	
Grand Total	15,313	
Current Book Stock		
Books added this month	772	(Adult - 371; Juvenile - 401)
Books dropped this month	0	
Grand Total	20,734	
Registration		
Adult	214	
Juvenile	70	
Total	284	
Total Registered Borrowers	10,606	
Children's Story Hour Attendance	408	(Includes 104, pre-school story hours; 274, park story hours; 30, Reading Club story hours)

1205741

It is to be noted that the attendance at pre-school story hours tripled last month's figure. The park story hours proved even more popular with attendance being four times over that of June. Park story hours will be continued through August.

There were ten meetings held in North Hall this month.

The Richland Public Library Board will have a joint July-August meeting on August 13, 1952.

1205742

RICHLAND POLICE DEPARTMENT

JULY 1952

ORGANIZATION AND PERSONNEL	Exempt	Non-Exempt
Employees - Beginning of Month	16	26
Transfers In	0	1
Transfers Out	0	0
New Hires	0	0
Terminations	0	1
Total - End of Month	16	26

GENERAL

Captain J. S. Johnson of the Crime Prevention and Investigation Division gave a speech on Juvenile Delinquency before a group of young people at the L.D.S. Church on July 1.

The Police Athletic League sponsored a trophy for the winner of the Krate Derby which was held during the month of July.

New equipment received by this department during the month of July included a set of four portable inter-communication units and a small quantity of new special holsters.

The Police Department cooperated with the sponsor of the official Teen-Age Road-e-o held July 12. This event was sponsored locally by the Richland Junior Chamber of Commerce. This Road-e-o consisted of a demonstration by various qualified teen-age drivers of their driving skill. The Police Athletic League presented a trophy to the winner of this activity.

During the month, 68 letters of inquiry were received.

Thirty-one prisoners were processed through the Richland Jail during the month of July, thirteen of which were from North Richland.

Eighteen gun registrations and 43 bicycle registrations were recorded this month.

A total of 338 police and traffic reports were processed through the records section of the police department, consisting of reports originating from both Richland and North Richland police departments.

1205743

FFIC

There were 18 reportable accidents in the city of Richland this month as compared to 19 for June and 14 for the month of July of 1951. This brings the total accidents for this year to 168 as compared to 130 for the same period last year, or an increase of 29.2%.

There were 3 injury accidents this month in which 4 persons received minor injuries. There were only 2 persons reported injured last month and one in July of 1951; however, the 30 people injured this year to date is 6 less than the same period last year, and we now have one fatality tabbed for each year, as last year's fatal accident was in July.

There were 9 accidents this month in the business district, 6 in the residential districts and 3 on open roads where there were no adjacent houses or buildings.

Property damage as a result of accidents this month was $4,827.00, or an average of $268.16, as compared to $5,266.74 last month averaging $277.20 per accident.

Thirteen of the above accidents were investigated by members of the Richland Police Department, and these investigations resulted in Criminal Complaints being signed against eight drivers for traffic violations.

Statistics would indicate a need for better training of women drivers or a safety program which could reach them in the homes. Of the total drivers involved in accidents this month, 37.5% were women. This figure is an increase of 11.5% from July of 1951. The ber of accidents involving women has increased steadily the last three months, so a vey was conducted to determine if the ratio of women drivers was in proportion to the accident experience. Of the 2,598 vehicles checked, only 30.7% were found to be operated by women. Statistics also show that of the women involved in accidents, 91.7% violated a traffic law which caused the accident in which they were involved, and 61% of all accidents this month were caused by women drivers.

Traffic violations which contributed to the above accidents were:

Failure to yield right-of-way	6
Disregarding stop sign	4
Following too closely	3
Improper turning	2
Exceeding a safe speed	1
On wrong side of road	1

Half of the above accidents occured between 3 P.M. and 6 P.M.

It is also interesting to note that 47% of the people involved in accidents this month do not live in the city. There was no unusual increase in accidents during the 4th weekend, but there was quite heavy traffic at the fireworks display held at the Bomber Bowl.

Bicycle classes were conducted at 5 elementary schools during the week of the 7th. These classes were conducted by a member of the Police Department and attended by approximately 125 children.

1205744

TRAINING

Traffic classes were conducted on Friday of each week for police personnel during the month of July, and officers were instructed in the operation of traffic lights for emergency control and traffic control in general.

A total of ten police personnel participated in range training during this month. Two men qualified as "expert" and one as "sharpshooter."

ACTIVITIES AND SERVICES

	May	June	July
Doors and windows found open in facilities	50	50	77
Children lost or found	25	11	15
Dogs, cats reported lost or found	32	45	56
Dog, cat, loose stock complaints	21	20	28
Persons injured by dogs	7	5	4
Bank escorts and details	0	0	0
Fires investigated	10	8	17
Miscellaneous escorts	6	12	9
Complaints investigated (no enforcement action)	56	35	30
Deaths reported	1	0	0
Property lost or found	50	30	29
Records inquiries	133	105	103
Law enforcement agencies assisted	5	7	2
Private individuals assisted	23	29	40
Plant departments assisted	36	15	16
Emergency messages delivered	25	28	27
Street lights out reported to Electrical	161	169	81
Totals	641	563	534

1205745

MONTHLY REPORT
RICHLAND POLICE DEPARTMENT
JULY, 1952

OFFENSES	KNOWN	UNFOUNDED	CLEARED OTHER*	CLEARED ARREST
PART I				
1. Murder				
2. Rape				
3. Robbery				
4. Aggravated Assault				
5. Burglary - Break & Ent.	2			1
6. Larceny - Over $50.00	3	1		
Under $50.00	13	4**	6**	1
7. Bicycle Theft	22		27**	
8. Auto Theft	3	2**	2	
TOTAL PART I CASES	43	7	35	2
PART II.				
9. Other Assaults	1			
10. Forgery & Counterfeit				
11. Embezzlement & Fraud	2	1**		2**
12. Stolen Prop: Buy-Rec:Poss.				
13. Weapons:carrying;poss.				
14. Prostitution	1			1
15. Sex Offenses	1			2**
16. Offense ag.fam. & child				
17. Narcotics - Drug Laws				
18. Liquor Laws			1**	
19. Drunkenness	11			11
20. Disorderly Conduct	-	-	-	-
21. Vagrancy	1			1
22. Gambling	-	-	-	-
23. Driving while Intox.	4	-	-	4
24. Violation Rd.& Dr. Laws:				
Speeding	38	-	-	38
Stop Sign	20			20
Reckless Driving	5	-	-	5
Right of Way	5	-	-	5
Negligent Driving	18	-	-	18
Defective Equipment	4	-	-	4
25. Parking	65	-	-	65
26. All Other Traffic Viol.	16	-	-	16
27. All Other Offenses:				
Malicious Mischief	6	-	6**	
Vandalism	5			1
Dog Nuisance			2**	
Disturbance	7		6	
Dest. Pers. Prop.	1		2**	
Carried forward to page 2.	211	1	17	193

1200796

OFFENSES	KNOWN	UNFOUNDED	CLEARED OTHER*	CLEARED ARREST
Brought forward from page 1.	211	1	17	193
owler	4		2	
irecracker Ordinance	3		1	2
Tampering with US Mail	1			1
Ill. shooting	2		2	
Shoplifting	1		1	
TOTAL PART II. CASES	222	1	23	196
PART III.				
28. Missing Persons				
Lost Persons	7		7	
Lost Animals	9		6	
Lost Property	4		2	
29. Found Persons				
Found Animals	4		4	
Found Property	1		1	
TOTAL PART III CASES	25		20	
30. Fatal Mot.Veh.Traf.Acc.				
31. Pers.Inj.Mot.Veh.Traf.Acc.	3			
32. Prop.Dam.Mot.Veh.Acc.	15			
33. Other Traffic Acc.				
34. Public Accid.	)			
. Home Accidents	)	No Accurate Statistics Kept		
. Occupational Accidents	)			
37. Firearms Accidents	1		1	
38. Dog Bites				
39. Suicides				
40. Suicide Attempts	2		2	
41. Sudden Death& Bodies Fd.				
42. Sick Cared For				
43. Mental Cases				
TOTAL PART IV CASES	21		3	
COMPOSITE TOTALS PARTS I,II,III,IV CASES	268	8	81	198

* Cases listed under "Cleared Other" are those cleared by various means other than arrest. such as: orders from prosecutor, juvenile probation officer or other situations in which a mutual agreement is obtained. They are definitely "cleared" cases and differ from the arrest column only in that there was no arrests.

** 7 Petit Larcenies, 6 cleared other, 1 unfounded: 1 Auto Theft, 1 unfounded; 3 Embezzlement and Fraud, 1 arrest, 1 unfounded, 1 by arrest for 1951; 1 Sex Offense, 1 arrest; 1 Malicious Mischief cleared other; 1 Dest. Pers. Prop. cleared other; 1 Liquor Law, cleared other, 2 Dog Nuisance, cleared other; 5 Bicycle thefts cleared other; cases from previous months cleared.

Property reported stolen $823.00 (including 22 bikes)
Property recovered $683.68 (including 27 bikes)

1205747

MONTHLY REPORT RICHLAND POLICE DEPARTMENT JUVENILES INVOLVED JULY, 1952

OFFENSE	NO. CASES	JUVENILES	SEX	6	7	10	11	12	13	14	15	16	17	TOTAL
Vandalism	1	5	M		1			1		1		1	1	5
Malicious Mischief	2	3	M	1							2			3
Shoplifting	1	2	M		1	1								2
Dest. of Pers. Prop.	1	2	M		1		1							2
TOTALS	5	12		1	3	1	1	1		1	2	1	1	12

Number of offenses known to police per 25,000 inhabitants in cities of 25,000 persons:

	Wash.Ore.& Calif. Six months (Jan-June 1951)	One month average	Richland January - June 1951	Richland June - July 1952	
Murder	.34	.056	-	-	-
Robbery	9.35	1.56	-	-	-
Agg. Assault	6.65	1.10	1	-	-
Burglary	64.87	10.81	17	-	2
Larceny	205.9	34.3	141	28	16
Auto Theft	32.12	5.35	8	1	3
Bicycle Theft			158	20	22

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts.

	State of Washington Six months (Jan.June 1951)	One month average	Richland January - June 1951	Richland June - July 1952	
Murder	.31	.051	-	-	-
Robbery	6.85	1.14	-	-	-
Agg. Assault	2.45	.41	1	-	-
Burglary	56.5	9.4	17	-	2
Larceny	196.1	32.7	141	28	16
Auto Theft	32.5	5.4	8	1	3
Bicycle Theft			158	20	22

The portion of offenses committed by persons under the age of 25 years is shown:

	National Average Percentage of cases (January - June 1951)	Richland January - June 1951	Richland June - July 1952	
Robbery	53.6	-	-	-
Burglary	61.7	4	0	0
Larceny	45.2	25	3	3
Auto Theft	69.7	-	-	-

Note: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrests recorded is doubtless incomplete in the lower group because of the practice of some jurisdictions not to fingerprint youthful offenders."

1205749

RICHLAND POLICE DEPARTMENT
RICHLAND JUSTICE COURT CASES
JULY 1992

VIOLATION	NO OF CASES	NO OF CONV.	NO OF FORF.	CASES CONT.	CASES DISM.	WARR. ISS.	SENT JAIL	SENT SUSP.	LIC. REV.	CASES ORIG. PREV. MON.	CASES INCL. OTHER VIOL.	BAIL FORF.	FINES	FINES SUSP.
DEFECTIVE EQUIPMENT	9	4	1	3	1					2	1	$ 3.50	$ 18.50	$ 15.00
DRIVERS LICENSE	22	8	4	9		1				1	7	31.00	59.50	37.50
DRIVING W/ LICENSE SUSPENDED OR REVOKED	2			2										
DRUNKEN DRIVING	2	2							2				152.50	
FAILURE TO APPEAR AFTER WRITTEN PROMISE	1	1								1			10.00	10.00
FAILURE TO DIM LIGHTS	1	1											3.50	
F.T.S. & I.	1	1											15.00	15.00
F.T.Y.R.O.W.	4	1	2	1									12.50	12.50
FOLLOWING TO CLOSELY	1			1										
HIT & RUN	1	1											100.00	100.00
ILLEGAL PARKING	73	20	40	13								143.00	64.50	47.00
ILLEGAL PASSING	2	2											7.00	
IMPROPER PLATES	3	2	1								1	15.00	5.00	
NEGLIGENT DRIVING	31	18	8	3	2					3		197.50	362.50	32.50
NO REGISTRATION	5	3		1	1					1	5			
RECKLESS DRIVING	4			4										
SPEEDING	42	10	27	4		1				1		248.50	76.00	
STOP SIGN	24	6	16	1	1					3		85.00	28.50	5.00
ABANDONMENT & NON-SUPPORT	1			1										
DOG ORDINANCE	1	1											15.00	15.00
FIREWORKS ORDINANCE	2	1		1									17.50	
GRAND LARCENY	1					1								
INJURY TO PERSONAL PROPERTY	3	1	2									30.00	50.00	
LARCENY BY CHECK	2	2					2			2				
PETIT LARCENY	1		1									37.50		
PUBLIC INTOXICATION	9	1	8				2					105.00	27.50	
VAGRANCY	1	1											42.50	
TOTAL	249	87	110	44	5	3	4		2	14	14	$896.00	$1067.50	$289.50

FOUR RECKLESS DRIVING CASES AMENDED TO NEGLIGENT DRIVING.
ONE DRUNKEN DRIVING CASE AMENDED TO NEGLIGENT DRIVING.
TWO DRIVING WHILE LICENSES SUSPENDED OR REVOKED CASES TAKEN TO SUPERIOR COURT.

200750

POLICE DIVISION - TRAFFIC CONTROL STATISTICS
JULY, 1952

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatilities		Major Injuries		Minor Injuries	
	June	July	June	July	June	July	June	July
Richland	20	18	0	0	0	0	2	4

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Cases	
	June	July	June	July	June	July	June	July
Richland	6	4	7	6	1	0	8	8

PLANT WARNING TRAFFIC TICKETS ISSUED:

Richland: NO WARNING TICKETS ISSUED FOR JUNE AND JULY, 1952.

TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICKETS ISSUED:

	Speeding		Stop Sign		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Drvg.		Parking V.		Other V.		Totals	
	June	July	June	July	June	July	June	July	June	July	June	July	June	July	June	July	June	July
Richland	22	41	26	21	2	3	4	8	6	4	21	23	23	73	29	43	133	216

TRAFFIC VOLUME: No Traffic Volume Count taken for the month of July, 1952.

NOTE: Traffic Control Statistics show ORIGINAL CHARGES ONLY.

1205751

COMMUNITY SERVICES

RICHLAND FIRE DEPARTMENT

JULY 1952

Organization and Personnel

	Exempt	Non-Exempt
Employees - Beginning of Month	48	0
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	1	0
End of Month	47	0

Fire Protection

		This Month	Year To Date
Fire Loss (Estimated):	Government	$94.00	$682.50
	Personal	0.00	492.50
	Total	$94.00	$1,175.00*

* Damage estimate not yet available for June 20th fire in Masonic Temple.

Response To Fire Alarms	22	105
Investigations of Minor Fires and Incidents	11	85
Ambulance Responses	41	298
Inside Schools or Drills	40	270
Outside Drills	30	159
Safety Meetings	8	56
Security Meetings	4	30
Fire Alarm Boxes Tested	186	1318
Airport Standby	0	12
Fire Hydrants Tested	5	35
Burning Permits	4	554

Two lengths of 2½ inch hose and one length of 1 inch fire hose were recoupled and 44 lengths of 2½ inch hose pressure tested during July.

Fire Department personnel, using both fire apparatus and ambulance, assisted photographers making a film on Community services.

Firemen were detailed to clean weeds away from fire hydrants on Hains Avenue, Wellsian Way and in the 1125 Warehouse area.

Engine 2, having been returned from paint shop, was placed in service at No. 2 Fire Station and Engine 4 moved to No. 1 Station where it replaced Engine 3. Engine 3 was sent to the paint shop.

A lieutenant was detailed from No. 1 Station on July 27th to inspect welding operations at the Chevron Service Station at Goethals and Symons.

1205752

Fire Prevention

The Fire Marshal's staff made a total of 238 hazard inspections during July, resulting in 11 hazard reports. In the course of these inspections, 210 fire extinguishers were inspected, 5 installed, 1 refilled and 23 removed. Eleven fire hose standpipes were inspected and fire hose replaced on one standpipe.

An investigation was made of a minor fire resulting in the paint storage bull-pen in the 700 Area when the sun's rays, shining through a glass jug of ammonia, ignited a cardboard container. Fortunately, explosion of the jug extinguished the fire before it involved a considerable concentration of paints, thinners and turpentine stored in the area. Real Estate, General Services and Public Works supervision were advised and requested to take appropriate steps to avoid similar incidents.

Fire Marshal's investigation of a smoke odor in the 703 Building revealed a defective ballast in a fluorescent light fixture in the Typing Pool. The building custodian had the ballast replaced.

Following a report of inadequate exits in the VFW Club in Uptown Richland, unsatisfactory conditions were noted, discussed with the Community Engineer and reported by letter to Real Estate.

After a conference with the Chamber of Commerce Fire Prevention Chairman, the Fire Marshal attended a membership meeting of the Chamber of Commerce to request naming additional members to the committee to more equitably distribute the work load. At this same meeting, Uptown merchants were requested to identify their rear doors to assist the Fire Department.

Dry weed accumulation under the outside stairway at Dormitory W-8 was reported to Real Estate for removal.

Public Works was requested to move gasoline storage from the 1125 Warehouse to the outside or eliminate the storage altogether.

Fire Marshal and Assistant, with the Kadlec Hospital Assistant Administrator, inspected the hospital to detect locations where sprinkler systems did not provide coverage after recent alterations to the building.

A request for extreme caution was made to Safety, Stores and Transportation because of oil base weedicide making dry weeds highly flammable in the 700 and 1100 Areas.

Following the June 20th fire in the Masonic Temple where Cellotex wallboard contributed to the fire's intensity, efforts were made to discourage the use of Cellotex when the structure is repaired.

Lack of an annunciator legend on the remodelled and enlarged 703 Building alarm system was the subject of contacts with Plant Safety, AEC Safety and AEC Engineering. The Fire Department would at present be handicapped in locating the exact source of an alarm in this building.

Transportation was requested to remove all vehicles blocking Fire Department access to the fire hydrant on the west side of the 716 Garage.

1205753

COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT

ENGINEERING UNIT

JULY 1952

PERSONNEL	Exempt	Non-Exempt	Total
Employees - Beginning of Month	7	3	10
Employees - End of Month	6	3	9

The Status of Active Projects is as follows:

K-562 - Automatic Irrigation Levee 2-C - Work complete except for lowering of sprinkler heads. Area being seeded by Corp of Engineers.

L-608 - Odors Emanating from Sewage Lift Station - Design 100% complete. Bid opening scheduled for August 7, 1952.

L-911 - Resurfacing of Parking Lot at Village Drugstore and Campbells Food #2 - Award of Contract pending.

L-641 - Sanitary Sewer Line along Gillespie Street from Duane Avenue to Gillette Property Line - 100% complete. Physical completion notice dated 7-28-52.

L-662 - Mansfield Street Improvement - Award of contract pending.

S-552 - Additional Fire Protection - Desert Inn and Richland Theatre - 100% complete. Accepted by Using Department July 24, 1952.

C-425 - 1951 Park Development Program - All work complete except for walks around comfort station and drinking fountains, cleanup of maintenance.

C-486 - 1952 Street Improvement Program - Award of contract pending.

C-488 - Additional Erosion Control and Development, Public Areas, F.Y. 1952 - Preliminary work started on plans.

C-499 - Alteration of Greenway for Parking Area - Award of contract pending.

Status of Active ESRs

396-CA Site Map CAP Field - Deferred for other work.

510-M Roads and Streets Drawings - 1950 Construction - Deferred for other work.

544-SD Tree Planting for Schools - Additional work to be done in Fall, 1952.

547-MD Fixed Irrigation System - Plans ready for project proposal

561-SD Chief Joseph Grounds - Work complete except for areas around new parking lot.

565-BC Site South of Tract House 0-1224 - Deferred for other work.

1205754

Engineering Unit

570-RC- All Saint's Episcopal Church - Work Progressing. 50% complete.

571-M - Free Methodist Church - Work Progressing. 65% complete.

572-M - First Baptist Church - Work Progressing. 58% complete.

573-M - Westside United Protestant Church - 100% complete. Final inspection made.

574-M - Assembly of God Church - Work Progressing slowly. 22% complete.

579-MS- Goethals Drive to Williams, Study of Intersection - Deferred for other work.

581-RC- "As Built" Plans for LDS Church - Plans returned to building committee.

585-M - Anderson Motors Addition - Work Complete. "As Built" plans checked and sent to file vault.

588-M - Alteration Permits - An open active file.

591-M - Preparation of Advise Pamphlet for Contractors - Delayed for other work.

596-M - Store Building #3 - C. D. Joseph - Materially complete. Final Inspection to be made.

605-PR - Erosion Control - Preliminary work started.

609-M - Plan Checking - Store Building #4, C. D. Joseph - Materially complete. Final inspection to be made.

612-RC - "As Built" plans for Richland Thrifty Drug - Returned to architect for correction.

615-M - Plan Checking - McVicker Building #4 - Materially complete. Final inspection to be made.

616-M - Level Control Valve - Sewage Treatment Plant - Deferred for other work.

620-M - Fire Hydrant Installation - Birch Street between Kuhn Street and Swift Blvd. - 100% complete. Accepted by Using Department on July 20, 1952.

623-M - Request for Preliminary Engineering on Additional Erosion Control, F.Y. 1952 - 100% complete.

624-M - Landscaping Estimate for Central Fire Station - Not yet started.

625-M - Kirkpatrick Building #2, Block 4 - 100% complete. Final acceptance made. "As Built" plans transmitted to Reproduction Unit.

628-M - Prepare "As Built" plans for Richland Fire Alarm System - Deferred for other work.

630-M - Correction of Master Plan - Deferred for other work.

631-M - "As Built" Plans for Sewer System - To be developed as time permits.

Engineering Unit

632-M - "As Built" plans for water System - To be developed as time permits.

633-M - "As Built" Plans for Streets - To be developed as time permits.

634-M - Engineer Liaison - Richland Water Expansion - Preparing and submitting data as requested. Work progressing.

637-M - Engineering - Parking Lots - Chief Joseph School - Design complete. In hands of AEC pending approval.

639-M - Legal Description - Bus Depot - 100% complete. ESR Closed.

640-RC - Anderson Motors - "As Built" Plans - Complete 100%, July 2, 1952. "As Built Plans transmitted to Reproduction file.

646-M - Engineer Liaison - Central Fire Station - Following construction of building. Submitting data as requested by AEC and GE.

649-M - Joseph's Department Store - 100% complete.

650-M - Addition to Spencer-Kirkpatrick Building - 100% complete. Final Inspection made. "As Built" plans transmitted to Reproduction File.

651-M - Estimate for Dog Pound - Estimates prepared and submitted.

653-M - Willard Parker Building Addition - Materially complete. Final inspection to be made.

654-M - Elmer J. Hansen Building Addition - Materially complete. Final inspection to be made.

655-M - Ground Lease - Kidwell-Gerdes Service Station - 100% complete.

656-M - Plan Checking - Kidwell-Gerdes Service Station - Plans not received.

657-M - Review Richland Fire Station. To be developed as time permits.

658-M - Grounds Maintenance Report - Report submitted. Field work in progress.

659-RC - R. H. Gillette Site (Add.) - 100% complete.

660-RC - Rex L. Jensen Proposed Site - 50% complete.

661-RC - Richland Development Co. Site, Block 5 - Uptown Area - 50% complete.

663-M - Richland Development Co., Block 5, No. Comm. Area, Plan Checking - Structural plans received. Partial construction permit issued. Construction progressing. 30% complete.

664-M - Sprinkler System - Jason Lee School - 100% complete.

665-RC - Richland Labor Temple - Plans not received. Legal Description 25% complete.

1205756

Engineering Unit

667-RC - Revised Legal Description - McVicker Building #3 - 100% complete.

668-RC - Legal Description - American Legion Post No. 71 - 25% complete.

669-M - Alterations for Frank Berry Sporting Goods Store - Construction 100% complete. Final inspection to be made.

672-RC - Legal Description - John L. Miller Site - 100% complete.

673-RC - Legal Description - Proposed Medical-Dental Properties, Inc. - 100% complete.

674-RC - Uptown Parking Lot Study - No action to date.

676-M - Sidewalks, Aprons, & Drives in Vicinity of Swimming Pool and Bathhouse.- Design 75% complete.

677-M - Addition to Ernie's Restaurant, Dine and Dance - Building permit issued. Work progressing. 30% complete.

678-RC - Legal Description and extend utility lines, Drive-In Theater Site - 50% complete.

679-RC - "As Builts" for Standard Service Station - "As Built" plans checked and transmitted to Reproduction Section. 100% complete

681-RC - "As Builts" for Richland Laundry and Dry Cleaners - Received for checking.

682-M - Alterations to Joseph-Cannon Building. Complete. "As Built" plans received for checking.

683-RC - Legal Description - Tri City Herald - 50% complete.

685-M - Set Bluetop 350' Elev. markers, Telephone Submarine Cable - 90% complete.

686-RC - Utility Lines - Vacant Commercial Sites - 75% complete.

687-RC - Legal Description - Propane Plant Site - Saints Road - 100% complete.

688-RC - Legal Description - Propane Plant Site - Willsian Way - 100% complete.

689-RC - "As Builts" CD Joseph Building #2 - Received for checking, except plumbing plans.

690-M - Land Description, By the River - 100% complete.

691-RC - "As Builts" for Nazarene Church - 100% complete. Plans transmitted to Reproduction File.

692-RC - Propane Gas Main Installation - Bauer-Day Contract - 100% complete.

693-M - Tracings up to date, Richland Water and Sewer Systems - To be developed as time permits.

694-M - Plans, Specifications, and Inspections, John L. Miller Building - Plans received and checked. Building permit issued.

Engineering Unit

695-RC - Revised Legal Description - McVickor Building #3 - 50% complete.

696-RC - Revised Legal Description - Bus Depot - 50% complete.

697-M - Plans, Specifications, Inspections - Drive-In Theatre - Plans not received.

698-M - Plans, Specifications, Inspections - Rug Cleaning Plant - Plans not received.

699-M - Tastee-Freeze Drive-In - Plans, Specifications, Inspections. - Plans checked.

700-RC - Grace Bacon Site - Legal Description - New - not started.

701-RC - Legal Description - Geo. Wash. Way to dike between Newton Street and Desert Inn Service Road - New - Work not started.

702-M - Preliminary Project Estimates (Project X) - 100% complete.

1205158

COMMUNITY REAL ESTATE SECTION

SUMMARY

JULY
1952

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Commercial Property Unit				
337	7	5	7	5
Housing & Maintenance Unit				
331	5	23	5	21
333	13	129	13	125
335	2	3	2	3
Community Real Estate Sect.				
330	2	1	2	1
TOTAL	29	16	29	155

Decrease in Employees for month of July 6

GENERAL

The following establishments opened for business during the month of July, as sub-lessees in the following buildings:

C. D. Joseph Bldg. #2	
American Engineering Company	1370-D Jadwin Avenue
W. E. Scheyer (Ice Cream Store)	1370-C Jadwin Avenue
Frank Berry's Bldg.	
Sowell's Ice Creamery	1346 Jadwin Avenue
The Mart	
ATA Aircoach Company, Inc.	723 Goethals
Spencer-Kirkpatrick Building	
Chester V. Adams (Engineering Office)	1385 George Washington Way

1205759

RICHLAND HOUSING

HOUSING UTILIZATION AS OF MONTH ENDING JULY 31, 1952

HOUSES OCCUPIED BY FAMILY GROUPS

	Conventional	A&J	T	Precut	Ranch	Prefab	Dorm Apt	A&J Apts	2BR Apt	Fourth Housing	Tract	Total
G.E.Employees	2207	260	9	377	814	1165	10	44	62	197	38	5183
Commercial Facilities	94	11	1	38	81	55		8	3	7	5	303
Community Activities	10				6	5					1	22
Medical Facilities	3	17			2	1				3		26
Post Office	5				3	12				1	3	24
AEC	90	27		20	56	18		4	2	16	2	235
Other Government	11				4	3			1		1	20
Schools	51	1		6	10	55		1	1	1		126
Atkinson Jones	8	13		3	9	5		4		1		43
Vitro Corp	6	3		2	4	3						18
Charles T. Main	1			3	3	10		1				18
P.S.Lord	3				3					2		8
Newberry Neon	3	1		1				1		1		7
Vernita Orchards											5	5
Urban-Smythe-Warren					3				1			4
Universal Foods						3						3
W.S.Jenkins					1							1
[illegible]rt's Filter	1											1
House Exchanges												
Turnover					1							1
Total	2493	333	10	450	1000	1335	10	63	70	229	55	6048
Houses assigned												
Leases written												
Houses assigned												
Leases not written	4					5		1		1		11
Houses available												
for assignment	3					2						5
	2500	333	10	450	1000	1342	10	64	70	230	55	6064

	BEGIN MONTH	MOVED IN	MOVED OUT	MONTH END	DIFF
Conventional Type	2493	38	37	2494	plus 1
A&J Type	330	4	2	332	Plus 1
"T" Type	10	—	—	10	—
Precut	449	6	5	450	Plus 1
Ranch Type	996	17	15	998	Plus 2
Prefab Type	1342	37	40	1339	minus 3
Dorm Apts	10	—	—	10	—
A&J Apts	63	2	2	63	—
2BR Apts	68	1	1	68	—
Fourth Housing	229	1	2	228	Minus 1
Tracts	55	1	1	55	—
	6045	107	105	6047	Plus 2

1205760

HOUSING & MAINTENANCE UNIT

July, 1952

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month:	20 Exempt	
	155 Non-Exempt	
	175	175
End of month:	20 Exempt	
	149 Non-Exempt	
	169	169

1205761

RICHLAND HOUSING

HOUSING UTILIZATION AS OF MONTH ENDING JULY 31, 1952

HOUSES OCCUPIED BY FAMILY GROUPS

	Conventional	A&J	T	Precut	Ranch	Prefab	Dorm Apt	A&J Apts	2BR Apt	Fourth Housing	Tract	Total
G.E.Employees	2207	260	9	377	814	1165	10	44	62	197	38	5183
Commercial Facilities	94	11	1	38	81	55		8	3	7	5	303
Community Activities	10				6	5					1	22
Medical Facilities	3	17			2	1				3		26
Post Office	5				3	12				1	3	24
AEC	90	27		20	56	18		4	2	16	2	235
Other Government	11				4	3			1		1	20
Schools	51	1		6	10	55		1	1	1		126
Atkinson Jones	8	13		3	9	5		4		1		43
Vitro Corp	6	3		2	4	3						18
Charles T. Main	1			3	3	10		1				18
P.S.Lord	3				3					2		8
Newberry Neon	3	1		1				1		1		7
Vernita Orchards											5	5
Urban-Smythe-Warren					3				1			4
Universal Foods						3						3
J.S.Jenkins					1							1
[illegible]rt's Filter	1											1
House Exchanges												
Turnover					1							1
Total	2493	333	10	450	1000	1335	10	63	70	229	55	6048
Houses assigned												
Leases written												
Houses assigned												
Leases not written	4					5		1		1		11
Houses available for assignment	3					2						5
	2500	333	10	450	1000	1342	10	64	70	230	55	6064

	BEGIN MONTH	MOVED IN	MOVED OUT	MONTH END	DIFF
Conventional Type	2493	38	37	2494	plus 1
A&J Type	330	4	2	332	Plus 1
"T" Type	10	—	—	10	—
Precut	449	6	5	450	Plus 1
Ranch Type	996	17	15	998	Plus 2
Prefab Type	1342	37	40	1339	minus 3
Dorm Apts	10	—	—	10	—
A&J Apts	63	2	2	63	—
2BR Apts	68	1	1	68	—
Fourth Housing	229	1	2	228	Minus 1
Tracts	55	1	1	55	—
	6045	107	105	6047	Plus 2

1205762

DORMITORY STATISTICS

Dormitories:

		Occupants	Vacancies	Total Beds
Men Occupied	15	616	—	616
Women Occupied	12	*481	—	481*
		1097		1097

Women's Dormitories occupied by:

G. E. Office	2
Education	1
Apartments	1

*This includes space of 2 beds in W-9 used for supply rooms and dormitory offices

There are 130 men waiting for rooms in Richland.
There are 8 women waiting for rooms in Richland.
There are 42 men waiting for single rooms.
There are 80 women waiting for single rooms.

GENERAL

Houses Allocated to new tenants	52	Voluntary Terminations	23
Exchanges Houses	18	E. O. F.	2
Moves (Within the Village)	24	Discharge	0
Turnovers	8	Transfers	6
Total Leases Signed	52	Retirement-Divorce-Death-Misc.	4
Terminations	52	Houses Assigned "As Is"	52
Total Cancellations	102	Move off Project	14
Applications Pending	695	Houses sent to Renovation	28

1205763

TENANT RELATIONS WORK ORDER AND PROGRESS REPORT - MONTH OF JULY, 1952

Processing of Service Orders, Work Orders and Service Charges.

	Orders Incomplete as of June 30, 1952	Orders Issued 6-30 to 7-31	Total orders Incomplete as of July 31, 1952
Service orders	176	1571	83
Work Orders	327	557	547
Service Charges		268	

Principal Work Order Loads

	Incomplete as of June 30, 1952	Incomplete as of July 31, 1952
Laundry tub replacement	33	38
Bathroom renovations (tub, tile, lino.)	21	30
Tileboard Only (Bathroom)	2	8
Kitchen cabinet Lino.	24	31
Kitchen floor lino.	29	37
Shower stall	20	11

Alteration Permits issued During the Month of July totaled 91 compared to 82 issued in June.

Install fence	5	Install auto. dishwasher	2
Install clothes poles	10	Construct sunshade on porch	2
Install air conditioner	12	Convert coal to gas furnace	2
Install auto. washer	12	Install driveway	3
Install auto. dryer	4	Install greenhouse	1
Install water softener	3	Install fireplace	
Install patio	6	Glaze porch	1
Install range cable	1	Install grill	1
Sand floors	3	Install toolshed	2
Install fan in ceiling	1	Install clothes chute	1
Excavate basement	4	Install cooling pads	2

1570 Inspections were made during the month of July compared to 1174 made during June.

Alteration Permits	1	Shower stalls	22
Bathtubs	55	Sidewalks	56
Cupboards	1	Sinks	33
Drainage	14	Tileboard	28
Floorboards	23	Toilet seats	39
Grass seed	27	Shows (New tenants)	96
Screen doors	2	Cancellations	121
Jack & Shim	5	Top Soil	55
Leaking basements	10	Renovations	80
Linoleum	135	Walls	8
Paint	81	Compounds	4
Porch & Steps	56	Windows	14
Laundry trays	7	Miscellaneous	579
Shades	18		

1205764

MISCELLANEOUS STORES WAREHOUSE INVENTORY SUMMARY
MONTH ENDING JULY 1952

	EXPENDABLE ITEMS	FURNITURE (GEN. LEDGER)	FURNITURE (KARDEX CONT.)	PLANT ITEMS	TOTAL
BEGINNING BALANCE	$11,459.03	$10,966.06	($ 5,621.91)	$31,470.34	$53,895.43
RECEIPTS:					
On Purchase Orders	62.50				
On Store Orders	2.88				
From Housing	34.53		1.00	2,989.08	
From Dormiteries	2.66		23.00		
Grass Seed				2.95	
TOTAL RECEIPTS	$ 102.57	$	$ 24.00	$ 2,992.03	$
TOTAL AVAILABLE	$11,561.60	$10,966.06	$ 5,645.91	$34,462.37	$
DISBURSEMENTS:					
Cash Sales	60.40			1.18	
To Housing	640.67		19.00	1,487.75	
To Dormiteries	15.15		323.52		
Dorm-Shades & Reflectors	8.94				
To Warehouse Supplies	.20				
Grass Seed				74.19	
To Other (Misc.)	28.61			660.00	
TOTAL DISBURSEMENTS	$ 753.97	$	($ 342.52)	$ 2,223.12	$
ENDING BALANCE (1)(2)(4)	10,807.63	10,966.06	($5,303.39)	$32,239.25	$54,012.94
NET CHANGE	$ 651.40	$10,966.06	$ 318.52	$ 768.91	$ 117.51
ENDING BALANCE GENERAL LEDGER (BALANCE-COL. 1 PLUS COL. 2)					$21,773.69

COLUMN 3 FOR LOCATION CONTROL ONLY-COLUMN 4 MEMO ACCOUNT ONLY

EXCHANGED:	PIECES
Dorm. Furniture	43
Ranges	7
Refrigerators	7

1205765

I. HOUSING MAINTENANCE BACK LOG REPORT

TYPE OF WORK	OLDEST ISSUE DATE	BACKLOG	RATE OF REPLACEMENT
Bathtubs, including: Tile board (bath) Floor linoleum (bath) Painting (bath)	6-20-52	30	None
Tile Board - A & J Other than tub installation	5-20-52	2	1
Tile Board - Conventional Other than tub installation	7-1-52	6	None
Painting (Miscellaneous)	4-6-52	77	30 per wk.
Kitchen Floor Linoleum (Prefabs)	5-21-52	8	None
Kitchen Floor Linoleum (Conventional)	5-21-52	29	4
Bathroom Floor Linoleum (Prefabs)	6-9-52	2	1
Bathroom Floor Linoleum (Conventional)	12-8-52	10	2
Kitchen Sink Linoleum (Prefabs)	6-9-52	8	6 per wk.
Kitchen Sink Linoleum (Conventional)	5-29-52	25	8
Shower Stall Installations	12-7-52 D houses 5-38-52 Tract 3-19-52 Prefabs	11	None
Laundry Trays	4-17-52	36	1-2 per wk.

1205766

II. MAINTENANCE TRANSPORTATION EQUIPMENT

TRUCK TYPE	NO. IN POSSESSION	CRAFT
1/2 ton Pickups	4	Painters
1/2 ton Panels	2	Painters
1½ ton Flatbeds	3	Painters
1/2 ton Pickups	8	Carpenters
1½ ton Flatbeds	6	Carpenters
1/2 ton Pickup	1	Sheetmetal
1/2 ton Panel	1	Sheetmetal
3/4 ton Panels	2	Millwrights
3/4 ton Walkin	1	Millwrights
1/2 ton Pickups	5	Plumbers
3/4 ton Pickups	3	Plumbers
Subtotal:	36	
SERVICE ORDERS:		
1/2 ton Pickups	3	Plumbers
3/4 ton Pickup	1	Plumbers
1/2 ton Pickups	5	Electricians
1/2 ton Pickups	2	Carpenters
1/2 ton Pickups	1	Lock & Key
1/2 ton Pickups	1	Glazing
Subtotal:	13	
RENOVATION & LABOR:		
1/2 ton Pickup	1	Renovation
1½ ton Panel	1	Renovation
1½ ton Flatbed	1	Renovation
Chev. Carryall	1	Renovation & Labor
3½ ton Dumps	2	Labor
Subtotal:	6	
GENERAL:		
Sedans	2	Supervision
Subtotal:	2	
GRAND TOTAL:	57	

1205767

III. PROGRESS REPORT

A. INTERIOR PAINT PROGRAM:

During the month of July, 131 units of housing had carpenter repairs made and were completely painted on the interior.

Painting work on the exteriors of the A & J houses was started on July 21, 1952. It is expected that a force of approximately 33 painters will be at work on this project, and it is believed that the work will be completed before fall.

It has been arranged that a crew of approximately ten (10) painters will be kept, to fulfill commitments that Housing has made to tenants, on the Interior Paint Program.

B. FIELD CARPENTRY - LINOLEUM & TILE:

The following units of work were completed by this group during the month of July.

Replaced kitchen linoleum:	16	Replaced work bench linoleum:	3
Installed tile board:	33	Removed & replaced stair landing for plumbers:	1
Replaced bathroom linoleum:	32	Reset clothspoles:	1
Repaired roofs:	40	Repaired wood floors:	4
Repaired porches & steps:	19	Replaced kitchen sinks:	8
Raised rear slabs:	5	Repaired basement floor:	1
Repair/replace sash balances:	4	Replaced plastic edging with metal:	4
Applied black roof coating:	16	Replaced rear door:	1
Repair/replace sink linoleum:	59	Installed tile floor in "A" house; L.R. & D.R.:	1
Rear thresholds replaced with concrete:	6	Repaired tile floor, "C" Hse:	1
Jack and Shim:	10	Chempointed sinks and tubs:	137
Repaired sagging roof; (Ranch):	1		

C. CARPENTER SHOP:

Routine exterior carpenter repairs to Precut houses has progressed to 95% completion. All doors and screen doors were checked and brought into the shop for repairs to bring them up to Maintenance standards.

A total of 139 paint touch-up jobs were completed to bathrooms, steps, porches and miscellaneous items, including painting of dining and living rooms at 1430 Stevens (due to water damage) and to kitchen at 2309 Pullen (due to fire damage).

A total of 115 paint jobs were completed in Paint shop, which included 120 Precut doors, screen doors, IBM cabinets, etc., and prime material applied for porches, steps, handrails, etc.

1205768

(Carpenter Shop, Cont'd)

Shop fabrication and repairs included: All repairs to Precut exterior doors and screen doors, repairs to miscellaneous screen doors and window screens, fabrication of porch steps, handrails and posts, surfaced 10,000 bfm 2 x 4's for Stores stock, repaired doors for Richland Hardware, made up drop cloths for painters, fabricated cable-post markers, installed slings for jackhammers to drill holes in concrete walls at Kadlec Hospital, made up scaffold jacks for painters and fabricated IBM racks.

D. PLUMBING:

During the month of July the Plumbing group accomplished the following units of work.

Installed bathtubs:	28	Installed water heaters:	16
Installed laundry tubs:	7		

1. Cleaned 24 sewer lines clogged with tree roots.
2. Replaced 3 shower stalls.
3. Completed 25 plumbing Work Orders consisting of replacing broken water lines, plumbing fixtures, etc.
4. Completed 37 linoleum orders consisting of removing and replacing toilet bowls for linoleum replacements in bathrooms.
5. Completed 9 steam Work Orders consisting of replacing rusted-out piping and replacing steam valves and traps.
6. Completed work in two (2) Dorms; work consisting of changing steam valves, traps and rusted-out risers.
7. Steam inspections were made once a week on steam-heated hot water tanks.
8. Replaced 3 heating coils at C. C. Anderson Store.
9. Replaced 1 heating coil at Ganzel's Barber Shop.
10. Six (6) men are working under hospital regrading steam condensate lines.
11. Relocated sewer line at Village Theater.

E. MILLWRIGHTS:

The Millwrights have worked on routine inspection and lubrication of furnaces during the month of July.

F. SHEETMETAL:

The Sheetmetal men have been loaned to 300 AREA as lack of material has held up their work in 722 Hangar. A shipment of material is expected daily and when it arrives work for this group will be resumed.

G. RENOVATION:

During the month of July, 32 units of housing were processed by the Renovation crew, two of which were completely painted. All units were completely cleaned on the interior and all received necessary carpentry repairs. Four kitchens and one dining room were painted due to fire damages. Forty-one (41) trash pickups were made from vacant houses.

1 2 0 5 7 6 9

H. SERVICE ORDERS:

The following is a status report of Service Orders:

A.	On hand at the beginning of the month:	176
B.	Received during the month:	1522
C.	Completed during the month:	1615
D.	On hand at the end of the month:	83
E.	Total number of hours spent on Work Orders:	467.4 hours

THE MART:

1. Installation of 200 amp. switch.
2. Installation of Panel board.
3. 100 amp mains w/12 - 15 amp breakers.
   8 - 20 amp breakers.
4. Revise existing 200 amp panel for circuit breaker control.
5. Change-over circuits and install four (4) new circuits w/utility recepticles.

NOTE: This job is approximately 33½% complete.

CAMPBELLS #5 (GROCETERIA):

1. Installation of two more circuits from electrical panel No. 1 to front of the store.
2. Divide circuit #1 and #16, now overloaded.
   Use spare circuits #4 and #5 in panel.
3. Tighten connections on all panels.
4. Check bare wires hanging around meat counter where frozen food box used to be.

F. BACKLOGS:

Plumbing and Lock and Key have a large backlog of approximately 300 hours combined.

I. LABOR:

1.	Pumped waste oil (7 stations) semi-monthly.	
2.	Excavated and backfilled sewers:	11
3.	Delivered loads of topsoil:	27
4.	Installed shades on rollers:	400
5.	Made blacktop repairs to walks:	8
6.	Hauled excess from 722 yards:	1
7.	Removed trees:	7
8.	Cut holes in hospital walls:	1
9.	Hauled sawdust from 722 Hangar sawdust bin:	1
10.	Cleaned and reseeded area:	1
11.	Cleaned parking lot for Anderson's Inc.:	1
12.	Unloaded materials for M S Warehouse:	1
13.	Provided parking space at "Men's" Dorms:	13
14.	Provided parking on west side of Hangar:	1
15.	Filled and tamped around foundation of 2 BR Apts; 135 yards of topsoil were delivered to same.	

REAL ESTATE ENGINEERING UNIT
JULY 31, 1952

Following is the status of active projects being handled by this unit:

K-918, Exterior Painting - Three Government-owned Buildings

Field work completed July 7, 1952.

L-911, Resurface Parking Lot Between Campbell's Food Store No. 2 and Village Pharmacy

Bids opened July 22, 1952.

S-909, Exterior Cycle Painting-331 Houses - Divisions II and III

Field work completed July 7, 1952.

S-924, Exterior Painting, Richland Housing F.Y. 1953

Work to be done by Project Forces.

C-930, Concrete Walks and Steps - 552 Houses

Held up pending further developments.

Following is the status of active ESRs being handled by this unit:

903-RH, Alteration Inspections

Routine work.

904-RM, Procurement Aid and Material Studies

No activity.

910-RC, Approval of Pasture Land Permits

Routine work.

917-RH, Drainage of Inner Block Areas

No activity.

1205771

919-RC, Approval of Alterations - Desert Inn Hotel

No activity.

929-RH, Study Possible Alterations - 413 George Washington Way

Deferred for other work.

933-RM, Electrical Alterations - The Mart

Awaiting delivery of material.

936-RH, Alterations to Building No. 1116

Preliminary plans being prepared.

937-RC, Fire Damage Estimate - Masonic Temple

Estimate prepared.

938-RH, Study of Oil Heat in Prefab Houses

Study in progress.

939-RC, Change Heating System in Bus Depot

Estimate and proposal prepared.

940-RH, Study of Moving Tract Houses K-788 and K-789

Study completed and recommendations made.

1205772

COMMERCIAL PROPERTY - REAL ESTATE SECTION

July, 1952

PERSONNEL - COMMERCIAL PROPERTY:

	July
Beginning of month	12
End of month	12
Net difference	0

PERSONNEL - COMMERCIAL AND NONCOMMERCIAL FACILITIES:

	Commercial	Noncommercial	Total
June	1,403	126	1,529
July	1,419	125	1,544
Net difference	+16	-1	+15

SUMMARY OR ROUTINE ITEMS PROCESSED:

Work Orders	35	5	40
Back Charges	5	1	6

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Leases:

a. Medical-Dental Properties, Inc., - covering the construction, operation and maintenance of a commercial-professional office building to be located east of the Public Health Building on Swift Boulevard.

b. Parker A. Hanson, an Individual--covering the construction, operation and maintenance of a "Tastee Freez" facility to be located at Stevens Drive and Mansfield Street, Light Industrial Area, Richland, Washington

2. Letters of Authorization:

a. The Mart--to sublet space to ATA Aircoach Company, Inc.

b. C. D. Joseph Company, Building #2--to sublet space to W. E. Scheyer for a package ice cream store at 1370-C Jadwin Avenue.

c. C. D. Joseph Company, Building #2--to sublet space to the American Engineering Company, 1370-D Jadwin Avenue.

1205773

B. Noncommercial:

1. Cancellation of Lease: The Co-Ordinate Club of Richland requested that its lease be terminated, effective August 31, 1952.

2. Letters of Authorization:

a. Post Office: An amendment to the letter of agreement was approved by the Postmaster General to permit metering of electricity and separate billing therefor.

b. Richland Labor Temple Association: An extension of 60 days was granted beyond the time limit allowed for submitting detailed plans and specifications of the proposed Labor Temple Building.

SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

	June	July
A. Commercial		
1. Number of Government-owned buildings	37	37
a. Number of businesses operated by prime lessees	41	41
b. Number of businesses operated by sublessees	16	17
c. Total Businesses operating in Government-owned buildings	57	58
2. Doctors and dentists in private practice, leasing space in Government-owned buildings	22	22
3. Number of privately-owned buildings	45	45
a. Number of businesses operated by prime lessees	38	38
b. Number of businesses operated by sublessees	48	52
c. Total businesses operating in privately-owned buildings	86	90
4. Privately-owned buildings under construction	5	4
5. Total number of businesses in operation	143	148
B. Noncommercial:		
1. Government-owned buildings		
a. Churches	4	4
b. Clubs and organizations	9	9
c. Government agencies	3	3
Total	16	16

1205774

	June	July
2. Privately-owned buildings		
a. Completed and in use	6	7
b. Under construction	7	6
3. Sites tentatively allocated or leases in process of negotiation	2	2
Total	15	15
4. Pasture Land Permits	81	81

GENERAL:

A. Commercial:

1. Chester V. Adams opened an engineering office in the Spencer-Kirkpatrick Building at 1385 George Washington Way, July 7, 1952.

2. American Engineering Company opened for business in the C. D. Joseph Building #2 at 1370-D Jadwin Avenue, July 10, 1952.

3. Construction was started on the third addition of Virgil O. McVicker Building #1, July 10, 1952.

4. Sowell's Ice Creamery opened for business in Frank Berry's Building at 1346 Jadwin Avenue, July 15, 1952.

5. W. E. Scheyer opened a package ice cream store in C. D. Joseph Building #2 at 1370-C Jadwin Avenue, July 26, 1952.

6. ATA Aircoach Company, Inc. opened for business in the Mart, 723 Goethals.

7. Spencer-Kirkpatrick Insurance--Building construction completed, with exceptions, as per final inspection report dated June 25, 1952.

B. Noncommercial:

NONE

COMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of commercial enterprises:

Day Nursery School	Lumber Yard & Building Materials
Dentist's Office	Motel
Doctor's Office	Service Station

NONCOMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of non-commercial enterprises:

1205775

1. Knights of Columbus, Council No. 3307, renewed its interest in leasing the Co-Ordinate Club building.

2. United Pentecostal Church renewed its interest in leasing Bldg. 137-X.

1205776

700-1100-3000 AREA SERVICES SECTION
MONTHLY REPORT
JULY 1952

STEAM AND GENERAL MAINTENANCE UNIT:

General Maintenance:

Certain materials and equipment were removed from 720 Building to ready the structure for disposal. Two desert coolers removed were reused on 707 Building to provide increased cooling.

A four-inch by-pass line was installed on the softener feed water line to permit operation of the softeners during periods of low water pressure.

A condensate meter was installed in boiler room at the Public Health Center to provide accurate information on steam usage.

Several electrical outlets were installed in the 5th wing of 703 Building to provide necessary service.

One 40 H. P. motor was damaged, presumably by lightening, which also interrupted the emergenc lighting system at Kadlec Hospital. Necessary repairs to the motor will be made.

The Stores Excessing program remained steady during the month. Services of two carpenters were required.

Approximately 100 feet of Hauserman Partition was installed in 700 Area Office buildings to better accommodate office personnel. One hundred thirty feet of such partitioning was relocated in the 707 Building.

Painting and Sign work was heavy throughout the month.

Routine lubrication and inspections were performed in the usual manner. General routine repa work increased during the month.

Steam Operation:

No. 1 boiler was in service until July 28, when it was taken out of service to perform the biennial major overhaul. No. 4 boiler was then placed in service.

The Boiler Inspector from Traveler's Insurance Company inspected No. 3 and 4 boilers at the 784 Heating Plant and both boilers at the 1131 Bus Terminal Heating Plant on July 17, 1952.

Steam generated at the 784 Heating Plant during July, 1952 was 2.[illegible]% more than during the same month of the previous year.

Soft Water usage at Kadlec Hospital increased to an average consumption of approximately 104,000 gallons per day.

Steam Statistics:

Steam Generated	7,753.3	M. lbs.
Steam Leaving Plant	5,590.7	M. lbs.
Steam Delivered	4,717.0	M. lbs.
Coal Consumed	604.80	Net Tons

1205777

700-1100-3000 AREA SERVICES SECTION

Total Water Softened	4,233,000	Gallons
Soft Water Sent to Kadlec Hospital	3,180,250	Gallons
Soft Water Sent to 784 Heating Plant	1,052,750	Gallons
Soft Water served to Kadlec Hospital	733.5	Hours

Maintenance Backlog:

Foreman	Type of Work	Manhours	No. of Crew Days	Men on Routine	Total
Bennett	Electrical	1267	40	3	7
McCartney	Machinist	32	8	.5	1
	Welder	44	11	.5	1
	Sheetmetal	140	12	.5	2
	Millwright	320	20	3	5
Vaught	Painting	400	25		2
	Sign Painting	100	12		1
	Carpenters	600	17	4.5	9
Marzyck	Plumber & Pipefitter	640	27	2	5
	Servicemen			2	2

NORTH RICHLAND FIRE UNIT

Alarm No.	Response to Alarms	Cause for Alarms	How Received
145	Barracks 3106-C	Accidental Alarm	Box
146	Post Motor Pool Compound	Horn blowing on truck mistaken for fire alarm	Phone
147	Northwest of Burning Ground	Probable - Smoker's carelessness	Phone
148	Barracks 216-B, Room 11	Smoker's carelessness	Verbal
149	Northeast of 13th St. & "C" Ave. along river	Unknown. Apparently controlled burning out of control	Phone
150	Trailer at 802 "C" Avenue	Improper insulation under Butane stove	Verbal
151	Barracks 2333	Accidental alarm	Box
152	Barracks 3102	Accidental alarm	Box
153	West of Burning Ground	Embers from Burning Ground	Verbal
154	Barracks 3108	Unknown	Box
155	Barracks 3108-C	Smoker's carelessness	Box
156	Barracks 3204-A	Apparently faulty Protecto Wire	Box
157	Barracks 3104-D	Accidental alarm	Box
158	Geo. Wash. north of Spangler Road	Smoker's carelessness	Phone
159	Barracks 3102-D	Accidental Alarm	Box
160	Lot south of Brigade Motor Pool	Soldier welding on tank truck	Box
161	Barracks 2355	False alarm	Box
162	Barracks 2204	Unknown	Box
163	Building 72	Gasoline spilled on floor	Phone
[illegible]	314 "G" Avenue	False alarm	Phone
	Barracks at 4th St. & "W" Ave.	Accidental alarm	Box
166	Barracks 3102	Unknown	Box
167	Barracks 2202-B	Accidental alarm	Box
168	West of Stevens Drive & south of Horn Rapids Road	Embers from Burning Ground	Verbal

700-1100-3000 AREA SERVICES SECTION

Alarm No.	Response to Alarms	Cause for Alarms	How Received
169	7th St. & "W" Avenue	Unnecessary alarm	Verbal
170	Barracks 3110-B	False alarm	Box
171	Between 2nd & 3rd St. on "Q" Ave.	False alarm	Box
172	Barracks 3110-B	Jarring wall or tampering with auxiliary box	Box
173	Trailer at 1214 "N" Avenue	Apparently short in wiring	Phone

Investigations:

7/16/52 Whse. area east of "W" Ave. Sprinkler Bell activated from fluctuation of water pressure.

Alarm No.	Personal Loss	H. W. Loss	Total Loss
148	$ 26.79	$	$ 26.79
173	2700.00	40.00	2740.00
TOTAL LOSSES	$ 2726.79	$ 40.00	$ 2766.79

Miscellaneous Activities:

There were 3 safety and security meetings; 3 inside drills; and 10 outside drills during July.

Ninety-four fire alarm boxes were tested during the month.

All members of "A" and "B" Shifts attended "Good Neighbor Fund Meeting".

First Aid Classes are being given to Army personnel.

Sprinkler Alarm system was put in service at the Hospital.

Auxiliary System was put in service in Building 6311, Nurses Quarters.

Received three 15 lb. CO_2 recharged extinguishers from White Bluffs.

Fire Drill held at Post Stockade. Alarm system was reset.

NORTH RICHLAND PATROL UNIT

General:

Twenty-four Traffic Warning Tickets were issued. These tickets were mainly for minor traffic violations.

Nineteen Traffic Citation Traffic Tickets were issued - 5 for Stop Sign Violation, 2 for Negligent Driving, 3 for Illegal Parking, 3 for Speeding, 2 for Passing in a No-Passing Zone, 1 for No Operator's License, 1 for Failure to Yield Right of Way, 1 for Defective Equipment.

1205779

700-1100-3000 AREA SERVICES SECTION

Twelve persons were incarcerated in the Richland jail by this Unit - 3 for Operating a Motor Vehicle While Under the Influence Of or Affected By the Use of Intoxicating Liquors, 3 for Public Intoxication, 1 for Possession of Stolen Property, 1 for Petit Larceny, 1 for Carrying Concealed Weapons, 1 for Public Nuisance, 1 for Public Intoxication and Indecent Language and 1 for Drunk and Disorderly.

Nineteen inquiries regarding formerly employed General Electric and construction personnel were answered by this office.

All fire, safety and traffic hazards observed by North Richland Patrol in July were reported to the proper authorities.

Five firearms were registered with Arsenal Officer by this Unit during the month of July. Three firearms were checked out of North Richland Contraband Room and eleven firearms were checked in.

All Facilities, Warehouses, Buildings and the John Ball School were checked daily on all shifts.

The following time was spent on the bank money escort from Pasco during the month of July: - 30 Weekly payroll hours and 10 Monthly payroll hours.

Every Thursday during the month an Appearance Officer was assigned to Judge Brown's Court in Richland to appear against persons cited to court by this Unit.

On July 23, 1952, C. H. Overdahl recovered Sixty dollars in cash which was the amount needed to cover a check which was received by Hand's Buy-Rite Drugs and returned by the bank marked "No Account".

During the month of July the North Richland Patrol worked a total of 3253 man hours.

A staff meeting was held by Chief C. H. Overdahl on July 11, 1952 at North Richland Patrol Headquarters.

On July 25, 1952, C. H. Overdahl recovered Fifty-five dollars in cash which was the amount needed to cover a check received by Hand's Buy-Rite Drugs and returned by the bank marked "Insufficient Funds".

North Richland Population is as follows:

Bremerton Houses	628
Trailer Camp	3,266
Barracks (Men's)	810
Barracks (Women's)	44
TOTAL POPULATION	4,748

Total Lots occupied in Trailer Camp	1,157
Total Bremerton Houses Occupied	188

Unusual Incident Reports:

Public Intoxication	2
Public Intoxication and Indecent Language	1
Drunk and Disorderly	1
Public Nuisance	2
Driving While Under the Influence	4

1205780

7CO-1100-3000 AREA SERVICES SECTION

No Operator's License	1
Petit Larceny	1
Reckless Driving	1
Reckless Driving (Liquor Involved)	1
Negligent Driving (Liquor Involved)	1
Negligent Driving (Liquor Involved) No Operator's License	1
Possible Rabid Dog	1
Investigation	1
Possession of Stolen Property	1
Accident (3 Private Cars)	1
Family Trouble	2
Racial Trouble	1
Fire	1

Special Services Performed:

Emergency Messages Delivered	61
Emergency Long Distance Telephone Calls	122
Western Union Telegrams	2
Fires (Signal 12)	7
False Fire Alarms	12
Unusual Conditions Reported to Maintenance	6
Escort for Ambulance Detail	4
Escort for Wide or High Loads	1
Escorts to First Aid	3
Billfolds Turned in to Patrol	2
Billfolds Returned to Owners	2
Soldiers Turned Over to M.P. Detachment	5
Suspicious Persons Investigated	4
Disturbances Investigated	3
Bicycles Reported Lost or Stolen	2
Bicycles Found	2
Bicycles Returned to Owners	2
Cars Impounded at Patrol Headquarters	4
Children Lost	2
Children Returned to Parents	2
Patrolmen to Assist Ambulance	2

Complaints:

Miscellaneous——1; Petit Larceny——1; Grand Larceny——1

ORGANIZATION AND PERSONNEL

Number of Employees on Roll	Beginning of Month Exempt	Beginning of Month Non-Exempt	Beginning of Month Total	End of Month Exempt	End of Month Non-Exempt	End of Month Total
Maintenance & Steam	8	49	57	8	49	57
North Richland Fire	32	—	32	31	—	31
North Richland Patrol	6	16	22	6	14	20
North Richland Commercial Facilities	1	2	3	1	2	3
Total Employees	47	67	114	46	65	111

1205781

700-1100-3000 AREA SERVICES SECTION

Personnel Changes During Month:	Non-Exempt	Exempt
Transfers Out	1	1
Transfers In		
Terminations	1	1
Re-Activated Employees		1

1205702

NORTH RICHLAND COURT CASES

JULY 1952

VIOLATIONS	NO. OF CASES	NO. OF CONV.	NO. OF FORF.	CASES CONT'D.	CASES DISM.	LIC. RVKD.	TOTAL FINES	TOTAL SUSP.	TOTAL BAIL FORFEITED
Reckless Driving	2	2					$ 60.00	$	$
Negligent Driving	4	4					52.00		
Stop Sign	10	3	6		1		13.50		37.50
Illegal Passing	3		3						15.00
Illegal Parking	4	1	2	1			5.00		13.50
Speeding	7	3	4				30.00		63.00
Defective Equipment	1		1						7.50
Failure to Yield R-O-W	2	1	1				10.00		5.00
No Operator's License	3	2		1			11.00	7.50	
No License Plate	1	1					3.50		
Drunken Driving	3	1		2		1	50.00		
Public Nuisance	2	1			1		17.50		
Carrying Concealed Weapons	2	1			1*		17.50		
Public Intoxication	4	2	2				35.00		25.00
Petit Larceny	1	1					37.50		
Drunk and Disorderly	1	1					15.00		
Possession of Stolen Property	1	1					27.50		
TOTALS	51	25	19	4	3	1	$385.00	$ 7.50	$ 166.50

* Not Guilty

125163

700-1100-3000 AREA SERVICES SECTION

NORTH RICHLAND COMMERCIAL FACILITIES UNIT

Fifteen commercial facilities continued operation during the month - 9 in Government-owned and 7 in privately-owned buildings.

A slight reduction was noted in retail sales and service volume as a result of reduction in North Richland population.

Thirty-one routine Work Order requests were issued during the month.

1205784

PROJECT & RELATED PERSONNEL

JULY 1952

	6-30-52		7-31-52	
GOVERNMENT EMPLOYEES				
Civilian Personnel-Atomic Energy Comm.	456		452	
Civilian Personnel G. A. O.	2		0	
Total		458		452
RICHLAND VILLAGE PERSONNEL				
Comm. Facilities (Inc. North Richland)	1403		1419	
Govn. Agencies, Churches, Clubs, Etc.	126		125	
Schools	428		107	
Organizations	11		11	
Total		1968		1662
CONSTRUCTION SUB CONTRACTORS				
Atkinson & Jones	3286		3017	
Newberry Moon	367		359	
Urban Smyth Warren Co.	970		889	
Vitro Corp. of America	73		51	
V. S. Jenkins	32		34	
J. G. Shotwell	7		5	
Elect. Smith Inc.	6		4	
L. H. Hoffman	3		5	
Charles T. Main	85		102	
The Bay Company	27		21	
Anderson Decorating Co.	4		5	
Pittsburg Des Moine Steel Co.	28		9	
Associated Engrs.	14		8	
Haughton Elevator Co.	8		7	
Bumstead-Woolford	31		35	
Dix Steel Bldg. Co.	5		5	
Arthur Forsyth Co. (Thermostatic Inst. Co.)	1		1	
Coated Electric Co.	3		3	
Minnis & Schilling	14		2	
Andersons Brothers Inc.	45		0	
Johnson Service Co.	0		1	
W. G. Clark Co.	0		9	
Total		5009		4572
General Electric Total		8914		8901
GRAND TOTAL		16,349		15,587

1205785

RECEIVED
AUG 14 1952
700 AREA
CLASSIFIED FILES

RECEIVED
AUG 15 1952
Hanford Operations Office
Richland, Wash.

1265766